

TRIAD



MAGNETICS CATALOG

Audio **Motion Control** Dental **Power Supplies**

Instrumentation Security **Test & Measurements** Lighting

Telecom **Industrial Controls** Gaming **Instrumentation**

TRIAD MAGNETICS. YOUR INNOVATIVE PARTNER.

If you could look inside the most advanced power conversion equipment, telecommunication systems, automation controls, audio devices and other industrial/commercial equipment -- you would see many of them have something in common. They depend on innovative technology and advanced manufacturing solutions from Triad Magnetics for power supplies, transformers, inductors and more.



Our factory in Qing Xi, China, is only 50 minutes from the border and customs facilities.

For over 70 years, Triad has been an electronics innovator and a leader. Lewis W. Howard founded the company during the 1940s in Venice, California. He was a graduate

of UC Berkeley, a cofounder of the Wescon Trade Show and was recognized as a life member of IEEE for his contributions to the industry.

In the 1950s, Triad first helped Leo Fender and surf guitarist Dick Dale turn up the volume on amplifiers, which led to the birth of Rock & Roll. Triad was next the dominant supplier to the TV industry in the 1960s. Transformers from Triad also supported the Apollo mission to the Moon, and then the first microwave ovens in the 1970s. The Triad brand played a leading role in the rise of industrial automation and controls, electronic ballasts for lighting systems, innovative medical devices in the 1980-90s, mobile communications and power supplies in the 2000s and the Internet of Things (IoT) in the 2010s until now.

Today, you'll find Triad has emerged again as an innovative leader after a number of years as a successful division of the Litton,



Triad's facility in the Philippines is equipped with the latest manufacturing and test equipment.

MagneTek and Parallax companies. Triad has returned to its original founding roots in Southern California with a 38,000 square foot modern engineering and service center, which is conveniently located in Perris -- It is a subsidiary of the Axis Corporation, an electronics industry leader that is listed on the Taiwan stock market. The company's Taiwanese headquarters facility includes a design center with sophisticated Research and Development capabilities. The company's advanced manufacturing facilities are located in Mainland China, the Philippines and the United States.

TRIAD MAGNETICS TIMELINE

2010s

Triad joins the Internet of Things (IoT) revolution

2000s

Triad opens new Southern California facilities and introduces power supplies

1990s

Triad supports advances in computer-based automation & control

1980s

Triad develops electronic ballasts for smart lighting systems

1970s

Triad brings home the bacon with microwave ovens

1960s

Triad joins the race to the moon

1950s

Triad turns it up with rock & roll amplifiers

1940s

Triad is founded by Lewis W. Howard

TRIAD MAGNETICS. COMMITTED TO EXCELLENCE.

:: Engineering

Triad offers a broad off-the-shelf product line of popular transformers, autotransformers, inductors and power supplies. If you have a power or filtering problem, our expert design engineers have probably already solved it for someone else with one of our thousands of standard part numbers. The company's advanced CAD and other computer systems also allow it to provide custom solutions, with rapid prototyping and testing too. Certification is available to UL and many other standards upon request.



High-speed automated welding equipment for transformer cores provides economical production.

:: Manufacturing

Triad's manufacturing facilities include state-of-the-art coil winding equipment, as well as ferrite gapping machines, lamination welding equipment and automated testing. The company's advanced cellular manufacturing system reduces material handling and process cycle times. Our Quality Management System relies on the latest statistical process control and continuous improvement techniques which ensure the highest product reliability and long-life.



Precision gapping machines ensure high performance and quality in all our magnetic components.

:: Quality Management

Triad Magnetics is an ISO 9001:2015 certified company, which means our business management systems meet the highest standards to ensure all products and services are efficient, safe and of the highest quality. Our business continuity management system also is ISO 22301 certified to protect our stakeholders in the event of natural disasters or other unforeseen circumstances. We have made plans and are prepared to recover quickly from these types of events and resume operations and product deliveries.

:: Service & Delivery

Our customer service and technical support staff is ready to assist you promptly because we know your time is important. With one of the industry's broadest networks of manufacturers' representatives and distributors, Triad is also your local supplier just about everywhere in the world. That means there is plenty of standard product on the shelves, and it's available for overnight shipping, which gives you the flexibility to make fast decisions and rapid changes.

:: Value

When you look at Triad's long record of innovation combined with its present capabilities, high performance products, commitment to excellence, quality, service and price, it all adds up to exceptional value. Triad is the power magnetics technology partner that you can trust to help your company achieve a competitive advantage in today's fast-moving electronics industry.



Advanced automated coil winding machines offer superior reliability.

TRIAD

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QUALITY COMMITMENT

Quality Policy

Triad Magnetics Quality Policy is the total satisfaction of our Customer's expectations. This is achieved by our covenant to the following:

- :: An unwavering compliance to the requirements of applicable product safety and performance standards (UL, TUV, etc), ISO 9001:2015, drawing specifications and applicable customer requirements.
- :: The on-going pursuit of continually improving the effectiveness of Triad's Quality Management System.
- :: The consistent assessment and fulfillment of our Customer's changing needs.

Business Continuity Policy

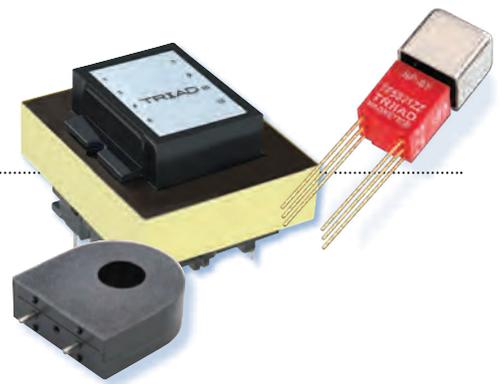
Triad Magnetics Business Continuity Policy is:

- :: To protect our employees from harm while they are present Triad.
- :: To protect our vital records from loss.
- :: To communicate our status to all of our relevant interested parties in the event of a business disruption.
- :: To prepare for, respond to, and recover from disruptive incidents in the most effective and efficient way possible to minimize the impact on our interested parties.
- :: To monitor, review, maintain and continuously improve our Business Continuity Management System.
- :: To maintain an unwavering commitment to the compliance of all applicable legal and regulatory requirements including compliance to the requirements of ISO-22301.



Table of Contents

Triad Magnetics Catalog



Part Number Index.....4 - 6

Parametrics Index.....7 - 14

Audio Transformers

300-100kHz. Mil-T-27E PC Mount.....15

20-20kHz. PC Mount.....16

300-3.5kHz. Data / Voice Coupling PC Mount.....17 - 19

Engineering Sample Kits.....20

High Frequency Magnetics

20k-200kHz. Toroidal Current Sense Transformers.....21

250kHz. SMD Current Sense Transformers.....21

20k-200kHz. Common Mode Inductors.....24 - 30

20k-200kHz. Toroidal Inductors.....31

20k-200kHz. Rod Core Inductors.....32

20k-200kHz. Gate Drive Transformers.....33

20k-200kHz. SMD Power Inductors.....34 - 37

Low Frequency Sense

50-400Hz. Current Sense.....22

50/60Hz. Toroidal Current Sense.....23

Low Frequency Inductors

50-400Hz. Smoothing Filter Chokes.....38

Power Transformers (115-230V, 50/60Hz)

VPP Series: 5-36V, 25-56VA Output, 4kV Iso, PC Mount.....41 - 42

VPS Series: 5-230V 25-175VA Output, 4kV Iso, Chassis Mount.....42 - 43

VPL Series: 5-36V 5-56VA Output, 3.5kV Iso, Chassis Mount.....44 - 45

VPT Series: 6-230V 25-2500VA Output, 4kV Iso, Chassis Mount.....46 - 47

FP Series: 5-230V, 25-48VA Output, 2kV Iso, PC Mount.....48 - 49

Split Pack Series: 5-120V, 1.1-36VA Output,
2.5kV Iso, PC Mount.....50 - 51

Split Pack Series (Class 2/3):5-56V, 1.1-36VA Output,
2.5kV Iso, PC Mount.....52 - 53

Quick Pack Series: 10-120V 2.4-100VA Output, 2.5kV Iso,
Chassis Mount.....54 - 55

F Series: 4-116V, 1.5-7.5VA, Output, PC Mount.....56 - 57

Power Transformers continued

F Series: 12-32V, 6-122VA, Mult. Secs., Chassis Mount, Leads.....63

F Series: 7.5-120V, 1.5-24VA Output, PC Mount.....58 - 59

F Series: 2.5-60V,1.8-360VA, Chassis Mount, Leads.....60 - 62

F Series: Universal, Mult. Secs., Chassis Mount, Leads.....64

N Series: Step Up/Step Down,Auto Xfrm, 50-2000VA,
Chassis Mount, Leads.....65

N Series: Iso-Xfmr, 15-1000VA, Chassis Mount, Leads.....66 - 67

Control Transformers

TCT Series: UL Class 2/3, Leaded and Quick Connects.....68 - 69

115/230 50/60Hz 6-48V Chassis Mount
12-192VA Control, Solder Lugs.....70

Medical Transformers

115/230V, 50/60Hz. 6-230V 25-10000VA Output
UL, CE, 4000V Isolation, Toroidal Chassis Mount.....72 - 73

Step down/Isolation boxes
Input: 120 or 240V, 50/60Hz. Output: 120VAC,
250 - 2400VA, UL listed.....74

Power Supplies

Switchmode, Wall Plug-ins, 100-240VAC, 50/60Hz
AC to DC, 4.5-24V.....76 - 78

Switchmode, Wall Plug-ins, 100-240VAC, 50/60Hz,
interchangeable input, AC to DC, 5.0 - 24V, 24W.....79

Switchmode, Permanently Connected, 100-240VAC, 50/60Hz
AC to DC, 12-24V, 18W.....80

Linear, Wall Plug-ins 120V 60Hz. UL Class 2 Listed
AC to AC, 12-24V.....81

Switchmode, Open frame, Chassis Mount, 90-264VAC,UL, TUV
AC to DC, 5.0-44V, 125W (forced air), 100W (convection)..82 - 84

Switchmode, Enclosed, Chassis Mount, 90-264VAC,UL, TUV
AC to DC, 5.0-24V, 40-150W.....85 - 89

Switchmode, Encapsulated, Chassis Mount, 100-304VAC, UL
Constant Current & Constant Voltage, AC to DC, 3.3-24V, 20-40W.....90

Switchmode, Encapsulated, Chassis Mount, 2-36VDC
Constant Current, DC to DC, 0.350-1A, 26W.....91

Part Number Index

Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.
AX02-30XXX	37	---	CME375-3	26	A	CMT-8120	30	F	ET2835-042	28	C	F-139P	56	A	F-254X	61	K	F-3153XP	58	D
AX1005-102K	37	---	CME375-4	26	A	CMT-8121	20	F	ET3542-051	28	D	F-141XP	56	B	F-255X	61	K	F-3181U	61	A
AX104R-XXX	36	---	CME375-5	26	A	CMT8100K	22	---	ET3542-052	28	D	F-142XP	56	B	F-256U	61	K	F-3185U	61	O
AX97-10XXX	35	---	CME375-6	26	A	CSE184L	22	A	ET3542-053	28	D	F-143XP	56	B	F-257U	61	K			
AX97-20XXX	35	---	CME375-7	26	A	CSE185L	22	A	ET3542-054	28	D	F-144XP	56	B	F-258U	61	K	F3-10	54	A
AX97-30XXX	35	---	CME375-8	26	A	CSE186L	22	A	ET3542-055	28	D	F-145XP	56	B	F-259U	61	K	F3-12	54	A
AX97-40XXX	35	---	CME375-9	26	A	CSE187L	22	A	ET3542-056	28	D	F-146XP	56	B	F-260U	61	L	F3-16	54	A
			CME375K	20	---	CSE187L-P	22	B	ET3542-057	28	D	F-147XP	56	B	F-261U	61	L	F3-20	54	A
									ET3542-058	28	D	F-148XP	56	B	F-268U	61	P	F3-24	54	A
ABU125-050	84	---	CME2425-1	26	B							F-149XP	56	B	F-270X	62	Q	F3-28	54	A
ABU125-120	84	---	CME2425-2	26	B	CSE5-100201	21	---				F-150P	56	A	F-271U	62	Q	F3-36	54	A
ABU125-150	84	---	CME2425-3	26	B	CSE5-100301	21	---	F-1X	60	A	F-151XP	56	C	F-272U	62	Q	F3-48	54	A
ABU125-240	84	---	CME2425-4	26	B	CSE5-100401	21	---	F-3X	60	A	F-152XP	56	C	F-273U	62	Q	F3-56	54	A
ABU125-270	84	---	CME2425-5	26	B	CSE5-100501	21	---	F-6X	60	A	F-153XP	56	C	F-275U	62	Q	F3-120	54	A
ABU125-360	84	---	CME2425-6	26	B	CSE5-100601	21	---	F-7X	60	B	F-154XP	56	C	F-279U	62	R	F4-10	54	B
ABU125-480	84	---	CME2425-7	26	B	CSE5-100701	21	---	F-8X	60	B	F-155XP	56	C	F-280U	62	R	F4-12	54	B
ABU125-540	84	---	CME2425-8	26	B	CSE5-101001	21	---	F-12X	60	B	F-156XP	56	C	F-282U	62	R	F4-16	54	B
			CME2425-9	26	B	CSE5-101251	21	---	F-13X	60	C	F-157XP	56	C	F-301X	60	A	F4-20	54	B
AEU65-033	87	---	CME2425K	20	---				F-14X	60	C	F-158XP	56	C	F-302U	65	D	F4-24	54	B
AEU65-050	87	---	CMT908-V1	26	C	CST-1005	23	A	F-16X	60	C	F-159XP	56	C	F-313X	60	C	F4-28	54	B
AEU65-120	87	---	CMT908-V2	26	C	CST-1010	23	A	F-18X	60	C	F-160P	56	A	F-314X	60	C	F4-36	54	B
AEU65-150	87	---	CMT908-V3	26	C	CST-1015	23	A	F-21A	60	C	F-161XP	56	B	F-316X	60	C	F4-48	54	B
AEU65-240	87	---	CMT908-V4	26	C	CST-1020	23	A	F-22A	60	C	F-162XP	56	B	F-318X	60	C	F4-56	54	B
AEU65-360	87	---	CMT908-H1	26	D	CST-1025	23	B	F-25X	61	I	F-163XP	56	C	F-325X	61	I	F4-120	54	B
AEU65-480	87	---	CMT908-H2	26	D	CST-1030	23	B	F-26X	61	I	F-164XP	56	C	F-326X	61	I	F5-10	54	C
			CMT908-H3	26	D				F-28U	60	D	F-165P	56	D	F-333P	58	A	F5-12	54	C
ALS50-3.3	82	---	CMT908-H4	26	D	CST206-1A	21	A	F-29U	60	H	F-166XP	56	F	F-340X	61	N	F5-16	54	C
ALS50-5	82	---	CMT908K	20	---	CST206-1T	21	A	F-31X	60	E	F-167P	56	D	F-341X	61	M	F5-20	54	C
ALS50-12	82	---	CMF16-103161	24	A	CST206-2A	21	A	F-40X	61	N	F-168XP	56	E	F-344X	61	I	F5-24	54	C
ALS50-24	82	---	CMF16-104450	24	A	CST206-2T	21	A	F-41X	61	M	F-169XP	56	F	F-345X	61	L	F5-28	54	C
			CMF16-153131	24	A	CST206-3A	21	A	F-43X	60	C	F-180X	60	E	F-348XP	58	B	F5-36	54	C
ALS75-3.3	83	---	CMF16-273900	24	A	CST206-3T	21	A	F-44X	61	I	F-182U	61	I	F-349XP	58	C	F5-48	54	C
ALS75-5	83	---	CMF16-393800	24	A	CST206K	20	---	F-45X	61	L	F-183U	61	I	F-350XP	58	C	F5-56	54	C
ALS75-12	83	---	CMF16-473700	24	A	CST306-1A	21	B	F-46X	61	L	F-184X	61	O	F-354X	61	P	F5-120	54	C
ALS75-24	83	---	CMF16-683600	24	A	CST306-1T	21	B	F-54X	61	P	F-187U	61	O	F-355X	61	N	F6-10	54	D
			CMF16K	20	---	CST306-2A	21	B	F-55X	61	N	F-188X	61	P	F-357X	61	M	F6-12	54	D
AWSP40-5	85	---	CME23H-103231	24	B	CST306-2T	21	B	F-56X	61	M	F-189X	61	P	F-358XP	58	C	F6-16	54	D
AWSP40-12	85	---	CME23H-104700	24	B	CST306-3A	21	B	F-57X	61	M	F-191U	61	P	F-359XP	58	E	F6-20	54	D
AWSP40-24	85	---	CME23H-153191	24	B	CST306-3T	21	B	F-59X	62	Q	F-192X	61	L	F-360U	64	A	F6-24	54	D
			CMF23H-273141	24	B	CST306K	20	---	F-69X	60	C	F-193U	61	L	F-361U	64	B	F6-28	54	D
AWSP60-5	86	---	CME23H-393121	24	B	ET2424-011	29	F	F-70X	61	I	F-195X	63	C	F-362XP	58	E	F6-36	54	D
AWSP60-12	86	---	CME23H-473111	24	B	ET2424-012	29	F	F-90X	64	D	F-196U	63	D	F-363XP	58	C	F6-48	54	D
AWSP60-24	86	---	CME23H-683900	24	B	ET2424-013	29	F	F-91X	64	E	F-197U	63	E	F-365XP	58	E	F6-56	54	D
			CMF23HR	20	---	ET2424-014	29	F	F-92A	64	G	F-198U	63	F	F-366XP	58	E	F6-120	54	D
AWSP100-5	88	---	CME23V-103231	24	C	ET2424-015	29	F	F-93X	64	F	F-211Z	70	A	F-367P	58	A	F7-10	54	E
AWSP100-12	88	---	CME23V-104700	24	C	ET2424-016	29	F	F-94X	64	C	F-212Z	70	B	F-369XP	58	E	F7-12	54	E
AWSP100-24	88	---	CME23V-153191	24	C	ET2424-017	29	F	F-96U	60	F	F-213Z	70	C	F-370P	58	F	F7-16	54	E
			CMF23V-273141	24	C	ET2432-018	28	B	F-97U	60	F	F-214U	70	E	F-371P	58	F	F7-24	54	E
AWSP150-5	89	---	CME23V-393121	24	C	ET2432-019	28	B	F-105Z	70	A	F-215U	70	G	F-372P	58	F	F7-28	54	E
AWSP150-12	89	---	CME23V-473111	24	C	ET2432-020	28	B	F-106Z	70	B	F-216X	60	G	F-373P	58	F	F7-36	54	E
AWSP150-24	89	---	CME23V-683900	24	C	ET2432-021	28	B	F-107Z	70	C	F-217X	60	G	F-374P	58	F	F7-48	54	E
			CMF23VK	20	---	ET2432-022	28	B	F-108U	70	E	F-218X	60	G	F-375P	58	F	F7-56	54	E
C-1X	38	A	CMT-8101	30	A	ET2432-023	28	B	F-109U	70	G	F-219X	60	G	F-376P	58	F	F7-120	54	E
C-3X	38	A	CMT-8102	30	A	ET2432-024	28	B	F-112X	61	J	F-220U	60	G	F-377P	58	F	F8-10	55	F
C-7X	38	B	CMT-8103	30	A	ET2825-025	29	G	F-113X	60	G	F-228X	61	P	F-400U	60	F	F8-24	55	F
C-8X	38	B	CMT-8104	30	B	ET2825-026	29	G	F-114X	60	G	F-229X	61	L	F-401U	61	L	F8-28	55	F
C-14X	38	C	CMT-8105	30	B	ET2825-027	29	G	F-115X	61	L	F-235Z	63	A	F-1000U	61	L	F8-36	55	F
C-17X	38	E	CMT-8106	30	B	ET2825-028	29	G	F-116G	61	L	F-236Z	63	A	F-3112X	61	J	F8-48	55	F
C-24X	38	C	CMT-8107	30	B	ET2825-029	29	G	F-117X	61	L	F-237Z	63	A	F-3115X	61	L	F8-56	55	F
C-36X	38	D	CMT-8108	30	B	ET2825-030	29	G	F-118X	61	L	F-241U	63	B	F-3116X	61	L	F8-120	55	F
C-40X	38	F	CMT-8109	30	C	ET2825-031	29	G	F-119X	61	N	F-243U	63	B	F-3117X	61	L			
C-47U	38	F	CMT-8110	30	C	ET2825-032	29	G	F-122X	61	O	F-244U	63	B	F-3118X	61	L	F10-110	50	A
C-49U	38	G	CMT-8111	30	C	ET2825-033	29	G	F-124X	61	O	F-250X	61	J	F-3132P	58	A	F10-250	50	B
C-56U	38	F	CMT-8112	30	C	ET2835-034	28	C	F-131P	56	A	F-251X	61	J	F-3142XP	58	C	F10-600	50	C
C-59U	38	G	CMT-8113	30	D	ET2835-035	28	C	F-132P	56	A	F-252U	61	J	F-3143XP	58	C	F10-1200	50	D
C-60U	38	G	CMT-8114	30	D	ET2835-036	28	C	F-133P	56	A	F-253U	61	J	F-3152XP	58	D	F10-2000	50	E
C-80U	38	G	CMT-8115	30	D	ET2835-037	28	C	F-134P	56	A									
C-85X	38	A	CMT-8116	30	E	ET2835-038	28	C	F-135P	56	A									
			CMT-8117	30	E	ET2835-039	28	C	F-136P	56	A									
CME375-1	26	A	CMT-8118	30	E	ET2835-040	28	C	F-137P	56	A									
CME375-2	26	A	CMT-8119	30	F	ET2835-041	28	C	F-138P	56	A									

:: Part Number Index continued

Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.
F10-3600	51	F	F16-2250-C2	53	F	FD7-28	54	E	FP20-2400	48	E	FS36-065	50	B	FS56-045-C2	52	B	SP-20	15	D
F12-090	50	A	F20-055-C2	52	A	FD7-36	54	E	FP24-100	48	A	FS36-170	50	C	FS56-110-C2	52	C	SP-21	15	D
F12-200	50	B	F20-120-C2	52	B	FD7-48	54	E	FP24-250	48	B	FS36-350	50	D	FS56-220-C2	52	D	SP-22	15	D
F12-500	50	C	F20-300-C2	52	C	FD7-56	54	E	FP24-500	48	C	FS36-550	50	E	FS56-350-C2	52	E	SP-29	15	D
F12-1000	50	D	F20-600-C2	52	D	FD7-120	54	E	FP24-1000	48	D	FS36-1000	51	F	FS56-650-C2	53	F	SP-32	15	D
F12-1600	50	E	F20-1000-C2	52	E	FD8-10	55	F	FP24-2000	48	E	FS48-023	50	A				SP-33	15	D
F12-2850	51	F	F20-1800-C2	53	F	FD8-12	55	F	FP30-85	48	A	FS48-050	50	B	GDE25-1	33	A	SP-42	15	D
F16-070	50	A	F24-045-C2	52	A	FD8-16	55	F	FP30-200	48	B	FS48-125	50	C	GDE25-2	33	A	SP-48	15	D
F16-150	50	B	F24-100-C2	52	B	FD8-20	55	F	FP30-400	48	C	FS48-250	50	D	GDE25-3	33	A	SP-49	15	D
F16-400	50	C	F24-250-C2	52	C	FD8-24	55	F	FP30-800	48	D	FS48-400	50	E	GDE25-4	33	A	SP-50	15	D
F16-800	50	D	F24-500-C2	52	D	FD8-28	55	F	FP30-1600	48	E	FS48-750	51	F	GDE25-5	33	A	SP-51	15	D
F16-1250	50	E	F24-800-C2	52	E	FD8-36	55	F	FP34-75	48	A	FS56-020	50	A	GDE25-6	33	A	SP-52	15	D
F16-2250	51	F	F24-1500-C2	53	F	FD8-48	55	F	FP34-170	48	B	FS56-045	50	B	GDE25K	20	---	SP-66	15	D
F20-055	50	A	F28-040-C2	52	A	FD8-56	55	F	FP34-340	48	C	FS56-110	50	C	JSU120-1500	80	---	SP-67	15	D
F20-120	50	B	F28-085-C2	52	B	FD8-120	55	F	FP34-700	48	D	FS56-220	50	D	JSU240-0750	80	---	SP-68	15	D
F20-300	50	C	F28-200-C2	52	C				FP34-1400	48	E	FS56-350	50	E				SP-69	15	D
F20-600	50	D	F28-420-C2	52	D	FIRCH-1	32	A	FP40-60	48	A	FS56-650	51	F	MD-250-E	74	---	SP-70	15	D
F20-1000	50	E	F28-700-C2	52	E	FIRCH-2	32	A	FP40-150	48	B	FS120-01	50	A	MD-250-U	74	---	SP-128	15	E
F20-1800	51	F	F28-1300-C2	53	F	FIRCH-3	32	A	FP40-300	48	C	FS120-02	50	B	MD-500-E	74	---	SP-310	15	E
F24-045	50	A	F36-030-C2	52	A	FIRCH-4	32	A	FP40-600	48	D	FS120-05	50	C	MD-500-U	74	---			
F24-100	50	B	F36-065-C2	52	B	FIRCH-5	32	A	FP40-1200	48	E	FS120-100	50	D	MD-1000-E	74	---	TCT3-03E07AE	68	A
F24-250	50	C	F36-170-C2	52	C	FIRCH-6	32	A	FP56-45	48	A	FS120-160	50	E	MD-1000-U	74	---	TCT3-04E07AE	68	A
F24-500	50	D	F36-350-C2	52	D	FIRCHK	20	---	FP56-100	48	B	FS120-300	51	F	MD-2000-U	74	---	TCT3-11E07AE	68	A
F24-800	50	E	F36-550-C2	52	E	FIT44-1	31	A	FP56-200	48	C	MD-2400-E	74	---	MD-2400-E	74	---	TCT3-12E07AE	68	A
F24-1500	51	F	F36-1000-C2	53	F	FIT44-2	31	A	FP56-425	48	D	FS10-110-C2	52	A						
F28-040	50	A	F48-023-C2	52	A	FIT44-3	31	A	FP56-850	48	E	FS10-250-C2	52	B	N-1XC	65	A	TCT40-01E07AB	68	B
F28-085	50	B	F48-050-C2	52	B	FIT44-4	31	A	FP88-28	48	A	FS10-600-C2	52	C	N-2X	65	C	TCT40-01E07AE	68	B
F28-200	50	C	F48-125-C2	52	C	FIT50-1	31	B	FP88-65	48	B	FS10-1200-C2	52	D	N-3MG	65	B	TCT40-01E07K	68	B
F28-420	50	D	F48-250-C2	52	D	FIT50-2	31	B	FP88-130	48	C	FS10-2000-C2	52	E	N-4MG	65	D	TCT40-02E07AB	68	B
F28-700	50	E	F48-400-C2	52	E	FIT50-3	31	B	FP120-20	48	A	FS10-3600-C2	53	F	N-5MG	65	G	TCT40-02E07K	68	B
F28-1300	51	F	F48-750-C2	53	F	FIT50-4	31	B	FP120-50	48	B	FS12-090-C2	52	A	N-6U	65	E	TCT40-02E07K	68	B
F36-030	50	A	F56-020-C2	52	A	FIT50-5	31	B	FP120-100	48	C	FS12-200-C2	52	B	N-7MG	65	I	TCT40-03E07AB	68	C
F36-065	50	B	F56-045-C2	52	B	FIT50-6	31	B	FP230-10	48	A	FS12-500-C2	52	C	N-9MG	65	K	TCT40-03E07AE	68	C
F36-170	50	C	F56-110-C2	52	C	FIT50-7	31	B	FP230-25	48	B	FS12-1000-C2	52	D	N-11MG	65	L	TCT40-03E07K	68	C
F36-350	50	D	F56-220-C2	52	D	FIT68-1	31	C	FP230-50	48	C	FS12-1600-C2	52	E	N-48X	66	A	TCT40-04E07AB	68	C
F36-550	50	E	F56-350-C2	52	E	FIT68-2	31	C				FS12-2850-C2	53	F	N-51X	66	B	TCT40-04E07AE	68	C
F36-1000	51	F	F56-650-C2	53	F	FIT68-3	31	C	FS10-110	50	A	FS16-070-C2	52	A	N-53MG	66	D	TCT40-04E07K	68	C
F48-023	50	A				FIT68-4	31	C	FS10-250	50	B	FS16-150-C2	52	B	N-54MG	66	F	TCT40-05E07AB	68	B
F48-050	50	B	FD4-10	54	B	FIT68-5	31	C	FS10-600	50	C	FS16-400-C2	52	C	N-55M	66	G	TCT40-05E07AE	68	B
F48-125	50	C	FD4-12	54	B	FIT68-6	31	C	FS10-1200	50	D	FS16-800-C2	52	D	N-55MG	66	G	TCT40-05E07K	68	B
F48-250	50	D	FD4-16	54	B	FIT68-7	31	C	FS10-2000	50	E	FS16-1250-C2	52	E	N-57MG	67	H	TCT40-06E07AB	68	B
F48-400	50	E	FD4-20	54	B	FIT80-1	31	D	FS10-3600	51	F	FS16-2250-C2	53	F	N-59MG	67	I	TCT40-06E07AE	68	B
F48-750	51	F	FD4-24	54	B	FIT80-2	31	D	FS12-090	50	A	FS20-055-C2	52	A	N-66A	66	G	TCT40-06E07K	68	B
F56-020	50	A	FD4-28	54	B	FIT80-3	31	D	FS12-200	50	B	FS20-120-C2	52	B	N-67A	66	F	TCT40-07E07AB	68	C
F56-045	50	B	FD4-36	54	B	FIT80-4	31	D	FS12-500	50	C	FS20-300-C2	52	C	N-68X	66	C	TCT40-07E07AE	68	C
F56-110	50	C	FD4-48	54	B	FIT80-5	31	D	FS12-1000	50	D	FS20-600-C2	52	D	N-73A	66	F	TCT40-07E07K	68	C
F56-220	50	D	FD4-56	54	B	FIT80-6	31	D	FS12-1600	50	E	FS20-1000-C2	52	E	N-76U	66	E	TCT40-08E07AB	68	C
F56-350	50	E	FD4-120	54	B	FIT106-1	31	E	FS12-2850	51	F	FS20-1800-C2	53	F	N-77U	66	E	TCT40-08E07AE	68	C
F56-650	51	F	FD5-10	54	C	FIT106-2	31	E	FS16-070	50	A	FS24-045-C2	52	A	N-90MD	67	J	TCT40-08E07K	68	C
F120-010	50	A	FD5-12	54	C	FIT106-3	31	E	FS16-150	50	B	FS24-100-C2	52	B	N-92MD	67	K	TCT40-09E07AB	68	B
F120-020	50	B	FD5-16	54	C	FIT106-4	31	E	FS16-400	50	C	FS24-250-C2	52	C	N-150MG	65	D	TCT40-09E07AE	68	B
F120-050	50	C	FD5-20	54	C	FIT106-5	31	E	FS16-800	50	D	FS24-500-C2	52	D	N-250MG	65	F	TCT40-09E07K	68	B
F120-100	50	D	FD5-24	54	C	FIT106-6	31	E	FS16-1250	50	E	FS24-800-C2	52	E	N-255MG	66	G	TCT40-10E07AB	68	C
F120-160	50	E	FD5-28	54	C	FITK	20	---	FS16-2250	51	F	FS24-1500-C2	53	F	N-257MG	67	H	TCT40-10E07AE	68	C
F120-300	51	F	FD5-36	54	C	FP10-250	48	A	FS20-055	50	A	FS28-040-C2	52	A	N-259MG	67	I	TCT40-10E07K	68	C
			FD5-48	54	C	FP10-600	48	B	FS20-120	50	B	FS28-085-C2	52	B	N-500MG	65	H			
F10-110-C2	52	A	FD5-56	54	C	FP10-1200	48	C	FS20-300	50	C	FS28-200-C2	52	C	N-1000MG	65	J	TCT50-01E07AB	68	D
F10-250-C2	52	B	FD5-120	54	C	FP10-2400	48	D	FS20-600	50	D	FS28-420-C2	52	D				TCT50-01E07AE	68	D
F10-600-C2	52	C	FD6-10	54	D	FP10-4800	48	E	FS20-1000	50	E	FS28-700-C2	52	E	RC-1	32	B	TCT50-01E07K	68	D
F10-1200-C2	52	D	FD6-12	54	D	FP12-200	48	A	FS20-1800	51	F	FS28-1300-C2	53	F	RC-2	32	B	TCT50-02E07AB	68	D
F10-2000-C2	52	E	FD6-16	54	D	FP12-475	48	B	FS24-045	50	A	FS24-030-C2	52	A	RC-3	32	B	TCT50-02E07AE	68	D
F10-3600-C2	53	F	FD6-20	54	D	FP12-950	48	C	FS24-100	50	B	FS36-065-C2	52	B	RC-4	32	B	TCT50-02E07K	68	D
F12-090-C2	52	A	FD6-24	54	D	FP12-1900	48	D	FS24-250	50	C	FS36-170-C2	52	C	RC-5	32	B	TCT50-03E07AB	69	E
F12-200-C2	52	B	FD6-28	54	D	FP12-3800	48	E	FS24-500	50	D	FS36-350-C2	52	D	RC-6	32	B	TCT50-03E07AE	69	E
F12-500-C2	52	C	FD6-36	54	D	FP16-150	48	A	FS24-800	50	E	FS36-550-C2	52	E	RC-7	32	B	TCT50-03E07K	69	E
F12-1000-C2	52	D	FD6-48	54	D	FP16-375	48	B	FS24-1500	51	F	FS36-1000-C2	53	F	RC-8	32	B	TCT50-04E07AB	69	E
F12-1600-C2	52	E	FD6-56	54	D	FP16-750	48	C	FS28-040	50	A	FS48-023-C2	52	A	RC-9	32	B	TCT50-04E07AE	69	E
F12-2850-C2	53	F	FD6-120	54	D	FP16-1500	48	D	FS28-085	50	B	FS48-050-C2	52	B	RC-10	32	B	TCT50-04E07K	69	E
F16-070-C2	52	A	FD7-10	54	E	FP16-3000	48	E	FS28-200	50	C	FS48-125-C2	52	C	RC-11	32	B	TCT50-05E07AB	68	D
F16-150-C2	52	B	FD7-12	54	E	FP20-125	48	A	FS28-420	50	D	FS48-250-C2	52	D	RCK	20	---	TCT50-05E07AE	68	D
F16-400-C2	52	C	FD7-16	54	E	FP20-300	48	B	FS28-700	50	E	FS48-400-C2	52	E	SP-4	15	A	TCT50-05E07K	68	D
F16-800-C2	5																			

:: Part Number Index continued

Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.	Item No.	Page No.	Sect.
TCT50-06E07K	68	D	VPL16-300	44	A	VPM12-8330	72	C	VPS24-7300	42	E	WSU090-2000-R	76	E	WSU180-0450-R	77	I
TCT50-07E07AB	69	E	VPL16-600	44	B	VPM12-13300	72	D	VPS28-900	42	F	WSU090-2000-R13	77	O	WSU180-0450-R13	77	S
TCT50-07E07AE	69	E	VPL16-1600	44	C	VPM12-20800	72	E	VPS28-1500	42	F	WSU045-1500	76	A	WSU090-2500	76	E
TCT50-07E07K	69	E	VPL16-3100	44	D	VPM18-1390	72	A	VPS28-2800	42	F	WSU045-1500-13	77	K	WSU090-2500-13	77	O
TCT50-08E07AB	69	E	VPL20-250	44	A	VPM18-2780	72	B	VPS28-4600	42	F	WSU045-1500-R	76	A	WSU090-2500-R	76	E
TCT50-08E07AE	69	E	VPL20-500	44	B	VPM18-5560	72	C	VPS28-6250	42	F	WSU045-1500-R13	77	K	WSU090-2500-R13	77	O
TCT50-08E07K	69	E	VPL20-1200	44	C	VPM18-8800	72	D	VPS36-700	42	G	WSU045-2000	76	A	WSU090-3500	76	E
TCT50-09E07AB	68	D	VPL20-2500	44	D	VPM18-13800	72	E	VPS36-1200	42	G	WSU045-2000-13	77	K	WSU090-3500-13	77	O
TCT50-09E07AE	68	D	VPL24-210	44	A	VPM24-1040	72	A	VPS36-2200	42	G	WSU045-2000-R	76	A	WSU090-3500-R	76	E
TCT50-09E07K	68	D	VPL24-400	44	B	VPM24-2080	72	B	VPS36-3600	42	G	WSU045-2000-R13	77	K	WSU090-3500-R13	77	O
TCT50-10E07AB	69	E	VPL24-1100	44	C	VPM24-4170	72	C	VPS36-4800	42	G	WSU045-3000	76	A	WSU120-0700	76	F
TCT50-10E07AE	69	E	VPL24-2000	44	D	VPM24-6670	72	D	VPS56-2300	42	H	WSU045-3000-13	77	K	WSU120-0700-13	77	P
TCT50-10E07K	69	E	VPL25-1000	44	C	VPM24-10420	72	E	VPS230-110	42	I	WSU045-3000-R	76	A	WSU120-0700-R	76	F
			VPL25-1900	44	D	VPM30-830	72	A	VPS230-190	42	I	WSU045-3000-R13	77	K	WSU120-0700-R13	77	P
TLD1020-12	90	---	VPL26-190	44	A	VPM30-1670	72	B	VPS230-350	42	I	WSU050-1500	76	B	WSU120-1000	76	F
TLD1020-24	90	---	VPL26-930	44	C	VPM30-3330	72	C	VPS230-570	42	I	WSU050-1500-13	77	L	WSU120-1000-13	77	P
TLD1040-12	90	---	VPL26-1800	44	D	VPM30-5330	72	D	VPS230-760	42	I	WSU050-1500-R	76	B	WSU120-1000-R	76	F
TLD1040-24	90	---	VPL28-180	44	A	VPM36-690	72	A				WSU050-1500-R13	77	L	WSU120-1000-R13	77	P
			VPL28-350	44	B	VPM36-1390	72	B	VPT12-2080	46	A	WSU050-2000	76	B	WSU120-1500	76	F
TLD1020-24-CI050	90	---	VPL28-900	44	C	VPM36-2780	72	C	VPT12-4170	46	B	WSU050-2000-13	77	L	WSU120-1500-13	77	P
TLD1020-24-CI070	90	---	VPL28-1700	44	D	VPM36-4440	72	D	VPT12-8330	46	C	WSU050-2000-R	76	B	WSU120-1500-R	76	F
TLD1020-36-CI050	90	---	VPL28-2000	44	E	VPM36-6940	72	E	VPT12-13300	46	D	WSU050-2000-R13	77	L	WSU120-1500-R13	77	P
TLD1040-24-CI050	90	---	VPL36-140	44	A	VPM48-520	72	A	VPT12-20800	46	E	WSU050-3000	76	B	WSU120-2000	76	F
TLD1040-36-CI070	90	---	VPL36-300	44	B	VPM48-1040	72	B	VPT18-1390	46	A	WSU050-3000-13	77	L	WSU120-2000-13	77	P
TLD1040-36-CI050	90	---	VPL36-700	44	C	VPM48-2080	72	C	VPT18-2780	46	B	WSU050-3000-R	76	B	WSU120-2000-R	76	F
			VPL36-1400	44	D	VPM48-3300	72	D	VPT18-5560	46	C	WSU050-3000-R13	77	L	WSU120-2000-R13	77	P
TLM4036DC-050	91	---				VPM48-5200	72	E	VPT18-8800	46	D	WSU050-4000	76	B	WSU120-3000	76	F
TLM4036DC-070	91	---	VPP10-250	40	A	VPM48-10400	72	F	VPT18-13800	46	E	WSU050-4000-13	77	L	WSU120-3000-13	77	P
TLM4036DC-1000	91	---	VPP10-500	40	A	VPM48-20830	72	G	VPT24-1040	46	A	WSU050-4000-R	76	B	WSU120-3000-R	76	F
			VPP10-1000	40	A	VPM100-5000	72	F	VPT24-2080	46	B	WSU050-4000-R13	77	L	WSU120-3000-R13	77	P
TY-141P	16	A	VPP10-2000	40	A	VPM100-10000	72	G	VPT24-4170	46	C	WSU060-1250	76	C	WSU135-0620	76	G
TY-142P	16	A	VPP10-3000	40	A	VPM100-25000	72	H	VPT24-6670	46	D	WSU060-1250-13	77	M	WSU135-0620-13	77	Q
TY-144P	16	A	VPP10-5600	40	A	VPM240-100	72	A	VPT24-10420	46	E	WSU060-1250-R	76	C	WSU135-0620-R	76	G
TY-145P	16	A	VPP12-2000	40	B	VPM240-210	72	B	VPT30-830	46	A	WSU060-1250-R13	77	M	WSU135-0620-R13	77	Q
TY-146P	16	A	VPP12-400	40	B	VPM240-420	72	C	VPT30-1670	46	B	WSU060-2000	76	C	WSU135-0880	76	G
TY-250P	16	A	VPP12-800	40	B	VPM240-670	72	D	VPT30-3330	46	C	WSU060-2000-13	77	M	WSU135-0880-13	77	Q
TY-300P	17	L	VPP12-1600	40	B	VPM240-1040	72	E	VPT30-5330	46	D	WSU060-2000-R	76	C	WSU135-0880-R	76	G
TY-301P	17	F	VPP12-2400	40	B	VPM240-2080	72	F	VPT36-690	46	A	WSU060-2000-R13	77	M	WSU135-0880-R13	77	Q
TY-302P	17	M	VPP12-4400	40	B	VPM240-4170	72	G	VPT36-1390	46	B	WSU060-3000	76	C	WSU135-1330	76	G
TY-303P	17	G	VPP16-150	40	C	VPM240-10400	72	H	VPT36-2780	46	C	WSU060-3000-13	77	M	WSU135-1330-13	77	Q
TY-304P	17	E	VPP16-310	40	C	VPM240-12500	72	I	VPT36-4440	46	D	WSU060-3000-R	76	C	WSU135-1330-R	76	G
TY-305P	17	A	VPP16-620	40	C	VPM240-15600	72	J	VPT36-6940	46	E	WSU060-3000-R13	77	M	WSU135-1330-R13	77	Q
TY-306P	17	B	VPP16-1250	40	C	VPM240-20800	72	K	VPT48-520	46	A	WSU060-4000	76	C	WSU135-1770	76	G
TY-307P	17	C	VPP16-1900	40	C	VPM240-28100	72	L	VPT48-1040	46	B	WSU060-4000-13	77	M	WSU135-1770-13	77	Q
TY-311P	17	D	VPP16-3500	40	C	VPM240-31200	72	M	VPT48-2080	46	C	WSU060-4000-R	76	C	WSU135-1770-R	76	G
TY-400P	17	H	VPP20-120	40	D	VPM240-36400	72	N	VPT48-3300	46	D	WSU060-4000-R13	77	M	WSU135-1770-R13	77	Q
TY-401P	17	I	VPP20-250	40	D	VPM240-41600	72	O	VPT48-5200	46	E	WSU075-1000	76	D	WSU075-3200-R13	79	A
TY-402P	17	J	VPP20-500	40	D				VPT48-10400	46	F	WSU075-1000-13	77	N	WSU135-2660-13	77	Q
TY-403P	17	K	VPP20-1000	40	D	VPS10-2500	42	A	VPT48-20830	46	G	WSU075-1000-R	76	D	WSU135-2660-R	76	G
			VPP20-1500	40	D	VPS10-4300	42	A	VPT100-5000	46	F	WSU075-1000-R13	77	N	WSU135-2660-R13	77	Q
UT2020-001	29	F	VPP20-2800	40	D	VPS10-8000	42	A	VPT100-10000	46	G	WSU075-1500	76	D	WSU150-0560	77	H
UT2020-002	29	F	VPP24-100	40	E	VPS10-13000	42	A	VPT100-25000	46	H	WSU075-1500-13	77	N	WSU150-0560-13	77	R
UT2020-003	29	F	VPP24-210	40	E	VPS10-17500	42	A	VPT230-110	46	A	WSU075-1500-R	76	D	WSU150-0560-R	77	H
UT2020-004	29	F	VPP24-420	40	E	VPS12-2000	42	B	VPT230-220	46	B	WSU075-1500-R13	77	N	WSU150-0560-R13	77	R
UT2020-005	29	F	VPP24-830	40	E	VPS12-3400	42	B	VPT230-430	46	C	WSU075-2400	76	D	WSU150-0800	77	H
UT2024-006	28	A	VPP24-1250	40	E	VPS12-6300	42	B	VPT230-700	46	D	WSU075-2400-13	77	N	WSU150-0800-13	77	R
UT2024-007	28	A	VPP24-2330	40	E	VPS12-10300	42	B	VPT230-1090	46	E	WSU075-2400-R	76	D	WSU150-0800-R	77	H
UT2024-008	28	A	VPP28-090	40	F	VPS12-14000	42	B	VPT230-2170	46	F	WSU075-2400-R13	77	N	WSU150-0800-R13	77	R
UT2024-009	28	A	VPP28-180	40	F	VPS16-1600	42	C	VPT230-4350	46	G	WSU075-3200	76	D	WSU150-1200	77	H
UT2024-010	28	A	VPP28-360	40	F	VPS16-2700	42	C	VPT230-10870	46	H	WSU075-3200-13	77	N	WSU150-1200-13	77	R
			VPP28-720	40	F	VPS16-5000	42	C				WSU075-3200-R	76	D	WSU150-1200-R	77	H
VPL2-4000	44	B	VPP28-1060	40	F	VPS16-8100	42	C	WALU060-2000	81	---	WSU075-3200-R13	77	N	WSU150-1200-R13	77	R
VPL2-10000	44	C	VPP28-2000	40	F	VPS16-11000	42	C	WALU060-2000SG	81	---	WSU090-0800	76	E	WSU150-1600	77	H
VPL10-500	44	A	VPP36-070	40	G	VPS20-1250	42	D	WALU090-1200	81	---	WSU090-0800-13	77	O	WSU150-1600-13	77	R
VPL10-1000	44	B	VPP36-140	40	G	VPS20-2200	42	D	WALU090-1200SG	81	---	WSU090-0800-R	76	E	WSU150-1600-R	77	H
VPL10-2500	44	C	VPP36-280	40	G	VPS20-4000	42	D	WALU120-1000	81	---	WSU090-0800-R13	77	O	WSU150-1600-R13	77	R
VPL10-5000	44	D	VPP36-560	40	G	VPS20-6500	42	D	WALU120-1000SG	81	---	WSU090-1300	76	E	WSU150-2400	77	H
VPL12-400	44	A	VPP36-820	40	G	VPS20-8800	42	D	WALU160-750	81	---	WSU090-1300-13	77	O	WSU150-2400-13	77	R
VPL12-800	44	B	VPP36-1560	40	G	VPS24-1000	42	E	WALU160-750SG	81	---	WSU090-1300-R	76	E	WSU150-2400-R	77	H
VPL12-2000	44	C				VPS24-1800	42	E	WALU200-600	81	---	WSU090-1300-R13	77	O	WSU150-2400-R13	77	R
VPL12-4000	44	D	VPM12-2080	72	A	VPS24-3300	42	E	WALU200-600SG	81	---	WSU090-2000	76	E	WSU180-0450	77	I
VPL14-360	44	A	VPM12-4170	72	B	VPS24-5400	42	E	WALU240-500	81	---	WSU090-2000-13	77	O	WSU180-0450-13	77	S

Parametrics Index

:: Sorted by Secondary Voltage

Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.
VPL2-10000	1.25	20.0	115/230	44	VPM12-20800	6.0	41.60	100/120/220/240	72	VPS12-6300	6.3	12.6	115/230	42
VPL2-4000	1.25	8.0	115/230	44	VPT12-13300	6.0	26.6	115/230	46	F-360U	6.5	3.0	115/230	64
F-1X	2.5CT	3.0	115/230	60	VPT12-2080	6.0	4.16	115/230	46	VPL14-360	7.0	0.710	115/230	44
F-301X	2.5CT	3.0	115/230	60	VPT12-20800	6.0	41.60	115/230	46	F-132P	7.5	0.200	115	56
F-3X	2.5CT	10.0	115/230	60	VPT12-4170	6.0	8.34	115/230	46	F-142XP	7.5	0.600	115	56
F-6X#	2.5CT	6.0	115/230	60	VPT12-8330	6.0	16.66	115/230	46	F-152XP	7.5	1.0	115	56
VPL2-10000	2.5 CT	10.0	115/230	44	F12-090	6.3	0.18	115	50	F-28U	7.5CT	25.0	115	60
VPL2-4000	2.5CT	4.0	115/230	44	F12-090-C2	6.3	0.18	115	52	F-3132P	7.5	0.2	115/230	58
F-131P	4.0	0.376	115	56	F12-1000	6.3	2.0	115	50	F-3142XP	7.5	0.6	115/230	58
F-141XP	4.0	1.12	115	56	F12-1000-C2	6.3	2.0	115	52	F-3152XP	7.5	1.0	115/230	58
F-151XP	4.0	1.88	115	56	F12-1600	6.3	3.2	115	50	F12-1600-C2	6.3	3.2	115	52
F10-110	5.0	0.22	115	50	F12-1600-C2	6.3	3.2	115	52	F12-200	6.3	0.4	115	50
F10-110-C2	5.0	0.22	115	52	F12-200-C2	6.3	0.4	115	52	F12-200-C2	6.3	0.4	115	52
F10-1200	5.0	2.4	115	50	F12-2850	6.3	5.7	115	51	F12-2850-C2	6.3	5.7	115	53
F10-1200-C2	5.0	2.4	115	52	F12-2850-C2	6.3	5.7	115	53	F12-500	6.3	1.0	115	50
F10-2000	5.0	4.0	115	50	F12-500-C2	6.3	1.0	115	52	F12-500-C2	6.3	1.0	115	52
F10-2000-C2	5.0	4.0	115	52	F-139P	6.3	0.24	115	56	F-139P	6.3	0.24	115	56
F10-250	5.0	0.5	115	50	F-13X	6.3	0.6	115	60	F-14X	6.3CT	1.2	115	60
F10-250-C2	5.0	0.5	115	52	F-149XP	6.3	0.70	115	56	F-159XP	6.3	1.2	115	56
F10-3600	5.0	7.2	115	51	F-14X	6.3CT	1.2	115	60	F-16X	6.3	3.0	115	60
F10-3600-C2	5.0	7.2	115	53	F-159XP	6.3	1.2	115	56	F-18X	6.3	6.0	115	60
F10-600	5.0	1.2	115	50	F-16X	6.3	3.0	115	60	F-21A	6.3CT	10.0	115	60
F10-600-C2	5.0	1.2	115	52	F-18X	6.3	6.0	115	60	F-22A	6.3CT	20.0	115	60
F-12X	5.0CT	8.0	115/230	60	F-21A	6.3CT	10.0	115	60	F-28U†	6.3CT	25.0	115	60
F-370P	5.0	4.8	115/230	58	F-22A	6.3CT	20.0	115	60	F-313X	6.3	0.6	115/230	60
F-7X	5.0CT	3.0	115	60	F-28U†	6.3CT	25.0	115	60	F-314X	6.3CT	1.2	115/230	60
F-8X	5.0CT	6.0	115	60	F-313X	6.3	0.6	115/230	60	F-316X	6.3CT	3.0	115/230	60
FP10-1200	5.0	2.4	115/230	48	F-314X	6.3CT	1.2	115/230	60	F-318X	6.3CT	6.0	115/230	60
FP10-2400	5.0	4.8	115/230	48	F-316X	6.3CT	3.0	115/230	60	F-348XP	6.3	0.700	115/230	58
FP10-250	5.0	0.5	115/230	48	F-318X	6.3CT	6.0	115/230	60	F-365XP	6.3	1.6	115/230	58
FP10-4800	5.0	9.6	115/230	48	F-348XP	6.3	0.700	115/230	58	F-371P	6.3	4.0	115/230	58
FP10-600	5.0	1.2	115/230	48	F-365XP	6.3	1.6	115/230	58	F-43X	6.3	4.0	115	60
FS10-110	5.0	0.22	115/230	50	F-371P	6.3	4.0	115/230	58	F-69X	6.3CT	8.0	115	60
FS10-110-C2	5.0	0.22	115/230	52	F-43X	6.3	4.0	115	60	FP12-1900	6.3	3.8	115/230	48
FS10-1200	5.0	2.4	115/230	50	F-69X	6.3CT	8.0	115	60	FP12-200	6.3	0.4	115/230	48
FS10-1200-C2	5.0	2.4	115/230	52	FP12-1900	6.3	3.8	115/230	48	FP12-3800	6.3	7.6	115/230	48
FS10-2000	5.0	4.0	115/230	50	FP12-200	6.3	0.4	115/230	48	FP12-475	6.3	0.95	115/230	48
FS10-2000-C2	5.0	4.0	115/230	52	FP12-3800	6.3	7.6	115/230	48	FP12-950	6.3	1.9	115/230	48
FS10-250	5.0	0.5	115/230	50	FP12-475	6.3	0.95	115/230	48	FS12-090	6.3	0.18	115/230	50
FS10-250-C2	5.0	0.5	115/230	52	FP12-950	6.3	1.9	115/230	48	FS12-090-C2	6.3	0.18	115/230	52
FS10-3600	5.0	7.2	115/230	51	FS12-090	6.3	0.18	115/230	50	FS12-1000	6.3	2.0	115/230	50
FS10-3600-C2	5.0	7.2	115/230	53	FS12-090-C2	6.3	0.18	115/230	52	FS12-1000-C2	6.3	2.0	115/230	52
FS10-600	5.0	1.2	115/230	50	FS12-1000	6.3	2.0	115/230	50	FS12-1600	6.3	3.2	115/230	50
FS10-600-C2	5.0	1.2	115/230	52	FS12-1000-C2	6.3	2.0	115/230	52	FS12-1600-C2	6.3	3.2	115/230	52
VPL10-1000	5.0	2.0	115/230	44	FS12-1600	6.3	3.2	115/230	50	FS12-200	6.3	0.4	115/230	50
VPL10-2500	5.0	5.0	115/230	44	FS12-1600-C2	6.3	3.2	115/230	52	FS12-200-C2	6.3	0.4	115/230	52
VPL10-500	5.0	1.0	115/230	44	FS12-200	6.3	0.4	115/230	50	FS12-2850	6.3	5.7	115/230	51
VPL10-5000	5.0	10.0	115/230	44	FS12-200-C2	6.3	0.4	115/230	52	FS12-2850-C2	6.3	5.7	115/230	53
VPP10-1000	5.0	2.0	115/230	40	FS12-2850	6.3	5.7	115/230	51	FS12-500	6.3	1.0	115/230	50
VPP10-2000	5.0	4.0	115/230	40	FS12-2850-C2	6.3	5.7	115/230	53	FS12-500-C2	6.3	1.0	115/230	52
VPP10-250	5.0	0.5	115/230	40	FS12-500	6.3	1.0	115/230	50	VPL12-2000	6.3	3.96	115/230	44
VPP10-3000	5.0	6.0	115/230	40	FS12-500-C2	6.3	1.0	115/230	52	VPL12-400	6.3	0.780	115/230	44
VPP10-5000	5.0	1.0	115/230	40	VPL12-2000	6.3	3.96	115/230	44	VPL12-4000	6.3	7.940	115/230	44
VPP10-5600	5.0	11.2	115/230	40	VPL12-400	6.3	0.780	115/230	44	VPL12-800	6.3	1.590	115/230	44
VPS10-13000	5.0	26.0	115/230	42	VPL12-4000	6.3	7.940	115/230	44	VPP12-200	6.3	0.4	115/230	40
VPS10-17500	5.0	35.0	115/230	42	VPL12-800	6.3	1.590	115/230	44	VPP12-400	6.3	0.8	115/230	40
VPS10-2500	5.0	5.0	115/230	42	VPP12-200	6.3	0.4	115/230	40	VPP12-800	6.3	1.6	115/230	40
VPS10-4300	5.0	8.6	115/230	42	VPP12-400	6.3	0.8	115/230	40	VPP12-1600	6.3	3.2	115/230	40
VPS10-8000	5.0	16.0	115/230	42	VPP12-800	6.3	1.6	115/230	40	VPP12-2400	6.3	4.8	115/230	40
F-105Z	6.0	2.0	115/230	70	VPP12-1600	6.3	3.2	115/230	40	VPP12-4400	6.3	8.8	115/230	40
F-106Z	6.0	4.0	115/230	70	VPP12-2400	6.3	4.8	115/230	40	VPS12-10300	6.3	20.6	115/230	42
VPM12-2080	6.0	4.16	100/120/220/240	72	VPP12-4400	6.3	8.8	115/230	40	VPS12-14000	6.3	28.0	115/230	42
VPM12-4170	6.0	8.34	100/120/220/240	72	VPS12-10300	6.3	20.6	115/230	42	VPS12-2000	6.3	4.0	115/230	42
VPM12-8330	6.0	16.66	100/120/220/240	72	VPS12-14000	6.3	28.0	115/230	42	VPS12-3400	6.3	6.8	115/230	42
VPM12-13300	6.0	26.60	100/120/220/240	72	VPS12-2000	6.3	4.0	115/230	42	F-150P	8.5	0.170	115	56
F-161XP	8.5	0.528	115	56	F-163XP	8.5	0.882	115	56	F-165P	9.0CT	0.100	115	56

:: Parametrics Index continued

Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.
F-166XP	9.0CT	0.500	115	56	FS10-250	10.0CT	0.25	115/230	50	F24-100-C2	12.0	0.2	115	52
VPM18-1390	9.0	2.780	100/120/220/240	72	FS10-250-C2	10.0CT	0.25	115/230	52	F24-1500	12.0	3.0	115	51
VPM18-2780	9.0	5.560	100/120/220/240	72	FS10-3600	10.0CT	3.6	115/230	51	F24-1500-C2	12.0	3.0	115	53
VPM18-5560	9.0	11.120	100/120/220/240	72	FS10-3600-C2	10.0CT	3.6	115/230	53	F24-250	12.0	0.5	115	50
VPM18-8800	9.0	17.60	100/120/220/240	72	FS10-600	10.0CT	0.6	115/230	50	F24-250-C2	12.0	0.5	115	52
VPM18-13800	9.0	27.60	100/120/220/240	72	FS10-600-C2	10.0CT	0.6	115/230	52	F24-500	12.0	1.0	115	50
VPT18-13800	9.0	27.60	115/230	46	FS20-055	10.0	0.11	115/230	50	F24-500-C2	12.0	1.0	115	52
VPT18-1390	9.0	2.78	115/230	46	FS20-055-C2	10.0	0.11	115/230	52	F24-800	12.0	1.6	115	50
VPT18-2780	9.0	5.56	115/230	46	FS20-1000	10.0	2.0	115/230	50	F24-800-C2	12.0	1.6	115	52
VPT18-5560	9.0	11.12	115/230	46	FS20-1000-C2	10.0	2.0	115/230	52	F-29U†	12.0CT	11.0	115	60
VPT18-8800	9.0	17.60	115/230	46	FS20-120	10.0	0.24	115/230	50	F-350XP	12.0	0.360	115/230	58
					FS20-120-C2	10.0	0.24	115/230	52	F-359XP	12.0	0.900	115/230	58
F10-110	10.0CT	0.11	115	50	FS20-1800	10.0	3.6	115/230	51	F-374P	12.0	2.0	115/230	58
F10-110-C2	10.0CT	0.11	115	52	FS20-1800-C2	10.0	3.6	115/230	53	F-398U	12.0	6.0	115/230	70
F10-1200	10.0CT	1.2	115	50	FS20-300	10.0	0.6	115/230	50	F-399U	12.0	12.0	115/230	70
F10-1200-C2	10.0CT	1.2	115	52	FS20-300-C2	10.0	0.6	115/230	52	FP24-100	12.0	0.2	115/230	48
F10-2000	10.0CT	2.0	115	50	FS20-600	10.0	1.2	115/230	50	FP24-1000	12.0	2.0	115/230	48
F10-2000-C2	10.0CT	2.0	115	52	FS20-600-C2	10.0	1.2	115/230	52	FP24-2000	12.0	4.0	115/230	48
F10-250	10.0CT	0.25	115	50	TCT3-11E07AE	10.0	3.0	120	68	FP24-250	12.0	0.5	115/230	48
F10-250-C2	10.0CT	0.25	115	52	TCT3-12E07AE	10.0	3.0	240	68	FP24-500	12.0	1.0	115/230	48
F10-3600	10.0CT	3.6	115	51	VPL10-1000	10.0CT	1.0	115/230	44	FS24-045	12.0	0.09	115/230	50
F10-3600-C2	10.0CT	3.6	115	53	VPL10-2500	10.0CT	2.5	115/230	44	FS24-045-C2	12.0	0.09	115/230	52
F10-600	10.0CT	0.6	115	50	VPL10-500	10.0CT	0.500	115/230	44	FS24-100	12.0	0.2	115/230	50
F10-600-C2	10.0CT	0.6	115	52	VPL10-5000	10.0CT	5.0	115/230	44	FS24-100-C2	12.0	0.2	115/230	52
F-180X	10.0	1.0	115	60	VPL20-1200	10.0	2.5	115/230	44	FS24-1500	12.0	3.0	115/230	51
F20-055	10.0	0.11	115	50	VPL20-250	10.0	0.500	115/230	44	FS24-1500-C2	12.0	3.0	115/230	53
F20-055-C2	10.0	0.11	115	52	VPL20-2500	10.0	5.0	115/230	44	FS24-250	12.0	0.5	115/230	50
F20-1000	10.0	2.0	115	50	VPL20-500	10.0	1.0	115/230	44	FS24-250-C2	12.0	0.5	115/230	52
F20-1000-C2	10.0	2.0	115	52	VPP10-1000	10.0CT	1.0	115/230	40	FS24-500	12.0	1.0	115/230	50
F20-120	10.0	0.24	115	50	VPP10-2000	10.0CT	2.0	115/230	40	FS24-500-C2	12.0	1.0	115/230	52
F20-120-C2	10.0	0.24	115	52	VPP10-250	10.0CT	0.25	115/230	40	FS24-800	12.0	1.6	115/230	50
F20-1800	10.0	3.6	115	51	VPP10-3000	10.0CT	3.0	115/230	40	FS24-800-C2	12.0	1.6	115/230	52
F20-1800-C2	10.0	3.6	115	53	VPP10-500	10.0CT	0.5	115/230	40	TCT3-03E07AE	12.0	0.3	120	68
F20-300	10.0	0.6	115	50	VPP10-5600	10.0CT	5.6	115/230	40	TCT3-04E07AE	12.0	0.3	240	68
F20-300-C2	10.0	0.6	115	52	VPP20-1000	10.0	2.0	115/230	40	TCT40-03E07AB	12.0	3.3	120	68
F20-600	10.0	1.2	115	50	VPP20-120	10.0	0.24	115/230	40	TCT40-03E07AE	12.0	3.3	120	68
F20-600-C2	10.0	1.2	115	52	VPP20-1500	10.0	3.0	115/230	40	TCT40-03E07K	12.0	3.3	120	68
F-29U	10.0CT	11.0	115/230	60	VPP20-2800	10.0	5.6	115/230	40	TCT40-04E07AB	12.0	3.3	240	68
F3-10	10.0CT	0.25	115	54	VPP20-250	10.0	0.5	115/230	40	TCT40-04E07AE	12.0	3.3	240	68
F-31X	10.0CT	3.0	115	60	VPP20-500	10.0	1.0	115/230	40	TCT40-04E07K	12.0	3.3	240	68
F-358XP	10.0	0.450	115/230	58	VPS10-13000	10.0CT	13.0	115/230	42	TCT40-07E07AB	12.0	3.3	120/208/240	68
F-362XP	10.0	1.0	115/230	58	VPS10-17500	10.0CT	17.5	115/230	42	TCT40-07E07AE	12.0	3.3	120/208/240	68
F-370P	10.0CT	2.4	115/230	58	VPS10-2500	10.0CT	2.5	115/230	42	TCT40-07E07K	12.0	3.3	120/208/240	68
F-373P	10.0	2.4	115/230	58	VPS10-4300	10.0CT	4.3	115/230	42	TCT40-08E07AB	12.0	3.3	120/240	68
F4-10	10.0CT	0.6	115	54	VPS10-8000	10.0CT	8.0	115/230	42	TCT40-08E07AE	12.0	3.3	120/240	68
F5-10	10.0CT	1.2	115	54	VPS20-1250	10.0	2.5	115/230	42	TCT40-08E07K	12.0	3.3	120/240	68
F6-10	10.0CT	3.0	115	54	VPS20-2200	10.0	4.4	115/230	42	TCT40-10E07AB	12.0	3.3	208/240	68
F7-10	10.0CT	5.0	115	54	VPS20-4000	10.0	8.0	115/230	42	TCT40-10E07AE	12.0	3.3	208/240	68
F8-10	10.0CT	10.0	115	55	VPS20-6500	10.0	13.0	115/230	42	TCT40-10E07K	12.0	3.3	208/240	68
F-96U	10.0CT	6.0	115	60	VPS20-8800	10.0	17.6	115/230	42	TCT50-03E07AB	12.0	4.2	120	69
F-97U	10.0CT	8.0	115	60						TCT50-03E07AE	12.0	4.2	120	69
FD4-10	10.0CT	0.6	115/230	54	F-29U	11.0CT	11.0	115/230	60	TCT50-03E07K	12.0	4.2	120	69
FD5-10	10.0CT	1.2	115/230	54						TCT50-04E07AB	12.0	4.2	240	69
FD6-10	10.0CT	3.0	115/230	54	F-105Z	12.0CT	1.0	115/230	70	TCT50-04E07AE	12.0	4.2	240	69
FD7-10	10.0CT	5.0	115/230	54	F-106Z	12.0CT	2.0	115/230	70	TCT50-04E07K	12.0	4.2	240	69
FDS-10	10.0CT	10.0	115/230	55	F-107Z	12.0	4.0	115/230	70	TCT50-07E07AB	12.0	4.2	120/208/240	69
FP10-1200	10.0CT	1.2	115/230	48	F-108U	12.0	8.0	115/230	70	TCT50-07E07AE	12.0	4.2	120/208/240	69
FP10-2400	10.0CT	2.4	115/230	48	F-109U	12.0	16.0	115/230	70	TCT50-07E07K	12.0	4.2	120/208/240	69
FP10-250	10.0CT	0.25	115/230	48	F-113X	12.0	0.150	115	60	TCT50-08E07AB	12.0	4.2	120/240	69
FP10-4800	10.0CT	4.8	115/230	48	F-114X	12.0	0.700	115	60	TCT50-08E07AE	12.0	4.2	120/240	69
FP10-600	10.0CT	0.6	115/230	48	F-216X	12.0	0.350	115/230	60	TCT50-08E07K	12.0	4.2	120/240	69
FP20-1200	10.0	2.4	115/230	48	F-217X	12.0	1.200	115	60	TCT50-10E07AB	12.0	4.2	208/240	69
FP20-125	10.0	0.25	115/230	48	F-218X	12.0	2.000	115	60	TCT50-10E07AE	12.0	4.2	208/240	69
FP20-2400	10.0	4.8	115/230	48	F-219X	12.0	4.000	115	60	TCT50-10E07K	12.0	4.2	208/240	69
FP20-300	10.0	0.6	115/230	48	F-220U	12.0	6.000	115	60	VPL24-1100	12.0	2.080	115/230	44
FP20-600	10.0	1.2	115/230	48	F-221U	12.0	8.000	115	60	VPL24-2000	12.0	4.166	115/230	44
FS10-110	10.0CT	0.11	115/230	50	F-235Z	12.0	0.250	115	63	VPL24-210	12.0	0.420	115/230	44
FS10-110-C2	10.0CT	0.11	115/230	52	F-236Z	12.0	0.500	115	63	VPL24-400	12.0	0.820	115/230	44
FS10-1200	10.0CT	1.2	115/230	50	F-237Z	12.0	1.000	115	63					
FS10-1200-C2	10.0CT	1.2	115/230	52	F24-045	12.0	0.09	115	50	VPM12-2080	12.0	2.080	100/120/220/240	72
FS10-2000	10.0CT	2.0	115/230	50	F24-045-C2	12.0	0.09	115	52	VPM12-4170	12.0	4.170	100/120/220/240	72
FS10-2000-C2	10.0CT	2.0	115/230	52	F24-100	12.0	0.2	115	50	VPM12-8330	12.0	8.330	100/120/220/240	72

:: Parametrics Index continued

Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.
VPM12-13300	12.0	13.3	100/120/220/240	72	FD8-12	12.6CT	8.0	115/230	55	VPL28-1700	14.0	3.572	115/230	44
VPM12-20800	12.0	20.8	100/120/220/240	72	FP12-1900	12.6CT	1.9	115/230	48	VPL28-180	14.0	0.360	115/230	44
VPM24-1040	12.0	2.08	100/120/220/240	72	FP12-200	12.6CT	0.2	115/230	48	VPL28-2000	14.0	4.000	115/230	44
VPM24-2080	12.0	4.16	100/120/220/240	72	FP12-3800	12.6CT	3.8	115/230	48	VPL28-350	14.0	0.700	115/230	44
VPM24-4170	12.0	8.34	100/120/220/240	72	FP12-475	12.6CT	0.475	115/230	48	VPL28-900	14.0	1.790	115/230	44
VPM24-6670	12.0	13.34	100/120/220/240	72	FP12-950	12.6CT	0.95	115/230	48	VPP28-090	14.0	0.18	115/230	40
VPM24-10420	12.0	20.84	100/120/220/240	72	FS12-090	12.6CT	0.09	115/230	50	VPP28-1060	14.0	2.12	115/230	40
VPP24-100	12.0	0.208	115/230	40	FS12-090-C2	12.6CT	0.09	115/230	52	VPP28-180	14.0	0.36	115/230	40
VPP24-1250	12.0	2.50	115/230	40	FS12-1000	12.6CT	1.0	115/230	50	VPP28-2000	14.0	4.0	115/230	40
VPP24-210	12.0	0.42	115/230	40	FS12-1000-C2	12.6CT	1.0	115/230	52	VPP28-360	14.0	0.72	115/230	40
VPP24-2330	12.0	4.66	115/230	40	FS12-1600	12.6CT	1.6	115/230	50	VPP28-720	14.0	1.44	115/230	40
VPP24-420	12.0	0.84	115/230	40	FS12-1600-C2	12.6CT	1.6	115/230	52	VPS28-1500	14.0	3.0	115/230	42
VPP24-830	12.0	1.66	115/230	40	FS12-200	12.6CT	0.2	115/230	50	VPS28-2800	14.0	5.6	115/230	42
VPS24-1000	12.0	2.0	115/230	42	FS12-200-C2	12.6CT	0.2	115/230	52	VPS28-4600	14.0	9.2	115/230	42
VPS24-1800	12.0	3.6	115/230	42	FS12-2850	12.6CT	2.85	115/230	51	VPS28-900	14.0	1.8	115/230	42
VPS24-3300	12.0	6.6	115/230	42	FS12-2850-C2	12.6CT	2.85	115/230	53	VPS28-6250	14.0	12.5	115/230	42
VPS24-5400	12.0	10.8	115/230	42	FS12-500	12.6CT	0.5	115/230	50					
VPS24-7300	12.0	14.6	115/230	42	FS12-500-C2	12.6CT	0.5	115/230	52	F-132P	15.0CT	0.100	115	56
VPT12-13300	12.0CT	13.3	115/230	46	VPL12-2000	12.6CT	1.980	115/230	44	F-133P	15.0	0.100	115	56
VPT12-2080	12.0CT	2.08	115/230	46	VPL12-400	12.6CT	0.390	115/230	44	F-142XP	15.0CT	0.300	115	56
VPT12-20800	12.0CT	20.8	115/230	46	VPL12-4000	12.6CT	3.970	115/230	44	F-143XP	15.0	0.300	115	56
VPT12-4170	12.0CT	4.17	115/230	46	VPL12-800	12.6CT	0.790	115/230	44	F-152XP	15.0CT	0.500	115	56
VPT12-8330	12.0CT	8.33	115/230	46	VPL25-1000	12.6	1.980	115/230	44	F-153XP	15.0	0.500	115	56
VPT24-1040	12.0	2.08	115/230	46	VPP12-200	12.6CT	0.2	115/230	40	F-167P	15.0CT	0.060	115	56
VPT24-10420	12.0	20.84	115/230	46	VPP12-400	12.6CT	0.4	115/230	40	F-168XP	15.0CT	0.195	115	56
VPT24-2080	12.0	4.16	115/230	46	VPP12-800	12.6CT	0.8	115/230	40	F-169XP	15.0CT	0.287	115	56
VPT24-4170	12.0	8.34	115/230	46	VPP12-1600	12.6CT	1.6	115/230	40	F-197U	15.0CT	4.0	115	63
VPT24-6670	12.0	13.34	115/230	46	VPP12-2400	12.6CT	2.4	115/230	40	F-198U	15.0CT	6.000	115	63
					VPP12-4400	12.6CT	4.4	115/230	40	F-3132P	15.0CT	0.1	115/230	58
F12-090	12.6CT	0.09	115	50	VPS12-10300	12.6CT	10.3	115/230	42	F-3142XP	15.0CT	0.3	115/230	58
F12-090-C2	12.6CT	0.09	115	52	VPS12-14000	12.6CT	14.0	115/230	42	F-3143XP	15.0	0.3	115/230	58
F12-1000	12.6CT	1.0	115	50	VPS12-2000	12.6CT	2.0	115/230	42	F-3152XP	15.0CT	0.5	115/230	58
F12-1000-C2	12.6CT	1.0	115	52	VPS12-3400	12.6CT	3.4	115/230	42	F-3153XP	15.0	0.5	115/230	58
F12-1600	12.6CT	1.6	115	50	VPS12-6300	12.6CT	6.3	115/230	42	F-333P	15.0	0.100	115/230	58
F12-1600-C2	12.6CT	1.6	115	52						FP30-1600	15.0	3.2	115/230	48
F12-200	12.6CT	0.2	115	50	F-360U	13.0	3.0	115/230	64	FP30-200	15.0	0.4	115/230	48
F12-200-C2	12.6CT	0.2	115	52						FP30-400	15.0	0.8	115/230	48
F12-2850	12.6CT	2.85	115	51	VPL26-190	13.4	0.370	115/230	44	FP30-800	15.0	1.6	114/230	48
F12-2850-C2	12.6CT	2.85	115	53	VPL26-930	13.4	1.860	115/230	44	FP30-85	15.0	0.16	115/230	48
F12-500	12.6CT	0.5	115	50						VPM30-830	15.0	1.66	100/120/220/240	72
F12-500-C2	12.6CT	0.5	115	52	F-112X	14.0CT	0.250	115	61	VPM30-1670	15.0	3.34	100/120/220/240	72
F-138P	12.6	0.12	115	56	F-250X	14.0CT	1.000	115	61	VPM30-3330	15.0	6.66	100/120/220/240	72
F-139P	12.6CT	0.12	115	56	F-251X	14.0CT	2.000	115	61	VPM30-5330	15.0	10.66	100/120/220/240	72
F-148XP	12.6	0.356	115	56	F-252U	14.0CT	4.000	115	61	VPT30-1670	15.0	3.34	100/120/220/240	48
F-149XP	12.6CT	0.35	115	56	F-253U	14.0CT	6.000	115	61	VPT30-3330	15.0	6.66	115/230	48
F-158XP	12.6	0.60	115	56	F28-040	14.0	0.08	115	50	VPT30-5330	15.0	10.66	115/230	48
F-159XP	12.6CT	0.60	115	56	F28-040-C2	14.0	0.08	115	52	VPT30-830	15.0	1.66	115/230	48
F-182U	12.6CT	6.000	115/230	61	F28-085	14.0	0.17	115	50					
F-183U	12.6CT	8.000	115/230	61	F28-085-C2	14.0	0.17	115	52	F-195X	15.5CT	0.750	115	63
F-224X	12.6	3.000	115	61	F28-1300	14.0	2.6	115	51	F-196U	15.5CT	2.000	115	63
F-225X	12.6	4.000	115	61	F28-1300-C2	14.0	2.6	115	53					
F-25X	12.6CT	1.500	115	61	F28-200	14.0	0.4	115	50	F16-070	16.0CT	0.07	115	50
F-26X	12.6CT	2.500	115	61	F28-200-C2	14.0	0.4	115	52	F16-070-C2	16.0CT	0.07	115	52
F3-12	12.6	0.2	115	54	F28-420	14.0	0.84	115	50	F16-1250	16.0CT	1.25	115	50
F-3181U	12.6CT	4.000	115/230	61	F28-420-C2	14.0	0.84	115	52	F16-1250-C2	16.0CT	1.25	115	52
F-325X	12.6CT	1.500	115/230	61	F28-700	14.0	1.4	115	50	F16-150	16.0CT	0.15	115	50
F-326X	12.6CT	2.500	115/230	61	F28-700-C2	14.0	1.4	115	52	F16-150-C2	16.0CT	0.15	115	52
F-344X	12.6CT	2.000	115/230	61	F-3112X	14.0CT	0.250	115/230	61	F16-2250	16.0CT	2.25	115	51
F-348XP	12.6CT	0.350	115/230	58	F-375P	14.0	1.6	115/230	58	F16-2250-C2	16.0CT	2.25	115	53
F-365XP	12.6CT	0.800	115/230	58	FS28-040	14.0	0.08	115/230	50	F16-400	16.0CT	0.4	115	50
F-371P	12.6CT	2.0	115/230	58	FS28-040-C2	14.0	0.08	115/230	52	F16-400-C2	16.0CT	0.4	115	52
F4-12	12.6CT	0.5	115	54	FS28-085	14.0	0.17	115/230	50	F16-800	16.0CT	0.8	115	50
F-44X	12.6CT	2.000	115	61	FS28-085-C2	14.0	0.170	115/230	52	F16-800-C2	16.0CT	0.8	115	52
F5-12	12.6CT	1.0	115	54	FS28-1300	14.0	2.6	115/230	51	F3-16	16.0CT	0.15	115	54
F6-12	12.6CT	2.5	115	54	FS28-1300-C2	14.0	2.6	115/230	53	F-349XP	16.0CT	0.280	115/230	58
F-70X	12.6CT	1.000	115	61	FS28-200	14.0	0.4	115/230	50	F-366XP	16.0CT	0.640	115/230	58
F7-12	12.6CT	4.0	115	54	FS28-200-C2	14.0	0.4	115/230	52	F-372P	16.0CT	1.5	115/230	58
F8-12	12.6CT	8.0	115	55	FS28-420	14.0	0.84	115/230	50	F4-16	16.0CT	0.4	115	54
FD4-12	12.6CT	0.5	115/230	54	FS28-420-C2	14.0	0.84	115/230	52	F5-16	16.0CT	0.8	115	54
FD5-12	12.6CT	1.0	115/230	54	FS28-700	14.0	1.4	115/230	50	F6-16	16.0CT	2.0	115	54
FD6-12	12.6CT	2.5	115/230	54	FS28-700-C2	14.0	1.4	115/230	52	F7-16	16.0CT	3.5	115	54
FD7-12	12.6CT	4.0	115/230	54	VPL14-360	14.0CT	0.360	115/230	44	F8-16	16.0CT	6.25	115	55

:: Parametrics Index continued

Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.
FD4-16	16.0CT	0.4	115/230	54	FS36-170	18.0	0.34	115/230	50	F6-20	20.0CT	1.5	115	54
FD5-16	16.0CT	0.8	115/230	54	FS36-170-C2	18.0	0.34	115/230	52	F7-20	20.0CT	2.8	115	54
FD6-16	16.0CT	2.0	115/230	54	FS36-350	18.0	0.7	115/230	50	F8-20	20.0CT	5.0	115	55
FD7-16	16.0CT	3.5	115/230	54	FS36-350-C2	18.0	0.7	115/230	52	FD4-20	20.0CT	0.3	115/230	54
FD8-16	16.0CT	6.25	115/230	55	FS36-550	18.0	1.1	115/230	50	FD5-20	20.0CT	0.6	115/230	54
FP16-150	16.0CT	0.15	115/230	48	FS36-550-C2	18.0	1.1	115/230	52	FD6-20	20.0CT	1.5	115/230	54
FP16-1500	16.0CT	1.5	115/230	48	VPL36-140	18.0	0.280	115/230	44	FD7-20	20.0CT	2.8	115/230	54
FP16-3000	16.0CT	3.0	115/230	48	VPL36-1400	18.0	2.778	115/230	44	FD8-20	20.0CT	5.0	115/230	55
FP16-375	16.0CT	0.375	115/230	48	VPL36-300	18.0	0.560	115/230	44	FP20-1200	20.0CT	1.2	115/230	48
FP16-750	16.0CT	0.75	115/230	48	VPL36-700	18.0	1.400	115/230	44	FP20-125	20.0CT	0.125	115/230	48
FS16-070	16.0CT	0.07	115/230	50	VPM18-1390	18.0	1.390	100/120/220/240	72	FP20-2400	20.0CT	2.4	115/230	48
FS16-070-C2	16.0CT	0.07	115/230	52	VPM18-2780	18.0	2.780	100/120/220/240	72	FP20-300	20.0CT	0.3	115/230	48
FS16-1250	16.0CT	1.25	115/230	50	VPM18-5560	18.0	5.560	100/120/220/240	72	FP20-600	20.0CT	0.6	115/230	48
FS16-1250-C2	16.0CT	1.25	115/230	52	VPM18-8800	18.0	8.800	100/120/220/240	72	FP40-1200	20.0	2.4	115/230	48
FS16-150	16.0CT	0.15	115/230	50	VPM18-13800	18.0	13.800	100/120/220/240	72	FP40-150	20.0	0.3	115/230	48
FS16-150-C2	16.0CT	0.15	115/230	52	VPM36-690	18.0	1.380	100/120/220/240	72	FP40-300	20.0	0.6	115/230	48
FS16-2250	16.0CT	2.25	115/230	51	VPM36-1390	18.0	2.780	100/120/220/240	72	FP40-60	20.0	0.12	115/230	48
FS16-2250-C2	16.0CT	2.25	115/230	53	VPM36-2780	18.0	5.560	100/120/220/240	72	FP40-600	20.0	1.2	115/230	48
FS16-400	16.0CT	0.4	115/230	50	VPM36-4440	18.0	8.880	100/120/220/240	72	FS20-055	20.0CT	0.055	115/230	50
FS16-400-C2	16.0CT	0.4	115/230	52	VPM36-6940	18.0	13.880	100/120/220/240	72	FS20-055-C2	20.0CT	0.055	115/230	52
FS16-800	16.0CT	0.8	115/230	50	VPP36-070	18.0	0.14	115/230	40	FS20-1000	20.0CT	1.0	115/230	50
FS16-800-C2	16.0CT	0.8	115/230	52	VPP36-140	18.0	0.28	115/230	40	FS20-1000-C2	20.0CT	1.0	115/230	52
VPL16-1600	16.0CT	1.570	115/230	44	VPP36-1560	18.0	3.12	115/230	40	FS20-120	20.0CT	0.12	115/230	50
VPL16-300	16.0CT	0.310	115/230	44	VPP36-280	18.0	0.56	115/230	40	FS20-120-C2	20.0CT	0.1	115/230	52
VPL16-3100	16.0CT	3.125	115/230	44	VPP36-560	18.0	1.12	115/230	40	FS20-1800	20.0CT	1.8	115/230	51
VPL16-600	16.0CT	0.630	115/230	44	VPP36-820	18.0	1.64	115/230	40	FS20-1800-C2	20.0CT	1.8	115/230	53
VPP16-150	16.0CT	0.15	115/230	40	VPS36-1200	18.0	2.4	115/230	42	FS20-300	20.0CT	0.3	115/230	50
VPP16-310	16.0CT	0.31	115/230	40	VPS36-2200	18.0	4.4	115/230	42	FS20-300-C2	20.0CT	0.3	115/230	52
VPP16-620	16.0CT	0.62	115/230	40	VPS36-3600	18.0	7.2	115/230	42	FS20-600	20.0CT	0.6	115/230	50
VPP16-1250	16.0CT	1.25	115/230	40	VPS36-4800	18.0	9.6	115/230	42	FS20-600-C2	20.0CT	0.6	115/230	52
VPP16-1900	16.0CT	1.9	115/230	40	VPS36-700	18.0	1.4	115/230	42	VPL20-1200	20.0CT	1.250	115/230	44
VPP16-3500	16.0CT	3.5	115/230	40	VPT18-13800	18.0CT	13.8	115/230	46	VPL20-250	20.0CT	0.250	115/230	44
VPS16-11000	16.0CT	11.0	115/230	42	VPT18-1390	18.0CT	1.39	115/230	46	VPL20-2500	20.0CT	2.500	115/230	44
VPS16-1600	16.0CT	1.6	115/230	42	VPT18-2780	18.0CT	2.78	115/230	46	VPL20-500	20.0CT	0.500	115/230	44
VPS16-2700	16.0CT	2.7	115/230	42	VPT18-5560	18.0CT	5.56	115/230	46	VPP20-1000	20.0CT	1.0	115/230	40
VPS16-5000	16.0CT	5.0	115/230	42	VPT18-8800	18.0CT	8.8	115/230	46	VPP20-120	20.0CT	0.12	115/230	40
VPS16-8100	16.0CT	8.1	115/230	42	VPT36-1390	18.0	2.78	115/230	46	VPP20-1500	20.0CT	1.5	115/230	40
F-150P	17.0	0.085	115	56	VPT36-2780	18.0	5.56	115/230	46	VPP20-2800	20.0CT	2.8	115/230	40
F-160P	17.0	0.090	115	56	VPT36-4440	18.0	8.88	115/230	46	VPP20-250	20.0CT	0.25	115/230	40
F-161XP	17.0CT	0.264	115	56	VPT36-690	18.0	1.38	115/230	46	VPP20-500	20.0CT	0.5	115/230	40
F-162XP	17.0	0.264	115	56	VPT36-6940	18.0	13.88	115/230	46	VPS20-1250	20.0CT	1.25	115/230	42
F-163XP	17.0CT	0.441	115	56	F-360U	19.5	3.0	115/230	64	VPS20-2200	20.0CT	2.2	115/230	42
F-164XP	17.0	0.440	115	56	F-137P	20.0	0.076	115	56	VPS20-4000	20.0CT	4.0	115/230	42
F-376P	17.0	1.4	115/230	58	F-147XP	20.0	0.224	115	56	VPS20-6500	20.0CT	6.5	115/230	42
FP34-1400	17.0	2.8	115/230	48	F-157XP	20.0	0.376	115	56	VPS20-8800	20.0CT	8.8	115/230	42
FP34-170	17.0	0.34	115/230	48	F20-055	20.0CT	0.055	115	50	F-1000U	24.0CT	21.000	115/230	61
FP34-340	17.0	0.7	115/230	48	F20-055-C2	20.0CT	0.055	115	52	F-107Z	24.0CT	2.0	115/230	70
FP34-700	17.0	1.4	115/230	48	F20-1000	20.0CT	1.0	115	50	F-108U	24.0CT	4.0	115/230	70
FP34-75	17.0	0.15	115/230	48	F20-1000-C2	20.0CT	1.0	115	52	F-109U	24.0CT	8.0	115/230	70
F-241Uf	18.0	1.000	115	63	F20-120	20.0CT	0.12	115	50	F-115X	24.0CT	0.085	115	61
F-243Uf	18.0	4.000	115	63	F20-120-C2	20.0CT	0.12	115	52	F-116X	24.0CT	0.200	115	61
F-244Uf	18.0	8.000	115	63	F20-1800	20.0CT	1.8	115	51	F-117X	24.0CT	0.400	115	61
F36-030	18.0	0.06	115	50	F20-1800-C2	20.0CT	1.8	115	53	F-118X	24.0CT	0.700	115	61
F36-030-C2	18.0	0.06	115	52	F20-300	20.0CT	0.3	115	50	F-165P	24.0CT	0.025	115	56
F36-065	18.0	0.13	115	50	F20-300-C2	20.0CT	0.3	115	52	F-166XP	24.0CT	0.125	115	56
F36-065-C2	18.0	0.13	115	52	F20-600	20.0CT	0.6	115	50	F-192X	24.0CT	2.000	115	61
F36-1000	18.0	2.0	115	51	F20-600-C2	20.0CT	0.6	115	52	F-193U	24.0CT	4.000	115	61
F36-1000-C2	18.0	2.0	115	53	F-254X	20.0	1.000	115	61	F-211Z	24.0	0.5	115/230	70
F36-170	18.0	0.34	115	50	F-255X	20.0	2.000	115	61	F-212Z	24.0	1.0	115/230	70
F36-170-C2	18.0	0.34	115	52	F-256U	20.0	4.000	115	61	F-213Z	24.0	2.0	115/230	70
F36-350	18.0	0.7	115	50	F-257U	20.0	6.000	115	61	F-214U	24.0	4.0	115/230	70
F36-350-C2	18.0	0.7	115	52	F-258U	20.0	8.000	115	61	F-215U	24.0	8.0	115/230	70
F36-550	18.0	1.1	115	50	F-259U	20.0	10.000	115	61	F-226U	24.0CT	12.000	115	61
F36-550-C2	18.0	1.1	115	52	F3-20	20.0	0.12	115	54	F-229X	24.0	2.000	115	61
FS36-030	18.0	0.06	115/230	50	F-358XP	20.0CT	0.225	115/230	58	F24-045	24.0CT	0.045	115	50
FS36-030-C2	18.0	0.06	115/230	52	F-362XP	20.0CT	0.500	115/230	58	F24-045-C2	24.0CT	0.1	115	52
FS36-065	18.0	0.13	115/230	50	F-373P	20.0CT	1.2	115/230	58	F24-100	24.0CT	0.1	115	50
FS36-065-C2	18.0	0.13	115/230	52	F-377P	20.0	1.2	115/230	58	F24-100-C2	24.0CT	0.1	115	52
FS36-1000	18.0	2.0	115/230	51	F4-20	20.0CT	0.3	115	54	F24-1500	24.0CT	1.5	115	51
FS36-1000-C2	18.0	2.0	115/230	53	F5-20	20.0CT	0.6	115	54	F24-1500-C2	24.0CT	1.5	115	53
										F24-250	24.0CT	0.25	115	50

:: Parametrics Index continued

Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.
F24-250-C2	24.OCT	0.25	115	52	FS48-750	24.0	1.5	115/230	51	F-138P	25.2CT	0.06	115	56
F24-500	24.OCT	0.5	115	50	FS48-750-C2	24.0	1.5	115/230	53	F-148XP	25.2CT	0.178	115	56
F24-500-C2	24.OCT	0.5	115	52	TCT40-01E07AB	24.0	1.7	120	68	F-158XP	25.2CT	0.30	115	56
F24-800	24.OCT	0.8	115	50	TCT40-01E07AE	24.0	1.7	120	68	F-341X	25.2CT	2.000	115/230	61
F24-800-C2	24.OCT	0.8	115	52	TCT40-01E07K	24.0	1.7	120	68	F-357X	25.2CT	1.000	115/230	61
F-260U	24.OCT	6.000	115	61	TCT40-02E07AB	24.0	1.7	240	68	F-41X	25.2CT	2.000	115/230	61
F-261U	24.OCT	8.000	115	61	TCT40-02E07AE	24.0	1.7	240	68	F-56X	25.2CT	2.800	115	61
F-3115X	24.OCT	0.085	115/230	61	TCT40-02E07K	24.0	1.7	240	68	F-57X	25.2CT	1.000	117	61
F-3116X	24.OCT	0.200	115/230	61	TCT40-05E07AB	24.0	1.7	120/208/240	68	VPL25-1000	25.2CT	0.990	115/230	44
F-3117X	24.OCT	0.400	115/230	61	TCT40-05E07AE	24.0	1.7	120/208/240	68	VPL25-1900	25.2CT	1.984	115/230	44
F-3118X	24.OCT	0.700	115/230	61	TCT40-05E07K	24.0	1.7	120/208/240	68					
F3-24	24.OCT	0.1	115	54	TCT40-06E07AB	24.0	1.7	120/240	68	F-360U	26.0	3.0	115/230	64
F-345X	24.OCT	1.000	115/230	61	TCT40-06E07AE	24.0	1.7	120/240	68					
F-350XP	24.OCT	0.180	115/230	58	TCT40-06E07K	24.0	1.7	120/240	68	F-119X	26.8CT	0.150	115	61
F-359XP	24.OCT	0.450	115/230	58	TCT40-09E07AB	24.0	1.7	208/240	68	F-340X	26.8CT	1.000	115/230	61
F-361U	24.0	3.0	115/230	64	TCT40-09E07AE	24.0	1.7	208/240	68	F-355X	26.8CT	1.700	115/230	61
F-374P	24.OCT	1.0	115/230	58	TCT40-09E07K	24.0	1.7	208/240	68	F-40X	26.8CT	1.000	115	61
F-398U	24.OCT	3.0	115/230	70	TCT50-01E07AB	24.0	2.1	120	68	F-55X	26.8CT	1.700	115	61
F-399U	24.OCT	6.0	115/230	70	TCT50-01E07AE	24.0	2.1	120	68	VPL26-1800	26.8CT	1.866	115/230	44
F-400U	24.0	6.0	115/230	70	TCT50-01E07K	24.0	2.1	120	68	VPL26-190	26.8CT	0.19	115/230	44
F-401U	24.OCT	10.000	115	61	TCT50-02E07AB	24.0	2.1	240	68	VPL26-930	26.8CT	0.93	115/230	44
F4-24	24.OCT	0.25	115	54	TCT50-02E07AE	24.0	2.1	240	68					
F-45X	24.OCT	1.000	115	61	TCT50-02E07K	24.0	2.1	240	68	F-134P	27.0	0.056	115	56
F-46X	24.0	1.000	115	61	TCT50-05E07AB	24.0	2.1	120/208/240	68	F-144XP	27.0	0.168	115	56
F48-023	24.0	0.046	115	50	TCT50-05E07AE	24.0	2.1	120/208/240	68	F-154XP	27.0	0.280	115	56
F48-023-C2	24.0	0.046	115	52	TCT50-05E07K	24.0	2.1	120/208/240	68	F-361U	27.0	3.0	115/230	64
F48-050	24.0	0.1	115	50	TCT50-06E07AB	24.0	2.1	120/240	68					
F48-050-C2	24.0	0.1	115	52	TCT50-06E07AE	24.0	2.1	120/240	68	F-122X	28.OCT	0.175	115	61
F48-125	24.0	0.25	115	50	TCT50-06E07K	24.0	2.1	120/240	68	F-124X	28.OCT	0.800	115	61
F48-125-C2	24.0	0.25	115	52	TCT50-09E07AB	24.0	2.1	208/240	68	F-184X	28.OCT	1.000	115	61
F48-250	24.0	0.5	115	50	TCT50-09E07AE	24.0	2.1	208/240	68	F-187U	28.OCT	4.000	115	61
F48-250-C2	24.0	0.5	115	52	TCT50-09E07K	24.0	2.1	208/240	68	F28-040	28.OCT	0.040	115	50
F48-400	24.0	0.8	115	50	VPL24-1100	24.OCT	1.04	115/230	44	F28-040-C2	28.OCT	0.040	115	52
F48-400-C2	24.0	0.8	115	52	VPL24-2000	24.OCT	2.083	115/230	44	F28-085	28.OCT	0.085	115	50
F48-750	24.0	1.5	115	51	VPL24-210	24.OCT	0.21	115/230	44	F28-085-C2	28.OCT	0.085	115	52
F48-750-C2	24.0	1.5	115	53	VPL24-400	24.OCT	0.410	115/230	44	F28-1300	28.OCT	1.3	115	51
F5-24	24.OCT	0.5	115	54	VPM24-1040	24.OCT	1.040	100/120/220/240	72	F28-1300-C2	28.OCT	1.3	115	53
F6-24	24.OCT	1.25	115	54	VPM24-2080	24.OCT	2.080	100/120/220/240	72	F28-200	28.OCT	0.2	115	50
F7-24	24.OCT	2.4	115	54	VPM24-4170	24.OCT	4.170	100/120/220/240	72	F28-200-C2	28.OCT	0.2	115	52
F8-24	24.OCT	4.0	115	55	VPM24-6670	24.OCT	6.670	100/120/220/240	72	F28-420	28.OCT	0.42	115	50
FD4-24	24.OCT	0.25	115/230	54	VPM24-10420	24.OCT	10.420	100/120/220/240	72	F28-420-C2	28.OCT	0.42	115	52
FD5-24	24.OCT	0.5	115/230	54	VPM48-520	24.OCT	1.040	100/120/220/240	72	F28-700	28.OCT	0.7	115	50
FD6-24	24.OCT	1.25	115/230	54	VPM48-1040	24.OCT	2.080	100/120/220/240	72	F28-700-C2	28.OCT	0.7	115	52
FD7-24	24.OCT	2.4	115/230	54	VPM48-2080	24.OCT	4.160	100/120/220/240	72	F-3185U	28.OCT	2.000	115/230	61
FD8-24	24.OCT	4.0	115/230	55	VPM48-3300	24.OCT	6.660	100/120/220/240	72	F3-28	28.OCT	0.085	115	54
FP24-100	24.OCT	0.1	115/230	48	VPM48-5200	24.OCT	10.40	100/120/220/240	72	F-375P	28.OCT	0.8	115/230	58
FP24-1000	24.OCT	1.0	115/230	48	VPM48-10400	24.OCT	20.80	100/120/220/240	72	F-378P	28.0	0.84	115/230	58
FP24-2000	24.OCT	2.0	115/230	48	VPM48-20830	24.OCT	41.66	100/120/220/240	72	F4-28	28.OCT	0.2	115	54
FP24-250	24.OCT	0.25	115/230	48	VPP24-100	24.OCT	0.1	115/230	40	F5-28	28.OCT	0.42	115	54
FP24-500	24.OCT	0.5	115/230	48	VPP24-1250	24.OCT	1.25	115/230	40	F56-020	28.0	0.04	115	50
FS24-045	24.OCT	0.040	115/230	50	VPP24-210	24.OCT	0.21	115/230	40	F56-020-C2	28.0	0.04	115	52
FS24-045-C2	24.OCT	0.045	115/230	52	VPP24-2330	24.OCT	2.33	115/230	40	F56-045	28.0	0.09	115	50
FS24-100	24.OCT	0.1	115/230	50	VPP24-420	24.OCT	0.42	115/230	40	F56-045-C2	28.0	0.09	115	52
FS24-100-C2	24.OCT	0.1	115/230	52	VPP24-830	24.OCT	0.83	115/230	40	F56-110	28.0	0.22	115	50
FS24-1500	24.OCT	1.5	115/230	51	VPS24-1000	24.OCT	1.0	115/230	42	F56-110-C2	28.0	0.220	115	52
FS24-1500-C2	24.OCT	1.5	115/230	53	VPS24-1800	24.OCT	1.8	115/230	42	F56-220	28.0	0.44	115	50
FS24-250	24.OCT	0.25	115/230	50	VPS24-3300	24.OCT	3.3	115/230	42	F56-220-C2	28.0	0.44	115	52
FS24-250-C2	24.OCT	0.25	115/230	52	VPS24-5400	24.OCT	5.4	115/230	42	F56-350	28.0	0.7	115	50
FS24-500	24.OCT	0.5	115/230	50	VPS24-7300	24.OCT	7.3	115/230	42	F56-350-C2	28.0	0.7	115	52
FS24-500-C2	24.OCT	0.5	115/230	52	VPT24-1040	24.OCT	1.04	115/230	46	F56-650	28.0	1.3	115	51
FS24-800	24.OCT	0.8	115/230	50	VPT24-10420	24.OCT	10.42	115/230	46	F56-650-C2	28.0	1.3	115	53
FS24-800-C2	24.OCT	0.8	115/230	52	VPT24-2080	24.OCT	2.08	115/230	46	F6-28	28.OCT	1.1	115	54
FS48-023	24.0	0.046	115/230	50	VPT24-4170	24.OCT	4.17	115/230	46	F7-28	28.OCT	2.0	115	54
FS48-023-C2	24.0	0.046	115/230	52	VPT24-6670	24.OCT	6.67	115/230	46	F8-28	28.OCT	3.6	115	55
FS48-050	24.0	0.1	115/230	50	VPT48-1040	24.0	2.08	115/230	46	FD4-28	28.OCT	0.2	115/230	54
FS48-050-C2	24.0	0.1	115/230	52	VPT48-10400	24.0	20.8	115/230	46	FD5-28	28.OCT	0.42	115/230	54
FS48-125	24.0	0.25	115/230	50	VPT48-2080	24.0	4.16	115/230	46	FD6-28	28.OCT	1.1	115/230	54
FS48-125-C2	24.0	0.25	115/230	52	VPT48-20830	24.0	41.66	115/230	46	FD7-28	28.OCT	2.0	115/230	54
FS48-250	24.0	0.5	115/230	50	VPT48-3300	24.0	6.66	115/230	46	FD8-28	28.OCT	3.6	115/230	55
FS48-250-C2	24.0	0.5	115/230	52	VPT48-520	24.0	1.04	115/230	46	FP56-100	28.0	0.2	115/230	48
FS48-400	24.0	0.8	115/230	50	VPT48-5200	24.0	10.4	115/230	46	FP56-200	28.0	0.4	115/230	48
FS48-400-C2	24.0	0.8	115/230	52						FP56-425	28.0	0.85	115/230	48

:: Parametrics Index continued

Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.
FP56-45	28.0	0.09	115/230	48	F-198U	32.0CT	1.000	115	63	VPP36-560	36.0CT	0.56	115/230	40
FP56-850	28.0	1.7	115/230	48						VPP36-820	36.0CT	0.82	115/230	40
FS28-040	28.0CT	0.040	115/230	50	F-361U	33.0	3.0	115/230	64	VPS36-1200	36.0CT	1.2	115/230	42
FS28-040-C2	28.0CT	0.040	115/230	52						VPS36-2200	36.0CT	2.2	115/230	42
FS28-085	28.0CT	0.085	115/230	50	F-160P	34.0CT	0.045	115	56	VPS36-3600	36.0CT	3.6	115/230	42
FS28-085-C2	28.0CT	0.085	115/230	52	F-162XP	34.0CT	0.132	115	56	VPS36-4800	36.0CT	4.8	115/230	42
FS28-1300	28.0CT	1.3	115/230	51	F-164XP	34.0CT	0.220	115	56	VPS36-700	36.0CT	0.7	115/230	42
FS28-1300-C2	28.0CT	1.3	115/230	53	F-376P	34.0CT	0.7	115/230	58	VPT36-1390	36.0CT	1.39	115/230	46
FS28-200	28.0CT	0.2	115/230	50	FP34-1400	34.0CT	1.4	115/230	48	VPT36-2780	36.0CT	2.78	115/230	46
FS28-200-C2	28.0CT	0.2	115/230	52	FP34-170	34.0CT	0.17	115/230	48	VPT36-4440	36.0CT	4.44	115/230	46
FS28-420	28.0CT	0.42	115/230	50	FP34-340	34.0CT	0.34	115/230	48	VPT36-690	36.0CT	0.69	115/230	46
FS28-420-C2	28.0CT	0.42	115/230	52	FP34-700	34.0CT	0.70	115/230	48	VPT36-6940	36.0CT	6.94	115/230	46
FS28-700	28.0CT	0.7	115/230	50	FP34-75	34.0CT	0.075	115/230	48					
FS28-700-C2	28.0CT	0.7	115/230	52						F-135P	38.0	0.040	115	56
FS56-020	28.0	0.04	115/230	50	F-188X	35.0CT	0.100	115	61	F-145XP	38.0	0.120	115	56
FS56-020-C2	28.0	0.04	115/230	52	F-189X	35.0CT	0.500	115	61	F-155XP	38.0	0.200	115	56
FS56-045	28.0	0.09	115/230	50	F-191U	35.0CT	4.000	115	61					
FS56-045-C2	28.0	0.09	115/230	52	F-268U	35.0CT	8.000	115	61	F-137P	40.0CT	0.038	115	56
FS56-110	28.0	0.22	115/230	50	F-228X	35.0CT	0.300	115	61	F-147XP	40.0CT	0.112	115	56
FS56-110-C2	28.0	0.22	115/230	52	F-354X	35.0CT	1.500	115/230	61	F-157XP	40.0CT	0.188	115	56
FS56-220	28.0	0.44	115/230	50	F-54X	35.0CT	1.500	115	61	F-270X	40.0CT	1.000	115	62
FS56-220-C2	28.0	0.44	115/230	52						F-271U	40.0CT	2.000	115	62
FS56-350	28.0	0.7	115/230	50	F3-36	36.0CT	0.065	115	54	F-272U	40.0CT	4.000	115	62
FS56-350-C2	28.0	0.7	115/230	52	F36-030	36.0CT	0.03	115	50	F-273U	40.0CT	6.000	115	62
FS56-650	28.0	1.3	115/230	51	F36-030-C2	36.0CT	0.03	115	52	F-275U	40.0CT	10.000	115	62
FS56-650-C2	28.0	1.3	115/230	53	F36-065	36.0CT	0.065	115	50	F-377P	40.0CT	0.6	115/230	58
VPL28-1700	28.0CT	1.786	115/230	44	F36-065-C2	36.0CT	0.065	115	52	FP40-1200	40.0CT	1.2	115/230	48
VPL28-180	28.0CT	0.18	115/230	44	F36-1000	36.0CT	1.0	115	51	FP40-150	40.0CT	0.15	115/230	48
VPL28-2000	28.0CT	2.000	115/230	44	F36-1000-C2	36.0CT	1.0	115	53	FP40-300	40.0CT	0.3	115/230	48
VPL28-350	28.0CT	0.350	115/230	44	F36-170	36.0CT	0.17	115	50	FP40-60	40.0CT	0.06	115/230	48
VPL28-900	28.0CT	0.89	115/230	44	F36-170-C2	36.0CT	0.17	115	52	FP40-600	40.0CT	0.60	115/230	48
					F-361U	36.0	3.0	115/230	64					
VPP28-090	28.0CT	0.09	115/230	40	F36-350	36.0CT	0.35	115	50	FP88-130	44.0	0.26	115/230	48
VPP28-1060	28.0CT	1.06	115/230	40	F36-350-C2	36.0CT	0.35	115	52	FP88-28	44.0	0.056	115/230	48
VPP28-180	28.0CT	0.18	115/230	40	F36-550	36.0CT	0.55	115	50	FP88-65	44.0	0.13	115/230	48
VPP28-2000	28.0CT	2.0	115/230	40	F36-550-C2	36.0CT	0.55	115	52					
VPP28-360	28.0CT	0.36	115/230	40	F4-36	36.0CT	0.17	115	54	F-211Z	48.0CT	0.25	115/230	70
VPP28-720	28.0CT	0.72	115/230	40	F5-36	36.0CT	0.35	115	54	F-212Z	48.0CT	0.50	115/230	70
VPS28-1500	28.0CT	1.5	115/230	42	F6-36	36.0CT	0.85	115	54	F-213Z	48.0CT	1.0	115/230	70
VPS28-2800	28.0CT	2.8	115/230	42	F7-36	36.0CT	1.5	115	54	F-214U	48.0CT	2.0	115/230	70
VPS28-4600	28.0CT	4.6	115/230	42	F8-36	36.0CT	2.8	115	55	F-215U	48.0CT	4.0	115/230	70
VPS28-900	28.0CT	0.9	115/230	42	FD4-36	36.0CT	0.17	115/230	54	F3-48	48.0CT	0.05	115	54
VPS56-2300	28.0	4.6	115/230	42	FD5-36	36.0CT	0.35	115/230	54	F-400U	48.0CT	3.0	115/230	70
VPS28-6250	28.0CT	6.25	115/230	42	FD6-36	36.0CT	0.85	115/230	54	F4-48	48.0CT	0.125	115	54
					FD7-36	36.0CT	1.5	115/230	54	F48-023	48.0CT	0.023	115	50
F-133P	30.0CT	0.050	115	56	FD8-36	36.0CT	2.8	115/230	55	F48-023-C2	48.0CT	0.023	115	52
F-143XP	30.0CT	0.150	115	56	FS36-030	36.0CT	0.03	115/230	50	F48-050	48.0CT	0.05	115	50
F-153XP	30.0CT	0.250	115	56	FS36-030-C2	36.0CT	0.03	115/230	52	F48-050-C2	48.0CT	0.05	115	52
F-3143XP	30.0CT	0.15	115/230	58	FS36-065	36.0CT	0.065	115/230	50	F48-125	48.0CT	0.125	115	50
F-3153XP	30.0CT	0.25	115/230	58	FS36-065-C2	36.0CT	0.065	115/230	52	F48-125-C2	48.0CT	0.125	115	52
F-333P	30.0CT	0.050	115/230	58	FS36-1000	36.0CT	1.0	115/230	51	F48-250	48.0CT	0.25	115	50
F-361U	30.0	3.0	115/230	64	FS36-1000-C2	36.0CT	1.0	115/230	53	F48-250-C2	48.0CT	0.25	115	52
FP30-1600	30.0CT	1.6	115/230	48	FS36-170	36.0CT	0.17	115/230	50	F48-400	48.0CT	0.4	115	50
FP30-200	30.0CT	0.2	115/230	48	FS36-170-C2	36.0CT	0.17	115/230	52	F48-400-C2	48.0CT	0.4	115	52
FP30-400	30.0CT	0.4	115/230	48	FS36-350	36.0CT	0.35	115/230	50	F48-750	48.0CT	0.75	115	51
FP30-800	30.0CT	0.80	115/230	48	FS36-350-C2	36.0CT	0.35	115/230	52	F48-750-C2	48.0CT	0.75	115	53
FP30-85	30.0CT	0.08	115/230	48	FS36-550	36.0CT	0.55	115/230	50	F5-48	48.0CT	0.25	115	54
VPM30-830	30.0CT	0.83	100/120/220/240	72	FS36-550-C2	36.0CT	0.55	115/230	52	F6-48	48.0CT	0.63	115	54
VPM30-1670	30.0CT	1.67	100/120/220/240	72	VPL36-140	36.0CT	0.14	115/230	44	F7-48	48.0CT	1.2	115	54
VPM30-3330	30.0CT	3.33	100/120/220/240	72	VPL36-1400	36.0CT	1.389	115/230	44	F8-48	48.0CT	2.0	115	55
VPM30-5330	30.0CT	5.33	100/120/220/240	72	VPL36-300	36.0CT	0.28	115/230	44	FD4-48	48.0CT	0.125	115/230	54
VPT30-1670	30.0CT	1.67	115/230	46	VPL36-700	36.0CT	0.7	115/230	44	FD5-48	48.0CT	0.25	115/230	54
VPT30-3330	30.0CT	3.33	115/230	46						FD6-48	48.0CT	0.63	115/230	54
VPT30-5330	30.0CT	5.33	115/230	46	VPM36-690	36.0CT	0.69	100/120/220/240	72	FD7-48	48.0CT	1.2	115/230	54
VPT30-830	30.0CT	0.83	115/230	46	VPM36-1390	36.0CT	1.39	100/120/220/240	72	FD8-48	48.0CT	2.0	115/230	55
					VPM36-2780	36.0CT	2.78	100/120/220/240	72	FS48-023	48.0CT	0.023	115/230	50
F-167P	32.0CT	0.020	115	56	VPM36-4440	36.0CT	4.44	100/120/220/240	72	FS48-023-C2	48.0CT	0.023	115/230	52
F-168XP	32.0CT	0.050	115	56	VPM36-6940	36.0CT	6.94	100/120/220/240	72	FS48-050	48.0CT	0.05	115/230	50
F-169XP	32.0CT	0.100	115	56	VPP36-070	36.0CT	0.07	115/230	40	FS48-050-C2	48.0CT	0.05	115/230	52
F-195X	32.0CT	0.250	115	63	VPP36-140	36.0CT	0.14	115/230	40	FS48-125	48.0CT	0.125	115/230	50
F-196U	32.0CT	1.000	115	63	VPP36-1560	36.0CT	1.56	115/230	40	FS48-125-C2	48.0CT	0.125	115/230	52
F-197U	32.0CT	1.000	115	63	VPP36-280	36.0CT	0.28	115/230	40	FS48-250	48.0CT	0.25	115/230	50

:: Parametrics Index continued

Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.
FS48-250-C2	48.OCT	0.25	115/230	52	VPS56-2300	56.OCT	2.3	115/230	42	N-7MG	115.0	5.22	230	65
FS48-400	48.OCT	0.4	115/230	50	.....	.....	.....	.....	.....	N-90MD	115.0	2.17	115	67
FS48-400-C2	48.OCT	0.4	115/230	52	F-136P	58.0	0.026	115	56	N-92MD	115.0	4.35	115	67
FS48-750	48.OCT	0.75	115/230	51	F-146XP	58.0	0.066	115	56	N-9MG	115.0	10.85	230	65
FS48-750-C2	48.OCT	0.75	115/230	53	F-156XP	58.0	0.130	115	56	VPS230-110	115.0	0.22	115/230	42
VPM48-520	48.OCT	0.52	100/120/220/240	72	.....	.....	.....	.....	.....	VPS230-190	115.0	0.38	115/230	42
VPM48-1040	48.OCT	1.04	100/120/220/240	72	F120-010	60.0	0.02	115	50	VPS230-350	115.0	0.7	115/230	42
VPM48-2080	48.OCT	2.08	100/120/220/240	72	F120-020	60.0	0.04	115	50	VPS230-570	115.0	1.14	115/230	42
VPM48-3300	48.OCT	3.33	100/120/220/240	72	F120-050	60.0	0.1	115	50	VPS230-760	115.0	1.52	115/230	42
VPM48-5200	48.OCT	5.20	100/120/220/240	72	F120-100	60.0	0.2	115	50	VPT230-10870	115.0	21.74	115/230	46
VPM48-10400	48.OCT	10.40	100/120/220/240	72	F120-160	60.0	0.32	115	50	VPT230-1090	115.0	2.18	115/230	46
VPM48-20830	48.OCT	20.83	100/120/220/240	72	F120-300	60.0	0.6	115	51	VPT230-110	115.0	0.22	115/230	46
VPT48-1040	48.OCT	1.04	115/230	46	F-279U	60.OCT	1.000	115	62	VPT230-2170	115.0	4.34	115/230	46
VPT48-10400	48.OCT	10.4	115/230	46	F-280U	60.OCT	2.000	115	62	VPT230-220	115.0	0.44	115/230	46
VPT48-2080	48.OCT	2.08	115/230	46	F-282U	60.OCT	6.000	115	62	VPT230-430	115.0	0.86	115/230	46
VPT48-20830	48.OCT	20.83	115/230	46	F-379P	60.0	0.4	115/230	58	VPT230-4350	115.0	8.70	115/230	46
VPT48-3300	48.OCT	3.33	115/230	46	F-59X	60.OCT	0.400	115	62	VPT230-700	115.0	1.40	115/230	46
VPT48-520	48.OCT	0.52	115/230	46	FP120-100	60.0	0.2	115/230	48	.....	.....	.....	.....	.....
VPT48-5200	48.OCT	5.20	115/230	46	FP120-20	60.0	0.04	115/230	48	F-136P	116.OCT	0.013	115	56
.....	.....	.....	.....	.....	FP120-50	60.0	0.1	115/230	48	F-146XP	116.OCT	0.033	115	56
VPM100-5000	50.0	10.0	100/120/220/240	72	FS120-01	60.0	0.02	115/230	50	F-156XP	116.OCT	0.085	115	56
VPM100-10000	50.0	20.0	100/120/220/240	72	FS120-02	60.0	0.04	115/230	50	.....	.....	.....	.....	.....
VPM100-25000	50.0	50.0	100/120/220/240	72	FS120-05	60.0	0.1	115/230	50	F120-010	120.OCT	0.01	115	50
VPT100-10000	50.0	20.0	115/230	46	FS120-100	60.0	0.2	115/230	50	F120-020	120.OCT	0.02	115	50
VPT100-25000	50.0	50.0	115/230	46	FS120-160	60.0	0.32	115/230	50	F120-050	120.OCT	0.05	115	50
VPT100-5000	50.0	10.0	115/230	46	FS120-300	60.0	0.6	115/230	51	F120-100	120.OCT	0.1	115	50
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F120-160	120.OCT	0.16	115	50
F-134P	54.OCT	0.028	115	56	F-135P	76.OCT	0.020	115	56	F120-300	120.OCT	0.3	115	51
F-144XP	54.OCT	0.084	115	56	F-145XP	76.OCT	0.060	115	56	F3-120	120.OCT	0.02	115	54
F-154XP	54.OCT	0.140	115	56	F-155XP	76.OCT	0.100	115	56	F-379P	120.OCT	0.2	115/230	58
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F4-120	120.OCT	0.05	115	54
F3-56	56.OCT	0.045	115	54	FP88-130	88.OCT	0.13	115/230	48	F5-120	120.OCT	0.1	115	54
F-378P	56.OCT	0.42	115/230	58	FP88-28	88.OCT	0.028	115/230	48	F6-120	120.OCT	0.25	115	54
F4-56	56.OCT	0.11	115	54	FP88-65	88.OCT	0.065	115/230	48	F7-120	120.OCT	0.5	115	54
F5-56	56.OCT	0.22	115	54	.....	.....	.....	.....	.....	F8-120	120.OCT	0.85	115	55
F56-020	56.OCT	0.02	115	50	VPM100-5000	100.OCT	5.0	100/120/220/240	72	FD4-120	120.OCT	0.05	115/230	54
F56-020-C2	56.OCT	0.02	115	52	VPM100-10000	100.OCT	10.0	100/120/220/240	72	FD5-120	120.OCT	0.1	115/230	54
F56-045	56.OCT	0.045	115	50	VPM100-25000	100.OCT	25.0	100/120/220/240	72	FD6-120	120.OCT	0.25	115/230	54
F56-045-C2	56.OCT	0.045	115	52	VPT100-10000	100.OCT	10.0	115/230	46	FD7-120	120.OCT	0.5	115/230	54
F56-110	56.OCT	0.11	115	50	VPT100-25000	100.OCT	25.0	115/230	46	FD8-120	120.OCT	0.85	115/230	55
F56-110-C2	56.OCT	0.11	115	52	VPT100-5000	100.OCT	5.0	115/230	46	FP120-100	120.OCT	0.1	115/230	48
F56-220	56.OCT	0.22	115	50	.....	.....	.....	.....	.....	FP120-20	120.OCT	0.02	115/230	48
F56-220-C2	56.OCT	0.22	115	52	F-302U	115.0	1.30	277	65	FP120-50	120.OCT	0.05	115/230	48
F56-350	56.OCT	0.35	115	50	F-363XP	115.0	0.040	115/230	58	FS120-01	120.OCT	0.01	115/230	50
F56-350-C2	56.OCT	0.35	115	52	F-367P	115.0	0.013	115/230	58	FS120-02	120.OCT	0.02	115/230	50
F56-650	56.OCT	0.65	115	51	F-369XP	115.0	0.088	115/230	58	FS120-05	120.OCT	0.05	115/230	50
F56-650-C2	56.OCT	0.65	115	53	FP230-10	115.0	0.02	115/230	48	FS120-100	120.OCT	0.1	115/230	50
F6-56	56.OCT	0.54	115	54	FP230-25	115.0	0.05	115/230	48	FS120-160	120.OCT	0.16	115/230	50
F7-56	56.OCT	1.0	115	54	FP230-50	115.0	0.1	115/230	48	FS120-300	120.OCT	0.3	115/230	51
F8-56	56.OCT	1.8	115	55	N-11MG	115.0	17.40	230	65	.....	.....	.....	.....	.....
FD4-56	56.OCT	0.11	115/230	54	N-1X	115.0	0.435	230	65	VPM240-100	120.OCT	0.208	100/120/220/240	72
FD5-56	56.OCT	0.22	115/230	54	N-255MG	115.0	2.17	230	66	VPM240-210	120.OCT	0.420	100/120/220/240	72
ED6-56	56.OCT	0.54	115/230	54	N-257MG	115.0	4.35	230	67	VPM240-420	120.OCT	0.840	100/120/220/240	72
FD7-56	56.OCT	1.0	115/230	54	N-259MG	115.0	8.70	230	67	VPM240-670	120.OCT	1.330	100/120/220/240	72
FD8-56	56.OCT	1.8	115/230	55	N-2X	115.0	0.87	230	65	VPM240-1040	120.OCT	2.080	100/120/220/240	72
FP56-100	56.OCT	0.1	115/230	48	N-3MG	115.0	0.74	230	65	VPM240-2080	120.OCT	4.160	100/120/220/240	72
FP56-200	56.OCT	0.2	115/230	48	N-48X	115.0	0.13	115	66	VPM240-4170	120.OCT	8.340	100/120/220/240	72
FP56-425	56.OCT	0.425	115/230	48	N-4MG	115.0	1.30	230	65	VPM240-10400	120.OCT	21.80	100/120/220/240	72
FP56-45	56.OCT	0.045	115/230	48	N-51X	115.0	0.3	115	66	VPM240-12500	120.OCT	25.00	208/240	72
FP56-850	56.OCT	0.85	115/230	48	N-53MG	115.0	0.74	115	66	VPM240-15600	120.OCT	31.20	208/240	72
FS56-020	56.OCT	0.02	115/230	50	N-54MG	115.0	1.3	115	66	VPM240-20800	120.OCT	41.60	208/240	72
FS56-020-C2	56.OCT	0.02	115/230	52	N-55MG	115.0	2.17	115	66	VPM240-28100	120.OCT	56.26	208/240	72
FS56-045	56.OCT	0.045	115/230	50	N-57MG	115.0	4.35	115	67	VPM240-31200	120.OCT	62.50	208/240	72
FS56-045-C2	56.OCT	0.045	115/230	52	N-59MG	115.0	8.70	115	67	VPM240-36400	120.OCT	72.92	208/240	72
FS56-110	56.OCT	0.11	115/230	50	N-5MG	115.0	2.17	230	65	VPM240-41600	120.OCT	83.33	208/240	72
FS56-110-C2	56.OCT	0.11	115/230	52	N-66A	115.0	2.17	115/230	66	F-363XP	230.OCT	0.020	115/230	58
FS56-220	56.OCT	0.22	115/230	50	N-67A	115.0	1.3	115/230	66	F-367P	230.OCT	0.0065	115/230	58
FS56-220-C2	56.OCT	0.22	115/230	52	N-68X	115.0	0.435	115/230	66	F-369XP	230.OCT	0.044	115/230	58
FS56-350	56.OCT	0.35	115/230	50	N-6U	115.0	1.70	230	65	FP230-10	230.OCT	0.01	115/230	48
FS56-350-C2	56.OCT	0.35	115/230	52	N-73A	115.0	1.3	115	66	FP230-25	230.OCT	0.025	115/230	48
FS56-650	56.OCT	0.65	115/230	51	N-76U	115.0	0.86	115	66	FP230-50	230.OCT	0.05	115/230	48
FS56-650-C2	56.OCT	0.65	115/230	53	N-77U	115.0	0.86	115/230	66	N-1000MG	230.0	4.35	115	65

:: Parametrics Index continued

Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.	Type No.	Sec. (V)	Sec. (A)	Prim. (V)	Page No.
N-150MG	230.0	0.65	115	65	VPT230-110	230.OCT	0.11	115/230	46	VPM240-2080	240.OOCT	2.08	100/120/220/240	72
N-250MG	230.0	1.10	115	65	VPT230-2170	230.OCT	2.17	115/230	46	VPM240-4170	240.OOCT	4.17	100/120/220/240	72
N-500MG	230.0	2.20	115	65	VPT230-220	230.OCT	0.22	115/230	46	VPM240-10400	240.OOCT	10.40	100/120/220/240	72
N-73A	230.0	0.65	115	66	VPT230-430	230.OCT	0.43	115/230	46	VPM240-12500	240.OOCT	12.50	208/240	72
VPS230-110	230.OCT	0.11	115/230	42	VPT230-4350	230.OCT	4.35	115/230	46	VPM240-15600	240.OOCT	15.60	208/240	72
VPS230-190	230.OCT	0.19	115/230	42	VPT230-700	230.OCT	0.70	115/230	46	VPM240-20800	240.OOCT	20.80	208/240	72
VPS230-350	230.OCT	0.35	115/230	42	VPM240-100	240.OOCT	0.104	100/120/220/240	72	VPM240-28100	240.OOCT	28.13	208/240	72
VPS230-570	230.OCT	0.57	115/230	42	VPM240-210	240.OOCT	0.21	100/120/220/240	72	VPM240-31200	240.OOCT	31.25	208/240	72
VPS230-760	230.OCT	0.76	115/230	42	VPM240-420	240.OOCT	0.42	100/120/220/240	72	VPM240-36400	240.OOCT	36.46	208/240	72
VPT230-10870	230.OCT	10.87	115/230	46	VPM240-670	240.OOCT	0.67	100/120/220/240	72	VPM240-41600	240.OOCT	41.67	208/240	72
VPT230-1090	230.OCT	1.09	115/230	46	VPM240-1040	240.OOCT	1.04	100/120/220/240	72					

:: RoHS Compliance

Triad Magnetics is a recognized leader in the magnetics industry for decades, has once again stepped out in front of the crowd by ensuring all of our catalog products are free of the hazardous materials called out in 2015/863/EU, known as the RoHS Initiative.

:: Reach Compliance

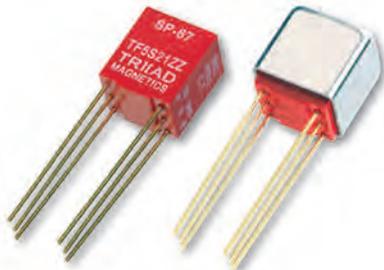
As the European Chemicals Agency (ECHA) identifies additional Substances of Very High Concern, Triad Magnetics will continue to review its processes. Triad is committed to keeping all SVHC out of the marketplace and restricting the use of these in our production facilities.



ISO 9001:2015
Certificate Registration Number
74 300 2556

Audio Transformers

MIL-T-27E



Red Spec (MIL-T-27E)

:: Description

Triad high reliability audio transformers provide the durability and precision required in today's demanding designs. These transformers are available for a wide variety of applications. The line of Red Spec audio transformers is designed and constructed to meet the rigid requirements of MIL-T-27E. These transformers feature an epoxy molded case, gold plated leads and exceptional operation from 300 Hz to 100 kHz.

:: Specifications

Frequency Response Ranges: 300 Hz to 100 kHz

:: Red Spec Printed Circuit Audio Transformers

Section	Type No.	Mil Type No.	Power Level in mW	Matching Impedance		Max. mA DC Unbalanced in Primary	DC Resistance		Overall Turns Ratio	Figure No.
				Primary	Secondary		Primary	Secondary		
A	SP-4	TF5S21ZZ	10	200,000 CT	1,000 CT	0.0	5,300.0	100.0	14.1:1.0	3
B	SP-5	TF5S21ZZ	25	50,000 CT	1,000 CT	0.0	3,800.0	75.0	7.1:1.0	3
C	SP-13	TF5S21ZZ	40	25,000 CT/20,000 CT	1,000/800 CT	0.5	1,700.0	115.0	5.0:1.0	3
D	SP-20	TF5S21ZZ	50	10,000 CT	1,200 CT	1.0	1,050.0	200.0	2.88:1.0	3
	SP-21	TF5S21ZZ	50	10,000 CT	2,000 CT	1.0	1,050.0	330.0	2.24:1.0	3
	SP-22	TF5S21ZZ	50	10,000	2,000 CT/500§	1.0	1,050.0	146.0/168.0§	4.48:1.0:1.0	4
	SP-29	TF5S21ZZ	50	10,000 CT	500 CT	1.0	1,050.0	80.0	4.47:1.0	3
	SP-32	TF5S21ZZ	50	500	50	3.0	60	8	3:15:1.0	1
	SP-33	TF5S21ZZ	50	1,000	50	3.0	145.0	8.0	4.4:1.0	1
	SP-42	TF5S21ZZ	50	150 CT	12	10.0	18.0	2.7	3.54:1.0	2
	SP-48	TF5S21ZZ	50	7,500 CT	12	1.0	796.0	2.9	25.0:1.0	2
	SP-49	TF5S21ZZ	50	300CT	600	7.0	41.0	98.0	1.0:1.42	2
	SP-50	TF5S21ZZ	50	500 CT	600	3.0	67.0	98.0	1.0:1.1	2
	SP-51	TF5S21ZZ	50	900 CT	600	4.0	104.0	96.0	1.22:1.0	2
	SP-52	TF5S21ZZ	50	1,500 CT	600	3.0	168.0	92.0	1.58:1.0	2
	SP-66	TF5S21ZZ	50	10,000 CT	10,000 CT	1.0	1,000.0	1,300.0	1.0:1.0	3
	SP-67	TF5S21ZZ	50	600 CT	600 CT	3.0	72.0	92.0	1.0:1.0	3
SP-68	TF5S21ZZ	50	10,000	10,000 CT/2,500§	1.0	1,000.0	565.0/650.0§	2.1:1.0	4	
SP-69	TF5S21ZZ	50	600	600 CT/150§	3.0	72.0	40.0/45.0§	2.0:1.0:1.0	4	
SP-70	TF5S21ZZ	50	600	600	3.0	72.0	92.0	1.0:1.0	1	
E	SP-128	TF5S21ZZ	•	0.1H	•	5.0	15.0	•	•	5
	SP-310	Mu Shield Only								

CT = Center Tap § Split secondary

:: Outline Dimensions

Technical Notes

1. Plug-in terminals are precision spaced to provide fixed mounting centers.

2. Red Spec transformers are hi-pot tested at 1,000 VRMS.

3. 150 VDC working voltage.

4. Red Spec transformers feature small footprint base dimensions of .310 by .410 inch.

5. Pin diameter = .020 inch.

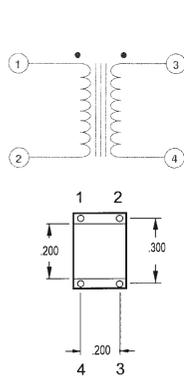


Figure 1

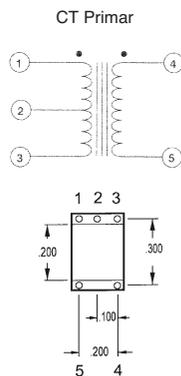


Figure 2

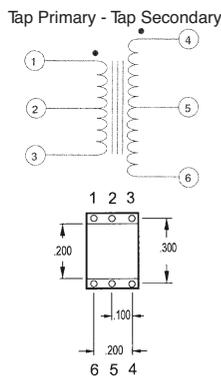


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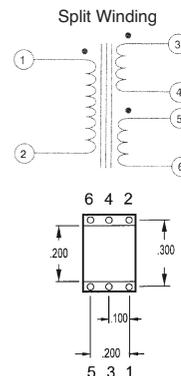


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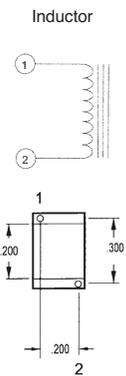


Figure 5

Audio Transformers

PC Mount

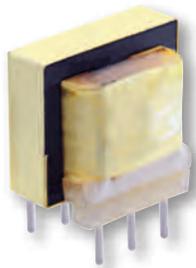


Figure A

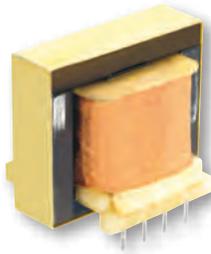


Figure B

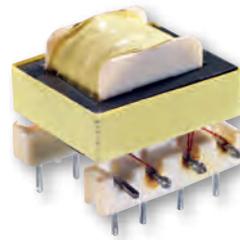


Figure C

:: Description

Triad produces a wide assortment of audio transformers for use in printed circuit designs. These transformers fill a broad application spectrum in the audio industry. Triad audio printed circuit transformers are used in line matching, telephone coupling, pulse trigger, interstage, output, isolation and input applications.

:: Specifications

Frequency Response Range From: 200 - 15 KHz*

20 - 20,000 Hz

Impedance Matching: 10% over frequency range

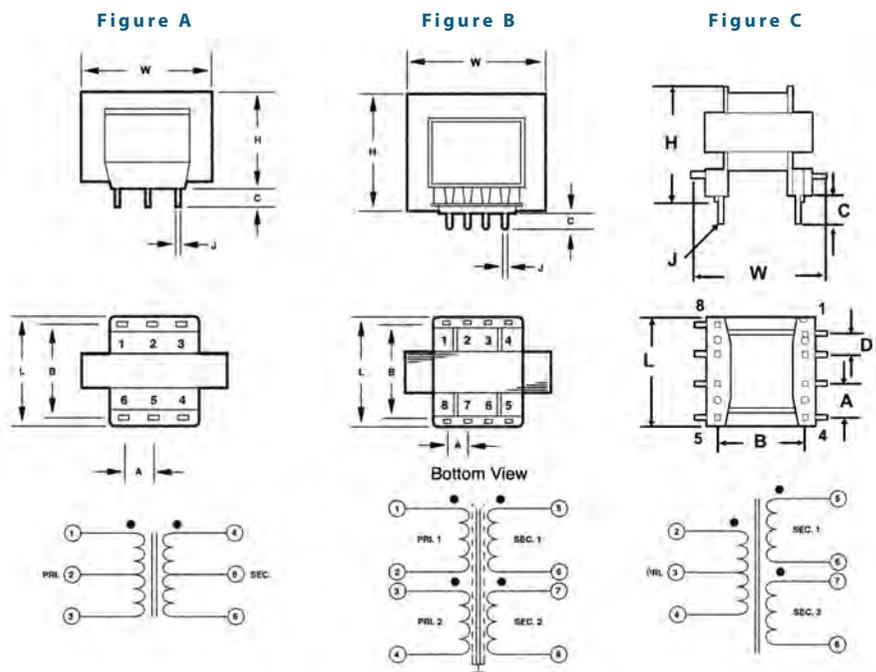
:: Plug-in Printed Circuit Audio Transformers

Section	Type No.	Output mW	Primary Impedance	Secondary Impedance	Figure	Pri. DC Unbalance	Dimensions (in)								Wt. Oz.
							H	W	L	A	B	C	D	J	
A	TY-141P*	100	10,000 CT	10,000 CT	A	4mA	0.740	0.812	0.700	0.421	0.421	0.187	•	0.042	0.51
	TY-142P*	100	10,000 CT	2,000 CT	A	4mA	0.740	0.812	0.700	0.421	0.421	0.187	•	0.042	0.51
	TY-144P*	100	15,000 CT	15,000 CT	A	4mA	0.740	0.812	0.700	0.421	0.421	0.187	•	0.042	0.51
	TY-145P*	100	600 CT	600 CT	A	15mA	0.740	0.812	0.700	0.421	0.421	0.187	•	0.042	0.51
	TY-146P*	1000	600 CT/150§	600 CT/150§	B	•	1.187	1.187	1.375	0.203	1.031	0.187	•	0.042	3.0
	TY-250P	20	1000 CT	1000 CT/250§	C	4mA	0.700	0.900	0.770	0.200	0.520	0.200	0.150	0.025	0.4

§ Split secondary † 600:600Ω, 10K:10KΩ, 100K:100KΩ, 1M:1MΩ, and other impedances are optional as long as input voltage is ≤4.2Vrms and current is ≤7mA.

Technical Notes

1. Plug-in terminals are spaced to provide fixed mounting centers.



Audio Transformers

Data/Voice Coupling



Figure A

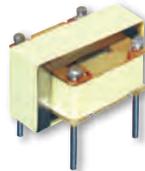


Figure B



Figure C



Figure D



Figure E

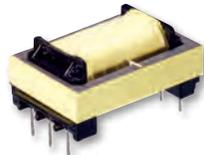


Figure F



Figure G



Figure H



Figure I

:: Description

Triad telecommunications transformers are designed to meet the requirements for access over leased private lines or through the dial-up switched telephone network. The TY series transformers are used for a variety of applications including impedance matching, isolation, repeat coil, line balancing, bridging, and hybrid circuits.

:: Specifications

Designed to meet FCC Part 68

Longitudinal Balance: (FCC 68.310) - 60 dB min. 200 - 1,000 Hz
45 dB min. 1,000 - 4,000 Hz

Dielectric Strength: (FCC 68.304) - 1,500 V

Power Level: -45 dBm to +7 dBm

Frequency Range: Data / Voice = 300 to 3,500 Hz
Data = 800 to 3,500 Hz

:: Data/Voice Coupling Transformers

Section	Type No.	Impedance (Ohms)		Max. DC Current (mA)	Typ. Insertion Loss (dB)	Typ. Return Loss (dB)	Typ. Freq. Response (dB)	Schematic	Figure
		Pri.	Sec.						
A	TY-305P	600	600	100	1.5	10	±5	1	A
B	TY-306P	600 Split	600	75	1.5	10	±5	2	A
C	TY-307P	600	600	0	1.0	26	±5	3	B
D	TY-311P	600	600	0	1.0	26	±5	3	D
E	TY-304P	600 CT	600 CT	0	1.0	26	±5	4	C
F	TY-301P	600	900	0	1.0	26	±5	5	D
G	TY-303P	4000	600	0	1.0	26	±5	6	D

CT = Center Tap

:: Data/Voice Coupling Transformers

Section	Type No.	Impedance (Ohms)		Max. DC Current (mA)	Typ. Insertion Loss (dB)	Typ. Return Loss (dB)	Typ. Freq. Response (dB)	Schematic	Figure
		Pri.	Sec.						
H	TY-400P	600	600	90	1.75	15	±5	3	H
I	TY-401P	600 CT	600 CT	90	1.75	15	±5	4	I
J	TY-402P	600	600	90	1.75	13	±5	7	E
K	TY-403P	600	600 Split	90	1.75	13	±5	8	F

CT = Center Tap

:: Data/Voice Single Transformer Hybrids

Section	Type No.	Impedance (Ohms)		Max. DC Current (mA)	Typ. Insertion Loss (dB)	Typ. Return Loss (dB)	Trans-Hybrid Loss (dB)	Schematic	Figure
		Pri.	Sec.						
L	TY-300P	600 (4W)	600/600	0	.80	30	50	9	C
M	TY-302P	600 (4W)	600/600	0	.65	32	55	9	G

:: Outline Dimensions

Technical Notes

Primary connections shown on left side of schematics.

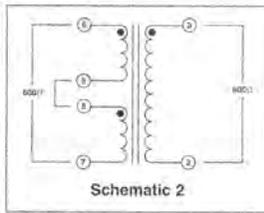
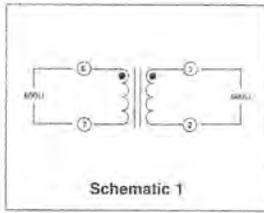


Figure A

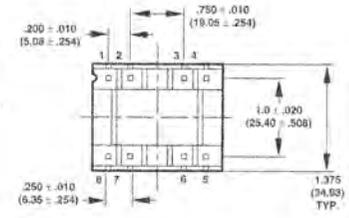
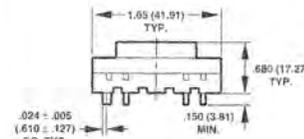


Figure B

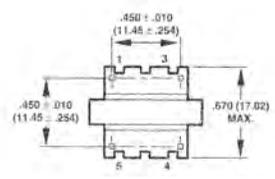
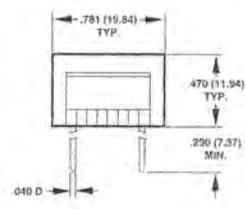
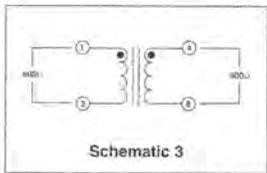


Figure C

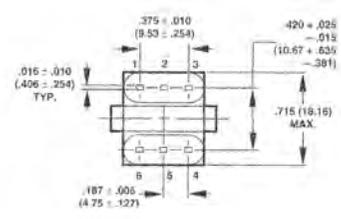
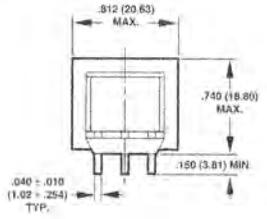
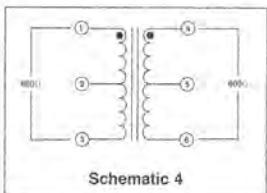


Figure D

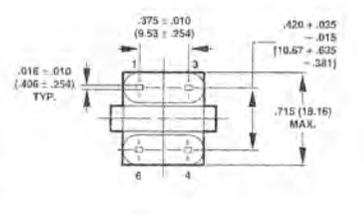
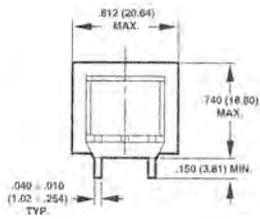
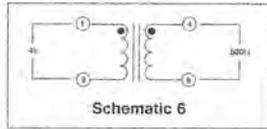
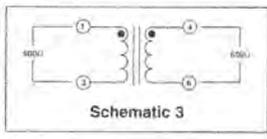
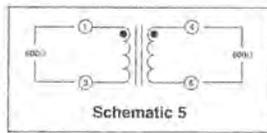
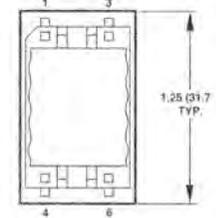
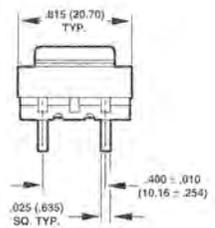
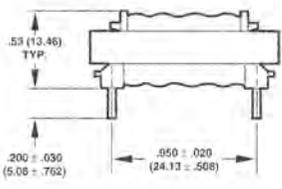
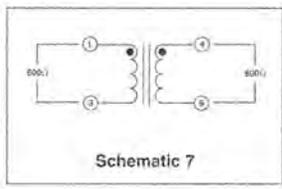
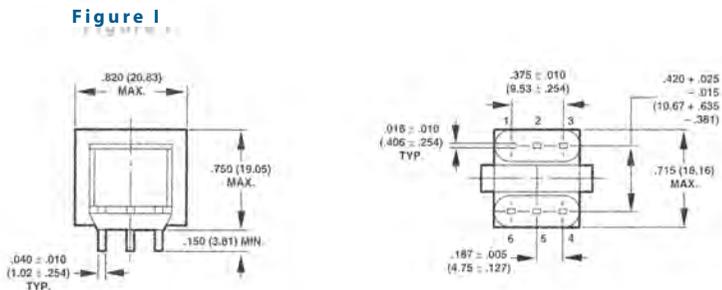
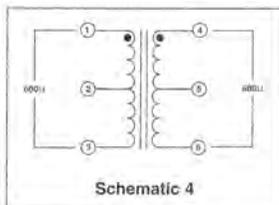
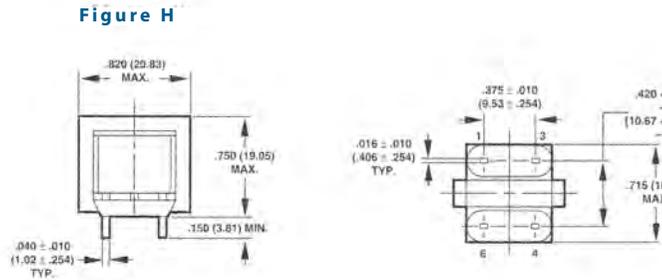
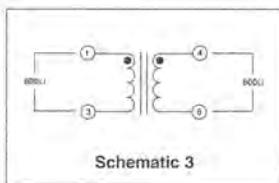
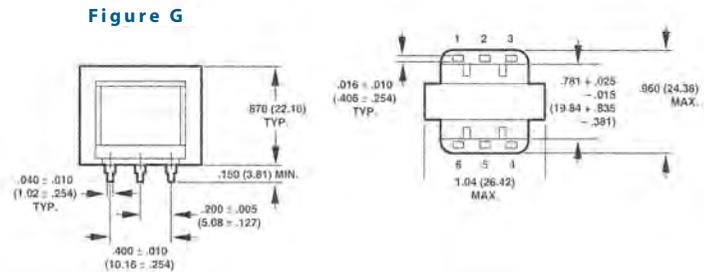
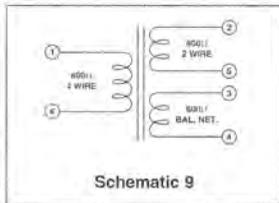
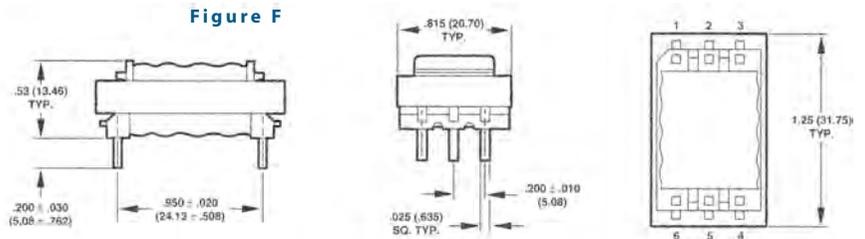
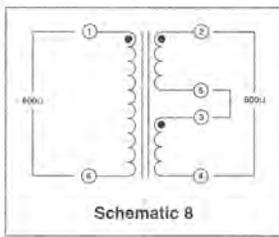


Figure E



:: Outline Dimensions



Engineering Sample Kits

Development / Design



:: Description

These kits contain representative samples of all our high frequency inductors and transformers organized by product type. The kits include all values, packaging styles and sizes available as standard products within that product series. They are useful for a variety of developmental needs including circuit simulation, circuit testing, prototyping and agency evaluation. All items carry appropriate agency approvals and meet specifications listed in the catalog section referring to the product (see page notation accompanying the kit for individual product specifications). The kits are housed in an easy to see, easy to store clear polycarbonate box with a convenient snap closing hinged lid. Call your Triad representative for details.



Kit CST206K

CST206-1A CST206-2T
CST206-1T CST206-3A
CST206-2A CST206-3T

See page 21



Kit CST306K

CST306-1A CST306-2T
CST306-1T CST306-3A
CST306-2A CST306-3T

See page 21



Kit GDE25K

GDE25-1 GDE25-4
GDE25-2 GDE25-5
GDE25-3 GDE25-6

See page 33



Kit CME2425K

CME2425-1 CME2425-6
CME2425-2 CME2425-7
CME2425-3 CME2425-8
CME2425-4 CME2425-9
CME2425-5

See page 26



Kit CME375K

CME375-1 CME375-6
CME375-2 CME375-7
CME375-3 CME375-8
CME375-4 CME375-9
CME375-5

See page 26



Kit CMT908K

CMT908-V1 CMT908-H1
CMT908-V2 CMT908-H2
CMT908-V3 CMT908-H3
CMT908-V4 CMT908-H4

See page 26



Kit FIRCHK

FIRCH-1 FIRCH-4
FIRCH-2 FIRCH-5
FIRCH-3 FIRCH-6

See page 32



Kit RCK

RC-1 RC-7
RC-2 RC-8
RC-3 RC-9
RC-4 RC-10
RC-5 RC-11
RC-6

See page 32



Kit FITK

FIT44-1 FIT68-1 FIT80-5
FIT44-2 FIT68-2 FIT80-6
FIT44-3 FIT68-3
FIT44-4 FIT68-4 FIT106-1
FIT68-5 FIT106-2
FIT50-1 FIT68-6 FIT106-3
FIT50-2 FIT68-7 FIT106-4
FIT50-3 FIT106-5
FIT50-4 FIT80-1 FIT106-6
FIT50-5 FIT80-2
FIT50-6 FIT80-3
FIT50-7 FIT80-4

See page 31



Kit CMT-8100K

CMT-8101 CMT-8112
CMT-8102 CMT-8113
CMT-8103 CMT-8114
CMT-8104 CMT-8115
CMT-8105 CMT-8116
CMT-8106 CMT-8117
CMT-8107 CMT-8118
CMT-8108 CMT-8119
CMT-8109 CMT-8120
CMT-8110 CMT-8121
CMT-8111

See page 30



Kit CMF23V

CMF23V-103231 CMF23V-473111
CMF23V-153191 CMF23V-683900
CMF23V-273141 CMF23V-104700
CMF23V-393121

See page 24



Kit CMF23H

CMF23H-103231
CMF23H-153191
CMF23H-273141
CMF23H-393121
CMF23H-473111
CMF23H-683900
CMF23H-104700

See page 24



Kit CMF16K

CMF16-103161 CMF16-473700
CMF16-153131 CMF16-683600
CMF16-273900 CMF16-104450
CMF16-393800

See page 24

Current Sense Transformers

High Frequency

:: CST206/306 Description

Designed for switching power supply applications, Triad current sense transformers are used to detect the current passing through a conductor.

These transformers are very reliable and operate effectively over the frequency range of 20 kHz-200 kHz. They are constructed of UL rated 130°C materials. Both models are available with a center tap option.

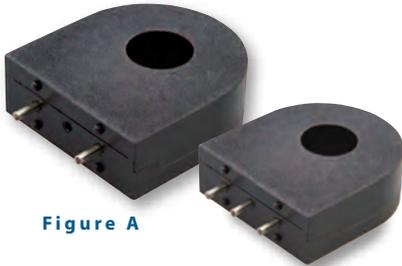


Figure A

Figure B

Section/ Figure	Type No.	Max. ET VpSE REF 20 kHz	Turns Count	Min. Ind. mH	DCR Max. Ohms	Pri. Amps
A	CST206-1A	2000	100	14.0	.580	110.0 RMS
A	CST206-1T	2000	100 CT	14.0	.580	110.0 RMS
A	CST206-2A	4000	200	56.0	3.500	80.0 RMS
A	CST206-2T	4000	200 CT	56.0	3.500	80.0 RMS
A	CST206-3A	6000	300	130.0	12.400	70.0 RMS
A	CST206-3T	6000	300 CT	130.0	12.400	70.0 RMS
B	CST306-1A	500	50	3.5	.340	35.0 RMS
B	CST306-1T	500	50 CT	3.5	.340	35.0 RMS
B	CST306-2A	1000	100	14.0	1.550	25.0 RMS
B	CST306-2T	1000	100 CT	14.0	1.550	25.0 RMS
B	CST306-3A	2000	200	55.0	3.750	25.0 RMS
B	CST306-3T	2000	200 CT	55.0	3.750	25.0 RMS

:: Outline Dimensions

Technical Notes

1. Derate ET product by 32% for 50 kHz - 100 kHz, 52% for 100 kHz - 200 kHz and 50% for unidirectional operation.
2. Rated primary current renders approximately 40°C temperature rise.

3. CST206 models have maximum recommended terminating resistance of 1 ohm per turn.
4. Primary is inserted through hole in casing.
5. 3 pin or center tapped (CT) models are designed with a T suffix.

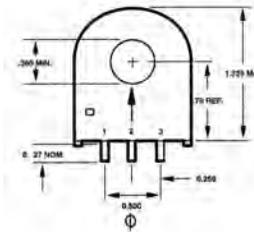


Figure A

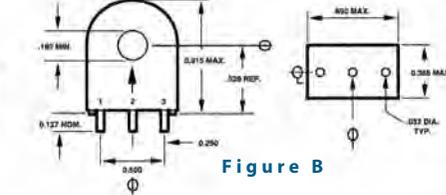
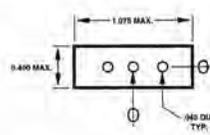


Figure B



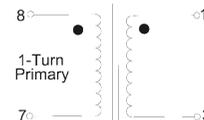
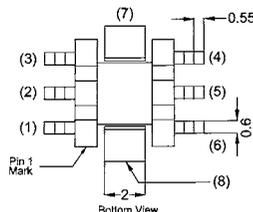
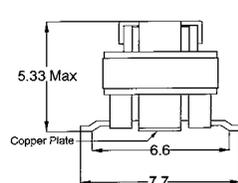
:: CSE5 Description

Designed to monitor current at 250 kHz and above. These transformers have a primary current rating of 10 Amps.

Part Number	Max. ET VpSE	Turns N1:N2	Secondary Inductance μ H Min.	Secondary DCR m Ω Max.	Color Identification Dot	Color Identification Tape
CSE5-100201	10.8	1:20	80	550	WHT	BLK
CSE5-100301	16.2	1:30	180	870	YEL	YEL
CSE5-100401	21.6	1:40	320	1140	RED	RED
CSE5-100501	27.0	1:50	500	1500	BLU	BLU
CSE5-100601	32.4	1:60	720	1750	BLU	BLK
CSE5-100701	37.8	1:70	980	4750	RED	YEL
CSE5-101001	54.0	1:100	2000	5500	YEL	RED
CSE5-101251	67.5	1:125	3000	8500	WHT	BLU

:: Outline Dimensions

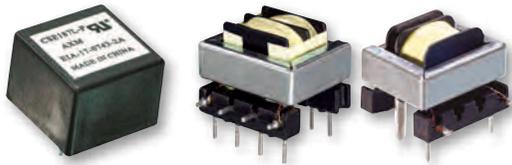
Technical Notes



Current Sense Transformers

Class B
UL File: E205349
UL File: E344936*

Low Frequency



:: Description

Designed to monitor current in low frequency applications.

:: Specifications

Section	Part No.	V ² usec ET Product (Max)	Turns Ratio	Primary DCR mΩ Max	Secondary DCR mΩ Max	Figure	Construction
A	CSE184L	30000	1:16.67	125	23	1	Open Frame
	CSE185L	30000	1:50	19.5	23	1	Open Frame
	CSE186L	30000	1:166	2.0	23	2	Open Frame
	CSE187L	30000	1:500	0.27	21	3	Open Frame
B	CSE187L-P*	30000	1:500	0.27	21	4	Potted

:: Outline Dimensions

Figure 1

Figure 2

Figure 3

Figure 4

Technical Notes

- Suggested burden resistor: 60 ohms.
- Constructed with UL recognized materials (Class B, 130°C).
- Hi-pot: 2,500 volts wdg-wdg.
- Potted version available with a dielectric strength of 4,000 volts wdg-wdg.

Current Sense Transformers

Class B

UL File: E205349 

Low Frequency



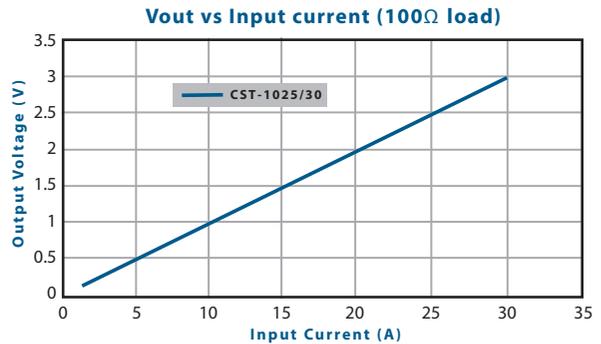
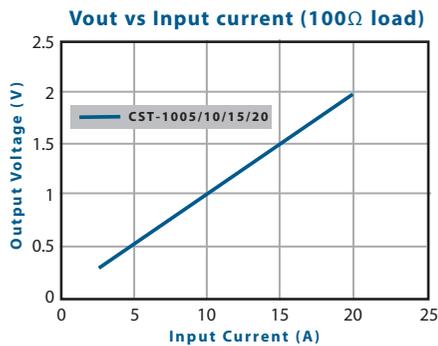
:: CST Series Description

Triad current sense transformers are used to detect the current passing through a conductor. These transformers are very reliable and operate effectively between 50-60 Hz. They are constructed of UL rated 130°C materials.

:: Specifications

Section	Part No.	Ip Amps	Turns Ratio	Terminating Resistor		DCR (100 Ω) Nominal	Volts/Amp @ Rated Ip 100Ω	Max. Voltage @ 50 Hz	Dimensions (mm)					
				Ohms	Watts				A	B	C	D	E	F
A	CST-1005	5	1000:1	100	0.0025	40.00	0.0958	5 V	23.50	24.80	12.00	15.00	7.50	8.50
	CST-1010	10	1000:1	100	0.0100	40.00	0.0969	5 V	23.50	24.80	12.00	15.00	7.50	8.50
	CST-1015	15	1000:1	100	0.0230	40.00	0.0971	5 V	23.50	24.80	12.00	15.00	7.50	8.50
	CST-1020	20	1000:1	100	0.0400	40.00	0.0977	5 V	23.50	24.80	12.00	15.00	7.50	8.50
B	CST-1025	25	1000:1	100	0.0630	46.00	0.0976	10 V	30.20	30.20	14.30	20.32	10.16	11.40
	CST-1030	30	1000:1	100	0.0900	46.00	0.0977	10 V	30.20	30.20	14.30	20.32	10.16	11.40

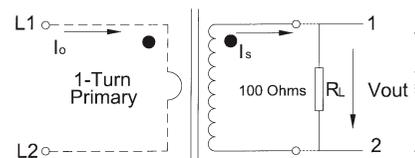
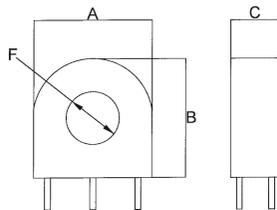
Ip: Primary Current



:: Outline Dimensions

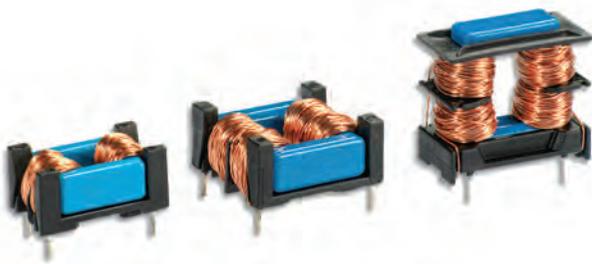
Technical Notes

1. Pin length: 5 ±1mm
2. Pin diameter: 0.8 ±0.1mm
3. Pin 3 normally for mechanical support only
4. 4KV Dielectric
5. Net weight:
CST-1005 to CST1020 - 20 grams
CST-1025, CST1030 - 30 grams



Chokes

Common Mode/Differential Mode Choke Inductor



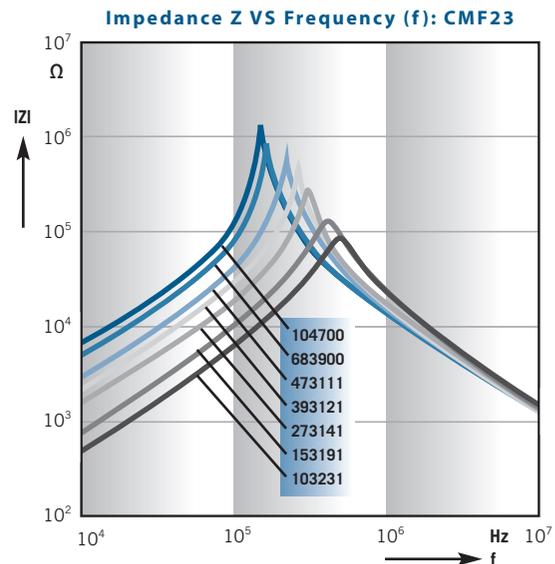
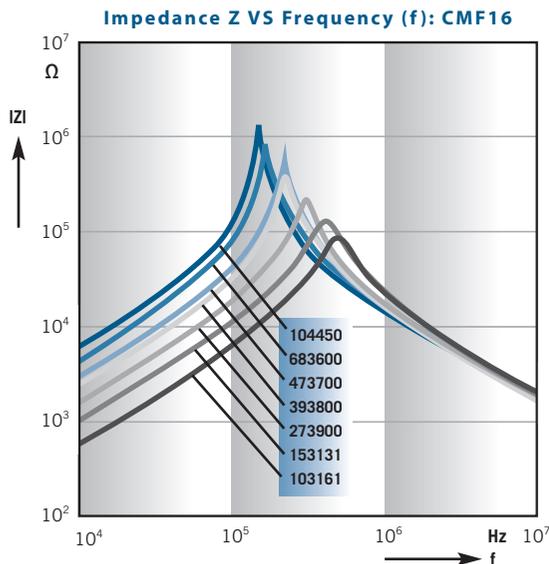
:: Description

Triad's CMF Series provides exceptional common-mode suppression and stray inductance to suppress differential-mode noise. The CMF Series combines the features of two separate components into one. They are compact in size and are available in either a vertical configuration package that requires minimal board area or a horizontal configuration package for low profile applications. They are frequently used in LED lighting, electronics ballast, switch mode power supplies and other power applications.

:: Electrical Specifications (@ 20 °C)

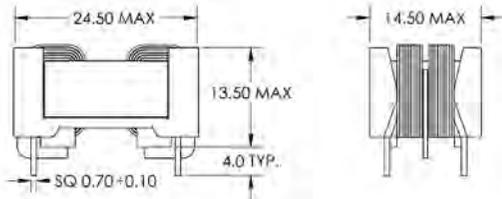
Section	Part Number	Rated Current (A)	Rated Inductance (mH)	Resistance (mohms)	Stray Inductance (uH)	Mechanical Dimension HxWxL (mm)	Pin Mounting Pattern (mm)
A	CMF16-103161	1.60	10	290	200	13.5 x 15.0 x 24.5	10.0 x 18.75
	CMF16-153131	1.30	15	430	290	13.5 x 15.0 x 24.5	10.0 x 18.75
	CMF16-273900	0.90	27	770	520	13.5 x 15.0 x 24.5	10.0 x 18.75
	CMF16-393800	0.80	39	1100	760	13.5 x 15.0 x 24.5	10.0 x 18.75
	CMF16-473700	0.70	47	1260	920	13.5 x 15.0 x 24.5	10.0 x 18.75
	CMF16-683600	0.60	68	1970	1340	13.5 x 15.0 x 24.5	10.0 x 18.75
	CMF16-104450	0.45	100	2930	1930	13.5 x 15.0 x 24.5	10.0 x 18.75
B	CMF23H-103231	2.30	10	188	200	14.0 x 24.8 x 26.5	20.0 x 22.5
	CMF23H-153191	1.90	15	279	310	14.0 x 24.8 x 26.5	20.0 x 22.5
	CMF23H-273141	1.40	27	440	530	14.0 x 24.8 x 26.5	20.0 x 22.5
	CMF23H-393121	1.20	39	696	800	14.0 x 24.8 x 26.5	20.0 x 22.5
	CMF23H-473111	1.10	47	804	970	14.0 x 24.8 x 26.5	20.0 x 22.5
	CMF23H-683900	0.90	68	1100	1440	14.0 x 24.8 x 26.5	20.0 x 22.5
	CMF23H-104700	0.70	100	1810	2100	14.0 x 24.8 x 26.5	20.0 x 22.5
C	CMF23V-103231	2.30	10	188	200	27.0 x 15.5 x 29.0	10.0 x 18.75
	CMF23V-153191	1.90	15	279	310	27.0 x 15.5 x 29.0	10.0 x 18.75
	CMF23V-273141	1.40	27	440	530	27.0 x 15.5 x 29.0	10.0 x 18.75
	CMF23V-393121	1.20	39	696	800	27.0 x 15.5 x 29.0	10.0 x 18.75
	CMF23V-473111	1.10	47	804	970	27.0 x 15.5 x 29.0	10.0 x 18.75
	CMF23V-683900	0.90	68	1100	1440	27.0 x 15.5 x 29.0	10.0 x 18.75
	CMF23V-104700	0.70	100	1810	2100	27.0 x 15.5 x 29.0	10.0 x 18.75

:: Response Curves (Common Mode)

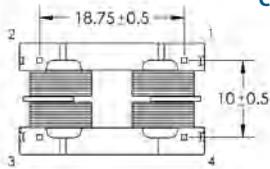


:: Outline Dimensions

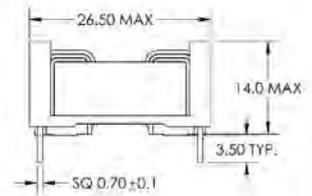
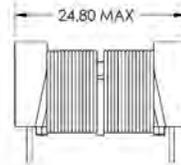
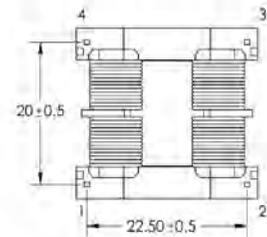
Technical Notes
[mm]



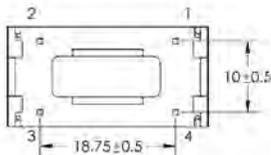
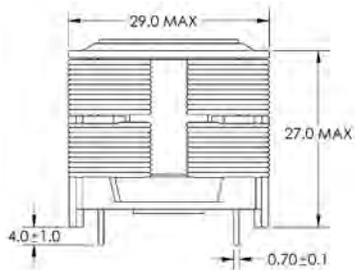
CMF16 Series



CMF23H Series



CMF23V Series



Common Mode Inductors

CME/CMT Series

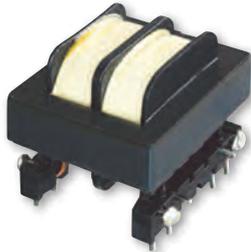


Figure A



Figure B



Figure C

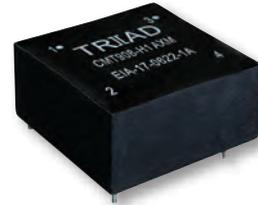


Figure D

:: Description

Highly dependable Triad common mode EMI suppression inductors are used in various types of power supplies to eliminate noise common to all lines. These units also provide effective differential mode filtering. They minimize AC line transmitted interference often created by high

frequency switching power supplies. Normally placed close to the input source, these compact inductors are constructed with UL rated 130°C materials.

:: E-Core Common Mode Inductors

Section	Type No.	Figure	Inductance mH min.	Amps R.M.S.	Max. DC Resistance	Min. Leakage	Dimensions (in)						Wt. Lbs.	
							H	W	L	A	B	C		D
A	CME375-1	A	4.40	5.500	.049 Ohms	45.0 µH	1.18	1.26	1.50	.150	.600	.200	.036 Sq.	0.54
	CME375-2		6.90	4.400	.077 Ohms	70.0 µH								
	CME375-3		10.9	3.500	.122 Ohms	125.0 µH								
	CME375-4		17.8	2.700	.196 Ohms	180.0 µH								
	CME375-5		28.6	2.200	.316 Ohms	300.0 µH								
	CME375-6		43.6	1.750	.489 Ohms	440.0 µH								
	CME375-7		70.3	1.380	.785 Ohms	720.0 µH								
	CME375-8		111.6	1.100	1.240 Ohms	1.1 mH								
	CME375-9		176.1	.870	1.980 Ohms	1.8 mH								
B	CME2425-1	B	1.05	2.50	.050 Ohms	9.0 µH	1.075	1.050	1.050	.125	.800	.610	.029 Sq.	.154
	CME2425-2		2.37	2.00	.080 Ohms	14.0 µH								
	CME2425-3		3.8	1.60	.127 Ohms	25.0 µH								
	CME2425-4		6.0	1.28	.202 Ohms	36.0 µH								
	CME2425-5		9.8	1.00	.319 Ohms	60.0 µH								
	CME2425-6		16.0	0.80	.500 Ohms	90.0 µH								
	CME2425-7		27.7	0.63	.820 Ohms	144.0 µH								
	CME2425-8		40.5	0.50	1.260 Ohms	240.0 µH								
	CME2425-9		67.5	0.40	2.020 Ohms	360.0 µH								

A CME375-KIT is available which includes each one of the components in section A.

A CME2425-KIT is available which includes each one of the components in section B.

:: Encapsulated Toroidal Inductors

Section	Type No.	Figure	Min. Inductance	Amps R.M.S.	Max. DC Resistance	Min. Leakage	Dimensions (in)					Wt. Lbs.
							H	W	L	A	B	
C	CMT908-V1	C	2.00 mH	7.50	.020 Ohms	25.0 µH	1.50	.800	1.45	.9	.6	.08
	CMT908-V2		4.00 mH	5.20	.040 Ohms	45.0 µH						
	CMT908-V3		8.00 mH	3.20	.120 Ohms	90.0 µH						
	CMT908-V4		16.00mH	2.60	.160 Ohms	180.0 µH						
D	CMT908-H1	D	2.00 mH	7.50	.020 Ohms	25.0 µH	.80	1.5	1.5	1.08	1.28	.120
	CMT908-H2		4.00 mH	5.20	.040 Ohms	45.0 µH						
	CMT908-H3		8.00 mH	3.20	.120 Ohms	90.0 µH						
	CMT908-H4		16.00 mH	2.60	.160 Ohms	180.0 µH						

A CMT908-KIT is available which includes one of each of the above listed components.

Common Mode Inductors

UT/ET Series



:: Description

Common-mode choke coils are useful in a wide range of applications for the prevention of electromagnetic interference (EMI) and radio frequency interference (RFI) from power supply lines and for prevention of malfunctioning of various electronic equipment. Features include low leakage flux, high self-resonant frequency, high impedance at applicable frequency and low stray capacitance in section winding.

:: Specifications

Rated Voltage: 250 VAC
Temperature Rise: 45°C maximum
Insulation Resistance: 100 M Ω minimum
Operating Temperature Range: -20 to 105°C
Dielectric Withstanding Voltage: 2,000 VAC

:: Vertical Configuration

Section	Figure	Part No.	Inductance (mH) Min.	Inductance Difference (µH) Max.	DCR Max. (Ω)	Rated Current (A)	Dimension WxLxH (mm)	Pin Mounting AxB (mm)	Weight Oz.
A	A	UT2024-006	9.00	300	1.40	0.50	23x18.5x23.5	13.0x10.0	.52
	A	UT2024-007	4.50	250	0.75	0.60	23x18.5x23.5	13.0x10.0	.52
	A	UT2024-008	2.50	200	0.40	0.70	23x18.5x23.5	13.0x10.0	.52
	A	UT2024-009	1.10	150	0.25	0.90	23x18.5x23.5	13.0x10.0	.52
	A	UT2024-010	0.45	100	0.13	1.00	23x18.5x23.5	13.0x10.0	.52
B	B	ET2432-018	36.00	400	2.70	0.50	26.5x19.5x31	13.0x10.0	.88
	B	ET2432-019	24.00	350	1.60	0.60	26.5x19.5x31	13.0x10.0	.88
	B	ET2432-020	9.20	300	0.75	0.70	26.5x19.5x31	13.0x10.0	.88
	B	ET2432-021	7.80	250	0.50	0.90	26.5x19.5x31	13.0x10.0	.88
	B	ET2432-022	5.20	200	0.34	1.00	26.5x19.5x31	13.0x10.0	.88
	B	ET2432-023	3.60	150	0.25	1.50	26.5x19.5x31	13.0x10.0	.88
	B	ET2432-024	3.20	100	0.20	2.00	26.5x19.5x31	13.0x10.0	.88
C	B	ET2835-034	120.00	2,500	2.60	0.50	31.5x23.5x37	13.0x10.0	1.40
	B	ET2835-035	92.00	2,000	2.00	0.60	31.5x23.5x37	13.0x10.0	1.40
	B	ET2835-036	66.00	1,500	1.50	0.70	31.5x23.5x37	13.0x10.0	1.40
	B	ET2835-037	36.00	1,000	0.80	0.90	31.5x23.5x37	13.0x10.0	1.40
	B	ET2835-038	25.00	500	0.60	1.00	31.5x23.5x37	13.0x10.0	1.40
	B	ET2835-039	15.50	350	0.32	1.50	31.5x23.5x37	13.0x10.0	1.40
	B	ET2835-040	10.00	200	0.25	2.00	31.5x23.5x37	13.0x10.0	1.40
	B	ET2835-041	8.00	150	0.19	2.50	31.5x23.5x37	13.0x10.0	1.40
	B	ET2835-042	5.00	100	0.10	3.00	31.5x23.5x37	13.0x10.0	1.40
D	B	ET3542-051	33.00	1,000	0.50	1.50	38x26x45	21.0x15.0	2.60
	B	ET3542-052	22.00	700	0.40	1.80	38x26x45	21.0x15.0	2.60
	B	ET3542-053	18.00	500	0.30	2.00	38x26x45	21.0x15.0	2.60
	B	ET3542-054	12.00	350	0.20	2.50	38x26x45	21.0x15.0	2.60
	B	ET3542-055	10.00	300	0.15	2.70	38x26x45	21.0x15.0	2.60
	B	ET3542-056	8.10	250	0.12	3.00	38x26x45	21.0x15.0	2.60
	B	ET3542-057	6.00	200	0.10	3.50	38x26x45	21.0x15.0	2.60
	B	ET3542-058	4.70	150	0.08	4.00	38x26x45	21.0x15.0	2.60

:: Horizontal Configuration

Section	Figure	Part No.	Inductance (mH) Min.	Inductance Difference (uH) Max.	DCR Max. (Ω)	Rated Current (A)	Dimension WxLxH (mm)	Pin Mounting Ax B (mm)	Weight Oz.
E	C	UT2020-001	9.00	300	1.40	0.50	24.5x23x20	13.0x10.0	.52
	C	UT2020-002	4.50	250	0.75	0.60	24.5x23x20	13.0x10.0	.52
	C	UT2020-003	2.50	200	0.40	0.70	24.5x23x20	13.0x10.0	.52
	C	UT2020-004	1.10	150	0.25	0.90	24.5x23x20	13.0x10.0	.52
	C	UT2020-005	0.45	100	0.13	1.00	24.5x23x20	13.0x10.0	.52
F	D	ET2424-011	36.00	400	2.70	0.50	26.5x26.5x23	21.0x15.0	.88
	D	ET2424-012	24.00	350	1.60	0.60	26.5x26.5x23	21.0x15.0	.88
	D	ET2424-013	9.20	300	0.75	0.70	26.5x26.5x23	21.0x15.0	.88
	D	ET2424-014	7.80	250	0.50	0.90	26.5x26.5x23	21.0x15.0	.88
	D	ET2424-015	5.20	200	0.34	1.00	26.5x26.5x23	21.0x15.0	.88
	D	ET2424-016	3.60	150	0.25	1.50	26.5x26.5x23	21.0x15.0	.88
G	D	ET2825-025	120.00	2,500	2.60	0.50	30x30x25	24.0x20.0	1.40
	D	ET2825-026	92.00	2,000	2.00	0.60	30x30x25	24.0x20.0	1.40
	D	ET2825-027	66.00	1,500	1.50	0.70	30x30x25	24.0x20.0	1.40
	D	ET2825-028	36.00	1,000	0.80	0.90	30x30x25	24.0x20.0	1.40
	D	ET2825-029	25.00	500	0.60	1.00	30x30x25	24.0x20.0	1.40
	D	ET2825-030	15.50	350	0.32	1.50	30x30x25	24.0x20.0	1.40
	D	ET2825-031	10.00	200	0.25	2.00	30x30x25	24.0x20.0	1.40
	D	ET2825-032	8.00	150	0.19	2.50	30x30x25	24.0x20.0	1.40
	D	ET2825-033	5.00	1.00	0.10	3.00	30x30x25	24.0x20.0	1.40

:: Outline Dimensions

Technical Notes

1. The inductance difference measures between the coil L1 and L2.

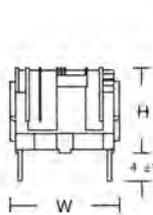


Figure A

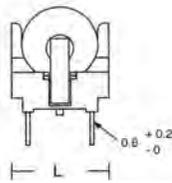


Figure B

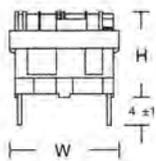
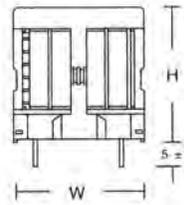


Figure C

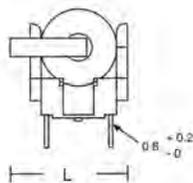
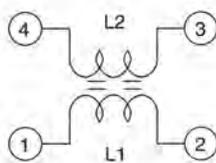
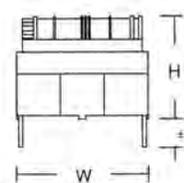
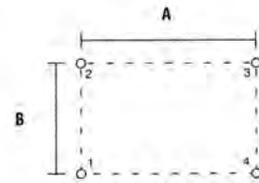


Figure D



Connection



Pin Mounting

Common Mode Inductors

CMT8100 Series



:: Description

Highly dependable Triad common mode EMI suppression inductors are used in various types of power supplies to eliminate noise common to all lines. These units also provide effective differential mode filtering. They minimize AC line transmitted interference often created by high frequency switching power supplies.

:: Specifications

Inductance Range From: 1.0 to 50 mH
Current Rating From: 1.7 to 20 ARMS

Dielectric Strength: 1500 VRMS
Operating Temperature: -55 to 105°C

:: CMT8100 Series

Section	Part Number	Figure	L (mH) min. @ 1 KHz	I(A) Max.	DCR (Ω) Max.	Dimensions (in)						
						A Max.	B ±0.01	C ±0.015	D ±0.015	E Max.	F Max.	G Min.
A	CMT-8101	1	4.0	1.7	0.173	0.600	0.600	0.600	0.250	0.90	0.040	0.15
	CMT-8102	1	2.5	2.4	0.09	0.600	0.600	0.600	0.250	0.90	0.040	0.15
	CMT-8103	1	1.0	4.8	0.022	0.600	0.600	0.600	0.250	0.90	0.040	0.15
B	CMT-8104	2	10.0	2.4	0.17	1.20	0.60	0.800	0.400	1.20	0.050	0.15
	CMT-8105	2	7.0	2.8	0.12	1.20	0.60	0.800	0.400	1.20	0.050	0.15
	CMT-8106	2	5.0	3.7	0.07	1.20	0.60	0.800	0.400	1.20	0.050	0.15
	CMT-8107	2	2.0	6.6	0.022	1.20	0.60	0.800	0.400	1.20	0.050	0.15
	CMT-8108	2	1.0	10.0	0.01	1.20	0.60	0.800	0.400	1.20	0.050	0.15
C	CMT-8109	2	30.0	2.3	0.33	1.35	0.80	0.900	0.600	1.45	0.050	0.15
	CMT-8110	2	20.0	2.9	0.21	1.35	0.80	0.900	0.600	1.45	0.050	0.15
	CMT-8111	2	12.0	4.0	0.11	1.35	0.80	0.900	0.600	1.45	0.050	0.15
	CMT-8112	2	8.0	5.6	0.055	1.35	0.80	0.900	0.600	1.45	0.050	0.15
D	CMT-8113	2	5.0	8.9	0.022	1.45	0.80	0.900	0.600	1.50	0.050	0.15
	CMT-8114	2	2.5	12.5	0.011	1.45	0.80	0.900	0.600	1.50	0.053	0.15
	CMT-8115	2	1.2	16.0	0.006	1.50	0.80	0.900	0.600	1.53	0.060	0.15
E	CMT-8116	2	50.0	2.3	0.45	1.55	0.80	0.900	0.600	1.65	0.050	0.15
	CMT-8117	2	36.0	2.9	0.30	1.55	0.80	0.900	0.600	1.65	0.050	0.15
	CMT-8118	2	7.3	9.3	0.032	1.65	0.80	0.900	0.600	1.65	0.043	0.15
F	CMT-8119	2	4.0	14.5	0.012	1.70	0.90	1.200	0.700	1.65	0.060	0.15
	CMT-8120	2	2.4	17.0	0.008	1.70	0.90	1.200	0.700	1.65	0.067	0.15
	CMT-8121	2	1.0	20.0	0.007	1.70	0.90	1.200	0.700	1.65	0.067	0.15

:: Outline Dimensions

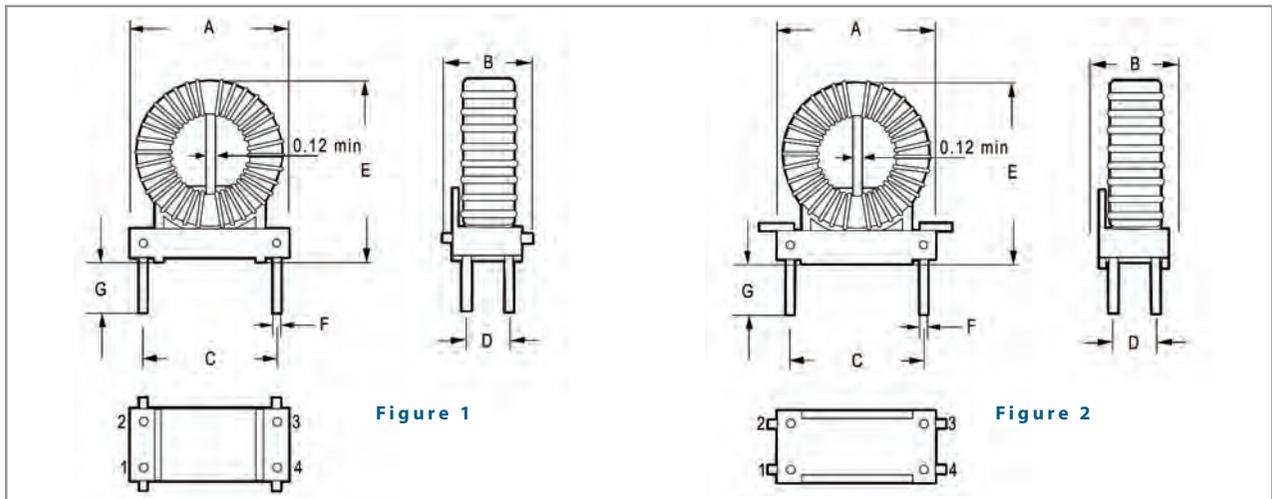


Figure 1

Figure 2

Differential Mode Inductors

Switchmode/high frequency



:: Description

Triad toroidal inductors are specifically designed to minimize transients. These devices store energy, and therefore, condition the output signal by leveling out the current waveform providing a more stable current supply. Generally used in high frequency circuits, our standardized design provides an economical solution in differential mode applications or as an output inductor.

:: Toroidal Inductors

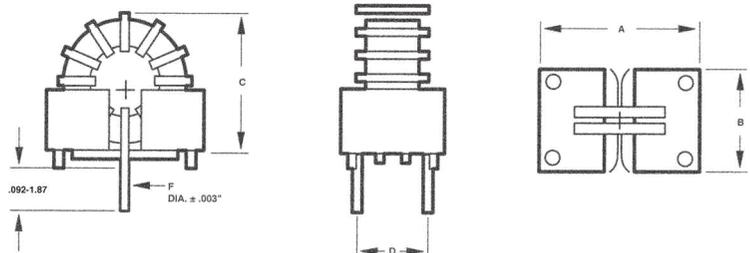
Section	Type No.	Min. Inductance (μ H)		Rated DC Amps	Max. DCR (mOhm)	Dimensions (in)					Wt. Lbs.
		No Bias	At Bias			A	B	C	D	E	
A	FIT44-1	18.85	12.72	2.8	44.8	0.625	0.350	0.700	0.250	0.020	.008
	FIT44-2	14.75	9.82	3.4	30.7						
	FIT44-3	12.30	7.75	4.0	23.4						
	FIT44-4	8.06	5.22	4.8	15.9						
B	FIT50-1	47.40	29.00	2.8	78.9	0.700	0.475	0.750	0.300	0.020	.012
	FIT50-2	35.48	23.77	3.4	57.8						
	FIT50-3	27.16	16.13	4.0	40.1						
	FIT50-4	21.65	12.27	4.8	29.2						
	FIT50-5	16.76	9.50	5.7	20.0						
	FIT50-6	12.50	6.75	6.8	14.0						
	FIT50-7	8.87	4.80	8.1	11.0						
C	FIT68-1	89.50	57.99	2.8	108.0	0.875	0.475	0.950	0.300	0.020	.026
	FIT68-2	71.10	41.59	3.4	86.1						
	FIT68-3	54.81	33.05	4.0	59.9						
	FIT68-4	43.30	26.63	4.8	42.4						
	FIT68-5	33.16	18.79	5.7	28.8						
	FIT68-6	24.31	13.56	6.8	20.2						
	FIT68-7	18.65	10.23	8.1	14.8						
D	FIT80-1	128.00	74.04	4.0	95.2	0.975	0.625	1.100	0.450	0.026	.045
	FIT80-2	107.50	58.05	4.8	67.9						
	FIT80-3	80.75	42.00	5.7	44.8						
	FIT80-4	65.04	31.60	6.8	32.8						
	FIT80-5	47.80	22.79	8.1	22.5						
	FIT80-6	38.70	18.11	9.7	17.0						
E	FIT106-1	253.00	153.00	4.0	139.0	1.300	0.725	1.400	0.500	0.026	.090
	FIT106-2	197.00	113.00	4.8	106.0						
	FIT106-3	154.00	84.00	5.7	74.0						
	FIT106-4	116.00	61.90	6.8	48.5						
	FIT106-5	94.50	48.00	8.1	39.1						
	FIT106-6	70.05	35.30	9.7	24.0						

A FIT-KIT is available which includes one of each of the above listed components.

:: Outline Dimensions

Technical Notes

- Nominal inductance values are typically 10% higher than minimal rating.
- Biased inductance measured at rated DC amps.
- Operation at rated current yields approximately 40°C temperature rise over 20°C ambient.



Rod Core Inductors

Switchmode / high frequency

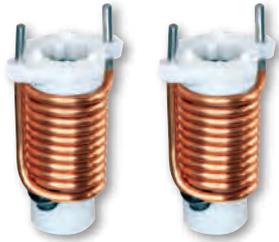


Figure A



Figure B

:: Description

Triad high current rod core inductors provide cost effective energy storage. By conditioning the output signal, the inductor smoothes out the current waveform to provide a more stable current. These low cost inductors are designed to be compatible with automated P.C.B. installation.

Operating frequency: 20 kHz - 200 kHz

:: High Current Rod Core Inductors

Section	Type No.	Color Code	Figure	±15% DC Rated Inductance µH	Max. Current	DC Resistance (mOhms)	Lead Diameter	Wt. Lbs.
A	FIRCH-1	Red Dot	A	2.54	11.60A	5.50	.050"	.015
	FIRCH-2	Yellow Dot		3.05	9.70A	7.30	.045"	
	FIRCH-3	Orange Dot		3.60	8.10A	9.95	.040	
	FIRCH-4	Green Dot		5.00	6.80A	14.10	.036"	
	FIRCH-5	Black Dot		5.90	5.70A	18.50	.032"	
	FIRCH-6	Brown Dot		7.22	4.80A	26.10	.028"	

A FIRCH-KIT is available which includes one of each of the above listed components.

:: Rod Core Inductors

Section	Type No.	Figure	10% Inductance	DC Rated Current	±15% DC Resistance Ohms	Dimensions (in)				Wt. Lbs.
						H	L	A	B	
B	RC-1	B	5.6 mH	.250A	6.100	.93	.600	.150	.375	.03
	RC-2		3.9 mH	.320A	3.900					
	RC-3		2.5 mH	.400A	2.450					
	RC-4		1.5 mH	.500A	1.530					
	RC-5		915.0 µH	.625A	1.000					
	RC-6		560.0 µH	.800A	.600					
	RC-7		450.0 µH	1.000A	.420					
	RC-8		250.0 µH	1.250A	.210					
	RC-9		200.0 µH	1.600A	.180					
	RC-10		100.0 µH	2.000A	.098					
	RC-11		75.0 µH	2.500A	.070					

A RC-KIT is available which includes one of each of the above listed components.

:: Outline Dimensions

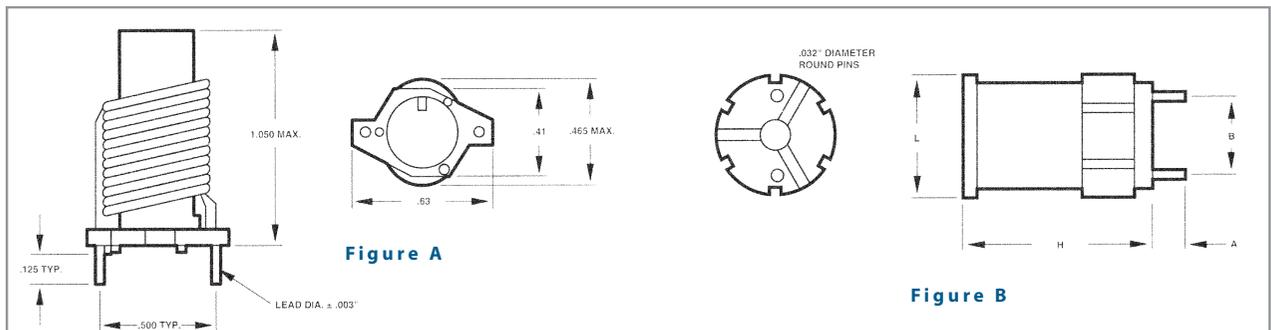


Figure A

Figure B

Technical Notes

Figure A

1. Rated current 40°C temperature rise.

Figure B

1. Rated current 10 amps per pin maximum.

2. Rated current renders approximately 40°C temperature rise.

Gate Drive Transformers

Switchmode / high frequency



:: Description

Triad gate drive transformers are used universally in all high frequency switching topologies to isolate the control circuitry from the line-connected switches. The windings are interleaved for the lowest possible practical leakage inductance. Turn ratios of 1:1 and 1:1.5 optimize coupling and enhance performance. Available with single or dual secondaries, these transformers constructed of UL rated 130°C materials are easily standardized at operating frequencies 200 kHz and beyond.

:: Gate Drive Transformers

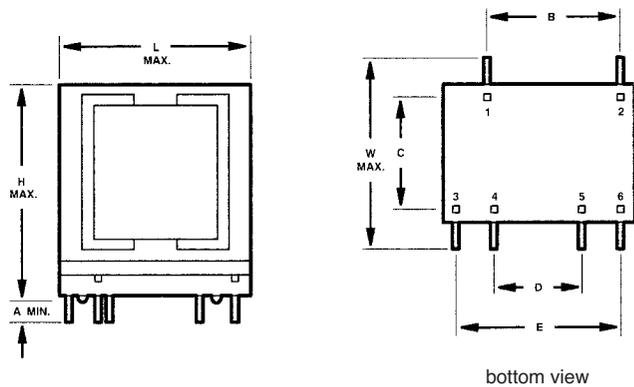
Section	Type No.	Max. DCR 1-2	Max. DCR Gate	Max. ET Product	Max. Leakage	Min. Inductance	Turns Ratio	Dimensions (in)							Wt. Oz.	
								H	W	L	A	B	C	D		E
A	GDE25-1	.350 Ohms	.350 Ohms	540 VµSec	2.5 µH	.680 mH	1:1	1.20	1.04	1.10	.150	.700	.600	.450	.850	.045
	GDE25-2	.350 Ohms	.650 Ohms	540 VµSec	2.5 µH	.680 mH	1:1:1									
	GDE25-3	.875 Ohms	.350 Ohms	840 VµSec	3.5 µH	1.50 mH	1.5:1									
	GDE25-4	.875 Ohms	.650 Ohms	840 VµSec	3.5 µH	1.50 mH	1.5:1:1									
	GDE25-5	.350 Ohms	.875 Ohms	540 VµSec	3.5 µH	.680 mH	1:1.5									
	GDE25-6	.350 Ohms	1.75 Ohms	540 VµSec	3.5 µH	.680 mH	1:1.5:1.5									

A GDE25 KIT is available which includes one of each of the above listed components.

:: Outline Dimensions

Technical Notes

1. Drive to gate winding hi-pot tested at 3,750 VRMS.
2. Derate ET product by 32% for 50 kHz, 50% for 100 kHz and 50% for unidirectional operation.
3. Operation at rated current per winding renders approximately 40°C temperature rise.



SMD Power Inductors

AX97 Series SMD Power Inductors



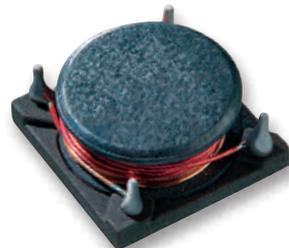
AX97-10XXX



AX97-20XXX



AX97-30XXX



AX97-40XXX

:: Description

Slim type
 Low resistance
 Excellent DC current characteristics

:: Applications

Laptop and notebook computers
 DC/DC converters
 Portable communication equipment
 Inductor for general purpose use

:: AX97 Series SMD Power Inductors

Part No.	A	B	C	D	E	F	Figure
AX97-10XX	$\frac{0.295}{7.30}$	$\frac{0.188}{4.78}$	$\frac{0.127}{3.23}$	$\frac{0.218}{5.54}$	$\frac{0.059}{1.50}$	$\frac{0.100}{2.54}$	1
AX97-20XX	$\frac{0.530}{13.46}$	$\frac{0.370}{9.40}$	$\frac{0.137}{3.50}$	$\frac{0.404}{10.26}$	$\frac{0.120}{3.05}$	$\frac{0.135}{3.43}$	1
AX97-30XX	$\frac{0.530}{13.46}$	$\frac{0.370}{9.40}$	$\frac{0.232}{5.90}$	$\frac{0.404}{10.26}$	$\frac{0.120}{3.05}$	$\frac{0.135}{3.43}$	1
AX97-40XX	$\frac{0.634}{16.10}$	$\frac{0.622}{15.80}$	$\frac{0.284}{7.21}$	$\frac{0.520}{13.21}$	$\frac{0.157}{4.00}$	$\frac{0.157}{4.00}$	2

:: Outline Dimensions

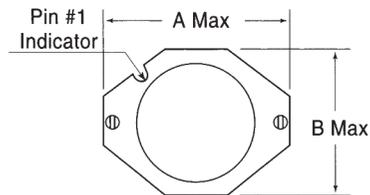
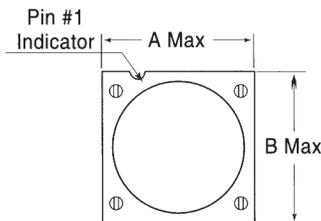
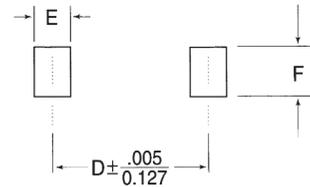
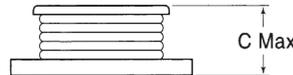
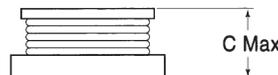


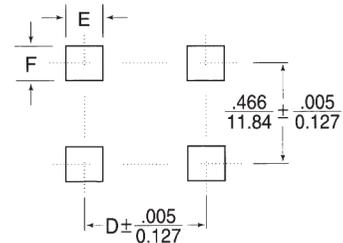
Figure 1



Top View



Side View



Recommended Solder Pad Layout

Figure 2

:: AX97 Series SMD Power Inductors

Part Number	Inductance ($\mu\text{H}\pm 20\%$) ⁽¹⁾	DC Resistance @ 25 Ω Max ⁽³⁾	Rated Current (Amp) ⁽²⁾	Figure
AX97-101R0	1.0	0.030	2.90	1
AX97-101R5	1.5	0.050	2.80	1
AX97-102R2	2.2	0.060	2.40	1
AX97-103R3	3.3	0.090	2.00	1
AX97-104R7	4.7	0.120	1.50	1
AX97-106R8	6.8	0.170	1.30	1
AX97-10100	10.0	0.220	1.00	1
AX97-10150	15.0	0.300	0.80	1
AX97-10220	22.0	0.430	0.70	1
AX97-10330	33.0	0.690	0.57	1
AX97-10470	47.0	0.920	0.46	1
AX97-10680	68.0	1.390	0.37	1
AX97-10101	100.0	1.980	0.28	1
AX97-10151	150.0	3.080	0.22	1
AX97-10221	220.0	4.470	0.18	1
AX97-10331	330.0	6.900	0.15	1
AX97-10471	470.0	11.550	0.12	1
AX97-20100	10.0	0.070	2.00	1
AX97-20150	15.0	0.090	1.50	1
AX97-20220	22.0	0.150	1.30	1
AX97-20330	33.0	0.210	1.10	1
AX97-20470	47.0	0.310	0.80	1
AX97-20680	68.0	0.420	0.70	1
AX97-20101	100.0	0.580	0.60	1
AX97-20151	150.0	0.890	0.50	1
AX97-20221	220.0	1.300	0.40	1
AX97-20331	330.0	2.000	0.30	1
AX98-20471	470.0	2.500	0.20	1
AX97-20681	680.0	3.500	0.10	1
AX97-20102	1000.0	6.000	0.05	1
AX97-301R0	1.0	0.010	8.50	1
AX97-301R5	1.5	0.010	7.90	1
AX97-302R2	2.2	0.020	7.40	1
AX97-303R3	3.3	0.020	6.60	1

Part Number	Inductance ($\mu\text{H}\pm 20\%$) ⁽¹⁾	DC Resistance @ 25 Ω Max ⁽³⁾	Rated Current (Amp) ⁽²⁾	Figure
AX97-304R7	4.7	0.020	6.00	1
AX98-306R8	6.8	0.030	5.20	1
AX97-308R2	8.2	0.030	5.00	1
AX97-30100	10.0	0.040	4.60	1
AX97-30150	15.0	0.050	3.70	1
AX97-30220	22.0	0.070	3.10	1
AX97-30330	33.0	0.110	2.50	1
AX97-30470	47.0	0.160	2.00	1
AX97-30680	68.0	0.200	1.80	1
AX97-30820	82.0	0.240	1.58	1
AX97-30101	100.00	0.3000	1.50	1
AX97-30151	150.00	0.4400	1.20	1
AX97-30221	220.00	0.6400	1.00	1
AX97-30331	330.00	1.0000	0.80	1
AX97-30471	470.00	1.5000	0.50	1
AX97-30681	680.00	2.2000	0.40	1
AX97-30102	1000.00	3.1500	0.30	1
AX97-403R3	3.30	0.0100	9.80	2
AX97-404R7	4.70	0.0100	9.30	2
AX97-406R8	6.80	0.0200	7.70	2
AX97-408R2	8.20	0.0200	7.00	2
AX97-40100	10.00	0.0200	6.50	2
AX97-40150	15.00	0.0300	5.30	2
AX97-40220	22.00	0.0400	4.40	2
AX97-40330	33.00	0.0600	3.50	2
AX97-40470	47.00	0.0700	3.00	2
AX97-40680	68.00	0.1100	2.50	2
AX97-40820	82.00	0.1200	2.20	2
AX97-40101	100.00	0.1500	2.00	2
AX97-40151	150.00	0.2200	1.70	2
AX97-40221	220.00	0.3300	1.30	2
AX97-40331	330.00	0.4500	1.10	2
AX97-40471	470.00	0.7000	0.93	2
AX97-40681	680.00	1.0000	0.78	2

Notes: 1. Inductance measured at 100.0KHz, 0.1Vrms, without DC current.

2. Rated DC current is the approximate current at which inductance will be decreased by 10% from its initial (zero DC) value or the DC current at which $\varnothing T=40^\circ$, whichever is lower.

3. For AX97-40 Series, resistance measured with both windings conducted in parallel.

SMD Power Inductors

AX104R Series SMD Power Shield Inductors



:: Description

- Slim type
- Self shielded
- Height: 4.0mm maximum
- Low resistance
- Excellent DC current characteristics

:: Applications

- Laptop and notebook computers
- DC/DC converters
- Portable communication equipment
- Inductor for general purpose use

:: AX104R Series SMD Power Shielded Inductors

Model	Inductance ⁽¹⁾ µH	Rated DC ⁽²⁾ Current Amps	DC resistance ⁽³⁾ Ω Max
AX104R-1R5	1.5	6.5	8.1m
AX104R-2R5	2.5	6.1	10m
AX104R-4R7	4.7	6.0	13m
AX104R-6R8	6.8	4.8	19.5m
AX104R-8R2	8.2	4.6	25m
AX104R-100	10.0	4.4	35m
AX104R-150	15.0	3.6	50m
AX104R-220	22.0	2.9	73m

Model	Inductance ⁽¹⁾ µH	Rated DC ⁽²⁾ Current Amps	mΩ Max
AX104R-330	33.0	2.30	93
AX104R-470	47.0	2.10	128
AX104R-680	68.0	1.50	213
AX104R-101	100.0	1.35	304
AX104R-151	150.0	1.15	506
AX104R-221	220.0	0.92	756
AX104R-331	330.0	0.70	1090

- Notes: 1. Inductance measured at 100 kHz 1.0 V without DC current. Tolerance: ±30% (N).
 2. Rated current is the approximate current at which inductance will be decreased by 35% from its initial (zero DC) value.
 3. DC Resistance measured at 20°C.

:: Outline Dimensions

Technical Notes
[mm]

Top View

Side View

Bottom View

Land Patterns

SMD Power Inductors

AX02 Series SMD Power Shielded Inductors



:: Description

Slim type
Self shielded
Height: 6.5mm maximum
Low resistance
Excellent DC current characteristics

:: Applications

Laptop and notebook computers
DC/DC converters
Inductor for general purpose use

:: AX02-30 Series SMD Power Shielded Inductors

Model	Inductance ⁽¹⁾ μH ±20%	Rated DC ⁽²⁾ Current Amps	The saturation ⁽³⁾ DC Current Amps	DC Resistance ⁽⁴⁾ mΩ Max
AX02-300R6	0.6	27.0	40.0	1.25
AX02-301R0	1.0	23.0	34.0	1.70
AX02-301R5	1.5	18.0	30.0	2.30
AX02-302R2	2.2	12.0	24.0	5.10
AX02-303R9	3.9	10.0	18.0	7.20
AX02-304R6	4.6	9.0	14.0	8.30
AX02-306R4	6.4	6.5	16.0	9.60

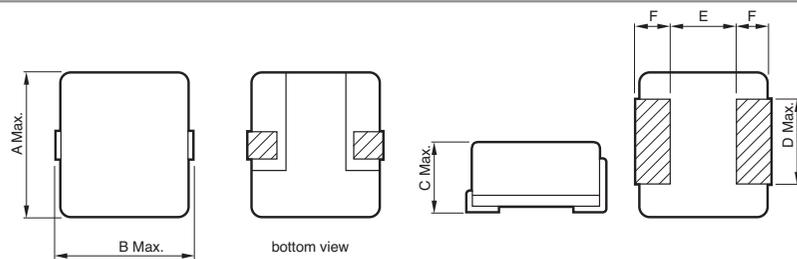
Notes: 1. Inductance measured at 100 kHz 1.0 V without DC current.
2. Rated current is the approximate current at which inductance will be decreased by 15% from its initial (zero DC) value.
3. The saturation DC current at which inductance rolls off approximately 30% from its initial value.
4. DC Resistance measured at 20°C.

:: Outline Dimensions

Technical Notes

A = .523 [13.3]
B = .590 [15.0]
C = .236 [6.50]
D = .295 [7.50]
E = .236 [6.00]
F = .177 [4.50]

Inches [mm]



AX1005-102K SMD Power Shielded Inductors



:: Description

Slim type; Height: 6mm maximum; Low resistance; Excellent DC current characteristics

:: Specifications

Part Number	Inductance μH±10% ⁽¹⁾	Q REF	SRF (MHz) Type	DC Resistance Ω Max	Rated Current Amp ⁽²⁾
AX1005-102K	1000	70	2	3.2	0.22

Notes: 1. Inductance measured at 1V, 100.0KHz without DC current.

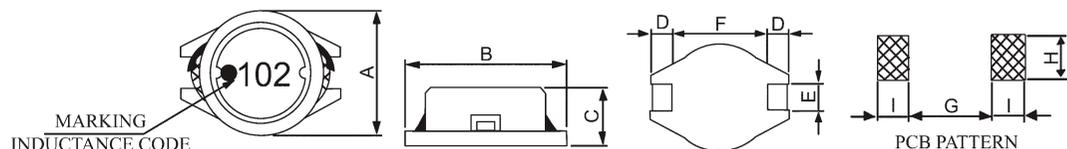
2. Rated DC current is the approximate current at which inductance will be decreased by 10% from its initial (zero DC) value or the DC current at which $\Delta T=40^{\circ}\text{C}$, whichever is lower.

:: Outline Dimensions

Technical Notes

A = .523 [13.3]
B = .590 [15.0]
C = .236 [6.50]
D = .295 [7.50]
E = .236 [6.00]
F = .177 [4.50]

Inches [mm]

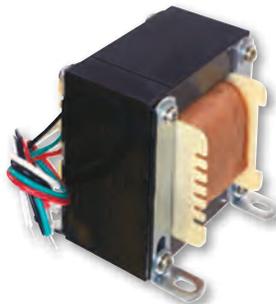


Chokes

Low frequency



Case Type X



Case Type U

:: Description

Triad chokes are manufactured in a wide variety of inductance values and physical configurations. Smoothing chokes are power supply filter chokes having a core with an air gap which prevents saturation at maximum direct current.

:: Specifications

Inductance Ranges: .005 to 15 H
DC Current Ranges: 0.010 to 22.5 A
Resistance Ranges: .06 to 3,500 Ohms

:: Smoothing Filter Chokes

Section	Type No.	Current DC A	Inductance†† Henries	Resistance Ohms	Case Type	Connections	lead Holes Used	Dimensions (in)					Wt. Lbs.
								H	W	D	MW	MD	
A	C-85X	0.010	1.500	70.00	X (1)	Leads	•	1¼	2½	1½	1¼	•	0.40
	C-1X	0.020	15.000	1,000.00	X (1)	Leads	•	1¾	2¾	1¼	1¼	•	0.21
	C-3X	0.050	10.000	500.00	X (1)	Leads	•	1¾	2¾	1½	2¾	•	0.60
B	C-8X	0.057	7.000	240.00	X (1)	Leads	•	1½	3½	1¾	2½	•	1.00
	C-7X	0.090	10.000	270.00	X (1)	Leads	•	1½	3½	2	2½	•	1.30
C	C-14X	0.200	6.000	150.00	X (1)	Leads	•	2¾	4	2¼	3¾	•	2.30
	C-24X	0.240	1.000	50.00	X (1)	Leads	•	1¾	2¾	1½	2¾	•	0.75
D	C-36X	0.300	0.500	30.00	X (1)	Leads	•	1¾	2¾	1½	2	•	0.50
E	C-17X	0.300	1.500	40.00	X (1)	Leads	•	2¾	3½	2	3¾	•	1.60
F	C-40X	0.600	0.320	10.00	X (1)	Leads	•	1½	3½	2	2½	•	1.30
	C-47U	1.0/2.0	0.3/0.075§	3.0/0.75	U (2)	Leads	•	3½	2¾	3¾	2¼	2½	4.60
	C-56U	2.0	0.0350	0.79	U (2)	Lugs	•	2¼	2¾	2	2¾	1¼	2.00
G	C-49U	5.0/10.0	0.032/0.008§	0.19/0.05	U (2)	Leads	•	4¼	3½	3¾	2¼	3¾	8.00
	C-59U	12.5	0.010	0.10	U (2)	Lugs	•	3½	4¾	3	3¾	2¾	6.25
	C-80U	20.0/40.0	0.024/0.006§	0.1/0.025	U (7)	Lugs	•	5¾	4¾	5½	2¼	4½	21.25
	C-60U	22.5	0.005	0.06	U (2)	Lugs	•	3¼	4½	4¾	3¼	3½	12.75

†† = Inductance tolerance - 20% + 50% § Split winding
 Mounting hole sizes: (1) = 3/16" (2) = 3/8" x 3/8" (7) = 7/32" x 1/2"

Technical Notes

1. Hi-pot tested at 1,500 VRMS.
2. Connections by leads or solder lugs.
3. Inductance tolerance -20% +50%.

POWER TRANSFORMERS

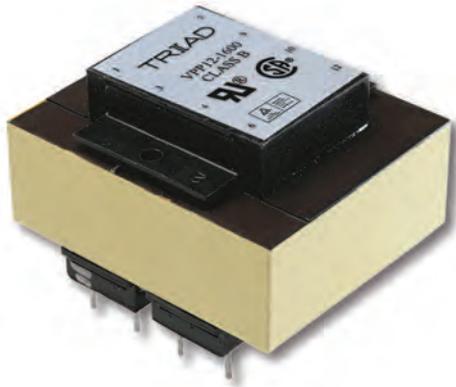


Power Transformers

TUV Cert. No.: R72103639
 UL File: 65390
 CSA File: 221330

Class B


PC Mount: World Series™



:: Description

Triad PC mount World Series transformers incorporate a dual bobbin construction with an insulating shroud, both made of a high temperature material that exceeds UL flammability requirements. These units are designed with very high isolation between the primary and secondary, and also, between each winding and the core. Since the dual bobbin construction effectively reduces capacitance, electrostatic shielding is not required. PC mount transformers are available with ratings from 2.5 VA to 56.0 VA and have dimensionally accurate pin placement for through hole PC board mounting. All World Series transformers meet U.S. and International standards including CSA, IEC and UL requirements, and therefore have universal application.

:: Specifications

Primary: 115/230 V, 50/60 Hz | VA Ranges: 2.5 to 56.0

:: World Series

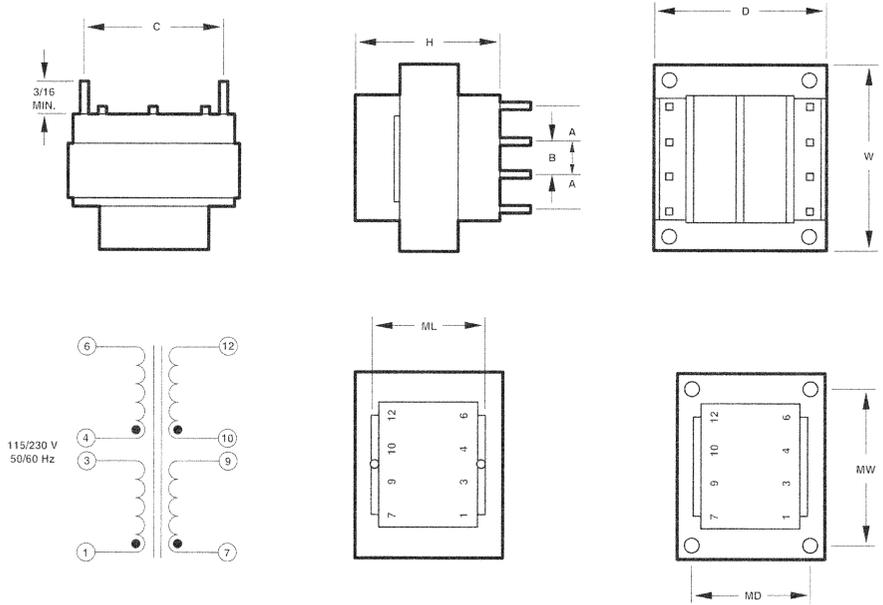
Section	Type No.	VA	Secondary		Dimensions (in)						Pin Dim.	Mounting			WT Lbs.
			Series	Parallel	H	W	D	A	B	C		ML	MD	MW	
A	VPP10-250	2.5	10.0V CT @ 0.25A	5.0V @ 0.5A	1 1/8	1 1/8	1 1/16	.200	.250	1.000	0.025 Sq.	1 1/16	•	•	0.25
	VPP10-500	5.0	10.0V CT @ 0.5A	5.0V @ 1.0A	1 1/8	1 1/8	1 1/16	.200	.400	1.000	0.025 Sq.	1 1/16	•	•	0.37
	VPP10-1000	10.0	10.0V CT @ 1.0A	5.0V @ 2.0A	1 1/8	1 1/8	1 1/16	.200	.400	1.140	0.036 Sq.	1 1/4	•	•	0.53
	VPP10-2000	20.0	10.0V CT @ 2.0A	5.0V @ 4.0A	1 1/8	2 1/4	1 1/8	.400	.400	1.460	0.036 Sq.	1 1/2	•	•	0.90
	VPP10-3000*	30.0	10.0V CT @ 3.0A	5.0V @ 6.0A	1 1/16	2 3/16	2 3/16	.550	.275	1.680	0.045 Sq.	•	1 1/4	2 3/16	1.15
	VPP10-5600*	56.0	10.0V CT @ 5.6A	5.0V @ 11.2A	1 1/16	3	2 1/2	.600	.300	1.900	0.045 Sq.	•	2	2 1/2	1.70
B	VPP12-200	2.5	12.6V CT @ 0.2A	6.3V @ 0.4A	1 1/8	1 1/8	1 1/16	.200	.250	1.000	0.025 Sq.	1 1/16	•	•	0.25
	VPP12-400	5.0	12.6V CT @ 0.4A	6.3V @ 0.8A	1 1/8	1 1/8	1 1/16	.200	.400	1.000	0.025 Sq.	1 1/16	•	•	0.37
	VPP12-800	10.0	12.6V CT @ 0.8A	6.3V @ 1.6A	1 1/8	1 1/8	1 1/16	.200	.400	1.140	0.036 Sq.	1 1/4	•	•	0.53
	VPP12-1600	20.0	12.6V CT @ 1.6A	6.3V @ 3.2A	1 1/8	2 1/4	1 1/8	.400	.400	1.460	0.036 Sq.	1 1/2	•	•	0.90
	VPP12-2400	30.0	12.6V CT @ 2.4A	6.3V @ 4.8A	1 1/16	2 3/8	2 3/8	.550	.275	1.680	0.045 Sq.	•	1 1/4	2 3/16	1.15
	VPP12-4400*	56.0	12.6V CT @ 4.4A	6.3V @ 8.8A	1 1/16	3	2 1/2	.600	.300	1.900	0.045 Sq.	•	2	2 1/2	1.70
C	VPP16-150	2.5	16.0V CT @ 0.15A	8.0V @ 0.3A	1 1/8	1 1/8	1 1/16	.200	.250	1.000	0.025 Sq.	1 1/16	•	•	0.25
	VPP16-310	5.0	16.0V CT @ 0.31A	8.0V @ 0.62A	1 1/8	1 1/8	1 1/16	.200	.400	1.000	0.025 Sq.	1 1/16	•	•	0.37
	VPP16-620	10.0	16.0V CT @ 0.62A	8.0V @ 1.25A	1 1/8	1 1/8	1 1/16	.200	.400	1.140	0.036 Sq.	1 1/4	•	•	0.53
	VPP16-1250	20.0	16.0V CT @ 1.25A	8.0V @ 2.5A	1 1/8	2 1/4	1 1/8	.400	.400	1.460	0.036 Sq.	1 1/2	•	•	0.90
	VPP16-1900	30.0	16.0V CT @ 1.9A	8.0V @ 3.8A	1 1/16	2 3/8	2 3/8	.550	.275	1.680	0.045 Sq.	•	1 1/4	2 3/16	1.15
	VPP16-3500*	56.0	16.0V CT @ 3.5A	8.0V @ 7.0A	1 1/16	3	2 1/2	.600	.300	1.900	0.045 Sq.	•	2	2 1/2	1.70
D	VPP20-120	2.5	20.0V CT @ 0.12A	10.0V @ 0.24A	1 1/8	1 1/8	1 1/16	.200	.250	1.000	0.025 Sq.	1 1/16	•	•	0.25
	VPP20-250	5.0	20.0V CT @ 0.25A	10.0V @ 0.5A	1 1/8	1 1/8	1 1/16	.200	.400	1.000	0.025 Sq.	1 1/16	•	•	0.37
	VPP20-500	10.0	20.0V CT @ 0.5A	10.0V @ 1.0A	1 1/8	1 1/8	1 1/16	.200	.400	1.140	0.036 Sq.	1 1/4	•	•	0.53
	VPP20-1000	20.0	20.0V CT @ 1.0A	10.0V @ 2.0A	1 1/8	2 1/4	1 1/8	.400	.400	1.460	0.036 Sq.	1 1/2	•	•	0.90
	VPP20-1500	30.0	20.0V CT @ 1.5A	10.0V @ 3.0A	1 1/16	2 3/8	2 3/8	.550	.275	1.680	0.045 Sq.	•	1 1/4	2 3/16	1.15
	VPP20-2800*	56.0	20.0V CT @ 2.8A	10.0V @ 5.6A	1 1/16	3	2 1/2	.600	.300	1.900	0.045 Sq.	•	2	2 1/2	1.70
E	VPP24-100	2.5	24.0V CT @ 0.1A	12.0V @ 0.2A	1 1/8	1 1/8	1 1/16	.200	.250	1.000	0.025 Sq.	1 1/16	•	•	0.25
	VPP24-210	5.0	24.0V CT @ 0.21A	12.0V @ 0.42A	1 1/8	1 1/8	1 1/16	.200	.400	1.000	0.025 Sq.	1 1/16	•	•	0.37
	VPP24-420	10.0	24.0V CT @ 0.42A	12.0V @ 0.84A	1 1/8	1 1/8	1 1/16	.200	.400	1.140	0.036 Sq.	1 1/4	•	•	0.53
	VPP24-830	20.0	24.0V CT @ 0.83A	12.0V @ 1.66A	1 1/8	2 1/4	1 1/8	.400	.400	1.460	0.036 Sq.	1 1/2	•	•	0.90
	VPP24-1250	30.0	24.0V CT @ 1.25A	12.0V @ 2.50A	1 1/16	2 3/8	2 3/8	.550	.275	1.680	0.045 Sq.	•	1 1/4	2 3/16	1.15
	VPP24-2330	56.0	24.0V CT @ 2.33A	12.0V @ 4.66A	1 1/16	3	2 1/2	.600	.300	1.900	0.045 Sq.	•	2	2 1/2	1.70
F	VPP28-090	2.5	28.0V CT @ 0.09A	14.0V @ 0.18A	1 1/8	1 1/8	1 1/16	.200	.250	1.000	0.025 Sq.	1 1/16	•	•	0.25
	VPP28-180	5.0	28.0V CT @ 0.18A	14.0V @ 0.36A	1 1/8	1 1/8	1 1/16	.200	.400	1.000	0.025 Sq.	1 1/16	•	•	0.37
	VPP28-360	10.0	28.0V CT @ 0.36A	14.0V @ 0.72A	1 1/8	1 1/8	1 1/16	.200	.400	1.140	0.036 Sq.	1 1/4	•	•	0.53
	VPP28-720	20.0	28.0V CT @ 0.72A	14.0V @ 1.44A	1 1/8	2 1/4	1 1/8	.400	.400	1.460	0.036 Sq.	1 1/2	•	•	0.90
	VPP28-1060	30.0	28.0V CT @ 1.06A	14.0V @ 2.12A	1 1/16	2 3/8	2 3/8	.550	.275	1.680	0.045 Sq.	•	1 1/4	2 3/16	1.15
	VPP28-2000	56.0	28.0V CT @ 2.0A	14.0V @ 4.0A	1 1/16	3	2 1/2	.600	.300	1.900	0.045 Sq.	•	2	2 1/2	1.70
G	VPP36-070	2.5	36.0V CT @ 0.07A	18.0V @ 0.14A	1 1/8	1 1/8	1 1/16	.200	.250	1.000	0.025 Sq.	1 1/16	•	•	0.25
	VPP36-140	5.0	36.0V CT @ 0.14A	18.0V @ 0.28A	1 1/8	1 1/8	1 1/16	.200	.400	1.000	0.025 Sq.	1 1/16	•	•	0.37
	VPP36-280	10.0	36.0V CT @ 0.28A	18.0V @ 0.56A	1 1/8	1 1/8	1 1/16	.200	.400	1.140	0.036 Sq.	1 1/4	•	•	0.53
	VPP36-560	20.0	36.0V CT @ 0.56A	18.0V @ 1.12A	1 1/8	2 1/4	1 1/8	.400	.400	1.460	0.036 Sq.	1 1/2	•	•	0.90
	VPP36-820	30.0	36.0V CT @ 0.82A	18.0V @ 1.64A	1 1/16	2 3/8	2 3/8	.550	.275	1.680	0.045 Sq.	•	1 1/4	2 3/16	1.15
	VPP36-1560	56.0	36.0V CT @ 1.56A	18.0V @ 3.12A	1 1/16	3	2 1/2	.600	.300	1.900	0.045 Sq.	•	2	2 1/2	1.70

CT = Center Tap * Note: Class 2/3 UL File: E53148

:: Outline Dimensions

Technical Notes

1. Hi-pot tested at 4,000 VRMS.
2. Both primary and secondary coils may be connected as either series or parallel, but both must be used simultaneously.



The Sales, Service and Technical professionals at Triad Magnetics have over 100 years combined experience in the magnetics industry. This translates to solutions you can count on for your power, switching and filtering applications.

Power Transformers

TUV Cert. No.: R72103639
 UL File: E53148
 CSA File: 221330

Class B



Chassis Mount: Quick-Connect World Series™



Figure A



Figure B

:: Description

Triad chassis mount World Series transformers are designed to meet U.S. and International standards including CSA, IEC and UL requirements. The transformers consist of a dual bobbin design positioned inside an insulating shroud and constructed with UL approved high temperature material. This design eliminates the need for electrostatic shielding since there is minimal capacitance between coils when using a dual bobbin configuration. The primary and secondary are both electrically isolated from each other, and from the core itself. Chassis mount World Series transformers are available in sizes ranging from 25 VA to 175 VA, and are equipped with convenient "quick connect" terminations.

:: Specifications

Primary: 115/230 V, 50/60 Hz

:: World Series

Section	Type No.	VA	Secondary		Dimensions (in)							Figure	Mounting		Wt. Lbs.
			Series	Parallel	H	W	D	A	B	C	T		MW	ML	
A	VPS10-2500	25	10.0V CT @ 2.5A	5.0V @ 5.0A	2 ⁷ / ₁₆	2 ³ / ₁₆	1 ¹ / ₁₆	2	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ³ / ₁₆	•	1.25
	VPS10-4300	43	10.0V CT @ 4.3A	5.0V @ 8.6A	2 ¹ / ₁₆	3 ³ / ₁₆	2	2 ⁷ / ₁₆	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ¹ / ₁₆	•	1.60
	VPS10-8000	80	10.0V CT @ 8.0A	5.0V @ 16.0A	3	2 ¹ / ₂	2 ⁷ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2	2 ¹ / ₄	2.80
	VPS10-13000	130	10.0V CT @ 13.0A	5.0V @ 26.0A	3 ³ / ₁₆	2 ³ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₄	2 ¹ / ₂	4.10
	VPS10-17500	175	10.0V CT @ 17.5A	5.0V @ 35.0A	3 ⁷ / ₁₆	3 ³ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₂	2 ¹ / ₂	5.50
B	VPS12-2000	25	12.6V CT @ 2.0A	6.3V @ 4.0A	2 ⁷ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₁₆	2	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ³ / ₁₆	•	1.25
	VPS12-3400	43	12.6V CT @ 3.4A	6.3V @ 6.8A	2 ¹ / ₁₆	3 ³ / ₁₆	2	2 ⁷ / ₁₆	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ¹ / ₁₆	•	1.60
	VPS12-6300	80	12.6V CT @ 6.3A	6.3V @ 12.6A	3	2 ¹ / ₂	2 ⁷ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2	2 ¹ / ₄	2.80
	VPS12-10300	130	12.6V CT @ 10.3A	6.3V @ 20.6A	3 ³ / ₁₆	2 ¹ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₄	2 ¹ / ₂	4.10
	VPS12-14000	175	12.6V CT @ 14.0A	6.3V @ 28.0A	3 ⁷ / ₁₆	3 ³ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₂	2 ¹ / ₂	5.50
C	VPS16-1600	25	16.0V CT @ 1.6A	8.0V @ 3.2A	2 ⁷ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₁₆	2	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ³ / ₁₆	•	1.25
	VPS16-2700	43	16.0V CT @ 2.7A	8.0V @ 5.4A	2 ¹ / ₁₆	3 ³ / ₁₆	2	2 ⁷ / ₁₆	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ¹ / ₁₆	•	1.60
	VPS16-5000	80	16.0V CT @ 5.0A	8.0V @ 10.0A	3	2 ¹ / ₂	2 ⁷ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2	2 ¹ / ₄	2.80
	VPS16-8100	130	16.0V CT @ 8.1A	8.0V @ 16.2A	3 ³ / ₁₆	2 ¹ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₄	2 ¹ / ₂	4.10
	VPS16-11000	175	16.0V CT @ 11.0A	8.0V @ 22.0A	3 ⁷ / ₁₆	3 ³ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₂	2 ¹ / ₂	5.50
D	VPS20-1250*	25	20.0V CT @ 1.25A	10.0V @ 2.5A	2 ⁷ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₁₆	2	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ³ / ₁₆	•	1.25
	VPS20-2200*	43	20.0V CT @ 2.2A	10.0V @ 4.4A	2 ¹ / ₁₆	3 ³ / ₁₆	2	2 ⁷ / ₁₆	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ¹ / ₁₆	•	1.60
	VPS20-4000	80	20.0V CT @ 4.0A	10.0V @ 8.0A	3	2 ¹ / ₂	2 ⁷ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2	2 ¹ / ₄	2.80
	VPS20-6500	130	20.0V CT @ 6.5A	10.0V @ 13.0A	3 ³ / ₁₆	2 ¹ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₄	2 ¹ / ₂	4.10
	VPS20-8800	175	20.0V CT @ 8.8A	10.0V @ 17.6A	3 ⁷ / ₁₆	3 ³ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₂	2 ¹ / ₂	5.50
E	VPS24-1000*	25	24.0V CT @ 1.0A	12.0V @ 2.0A	2 ⁷ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₁₆	2	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ³ / ₁₆	•	1.25
	VPS24-1800*	43	24.0V CT @ 1.8A	12.0V @ 3.6A	2 ¹ / ₁₆	3 ³ / ₁₆	2	2 ⁷ / ₁₆	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ¹ / ₁₆	•	1.60
	VPS24-3300	80	24.0V CT @ 3.3A	12.0V @ 6.6A	3	2 ¹ / ₂	2 ⁷ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2	2 ¹ / ₄	2.80
	VPS24-5400	130	24.0V CT @ 5.4A	12.0V @ 10.8A	3 ³ / ₁₆	2 ¹ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₄	2 ¹ / ₂	4.10
	VPS24-7300	175	24.0V CT @ 7.3A	12.0V @ 14.6A	3 ⁷ / ₁₆	3 ³ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₂	2 ¹ / ₂	5.50
F	VPS28-900*	25	28.0V CT @ 0.9A	14.0V @ 1.8A	2 ⁷ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₁₆	2	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ³ / ₁₆	•	1.25
	VPS28-1500*	43	28.0V CT @ 1.5A	14.0V @ 3.0A	2 ¹ / ₁₆	3 ³ / ₁₆	2	2 ⁷ / ₁₆	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ¹ / ₁₆	•	1.60
	VPS28-2800	80	28.0V CT @ 2.8A	14.0V @ 5.6A	3	2 ¹ / ₂	2 ⁷ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2	2 ¹ / ₄	2.80
	VPS28-4600	130	28.0V CT @ 4.6A	14.0V @ 9.2A	3 ³ / ₁₆	2 ¹ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₄	2 ¹ / ₂	4.10
	VPS28-6250	175	28.0V CT @ 6.25A	14.0V @ 12.5A	3 ⁷ / ₁₆	3 ³ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₂	2 ¹ / ₂	5.50
G	VPS36-700*	25	36.0V CT @ 0.7A	18.0V @ 1.4A	2 ⁷ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₁₆	2	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ³ / ₁₆	•	1.25
	VPS36-1200*	43	36.0V CT @ 1.2A	18.0V @ 2.4A	2 ¹ / ₁₆	3 ³ / ₁₆	2	2 ⁷ / ₁₆	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ¹ / ₁₆	•	1.60
	VPS36-2200*	80	36.0V CT @ 2.2A	18.0V @ 4.4A	3	2 ¹ / ₂	2 ⁷ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2	2 ¹ / ₄	2.80
	VPS36-3600	130	36.0V CT @ 3.6A	18.0V @ 7.2A	3 ³ / ₁₆	2 ¹ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₄	2 ¹ / ₂	4.10
	VPS36-4800	175	36.0V CT @ 4.8A	18.0V @ 9.6A	3 ⁷ / ₁₆	3 ³ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₂	2 ¹ / ₂	5.50
H	VPS56-2300	130	56.0V CT @ 2.3A	28.0V @ 4.6A	3 ³ / ₁₆	2 ⁷ / ₁₆	3 ¹ / ₁₆	2 ⁷ / ₁₆	1 ¹ / ₂	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₄	2 ¹ / ₂	4.2
I	VPS230-110	25	230.0V CT @ 0.11A	115.0V @ 0.22A	2 ⁷ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₁₆	2	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ³ / ₁₆	•	1.25
	VPS230-190	43	230.0V CT @ 0.19A	115.0V @ 0.38A	2 ¹ / ₁₆	3 ³ / ₁₆	2	2 ⁷ / ₁₆	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	A	2 ¹ / ₁₆	•	1.60
	VPS230-350	80	230.0V CT @ 0.35A	115.0V @ 0.7A	3	2 ¹ / ₂	2 ⁷ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2	2 ¹ / ₄	2.80
	VPS230-570	130	230.0V CT @ 0.57A	115.0V @ 1.14A	3 ³ / ₁₆	2 ¹ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₄	2 ¹ / ₂	4.10
	VPS230-760	175	230.0V CT @ 0.76A	115.0V @ 1.52A	3 ⁷ / ₁₆	3 ³ / ₁₆	2 ¹ / ₁₆	•	1 ¹ / ₈	3 ¹ / ₁₆	3 ¹ / ₁₆	B	2 ¹ / ₂	2 ¹ / ₂	5.50

* Note: Class 2/3 UL File: E65390 CT = Center Tap Mounting Hole Sizes: 25 VA, 43 VA = 3/16" 80 VA, 130 VA, 175 VA = 1/8" x 3/16" CT = Center Tap

:: Outline Dimensions

Technical Notes

1. Hi-pot tested at 4,000 VRMS.
2. Both primary and secondary coils may be connected as either series or parallel, but both must be used simultaneously.

Figure A

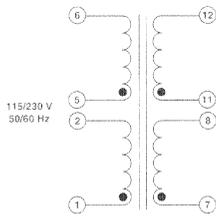
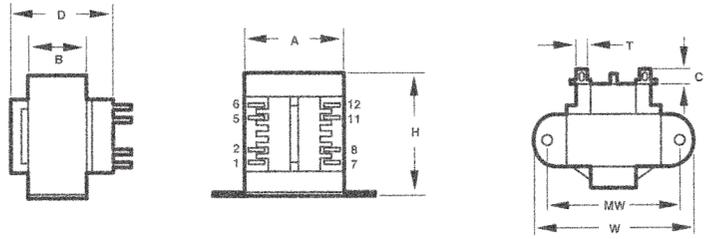
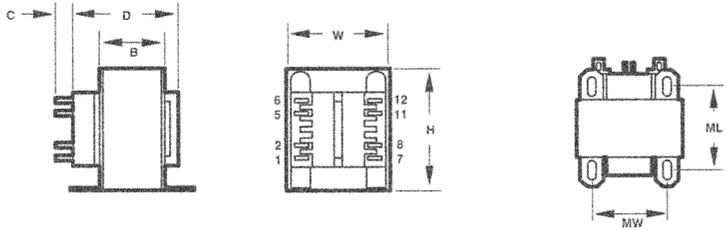


Figure B



Triad Magnetics is a global leader and trusted name in magnetics for more than 70 years.

Power Transformers

TUV Cert. No.: R72103639
UL File: E65390



Chassis Mount: Leaded World Series™



Case Type U



Case Type X

:: Description

Triad International Series transformers are constructed with European style split bobbins to meet International safety agency standards. The split bobbin construction reduces interwinding capacitance and eliminates the need for electrostatic shielding.

:: Specifications

Available in sizes from 5VA to 56 VA 115 V / 230 V 50/60 Hz Primary windings; 3,500 V isolation between primary and secondary; designed with 6mm creepage distance primary to secondary.

:: International Series

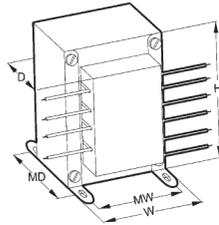
Secton	Part Number	Secondary Series Connected		Secondary Parallel Connected		Center Tap	Schematic	Case Type	Dimensions (in)			MD	Weight Lbs.		
		VA	Volts	Amps	Volts				Amps	H	W			D	
A	VPL10-500	5	10.0 CT	0.500	5.00	1.000	N	2	X	1 7/16"	2 3/8"	1 7/16"	2"	•	0.4
	VPL12-400	5	12.6 CT	0.390	6.30	0.780	N	2	X	1 7/16"	2 3/8"	1 7/16"	2"	•	0.4
	VPL14-360	5	14.0 CT	0.360	7.00	0.710	N	2	X	1 7/16"	2 3/8"	1 7/16"	2"	•	0.4
	VPL16-300	5	16.0 CT	0.310	8.00	0.620	N	2	X	1 7/16"	2 3/8"	1 7/16"	2"	•	0.4
	VPL20-250	5	20.0 CT	0.250	10.00	0.500	N	2	X	1 7/16"	2 3/8"	1 7/16"	2"	•	0.4
	VPL24-210	5	24.0 CT	0.210	12.00	0.420	N	2	X	1 7/16"	2 3/8"	1 7/16"	2"	•	0.4
	VPL26-190*	5	26.8 CT	0.190	13.40	0.370	N	2	X	1 7/16"	2 3/8"	1 7/16"	2"	•	0.4
	VPL28-180	5	28.0 CT	0.180	14.00	0.360	N	2	X	1 7/16"	2 3/8"	1 7/16"	2"	•	0.4
	VPL36-140	5	36.0 CT	0.140	18.00	0.280	N	2	X	1 7/16"	2 3/8"	1 7/16"	2"	•	0.4
B	VPL2-4000*	10	2.5 CT	4.000	1.25	8.000	N	2	X	1 3/4"	2 3/16"	1 3/4"	2 3/8"	•	0.7
	VPL10-1000	10	10.0 CT	1.000	5.00	2.000	N	2	X	1 3/4"	2 3/16"	1 3/4"	2 3/8"	•	0.7
	VPL12-800	10	12.6 CT	0.790	6.30	1.590	Y	1	X	1 3/4"	2 3/16"	1 3/4"	2 3/8"	•	0.7
	VPL16-600	10	16.0 CT	0.630	8.00	1.260	N	2	X	1 3/4"	2 3/16"	1 3/4"	2 3/8"	•	0.7
	VPL20-500	10	20.0 CT	0.500	10.00	1.000	N	2	X	1 3/4"	2 3/16"	1 3/4"	2 3/8"	•	0.7
	VPL24-400	10	24.0 CT	0.410	12.00	0.820	N	2	X	1 3/4"	2 3/16"	1 3/4"	2 3/8"	•	0.7
	VPL28-350	10	28.0 CT	0.350	14.00	0.700	N	2	X	1 3/4"	2 3/16"	1 3/4"	2 3/8"	•	0.7
	VPL36-300	10	36.0 CT	0.280	18.00	0.560	N	2	X	1 3/4"	2 3/16"	1 3/4"	2 3/8"	•	0.7
	C	VPL2-10000*	25	2.5 CT	10.000	1.25	20.000	N	2	X	1 5/16"	3 1/4"	2 3/8"	2 3/16"	•	1.3
VPL10-2500*		25	10.0 CT	2.500	5.00	5.000	N	2	X	1 5/16"	3 1/4"	2 3/8"	2 3/16"	•	1.3
VPL12-2000*		25	12.6 CT	1.980	6.30	3.960	Y	1	X	1 5/16"	3 1/4"	2 3/8"	2 3/16"	•	1.3
VPL16-1600*		25	16.0 CT	1.570	8.00	3.130	N	2	X	1 5/16"	3 1/4"	2 3/8"	2 3/16"	•	1.3
VPL20-1200		25	20.0 CT	1.250	10.00	2.500	N	2	X	1 5/16"	3 1/4"	2 3/8"	2 3/16"	•	1.3
VPL24-1100		25	24.0 CT	1.040	12.00	2.080	N	2	X	1 5/16"	3 1/4"	2 3/8"	2 3/16"	•	1.3
VPL25-1000		25	25.2 CT	0.990	12.60	1.980	N	2	X	1 5/16"	3 1/4"	2 3/8"	2 3/16"	•	1.3
VPL26-930*		25	26.8 CT	0.930	13.40	1.860	N	2	X	1 5/16"	3 1/4"	2 3/8"	2 3/16"	•	1.3
VPL28-900		25	28.0 CT	0.890	14.00	1.790	N	2	X	1 5/16"	3 1/4"	2 3/8"	2 3/16"	•	1.3
VPL36-700	25	36.0 CT	0.700	18.00	1.400	N	2	X	1 5/16"	3 1/4"	2 3/8"	2 3/16"	•	1.3	
D	VPL10-5000*	50	10.0 CT	5.000	5.00	10.000	N	2	X	2 3/16"	4"	2 3/4"	3 3/16"	•	2.3
	VPL12-4000*	50	12.6 CT	3.970	6.30	7.940	Y	1	X	2 3/16"	4"	2 3/4"	3 3/16"	•	2.3
	VPL16-3100*	50	16.0 CT	3.125	8.00	6.250	N	2	X	2 3/16"	4"	2 3/4"	3 3/16"	•	2.3
	VPL20-2500*	50	20.0 CT	2.500	10.00	5.000	N	2	X	2 3/16"	4"	2 3/4"	3 3/16"	•	2.3
	VPL24-2000*	50	24.0 CT	2.083	12.00	4.166	N	2	X	2 3/16"	4"	2 3/4"	3 3/16"	•	2.3
	VPL25-1900*	50	25.2 CT	1.984	•	•	N	3	X	2 3/16"	4"	2 3/4"	3 3/16"	•	2.3
	VPL26-1800*	50	26.8 CT	1.866	•	•	N	3	X	2 3/16"	4"	2 3/4"	3 3/16"	•	2.3
	VPL28-1700	50	28.0 CT	1.786	14.00	3.572	N	2	X	2 3/16"	4"	2 3/4"	3 3/16"	•	2.3
	VPL36-1400	50	36.0 CT	1.389	18.00	2.778	N	2	X	2 3/16"	4"	2 3/4"	3 3/16"	•	2.3
E	VPL28-2000*	56	28.0 CT	2.000	14.00	4.000	Y	1	U	3 3/16"	2 3/16"	2 3/8"	2"	2 3/4"	2.7

* Note: TUV only; CT = Center Tap

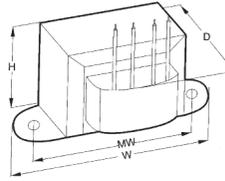
:: Outline Dimensions

Technical Notes

1. Primary and secondary windings are designed to be connected in series or parallel. Windings are not intended to be used independently.

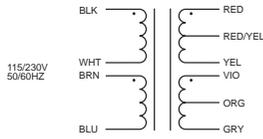


Case Type U

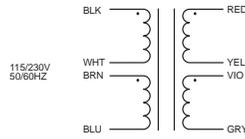


Case Type X

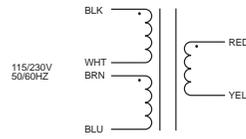
Schematic 1



Schematic 2



Schematic 3



Power Transformers

Class B

UL File: E122529



Toroidal Mount: World Series™



:: Description

Triad chassis mount World Series Toroidal transformers are efficient, compact, cool running and cost effective. They are approved to UL 506 and CE IEC 61558-1 and 61558-2-6, and are constructed with a Class B (130C) rated insulation system. These toroidal transformers have minimal stray fields for quiet operation around sensitive circuits. The transformers consist of dual primaries and dual secondaries which allows for flexibility in the input and output voltages. The primary and secondary are both electrically isolated from each other and from the core itself. Chassis mount Toroidal World Series transformers are available in sizes ranging from 25 VA to 2,500 VA and are equipped with leads for connections.

:: Specifications

Primary: 115/230 V, 50/60 Hz | VA Ranges: 25 to 2,500

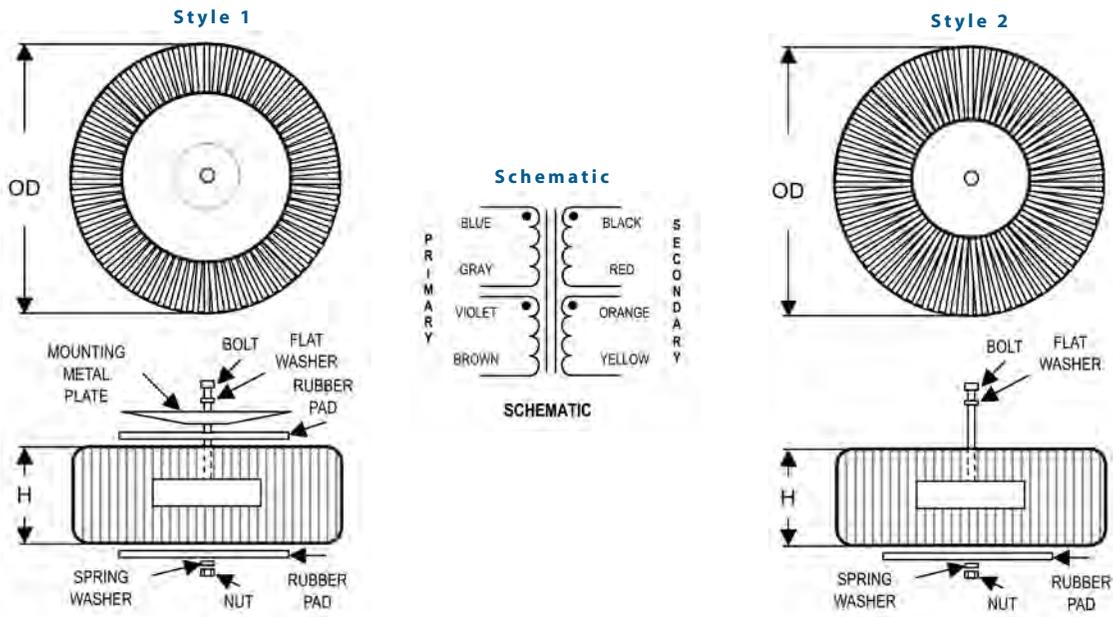
:: Toroidal Mount: World Series

Section	Type No.	VA	Secondary		Regulation Typ.	Efficiency Typ.	Temp Rise Typ. degree (C)	Style
			Series	Parallel				
A	VPT12-2080	25	12V CT @ 2.08A	6.0V @ 4.16A	12.0%	88%	30	1
	VPT18-1390	25	18V CT @ 1.39A	9.0V @ 2.78A	12.0%	88%	30	1
	VPT24-1040	25	24V CT @ 1.04A	12V @ 2.08A	12.0%	88%	30	1
	VPT30-830	25	30V CT @ 0.83A	15V @ 1.66A	12.0%	88%	30	1
	VPT36-690	25	36V CT @ 0.69A	18V @ 1.38A	12.0%	88%	30	1
	VPT48-520	25	48V CT @ 0.52A	24V @ 1.04A	12.0%	88%	30	1
	VPT230-110	25	230V CT @ 0.11A	115V @ .22A	12.0%	88%	30	1
B	VPT12-4170	50	12V CT @ 4.17A	6.0V @ 8.34A	12.0%	88%	40	1
	VPT18-2780	50	18V CT @ 2.78A	9.0V 5.56A	12.0%	88%	40	1
	VPT24-2080	50	24V CT @ 2.08A	12V @ 4.16A	12.0%	88%	40	1
	VPT30-1670	50	30V CT @ 1.67A	15V @ 3.34A	12.0%	88%	40	1
	VPT36-1390	50	36V CT @ 1.39A	18V @ 2.78A	12.0%	88%	40	1
	VPT48-1040	50	48V CT @ 1.04A	24V @ 2.08A	12.0%	88%	40	1
	VPT230-220	50	230V CT @ 0.22A	115V @ .44A	12.0%	88%	40	1
C	VPT12-8330	100	12V CT @ 8.33A	6.0V @ 16.66A	9.0%	89%	45	1
	VPT18-5560	100	18V CT @ 5.56A	9.0V @ 11.12A	9.0%	89%	45	1
	VPT24-4170	100	24V CT @ 4.17A	12V @ 8.34A	9.0%	89%	45	1
	VPT30-3330	100	30V CT @ 3.33A	15V @ 6.66A	9.0%	89%	45	1
	VPT36-2780	100	36V CT @ 2.78A	18V @ 5.56A	9.0%	89%	45	1
	VPT48-2080	100	48V CT @ 2.08A	24V @ 4.16A	9.0%	89%	45	1
	VPT230-430	100	230V CT @ 0.43A	115V @ .86A	9.0%	89%	45	1
D	VPT12-13300	160	12V CT @ 13.3A	6.0V @ 26.6A	8.0%	90%	50	1
	VPT18-8800	160	18V CT @ 8.8A	9.0V @ 17.60A	8.0%	90%	50	1
	VPT24-6670	160	24V CT @ 6.67A	12V @ 13.34A	8.0%	90%	50	1
	VPT30-5330	160	30V CT @ 5.33A	15V @ 10.66A	8.0%	90%	50	1
	VPT36-4440	160	36V CT @ 4.44A	18V @ 8.88A	8.0%	90%	50	1
	VPT48-3300	160	48V CT @ 3.33A	24V @ 6.66A	8.0%	90%	50	1
	VPT230-700	160	230V CT @ 0.70A	115V @ 1.40A	8.0%	90%	50	1
E	VPT12-20800	250	12V CT @ 20.8A	6.0V @ 41.60A	7.0%	92%	50	1
	VPT18-13800	250	18V CT @ 13.8A	9.0V @ 27.60A	7.0%	92%	50	1
	VPT24-10420	250	24V CT @ 10.42A	12V @ 20.84A	7.0%	92%	50	1
	VPT36-6940	250	36V CT @ 6.94A	18V @ 13.88A	7.0%	92%	50	1
	VPT48-5200	250	48V CT @ 5.20A	24V @ 10.4A	7.0%	92%	50	1
	VPT230-1090	250	230V CT @ 1.09A	115V @ 2.18A	7.0%	92%	50	1
	F	VPT48-10400	500	48V CT @ 10.4A	24V @ 20.8A	5.0%	94%	50	1
VPT100-5000		500	100V CT @ 5.0A	50V @ 10.0A	5.0%	94%	50	1
VPT230-2170		500	230V CT @ 2.17A	115V @ 4.34A	5.0%	94%	50	1
G	VPT48-20830	1000	48V CT @ 20.83A	24V @ 41.66A	4.0%	96%	50	1
	VPT100-10000	1000	100V CT @ 10.0A	50V @ 20.0A	4.0%	96%	50	1
	VPT230-4350	1000	230V CT @ 4.35A	115V @ 8.70A	4.0%	96%	50	1
H	VPT100-25000	2500	100V CT @ 25.0A	50V @ 50.0A	2.5%	97%	50	2
	VPT230-10870	2500	230V CT @ 10.87A	115V @ 21.74A	2.5%	97%	50	2

:: Outline Dimensions

Technical Notes

1. Series Connections: **Input¹**: Series – BLUE and BROWN, Jumper GRAY to VIOLET
 Parallel – BLUE and BROWN, Jumper BLUE to VIOLET, GRAY to BROWN
Output¹: Series – BLACK and YELLOW, Jumper RED to ORANGE
 Parallel – BLACK and YELLOW, Jumper BLACK to ORANGE, RED to YELLOW



:: Mechanical Specifications

VA	OD (mm)	HT (mm)	Weight (kg)	Mounting Plate (mm Dia.)	Rubber Pads (mm Dia.)	Mounting Hardware
25	71	32	0.4	55	57 & 57	M5 x 40mm
50	80	33	0.6	55	57 & 57	M5 x 45mm
100	87	47	1	55	57 & 75	M6 x 55mm
160	103	48	1.6	75	75 & 75	M6 x 60mm
250	112	54	2.2	75	75 & 90	M6 x 65mm
500	140	60	4.2	90	90 & 115	M8 x 70mm
1000	175	68	8.2	112	115 & 148	M8 x 80mm
2500	208	112	19.4	---	165	M8 x 120mm

¹ Primary and secondary windings are designed to be connected in series or parallel. Windings are not intended to be used independently. For additional technical information, please visit TriadMagnetics.com.

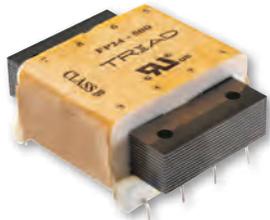
Triad Magnetics is in the business to provide our customers with the best solutions for their magnetics needs.

Power Transformers

UL Recognized
UL File E53148

Class B
UL

PC Mount: Flat Pack™



:: Description

The Triad Flat pack power transformer is designed to meet the needs of lower clearance PC board and solid state power designs. These units can also be used for control and instrumentation applications. Voltages and currents were chosen for widely used power applications. It is offered in a dual primary and dual secondary configuration.

:: Specifications

Primary: 115/230 V, 50/60 Hz | **Hi Pot Tested:** 2,000 VRMS | **Low Profile:** Allows 3/4" card spacing for 2.5 VA units; Allows 1" card spacing for 6 VA units; Allows 1 1/4" card spacing for 12 VA units; Allows 1 1/2" card spacing for 24 VA and 48 VA units.

:: Flat Pack

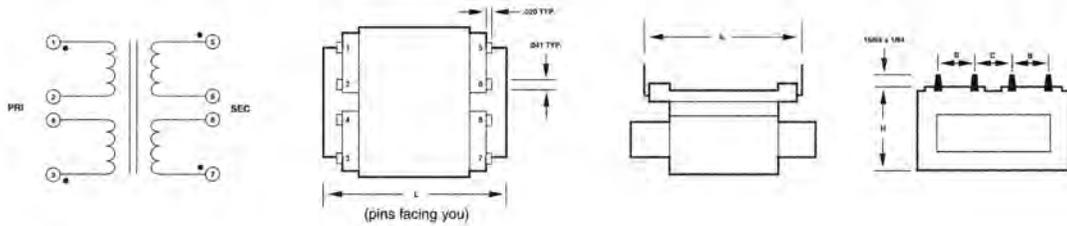
Section	Part Number	VA	Secondary		Dimensions (in)						Wt. Oz.	MW	ML
			Series	Parallel	H	W	L	A	B	C			
A	FP10-250	2.5	10.0V CT @ 0.25A	5.0V @ 0.5A	0.650	1.562	1.875	1.600	0.375	0.375	5	.88	1.62
	FP12-200		12.6V CT @ 0.2A	6.3V @ 0.4A									
	FP16-150		16.0 CT @ 0.15A	8.0V @ 0.3A									
	FP20-125		20.0 CT @ 0.125A	10.0V @ 0.25A									
	FP24-100		24.0 CT @ 0.1A	12.0V @ 0.2A									
	FP30-85		30.0V CT @ 0.08A	15.0V @ 0.16A									
	FP34-75		34.0V CT @ 0.075A	17.0V @ 0.15A									
	FP40-60		40.0V CT @ 0.06A	20.0V @ 0.12A									
	FP56-45		56.0V CT @ 0.045A	28.0V @ 0.09A									
	FP88-28		88.0V CT @ 0.028A	44.0V @ 0.056A									
	FP120-20		120.0V CT @ 0.02A	60.0V @ 0.04A									
	FP230-10		230.0V CT @ 0.01A	115.0V @ 0.02A									
	B		FP10-600	6.0										10.0V CT @ 0.6A	5.0V @ 1.2A	0.875	1.562	1.875	1.600	0.375	0.375	7	.88	1.62
FP12-475		12.6V CT @ 0.475A	6.3V @ 0.95A										
FP16-375		16.0 CT @ 0.375A	8.0V @ 0.75A										
FP20-300		20.0 CT @ 0.3A	10.0V @ 0.6A										
FP24-250		24.0 CT @ 0.25A	12.0V @ 0.5A										
FP30-200		30.0V CT @ 0.2A	15.0V @ 0.4A										
FP34-170		34.0V CT @ 0.17A	17.0V @ 0.34A										
FP40-150		40.0V CT @ 0.15A	20.0V @ 0.3A										
FP56-100		56.0V CT @ 0.1A	28.0V @ 0.2A										
FP88-65		88.0V CT @ 0.065A	44.0V @ 0.13A										
FP120-50		120.0V CT @ 0.05A	60.0V @ 0.1A										
FP230-25		230.0V CT @ 0.025A	115.0V @ 0.05A										
C		FP10-1200	12.0		10.0V CT @ 1.2A	5.0V @ 2.4A	1.062	2.000	2.500	2.000	0.500	0.500	11	1.0	2.0
	FP12-950	12.6V CT @ 0.95A		6.3V @ 1.9A									
	FP16-750	16.0 CT @ 0.75A		8.0V @ 1.5A									
	FP20-600	20.0 CT @ 0.6A		10.0V @ 1.2A									
	FP24-500	24.0 CT @ 0.5A		12.0V @ 1.0A									
	FP30-400	30.0V CT @ 0.4A		15.0V @ 0.8A									
	FP34-340	34.0V CT @ 0.34A		17.0V @ 0.68A									
	FP40-300	40.0V CT @ 0.3A		20.0V @ 0.6A									
	FP56-200	56.0V CT @ 0.2A		28.0V @ 0.4A									
	FP88-130	88.0V CT @ 0.13A		44.0V @ 0.26A									
	FP120-100	120.0V CT @ 0.1A		60.0V @ 0.2A									
	FP230-50	230.0V CT @ 0.05A		115.0V @ 0.1A									
	D	FP10-2400		24	10.0V CT @ 2.4A	5.0V @ 4.8A										1.375	2.25	2.756	1.9	0.600	0.531	15	1.1	2.44
FP12-1900		12.6V CT @ 1.9A	6.3V @ 3.8A										
FP16-1500		16.0V CT @ 1.5A	8.0V @ 3.0A										
FP20-1200		20.0V CT @ 1.2A	10.0V @ 2.4A										
FP24-1000		24.0V CT @ 1.0A	12.0V @ 2.0A										
FP30-800		30V CT @ 0.80	15.0V @ 1.6A										
FP34-700		34V CT @ 0.70	17.0V @ 1.4A										
FP40-600		40V CT @ 0.60	20.0V @ 1.2A										
FP56-425		56V CT @ 0.425	28.0V @ 0.85A										
E		FP10-4800	48		10V CT @ 4.8A	5.0V @ 9.6A	1.375	2.5	3.12	2.18	0.600	0.669	21	1.26	2.52
	FP12-3800	12.6V CT @ 3.8A		6.3V @ 7.6A									
	FP16-3000	16V CT @ 3.0A		8.0V @ 6.0A									
	FP20-2400	20.0V CT @ 2.4A		10.0V @ 4.8A									
	FP24-2000	24.0V CT @ 2.0A		12.0V @ 4.0A									
	FP30-1600	30.0V CT @ 1.6A		15.0V @ 3.2A									
	FP34-1400	34.0V CT @ 1.4A		17.0V @ 2.8A									
	FP40-1200	40.0V CT @ 1.2A		20.0V @ 2.4A									
FP56-850	56.0V CT @ 0.85A	28.0V @ 1.7A											

CT = Center Tap

:: Outline Dimensions

Technical Notes

1. Hi-pot tested at 2,000 VRMS.
2. Split bobbin with side-by-side windings to reduce capacitance and eliminate the need for a static shield.
3. Mounting Holes: 2.5 VA & 6VA = 0.125"; 12 VA = 0.165"; 24 VA = 0.157"; 48 VA = 0.20"

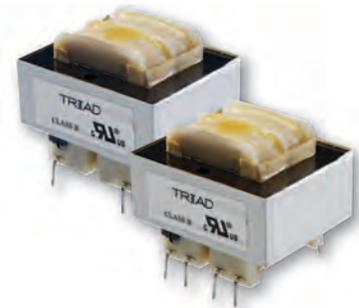


Power Transformers

UL Recognized
UL File: E53148

Class B
UL

PC Mount: Split Pack



:: Description

The Triad Split Pack split bobbin transformer is an extremely versatile tool for PC board applications. Split Pack transformers are nonconcentrically wound -- with primaries and secondaries side-by-side. Unlike the secondary-on-top-of-primary designs of standard PC board transformers, the split bobbin winding and low capacitive coupling eliminate costly electrostatic shielding. It is offered in a dual secondary configuration with either single or dual primaries.

:: Specifications

Primary: 115 V or 115/230 V, 50/60Hz | **VA Ranges:** 1.1 to 36.0

Secondary: Series - 10 to 120 V; Parallel - 5 to 60 V

:: Split Pack

Section	Single Primary 6 Pin	Dual Primary 8 Pin	VA	Secondary		Dimensions (in)							Wt. Lbs.	Fig	
				Series	Parallel	H	W	L	MW	ML	A	B			C
A	F10-110	FS10-110	1.1	10.0V CT @ 0.11A	5.0V @ 0.22A	1 1/16	1 1/8	1 1/8	•	•	0.250	0.250	1.20	0.17	1
	F12-090	FS12-090		12.6V CT @ 0.09A	6.3V @ 0.18A										
	F16-070	FS16-070		16.0V CT @ 0.07A	8.0V @ 0.14A										
	F20-055	FS20-055		20.0V CT @ 0.055A	10.0V @ 0.11A										
	F24-045	FS24-045		24.0V CT @ 0.045A	12.0V @ 0.09A										
	F28-040	FS28-040		28.0V CT @ 0.040A	14.0V @ 0.08A										
	F36-030	FS36-030		36.0V CT @ 0.03A	18.0V @ 0.06A										
	F48-023	FS48-023		48.0V CT @ 0.023A	24.0V @ 0.046A										
	F56-020	FS56-020		56.0V CT @ 0.02A	28.0V @ 0.04A										
	F120-010	FS120-01		120.0V CT @ 0.01A	60.0V @ 0.02A										
	B	F10-250		FS10-250	2.4											10.0V CT @ 0.25A	5.0V @ 0.5A	1 1/16	1 1/8	1 1/8	•	•	0.250	0.250	1.20	0.25	1
F12-200		FS12-200	12.6V CT @ 0.2A	6.3V @ 0.4A											
F16-150		FS16-150	16.0V CT @ 0.15A	8.0V @ 0.3A											
F20-120		FS20-120	20.0V CT @ 0.12A	10.0V @ 0.24A											
F24-100		FS24-100	24.0V CT @ 0.1A	12.0V @ 0.2A											
F28-085		FS28-085	28.0V CT @ 0.085A	14.0V @ 0.17A											
F36-065		FS36-065	36.0V CT @ 0.065A	18.0V @ 0.13A											
F48-050		FS48-050	48.0V CT @ 0.05A	24.0V @ 0.1A											
F56-045		FS56-045	56.0V CT @ 0.045A	28.0V @ 0.09A											
F120-020		FS120-02	120.0V CT @ 0.02A	60.0V @ 0.04A											
C		F10-600	FS10-600	6.0		10.0V CT @ 0.6A	5.0V @ 1.2A	1 1/16	1 1/16	1 1/8	1 1/16	•	0.250	0.350	1.280	0.44	1
	F12-500	FS12-500	12.6V CT @ 0.5A		6.3V @ 1.0A										
	F16-400	FS16-400	16.0V CT @ 0.4A		8.0V @ 0.8A										
	F20-300	FS20-300	20.0V CT @ 0.3A		10.0V @ 0.6A										
	F24-250	FS24-250	24.0V CT @ 0.25A		12.0V @ 0.5A										
	F28-200	FS28-200	28.0V CT @ 0.2A		14.0V @ 0.4A										
	F36-170	FS36-170	36.0V CT @ 0.17A		18.0V @ 0.34A										
	F48-125	FS48-125	48.0V CT @ 0.125A		24.0V @ 0.25A										
	F56-110	FS56-110	56.0V CT @ 0.11A		28.0V @ 0.22A										
	F120-050	FS120-05	120.0V CT @ 0.05A		60.0V @ 0.1A										
	D	F10-1200	FS10-1200		12.0	10.0V CT @ 1.2A	5.0V @ 2.4A											1 1/16	1 1/16	1 1/8	1 1/4	•	0.30	0.40	1.410	0.70	1
F12-1000		FS12-1000	12.6V CT @ 1.0A	6.3V @ 2.0A											
F16-800		FS16-800	16.0V CT @ 0.8A	8.0V @ 1.6A											
F20-600		FS20-600	20.0V CT @ 0.6A	10.0V @ 1.2A											
F24-500		FS24-500	24.0V CT @ 0.5A	12.0V @ 1.0A											
F28-420		FS28-420	28.0V CT @ 0.42A	14.0V @ 0.84A											
F36-350		FS36-350	36.0V CT @ 0.35A	18.0V @ 0.7A											
F48-250		FS48-250	48.0V CT @ 0.25A	24.0V @ 0.5A											
F56-220		FS56-220	56.0V CT @ 0.22A	28.0V @ 0.44A											
F120-100		FS120-100	120.0V CT @ 0.1A	60.0V @ 0.2A											
E		F10-2000	FS10-2000	20.0		10.0V CT @ 2.0A	5.0V @ 4.0A	1 1/16	1 1/8	2 1/4	1 1/2	•	0.30	0.40	1.60	0.80	1
	F12-1600	FS12-1600	12.6V CT @ 1.6A		6.3V @ 3.2A										
	F16-1250	FS16-1250	16.0V CT @ 1.25A		8.0V @ 2.5A										
	F20-1000	FS20-1000	20.0V CT @ 1.0A		10.0V @ 2.0A										
	F24-800	FS24-800	24.0V CT @ 0.8A		12.0V @ 1.6A										
	F28-700	FS28-700	28.0V CT @ 0.7A		14.0V @ 1.4A										
	F36-550	FS36-550	36.0V CT @ 0.55A		18.0V @ 1.1A										
	F48-400	FS48-400	48.0V CT @ 0.4A		24.0V @ 0.8A										
	F56-350	FS56-350	56.0V CT @ 0.35A		28.0V @ 0.7A										
	F120-160	FS120-160	120.0V CT @ 0.16A		60.0V @ 0.32A										

CT = Center Tap

:: Split Pack continued

Section	Single Primary 6 Pin	Dual Primary 8 Pin	VA	Secondary		Dimensions (in)							Wt. Lbs.	Fig	
				Series	Parallel	H	W	L	MW	ML	A	B			C
F	F10-3600	FS10-3600	36.0	10.0V CT @ 3.6A	5.0V @ 7.2A	1 7/16	2 1/16	2 3/8	1.75	2.188	0.40	0.40	1.850	1.1	2
	F12-2850	FS12-2850		12.6V CT @ 2.85A	6.3V @ 5.7A										
	F16-2250	FS16-2250		16.0V CT @ 2.25A	8.0V @ 4.5A										
	F20-1800	FS20-1800		20.0V CT @ 1.8A	10.0V @ 3.6A										
	F24-1500	FS24-1500		24.0V CT @ 1.5A	12.0V @ 3.0A										
	F28-1300	FS28-1300		28.0V CT @ 1.3A	14.0V @ 2.6A										
	F36-1000	FS36-1000		36.0V CT @ 1.0A	18.0V @ 2.0A										
	F48-750	FS48-750		48.0V CT @ 0.75A	24.0V @ 1.5A										
	F56-650	FS56-650		56.0V CT @ 0.65A	28.0V @ 1.3A										
	F120-300	FS120-300		120.0V CT @ 0.3A	60.0V @ 0.6A										

CT = Center Tap

:: Outline Dimensions

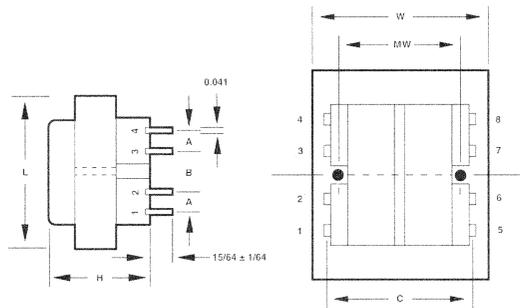
Technical Notes

- Hi-pot tested at 2,500 VRMS.
- PC terminal pin spacing for accurate placement.
- 115 V connect primary in parallel.
230 V connect primary in series.

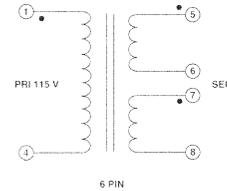
- 4. Series Connections:** Primary - Input 1 & 4
Connect 2 & 3
Secondary - Input 5 & 8
Connect 6 & 7

- 5. Parallel Connections:** Primary - Input 1 & 2
Connect 1 & 3, 2 & 4
Secondary - Input 5 & 8
Connect 5 & 7, 6 & 8

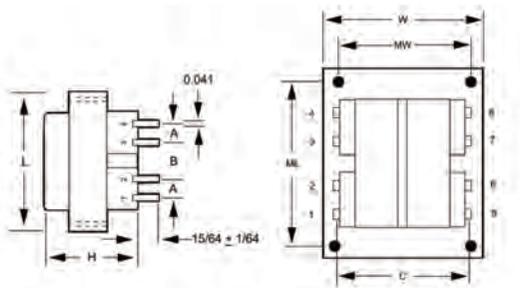
- 6.** For single primary, omit pins 2 and 3.
7. 1.1 & 2.5 VA are not offered with mounting holes.



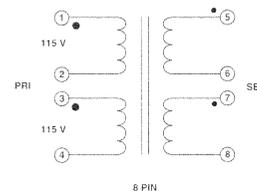
Bottom view
Figure 1



Single Primary



Bottom view
Figure 2



Dual Primary

Power Transformers

TUV Cert. No.: R72120839
 UL Recognized
 UL File: E65390



PC Mount: Split Pack™ Class 2/3



:: Description

The Triad Split Pack split bobbin transformer is an extremely versatile tool for PC board applications. Split Pack transformers are nonconcentrically wound -- with primaries and secondaries side-by-side. Unlike the secondary-on-top-of-primary designs of standard PC board transformers, the split bobbin winding and low capacitive coupling eliminate costly electrostatic shielding. It is offered in a dual secondary configuration with either single or dual primaries.

:: Specifications

Primary: 115 V or 115/230 V, 50/60 Hz | **VA Ranges:** 1.1 to 36.0

Secondary: Series - 10 to 56 V; Parallel - 5 to 28 V

:: Split Pack Class 2/3

Section	Single Primary 6 Pin	Dual Primary 8 Pin	VA	Secondary		Dimensions (in)							Wt. Lbs.	Fig	
				Series	Parallel	H	W	L	MW	ML	A	B			C
A	F10-110-C2	* FS10-110-C2	1.1	10.0V CT @ 0.11A	5.0V @ 0.22A	1 1/16	1 1/8	1 1/8	•	•	0.250	0.250	1.20	0.17	1
	F12-090-C2	* FS12-090-C2		12.6V CT @ 0.09A	6.3V @ 0.18A										
	F16-070-C2	* FS16-070-C2		16.0V CT @ 0.07A	8.0V @ 0.14A										
	F20-055-C2	* FS20-055-C2		20.0V CT @ 0.055A	10.0V @ 0.11A										
	F24-045-C2	* FS24-045-C2		24.0V CT @ 0.045A	12.0V @ 0.09A										
	F28-040-C2	* FS28-040-C2		28.0V CT @ 0.040A	14.0V @ 0.08A										
	F36-030-C2	* FS36-030-C2		36.0V CT @ 0.03A	18.0V @ 0.06A										
	F48-023-C2	* FS48-023-C2		48.0V CT @ 0.023A	24.0V @ 0.046A										
	F56-020-C2	FS56-020-C2		56.0V CT @ 0.02A	28.0V @ 0.04A										
	B	F10-250-C2		* FS10-250-C2	2.4											10.0V CT @ 0.25A	5.0V @ 0.5A	1 3/16	1%	1%	•	•	0.250	0.250	1.20	0.25	1
F12-200-C2		* FS12-200-C2	12.6V CT @ 0.2A	6.3V @ 0.4A											
F16-150-C2		* FS16-150-C2	16.0V CT @ 0.15A	8.0V @ 0.3A											
F20-120-C2		* FS20-120-C2	20.0V CT @ 0.12A	10.0V @ 0.24A											
F24-100-C2		* FS24-100-C2	24.0V CT @ 0.1A	12.0V @ 0.2A											
F28-085-C2		* FS28-085-C2	28.0V CT @ 0.085A	14.0V @ 0.17A											
F36-065-C2		* FS36-065-C2	36.0V CT @ 0.065A	18.0V @ 0.13A											
F48-050-C2		* FS48-050-C2	48.0V CT @ 0.05A	24.0V @ 0.1A											
F56-045-C2		FS56-045-C2	56.0V CT @ 0.045A	28.0V @ 0.09A											
C		F10-600-C2	* FS10-600-C2	6.0		10.0V CT @ 0.6A	5.0V @ 1.2A	1 1/16	1 1/16	1%	1 1/16	•	0.250	0.350	1.280	0.44	1
	F12-500-C2	* FS12-500-C2	12.6V CT @ 0.5A		6.3V @ 1.0A										
	F16-400-C2	* FS16-400-C2	16.0V CT @ 0.4A		8.0V @ 0.8A										
	F20-300-C2	* FS20-300-C2	20.0V CT @ 0.3A		10.0V @ 0.6A										
	F24-250-C2	* FS24-250-C2	24.0V CT @ 0.25A		12.0V @ 0.5A										
	F28-200-C2	* FS28-200-C2	28.0V CT @ 0.2A		14.0V @ 0.4A										
	F36-170-C2	* FS36-170-C2	36.0V CT @ 0.17A		18.0V @ 0.34A										
	F48-125-C2	* FS48-125-C2	48.0V CT @ 0.125A		24.0V @ 0.25A										
	F56-110-C2	FS56-110-C2	56.0V CT @ 0.11A		28.0V @ 0.22A										
	D	F10-1200-C2	* FS10-1200-C2		12.0	10.0V CT @ 1.2A	5.0V @ 2.4A											1 1/16	1 1/16	1%	1 1/4	•	0.30	0.40	1.410	0.70	1
F12-1000-C2		* FS12-1000-C2	12.6V CT @ 1.0A	6.3V @ 2.0A											
F16-800-C2		* FS16-800-C2	16.0V CT @ 0.8A	8.0V @ 1.6A											
F20-600-C2		* FS20-600-C2	20.0V CT @ 0.6A	10.0V @ 1.2A											
F24-500-C2		* FS24-500-C2	24.0V CT @ 0.5A	12.0V @ 1.0A											
F28-420-C2		* FS28-420-C2	28.0V CT @ 0.42A	14.0V @ 0.84A											
F36-350-C2		* FS36-350-C2	36.0V CT @ 0.35A	18.0V @ 0.7A											
F48-250-C2		* FS48-250-C2	48.0V CT @ 0.25A	24.0V @ 0.5A											
F56-220-C2		FS56-220-C2	56.0V CT @ 0.22A	28.0V @ 0.44A											
E		F10-2000-C2	* FS10-2000-C2	20.0		10.0V CT @ 2.0A	5.0V @ 4.0A	1 1/16	1%	2 1/4	1 1/2	•	0.30	0.40	1.60	0.80	1
	F12-1600-C2	* FS12-1600-C2	12.6V CT @ 1.6A		6.3V @ 3.2A										
	F16-1250-C2	* FS16-1250-C2	16.0V CT @ 1.25A		8.0V @ 2.5A										
	F20-1000-C2	* FS20-1000-C2	20.0V CT @ 1.0A		10.0V @ 2.0A										
	F24-800-C2	* FS24-800-C2	24.0V CT @ 0.8A		12.0V @ 1.6A										
	F28-700-C2	* FS28-700-C2	28.0V CT @ 0.7A		14.0V @ 1.4A										
	F36-550-C2	* FS36-550-C2	36.0V CT @ 0.55A		18.0V @ 1.1A										
	F48-400-C2	* FS48-400-C2	48.0V CT @ 0.4A		24.0V @ 0.8A										
	F56-350-C2	FS56-350-C2	56.0V CT @ 0.35A		28.0V @ 0.7A										

CT = Center Tap * Note: TUV Approved

:: Split Pack Class 2/3 continued

Section	Single Primary 6 Pin	Dual Primary 8 Pin	VA	Secondary		Dimensions (in)						Wt. Lbs.	Fig		
				Series	Parallel	H	W	L	MW	ML	A			B	C
F	F10-3600-C2	* FS10-3600-C2	36.0	10.0V CT @ 3.6A	5.0V @ 7.2A	1 1/16	2 3/16	2 3/8	1.75	2.188	0.40	0.40	1.850	1.1	2
	F12-2850-C2	* FS12-2850-C2		12.6V CT @ 2.85A	6.3V @ 5.7A										
	F16-2250-C2	* FS16-2250-C2		16.0V CT @ 2.25A	8.0V @ 4.5A										
	F20-1800-C2	* FS20-1800-C2		20.0V CT @ 1.8A	10.0V @ 3.6A										
	F24-1500-C2	* FS24-1500-C2		24.0V CT @ 1.5A	12.0V @ 3.0A										
	F28-1300-C2	* FS28-1300-C2		28.0V CT @ 1.3A	14.0V @ 2.6A										
	F36-1000-C2	* FS36-1000-C2		36.0V CT @ 1.0A	18.0V @ 2.0A										
	F48-750-C2	* FS48-750-C2		48.0V CT @ 0.75A	24.0V @ 1.5A										
	F56-650-C2	* FS56-650-C2		56.0V CT @ 0.65A	28.0V @ 1.3A										

CT = Center Tap * Note: TUV Approved

:: Outline Dimensions

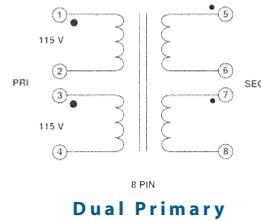
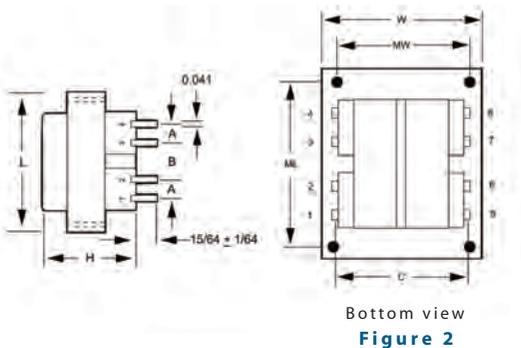
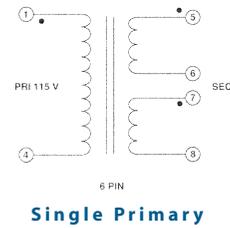
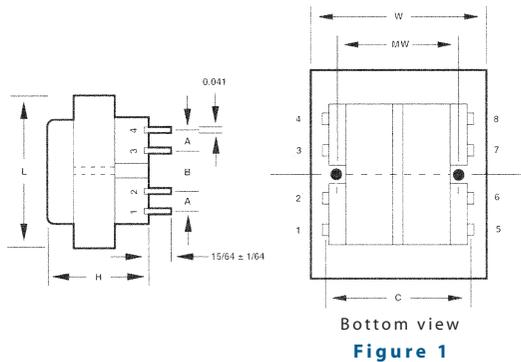
Technical Notes

- Hi-pot tested at 4,250 VRMS.
- PC terminal pin spacing for accurate placement.
- 115 V connect primary in parallel.
230 V connect primary in series.

- Series Connections: Primary - Input 1 & 4
Connect 2 & 3
Secondary - Input 5 & 8
Connect 6 & 7

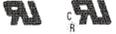
- Parallel Connections: Primary - Input 1 & 2
Connect 1 & 3, 2 & 4
Secondary - Input 5 & 8
Connect 5 & 7, 6 & 8

- For single primary, omit pins 2 and 3.
- 1.1 & 2.5 VA are not offered with mounting holes.

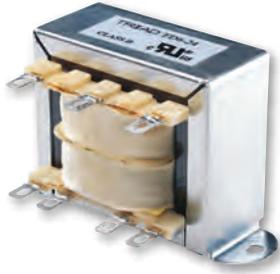


Power Transformers

UL Recognized Class B
 UL File: E53148
 *UL File: E65390



Chassis Mount: Quick Pack™



:: Description

The Triad Quick Pack small power transformer series offers a significant reduction in size and weight for a given VA rating. These transformers are available in six sizes for a wide variety of applications. They are bobbin wound for reduced size and small operating space. Split bobbin nonconcentric winding eliminates costly electrostatic shielding. Termination is suitable for quick connects or soldering.

:: Specifications

Primary: 115 V, 115/230 V, 50/60 Hz
VA Range: 2.4 to 100.0
Output Rating Range: 10.0 V CT to 120.0 V CT

:: Quick Pack

Section	Single Primary 115 V	Dual Primary 115/230 V	VA	Output Rating	Dimensions (in)						Wt. Lbs.
					L	W	H	A	B	ML	
A	F3-10	•	2.4	10.0V CT @ 0.25A	2 ¹ / ₁₆	1 ¹ / ₁₆	1 ¹ / ₁₆	1 ¹ / ₁₆	5 ¹ / ₁₆	1 ¹ / ₄	0.25
	F3-12	•		12.6V CT @ 0.2A							
	F3-16	•		16.0V CT @ 0.15A							
	F3-20	•		20.0V CT @ 0.12A							
	F3-24	•		24.0V CT @ 0.1A							
	F3-28	•		28.0V CT @ 0.085A							
	F3-36	•		36.0V CT @ 0.065A							
	F3-48	•		48.0V CT @ 0.05A							
	F3-56	•		56.0V CT @ 0.045A							
	F3-120	•		120.0V CT @ 0.02A							
B	F4-10*	FD4-10*	6.0	10.0V CT @ 0.6A	2 ³ / ₈	1 ¹ / ₄	1 ¹ / ₈	1 ¹ / ₁₆	1 ¹ / ₁₆	2	0.44
	F4-12*	FD4-12*		12.6V CT @ 0.5A							
	F4-16*	FD4-16*		16.0V CT @ 0.4A							
	F4-20*	FD4-20*		20.0V CT @ 0.3A							
	F4-24*	FD4-24*		24.0V CT @ 0.25A							
	F4-28*	FD4-28*		28.0V CT @ 0.2A							
	F4-36*	FD4-36*		36.0V CT @ 0.17A							
	F4-48*	FD4-48*		48.0V CT @ 0.125A							
	F4-56*	FD4-56*		56.0V CT @ 0.11A							
	F4-120	FD4-120		120.0V CT @ 0.05A							
C	F5-10*	FD5-10*	12.0	10.0V CT @ 1.2A	2 ³ / ₁₆	1 ¹ / ₈	1 ¹ / ₈	1 ¹ / ₁₆	1 ¹ / ₁₆	2 ³ / ₈	0.70
	F5-12*	FD5-12*		12.6V CT @ 1.0A							
	F5-16*	FD5-16*		16.0V CT @ 0.8A							
	F5-20*	FD5-20*		20.0V CT @ 0.6A							
	F5-24*	FD5-24*		24.0V CT @ 0.5A							
	F5-28*	FD5-28*		28.0V CT @ 0.42A							
	F5-36*	FD5-36*		36.0V CT @ 0.35A							
	F5-48*	FD5-48*		48.0V CT @ 0.25A							
	F5-56*	FD5-56*		56.0V CT @ 0.22A							
	F5-120	FD5-120		120.0V CT @ 0.1A							
D	F6-10*	FD6-10*	30.0	10.0V CT @ 3.0A	3 ¹ / ₄	1 ¹ / ₁₆	1 ¹ / ₁₆	2 ¹ / ₁₆	1 ¹ / ₁₆	2 ³ / ₁₆	1.10
	F6-12*	FD6-12*		12.6V CT @ 2.5A							
	F6-16*	FD6-16*		16.0V CT @ 2.0A							
	F6-20*	FD6-20*		20.0V CT @ 1.5A							
	F6-24*	FD6-24*		24.0V CT @ 1.25A							
	F6-28*	FD6-28*		28.0V CT @ 1.1A							
	F6-36*	FD6-36*		36.0V CT @ 0.85A							
	F6-48*	FD6-48*		48.0V CT @ 0.63A							
	F6-56*	FD6-56*		56.0V CT @ 0.54A							
	F6-120	FD6-120		120.0V CT @ 0.25A							
E	F7-10*	FD7-10*	56.0	10.0V CT @ 5.0A	3 ¹ / ₁₆	1 ¹ / ₁₆	2 ¹ / ₄	2 ¹ / ₁₆	1 ¹ / ₁₆	3 ³ / ₈	1.70
	F7-12*	FD7-12*		12.6V CT @ 4.0A							
	F7-16*	FD7-16*		16.0V CT @ 3.5A							
	F7-20*	FD7-20*		20.0V CT @ 2.8A							
	F7-24*	FD7-24*		24.0V CT @ 2.4A							
	F7-28*	FD7-28*		28.0V CT @ 2.0A							
	F7-36*	FD7-36*		36.0V CT @ 1.5A							
	F7-48*	FD7-48*		48.0V CT @ 1.2A							
	F7-56*	FD7-56*		56.0V CT @ 1.0A							
	F7-120	FD7-120		120.0V CT @ 0.5A							

CT = Center Tap Mounting hole size: 3/16"

:: Quick Pack continued

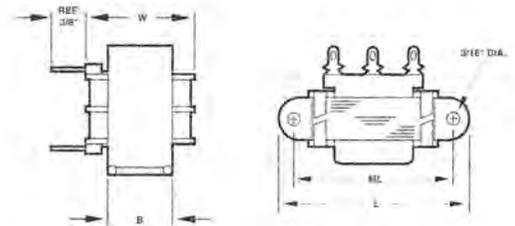
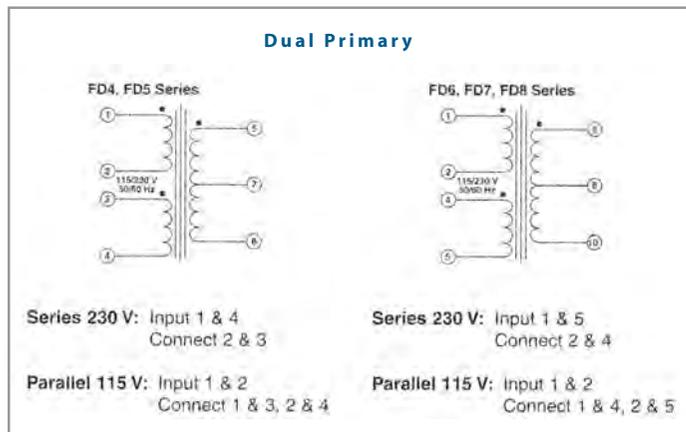
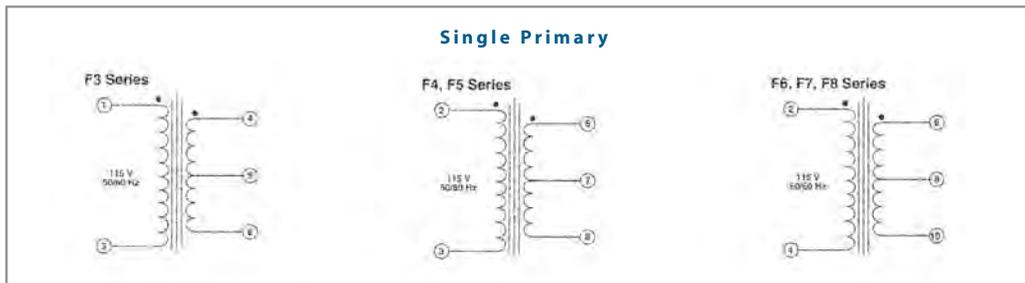
Section	Single Primary 115 V	Dual Primary 115/230 V	VA	Output Rating	Dimensions (in)						Wt. Lbs.
					L	W	H	A	B	ML	
F	F8-10 F8-12 F8-16 F8-20 F8-24 F8-28 F8-36 F8-48 F8-56 F8-120	FDS-10 FDS-12 FDS-16 FDS-20 FDS-24 FDS-28 FDS-36 FDS-48 FDS-56 FDS-120	100.0	10.0V CT @ 10.0A 12.6V CT @ 8.0A 16.0V CT @ 6.25A 20.0V CT @ 5.0A 24.0V CT @ 4.0A 28.0V CT @ 3.6A 36.0V CT @ 2.8A 48.0V CT @ 2.0A 56.0V CT @ 1.8A 120.0V CT @ 0.85A	4 1/2	2 1/4	2 7/16	3 1/16	1 1/16	3 3/16	2.75

CT = Center Tap Mounting hole size: ³/₁₆"

:: Outline Dimensions

Technical Notes

1. Hi-pot tested at 2,500 VRMS.
2. Class B insulation for maximum temperature of 130°C.
3. Terminal size is .187" x .021".



Power Transformers

PC Mount



Figure A



Figure B

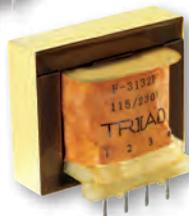


Figure C

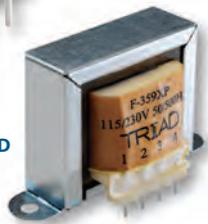


Figure D

:: Description

Triad power transformers are offered in a wide selection of plug-in types to meet the needs of PC board and solid state power supply designs. These transformers can satisfy power as well as control and instrumentation applications. The transformers are available in single or dual primary and dual center tapped secondary configurations.

:: Specifications

Primary: 115 V, 50/60 Hz

:: Single Primary, Dual Secondaries

Section	Type No.	Figure	VA	Secondary		Dimensions (in)						Wt. Oz.	
				Series	Parallel	H	W	D	L	A	B		MW
A	F-131P	B	1½	8.0V CT @ 0.188A	4.0V @ 0.376A	1⅞	•	1½	1⅞	⅞	1	•	3.5
	F-139P			12.6V CT @ 0.12A	6.3V @ 0.24A								
	F-132P			15.0V CT @ 0.100A	7.5V @ 0.200A								
	F-150P			17.0V CT @ 0.085A	8.5V @ 0.170A								
	F-138P			25.2V CT @ 0.06A	12.6V @ 0.12A								
	F-133P			30.0V CT @ 0.050A	15.0V @ 0.100A								
	F-160P			34.0V CT @ 0.045A	17.0V @ 0.090A								
	F-137P			40.0V CT @ 0.038A	20.0V @ 0.076A								
	F-134P			54.0V CT @ 0.028A	27.0V @ 0.056A								
	F-135P			76.0V CT @ 0.020A	38.0V @ 0.040A								
	F-136P			116.0V CT @ 0.013A	58.0V @ 0.026A								
	B			F-141XP	A								
F-149XP		12.6V CT @ 0.35A	6.3V @ 0.70A										
F-142XP		15.0V CT @ 0.300A	7.5V @ 0.600A										
F-161XP		17.0V CT @ 0.264A	8.5V @ 0.528A										
F-148XP		25.2V CT @ 0.178A	12.6V @ 0.356A										
F-143XP		30.0V CT @ 0.150A	15.0V @ 0.300A										
F-162XP		34.0V CT @ 0.132A	17.0V @ 0.264A										
F-147XP		40.0V CT @ 0.112A	20.0V @ 0.224A										
F-144XP		54.0V CT @ 0.084A	27.0V @ 0.168A										
F-145XP		76.0V CT @ 0.060A	38.0V @ 0.120A										
F-146XP		116.0V CT @ 0.033A	58.0V @ 0.066A										
C		F-151XP	A	7½		8.0V CT @ 0.940A	4.0V @ 1.88A	1⅞	2⅞	1½	1⅞	⅜	1⅞		2⅞	10.5
	F-159XP	12.6V CT @ 0.60A			6.3V @ 1.2A								
	F-152XP	15.0V CT @ 0.500A			7.5V @ 1.000A								
	F-163XP	17.0V CT @ 0.441A			8.5V @ 0.882A								
	F-158XP	25.2V CT @ 0.30A			12.6V @ 0.60A								
	F-153XP	30.0V CT @ 0.250A			15.0V @ 0.500A								
	F-164XP	34.0V CT @ 0.220A			17.0V @ 0.440A								
	F-157XP	40.0V CT @ 0.188A			20.0V @ 0.376A								
	F-154XP	54.0V CT @ 0.140A			27.0V @ 0.280A								
	F-155XP	76.0V CT @ 0.100A			38.0V @ 0.200A								
	F-156XP	116.0V CT @ 0.085A			58.0V @ 0.130A								

CT = Center Tap Mounting hole size: Figure A = ⅜"

:: 115 Volts, 50/60 Hz Primary/Triple Output Secondaries for ±15 VDC and +5 VDC

Section	Type No.	Figure	VA	Secondary No.		Dimensions (in)						Wt. Oz.	
				1	2	H	W	D	L	A	B		MW
D	F-165P	C	1½	24.0V CT @ 0.025A	9.0VCT @ 0.100A	1⅞	1⅞	1½	1⅞	⅞	1	•	3.5
	F-167P			32.0V CT @ 0.020A	15.0V CT @ 0.060A								
E	F-168XP	D	4½	32.0V CT @ 0.050A	15.0V CT @ 0.195A	1⅞	2⅞	1¼	1⅞	¼	1⅞	2	7.5
F	F-166XP	D	7½	24.0V CT @ 0.125A	9.0V CT @ 0.500A	1⅞	2⅞	1½	1⅞	¼	1⅞	2⅞	10.5
	F-169XP			32.0V CT @ 0.100A	15.0V CT @ 0.287A								

CT = Center Tap Mounting hole size: Figure A = ⅜"

:: Outline Dimensions

Technical Notes

1. Hi-pot tested at 1,500 VRMS.

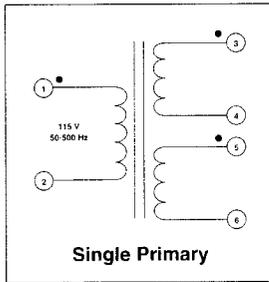


Figure A

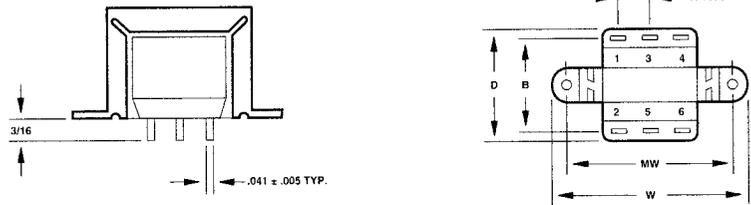


Figure B

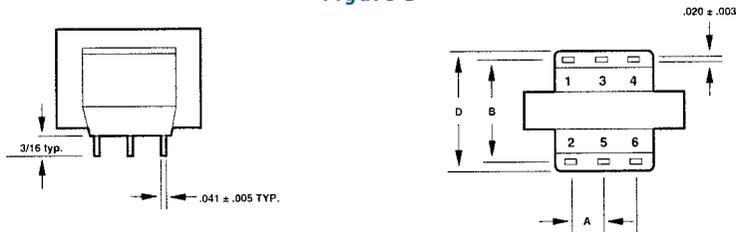
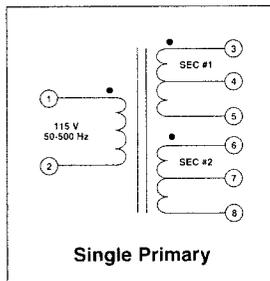
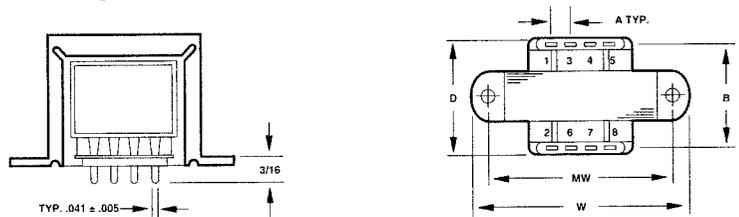


Figure C



Figure D



Power Transformers

PC Mount

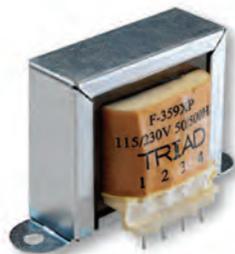


Figure A

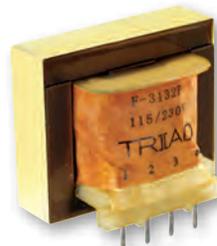


Figure B

:: Description

Triad power transformers are offered in a wide selection of plug-in types to meet the needs of PC board and solid state power supply designs. These transformers can satisfy power as well as control and instrumentation applications. The transformers are available in a single or dual primary and dual center tapped secondary configurations.

:: Specifications

Primary: 115/230 V, 50/60 Hz

:: Dual Primary, Dual Secondaries

Section	Type No.	Figure	VA	Secondary		Dimensions (in)						Wt. Oz.	
				Series	Parallel	H	W	D	L	A	B		MW
A	F-3132P	B	1½	15.0V CT @ 0.1A	7.5V @ 0.2A	1⅜	•	1⅝	•	⅜	1	•	4.0
	F-333P			30.0V CT @ 0.050A	15.0V @ 0.100A								
	F-367P			230.0V CT @ 0.0065A	115.0V @ 0.013A								
B	F-348XP	A	4½	12.6V CT @ 0.350A	6.3V @ 0.700A	1⅝	2⅝	1¼	1⅝	¼	1⅞	2	6.5
C	F-3142XP	A	4½	15.0V CT @ 0.3A	7.5V @ 0.6A	1⅜	2⅝	1¼	1⅝	¼	1⅞	2	6.5
	F-349XP			16.0V CT @ 0.280A	8.0V @ 0.560A								
	F-350XP			24.0V CT @ 0.180A	12.0V @ 0.360A								
	F-358XP			20.0V CT @ 0.225A	10.0V @ 0.450A								
	F-3143XP			30.0V CT @ 0.15A	15.0V @ 0.3A								
	F-363XP			230.0V CT @ 0.020A	115.0V @ 0.040A								
D	F-3152XP	A	7½	15.0V CT @ 0.5A	7.5V @ 1.0A	1⅝	2⅞	1⅞	1⅝	¼	1⅞	2⅝	11.0
F-3153XP	30.0V CT @ 0.25A			15.0V @ 0.5A									
E	F-359XP	A	10	24.0V CT @ 0.450A	12.0V @ 0.900A	1⅝	2⅞	1⅞	1⅝	¼	1⅞	2⅝	11.0
	F-362XP			20.0V CT @ 0.500A	10.0V @ 1.0A								
	F-365XP			12.6V CT @ 0.800A	6.30V @ 1.6A								
	F-366XP			16.0V CT @ 0.640A	8.0V @ 1.28A								
	F-369XP			230.0V CT @ 0.044A	115.0V @ 0.088A								
F	F-370P	B	24	10.0V CT @ 2.4A	5.0V @ 4.8A	1⅝	•	2¼	1⅝	¼	2⅞	•	13.3
	F-371P			12.6V CT @ 2.0A	6.3V @ 4.0A								
	F-372P			16.0V CT @ 1.5A	8.0V @ 3.0A								
	F-373P			20.0V CT @ 1.2A	10.0V @ 2.4A								
	F-374P			24.0V CT @ 1.0A	12.0V @ 2.0A								
	F-375P			28.0V CT @ 0.8A	14.0V @ 1.6A								
	F-376P			34.0V CT @ 0.7A	17.0V @ 1.4A								
	F-377P			40.0V CT @ 0.6A	20.0V @ 1.2A								
	F-378P			56.0V CT @ 0.42A	28.0V @ 0.84A								
	F-379P			120.0V CT @ 0.2A	60.0V @ 0.4A								

CT = Center Tap Mounting hole size: Figure A = ⅜"

:: Outline Dimensions

Technical Notes

1. The transformers with dual primaries permit their use in equipment for sale in both foreign and domestic markets.
2. Hi-pot tested at 1,500 VRMS.

Figure A

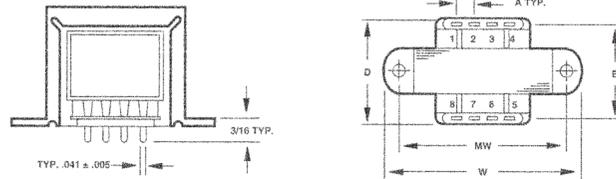
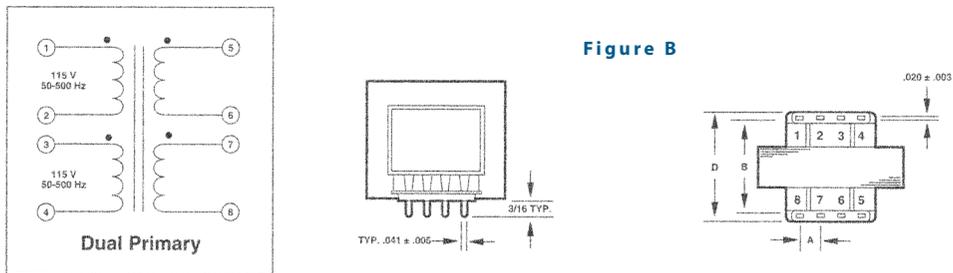


Figure B



Triad Magnetics can be your total transformer source. Our flexible production lines are just as capable of handling a component order from 500 to 500,000. Call your Triad distributor for details.

Power Transformers

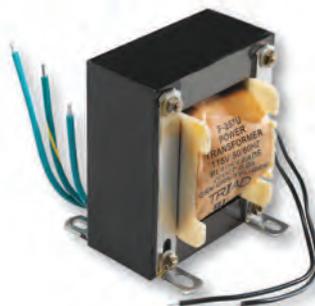
Chassis Mount: Single Secondary



Case Type X



Case Type A



Case Type U

:: Description

Triad offers a full choice of power supply transformers for direct use or in transformer, rectifier, or filter circuits. Other available secondary voltages include control, filament and low level signaling in standard values. The transformers are single primary with single and multiple secondaries in standard size and weight configurations.

:: Specifications

Primary: 115/230 V, 50/60 Hz

:: Single Secondary

Section	Type No.	Secondary		Primary Voltage	RMS Test Voltage (Sec.)	Case Type	Connections	Dimensions (in)					Wt. Lbs.
		Volts	Amps					H	W	D	MW	MD	
A	F-1X#	2.5 CT	3.0	115	1,500	X	Leads	1 $\frac{1}{8}$	2 $\frac{3}{16}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	•	0.68
	F-301X	2.5 CT	3.0	115/230	1,500	X	Leads	1 $\frac{1}{8}$	2 $\frac{3}{16}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	•	0.68
	F-6X#	2.5 CT	6.0	115	2,500	X	Leads	1 $\frac{5}{16}$	3 $\frac{1}{16}$	1 $\frac{1}{4}$	2 $\frac{3}{16}$	•	1.00
	F-3X#	2.5 CT	10.0	115	3,000	X	Leads	2 $\frac{1}{32}$	3 $\frac{1}{4}$	2 $\frac{1}{8}$	3 $\frac{1}{8}$	•	1.70
B	F-7X	5.0 CT	3.0	115	1,500	X	Leads	1 $\frac{5}{16}$	3 $\frac{1}{16}$	2	2 $\frac{3}{16}$	•	1.30
	F-8X	5.0 CT	6.0	115	1,500	X	Leads	2 $\frac{1}{32}$	3 $\frac{1}{4}$	2 $\frac{1}{8}$	3 $\frac{1}{8}$	•	1.70
	F-12X	5.0 CT	8.0	115	2,500	X	Leads	2 $\frac{1}{32}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$	•	2.50
C	F-13X	6.3	0.6	115	1,500	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2	•	0.37
	F-313X	6.3	0.6	115/230	1,500	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2	•	0.37
	F-14X#	6.3 CT	1.2	115	2,500	X	Leads	1 $\frac{1}{8}$	2 $\frac{3}{16}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	•	0.70
	F-314X	6.3 CT	1.2	115/230	2,500	X	Leads	1 $\frac{1}{8}$	2 $\frac{3}{16}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	•	0.70
	F-16X	6.3 CT	3.0	115	2,500	X	Leads	1 $\frac{1}{16}$	3 $\frac{1}{16}$	2	2 $\frac{1}{16}$	•	1.30
	F-316X	6.3 CT	3.0	115/230	2,500	X	Leads	1 $\frac{1}{16}$	3 $\frac{1}{16}$	2	2 $\frac{1}{16}$	•	1.30
	F-43X#	6.3	4.0	115	1,500	X	Leads	1 $\frac{1}{16}$	3 $\frac{1}{16}$	2	2 $\frac{1}{16}$	•	1.25
	F-18X	6.3 CT	6.0	115	1,500	X	Leads	2 $\frac{1}{32}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$	•	2.30
	F-318X	6.3 CT	6.0	115/230	1,500	X	Leads	2 $\frac{1}{32}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$	•	2.30
	F-69X	6.3 CT	8.0	115	1,500	X	Leads	2 $\frac{1}{32}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$	•	2.30
	F-21A	6.3 CT	10.0	115	1,500	A	1-Leads	3 $\frac{1}{32}$	2 $\frac{1}{32}$	3 $\frac{1}{8}$	2 $\frac{1}{4}$	2	3.80
	F-22A	6.3 CT	20.0	115	2,000	A	2-Leads	3 $\frac{1}{8}$	3 $\frac{1}{32}$	4 $\frac{1}{8}$	2 $\frac{1}{2}$	3	7.00
D	F-28U†	7.5 CT or 6.3 CT	25.0	115	3,000	U	Leads & Lugs	4 $\frac{1}{8}$	3 $\frac{1}{16}$	3 $\frac{1}{8}$	3	3 $\frac{1}{16}$	7.50
E	F-180X	10.0 CT	1.0	115	1,500	X	Leads	1 $\frac{1}{16}$	3 $\frac{1}{16}$	1 $\frac{1}{4}$	2 $\frac{1}{16}$	•	0.90
	F-31X	10.0 CT	3.0	115	2,000	X	Leads	2 $\frac{1}{32}$	3 $\frac{1}{4}$	2 $\frac{1}{8}$	3 $\frac{1}{8}$	•	1.70
F	F-96U	10.0 CT	6.000	115	1,500	U	Leads	3	2 $\frac{1}{2}$	2 $\frac{1}{4}$	2	2 $\frac{1}{16}$	2.10
	F-97U	10.0 CT	8.000	115	1,500	U	Leads	3 $\frac{1}{16}$	2 $\frac{1}{16}$	3	2 $\frac{1}{4}$	2 $\frac{1}{2}$	4.00
G	F-113X	12.0	0.150	115	1,500	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2	•	0.40
	F-216X#	12.0	0.350	115	1,500	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2	•	0.37
	F-114X	12.0	0.700	115	1,500	X	Leads	1 $\frac{1}{8}$	2 $\frac{3}{16}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	•	0.80
	F-217X#	12.0	1.200	115	1,500	X	Leads	2	3 $\frac{1}{4}$	1 $\frac{1}{4}$	2 $\frac{3}{16}$	•	1.00
	F-218X#	12.0	2.000	115	1,500	X	Leads	2	3 $\frac{1}{4}$	1 $\frac{1}{8}$	2 $\frac{3}{16}$	•	1.13
	F-219X#	12.0	4.000	115	1,500	X	Leads	2 $\frac{1}{16}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$	•	2.30
	F-220U#	12.0	6.000	115	1,500	U	Leads	3 $\frac{1}{16}$	2 $\frac{1}{16}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{1}{8}$	3.50
F-221U#	12.0	8.000	115	1,500	U	Leads	3 $\frac{1}{16}$	3 $\frac{1}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{8}$	4.00	
H	F-29U†	12.0 CT or 11.0 CT or 10.0 CT	11.0	115	3,000	U	Leads	4 $\frac{1}{8}$	3 $\frac{1}{2}$	3 $\frac{1}{8}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	6.50

60 Hz †Tapped primary to produce lower voltages CT = Center Tap Mounting hole sizes: X = $\frac{3}{16}$ " U = $\frac{1}{64}$ x $\frac{3}{16}$ " A = $\frac{3}{8}$ x $\frac{3}{16}$ "

:: Single Secondary continued

Section	Type No.	Secondary		Primary Voltage	RMS Test Voltage (Sec.)	Case Type	Connections	Dimensions (in)					Wt. Lbs.
		Volts	Amp					H	W	D	MW	MD	
I	F-70X	12.6 CT	1.000	115	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₁₆	1 ³ / ₄	2 ³ / ₁₆	•	1.30
	F-25X	12.6 CT	1.500	115	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₁₆	2	2 ³ / ₁₆	•	1.30
	F-325X	12.6 CT	1.500	115/230	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₁₆	2	2 ³ / ₁₆	•	1.30
	F-44X#	12.6 CT	2.000	115	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₁₆	2	2 ³ / ₁₆	•	1.25
	F-344X	12.6 CT	2.000	115/230	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₁₆	2	2 ³ / ₁₆	•	1.25
	F-26X#	12.6 CT	2.500	115	1,500	X	Leads	2 ⁷ / ₃₂	3 ³ / ₁₆	2	3 ³ / ₈	•	1.55
	F-326X	12.6 CT	2.500	115/230	1,500	X	Leads	2 ⁷ / ₃₂	3 ³ / ₁₆	2	3 ³ / ₈	•	1.55
	F-224X#	12.6	3.000	115	1,500	X	Leads	2 ¹ / ₄	3 ³ / ₄	2 ³ / ₈	3 ³ / ₈	•	1.60
	F-225X#	12.6 CT	4.000	115	1,500	X	Leads	2 ¹ / ₄	4	2 ¹ / ₄	3 ³ / ₁₆	•	2.30
	F-3181U	12.6 CT	4.000	115/230	1,500	U	Leads	3 ³ / ₁₆	2 ³ / ₁₆	2 ³ / ₁₆	2	2	2.30
	F-182U	12.6 CT	6.000	115	1,500	U	Leads	3 ³ / ₈	2 ³ / ₁₆	2 ³ / ₁₆	2 ¹ / ₄	2 ¹ / ₄	3.80
F-183U	12.6 CT	8.000	115	1,500	U	Leads	3 ³ / ₁₆	3 ³ / ₁₆	2 ³ / ₁₆	2 ¹ / ₂	2 ¹ / ₄	5.00	
J	F-112X	14.0 CT	0.250	115	1,500	X	Leads	1 ³ / ₈	2 ³ / ₈	1 ³ / ₈	2	•	0.40
	F-3112X	14.0 CT	0.250	115/230	1,500	X	Leads	1 ³ / ₈	2 ³ / ₈	1 ¹ / ₂	2	•	0.30
	F-250X	14.0 CT	1.000	115	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₄	1 ³ / ₄	2 ³ / ₁₆	•	1.20
	F-251X	14.0 CT	2.000	115	1,500	X	Leads	2 ¹ / ₄	3 ³ / ₁₆	1 ³ / ₁₆	3 ³ / ₈	•	1.50
	F-252U	14.0 CT	4.000	115	1,500	U	Leads	3	2 ¹ / ₂	2 ⁷ / ₁₆	2	2 ¹ / ₄	3.00
	F-253U	14.0 CT	6.000	115	1,500	U	Leads	3 ³ / ₈	2 ³ / ₁₆	2 ³ / ₈	2 ¹ / ₄	2 ¹ / ₄	4.00
K	F-254X	20.0 CT	1.000	115	1,500	X	Leads	2 ¹ / ₄	3 ³ / ₁₆	1 ³ / ₁₆	3 ³ / ₈	•	1.50
	F-255X	20.0 CT	2.000	115	1,500	X	Leads	2 ¹ / ₄	4	2 ¹ / ₄	3 ³ / ₁₆	•	2.50
	F-256U	20.0 CT	4.000	115	1,500	U	Leads	3 ³ / ₈	2 ³ / ₁₆	2 ³ / ₈	2 ³ / ₈	2 ¹ / ₄	4.00
	F-257U	20.0 CT	6.000	115	1,500	U	Leads	3 ³ / ₄	3 ³ / ₈	3 ³ / ₈	2 ¹ / ₂	2 ¹ / ₄	5.70
	F-258U	20.0 CT	8.000	115	1,500	U	Leads	3 ³ / ₄	3 ³ / ₈	3 ³ / ₂	2 ¹ / ₂	2 ¹ / ₄	6.40
	F-259U	20.0 CT	10.000	115	1,500	U	Leads	4 ¹ / ₈	3 ³ / ₁₆	3 ³ / ₂	2 ¹ / ₄	2 ¹ / ₄	7.40
L	F-115X	24.0 CT	0.085	115	1,500	X	Leads	1 ¹ / ₁₆	2 ¹ / ₁₆	1 ³ / ₈	1 ¹ / ₄	•	0.30
	F-3115X	24.0 CT	0.085	115/230	1,500	X	Leads	1 ¹ / ₁₆	2 ¹ / ₁₆	1 ³ / ₈	1 ¹ / ₄	•	0.30
	F-116X	24.0 CT	0.200	115	1,500	X	Leads	1 ³ / ₈	2 ³ / ₈	1 ¹ / ₂	2	•	0.45
	F-3116X	24.0 CT	0.200	115/230	1,500	X	Leads	1 ³ / ₈	2 ³ / ₈	1 ¹ / ₂	2	•	0.45
	F-117X	24.0 CT	0.400	115	1,500	X	Leads	1 ³ / ₈	2 ³ / ₁₆	1 ³ / ₈	2 ³ / ₈	•	0.80
	F-3117X	24.0 CT	0.400	115/230	1,500	X	Leads	1 ³ / ₈	2 ³ / ₁₆	1 ¹ / ₂	2 ³ / ₈	•	0.75
	F-118X	24.0 CT	0.700	115	1,500	X	Leads	2	3 ³ / ₄	2	2 ³ / ₁₆	•	1.30
	F-3118X	24.0 CT	0.700	115/230	1,500	X	Leads	2	3 ³ / ₄	2	2 ³ / ₁₆	•	1.30
	F-45X#	24.0 CT	1.000	115	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₁₆	2	2 ³ / ₁₆	•	1.30
	F-345X	24.0 CT	1.000	115/230	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₁₆	2	2 ³ / ₁₆	•	1.30
	F-46X#	24.0	1.000	115	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₄	2 ³ / ₈	2 ³ / ₁₆	•	1.40
	F-229X#	24.0	2.000	115	1,500	X	Leads	2 ¹ / ₁₆	4	2	3 ³ / ₁₆	•	2.30
	F-192X	24.0 CT	2.000	115	1,500	X	Leads	2 ³ / ₈	4	2 ¹ / ₄	3 ³ / ₁₆	•	2.30
	F-193U	24.0 CT	4.000	115	1,500	U	Leads	2 ³ / ₁₆	3 ³ / ₈	2 ³ / ₁₆	2 ¹ / ₂	2 ¹ / ₄	4.00
	F-260U	24.0 CT	6.000	115	1,500	U	Leads	3 ³ / ₄	3 ³ / ₈	3 ³ / ₂	2 ¹ / ₂	2 ³ / ₈	6.40
	F-261U	24.0 CT	8.000	115	1,500	U	Leads	4 ¹ / ₈	3 ³ / ₁₆	3 ³ / ₂	2 ¹ / ₄	2 ¹ / ₄	7.40
	F-401U	24.0 CT	10.000	115	1,500	U	Leads	4 ¹ / ₈	3 ³ / ₁₆	3 ³ / ₄	2 ¹ / ₄	3	8.00
	F-226U#	24.0 CT	12.000	115	1,500	U	Leads	4 ¹ / ₁₆	3 ³ / ₄	4 ¹ / ₈	3	3 ³ / ₄	10.40
F-1000U	24.0 CT	21.000	115/230	1,500	U	Leads	5 ¹ / ₄	4 ¹ / ₈	3 ³ / ₂	3 ³ / ₂	2 ¹ / ₄	14.00	
M	F-57X	25.2 CT	1.000	117	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₁₆	2	2 ³ / ₁₆	•	1.50
	F-357X	25.2 CT	1.000	115/230	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₁₆	2	2 ³ / ₁₆	•	1.50
	F-41X#	25.2 CT	2.000	115	1,500	X	Leads	2 ¹ / ₃₂	4	2 ¹ / ₄	3 ³ / ₁₆	•	2.20
	F-341X	25.2 CT	2.000	115/230	1,500	X	Leads	2 ¹ / ₃₂	4	2 ¹ / ₄	3 ³ / ₁₆	•	2.20
	F-56X	25.2 CT	2.800	115	1,500	X	Leads	2 ¹ / ₃₂	4	2 ¹ / ₄	3 ³ / ₁₆	•	2.50
N	F-119X	26.8 CT	0.150	115	1,500	X	Leads	1 ³ / ₈	2 ³ / ₈	1 ¹ / ₂	2	•	0.45
	F-40X#	26.8 CT	1.000	115	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₁₆	2	2 ³ / ₁₆	•	1.30
	F-340X	26.8 CT	1.000	115/230	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₁₆	2	2 ³ / ₁₆	•	1.30
	F-55X	26.8 CT	1.700	115	1,500	X	Leads	2 ¹ / ₃₂	4	2 ¹ / ₄	3 ³ / ₁₆	•	2.30
	F-355X	26.8 CT	1.700	115/230	1,500	X	Leads	2 ¹ / ₃₂	4	2 ¹ / ₄	3 ³ / ₁₆	•	2.30
O	F-122X	28.0 CT	0.175	115	1,500	X	Leads	1 ³ / ₈	2 ³ / ₈	1 ¹ / ₂	2	•	0.35
	F-124X	28.0 CT	0.800	115	1,500	X	Leads	1 ⁵ / ₁₆	3 ³ / ₄	2	2 ³ / ₁₆	•	1.00
	F-184X	28.0 CT	1.000	115	1,500	X	Leads	2 ¹ / ₁₆	3 ³ / ₁₆	2 ¹ / ₄	3 ³ / ₈	•	1.40
	F-3185U	28.0 CT	2.000	115/230	1,500	U	Leads	3 ³ / ₁₆	2 ¹ / ₂	2 ¹ / ₁₆	2	2 ¹ / ₃₂	2.90
	F-187U	28.0 CT	4.000	115	1,500	U	Leads	3 ³ / ₈	2 ³ / ₁₆	3 ³ / ₁₆	2 ¹ / ₄	2 ¹ / ₄	5.30
P	F-188X	35.0 CT	0.100	115	1,500	X	Leads	1 ³ / ₈	2 ³ / ₁₆	1 ³ / ₁₆	2 ³ / ₈	•	0.35
	F-228X#	35.0 CT	0.300	115	1,500	X	Leads	1 ³ / ₈	2 ³ / ₁₆	1 ³ / ₈	2 ³ / ₈	•	0.60
	F-189X	35.0 CT	0.500	115	1,500	X	Leads	2 ¹ / ₁₆	3 ³ / ₁₆	1 ⁵ / ₁₆	3 ³ / ₈	•	1.00
	F-54X	35.0 CT	1.500	115	1,500	X	Leads	2 ¹ / ₃₂	4	2 ¹ / ₄	3 ³ / ₁₆	•	2.20
	F-354X	35.0 CT	1.500	115/230	1,500	X	Leads	2 ¹ / ₃₂	4	2 ¹ / ₄	3 ³ / ₁₆	•	2.20
	F-191U	35.0 CT	4.000	115	1,500	U	Leads	3 ³ / ₁₆	3 ³ / ₁₆	3 ³ / ₁₆	2 ¹ / ₄	2 ¹ / ₂	6.00
F-268U	35.0 CT	8.000	115	1,500	U	Leads	4 ¹ / ₈	3 ³ / ₄	4 ¹ / ₄	3	3 ³ / ₄	11.00	

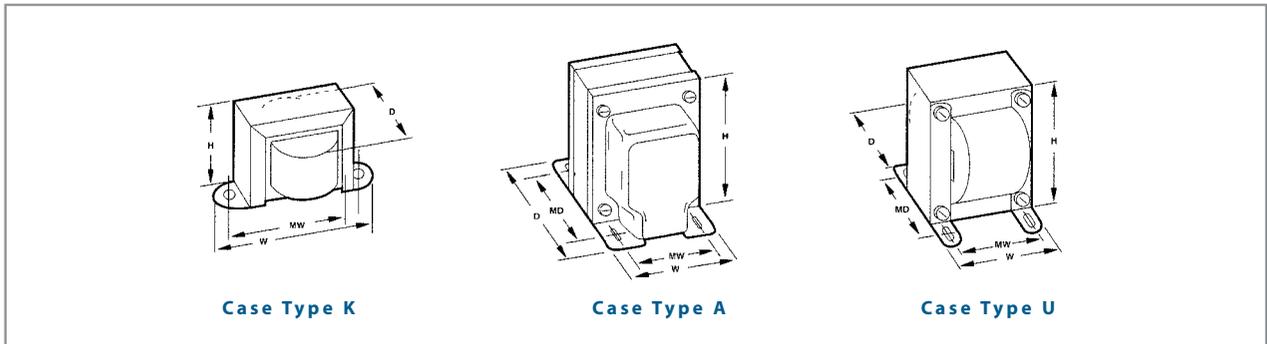
60 Hz †Tapped primary to produce lower voltages CT = Center Tap Mounting hole sizes: U = ⁵/₁₆, X = ³/₁₆"

:: Single Secondary continued

Section	Type No.	Secondary Volts	Secondary Amps	Primary Voltage	RMS Test Voltage (Sec.)	Case Type	Connections	Dimensions (in)					Wt. Lbs.
								H	W	D	MW	MD	
Q	F-270X	40.0 CT	1.000	115	1,500	X	Leads	2 ⁷ / ₁₆	4	2 ¹ / ₄	3 ³ / ₁₆	•	2.60
	F-271U	40.0 CT	2.000	115	1,500	U	Leads	3 ³ / ₁₆	2 ¹ / ₁₆	2 ⁷ / ₈	2 ¹ / ₄	2 ⁷ / ₈	4.00
	F-272U	40.0 CT	4.000	115	1,500	U	Leads	3 ³ / ₁₆	3 ³ / ₁₆	3 ¹ / ₂	2 ¹ / ₂	2 ⁷ / ₈	6.40
	F-273U	40.0 CT	6.000	115	1,500	U	Leads	4 ¹ / ₂	3 ³ / ₁₆	4	3	3	10.00
	F-275U	40.0 CT	10.000	115	1,500	U	Leads	5 ³ / ₈	4 ³ / ₁₆	4 ¹ / ₂	3 ¹ / ₂	3 ³ / ₈	14.50
R	F-59X	60.0 CT	0.400	115	1,500	X	Leads	1 ¹ / ₁₆	3 ³ / ₁₆	2	2 ¹ / ₁₆	•	1.30
	F-279U	60.0 CT	1.000	115	1,500	U	Leads	3	2 ¹ / ₂	2 ⁷ / ₈	2	2 ³ / ₈	3.40
	F-280U	60.0 CT	2.000	115	1,500	U	Leads	3 ³ / ₁₆	3 ³ / ₁₆	3 ¹ / ₂	2 ¹ / ₂	2 ³ / ₈	5.60
	F-282U	60.0 CT	6.000	115	1,500	U	Leads	5 ³ / ₁₆	4 ³ / ₁₆	4 ³ / ₈	3 ¹ / ₂	2 ³ / ₈	12.50

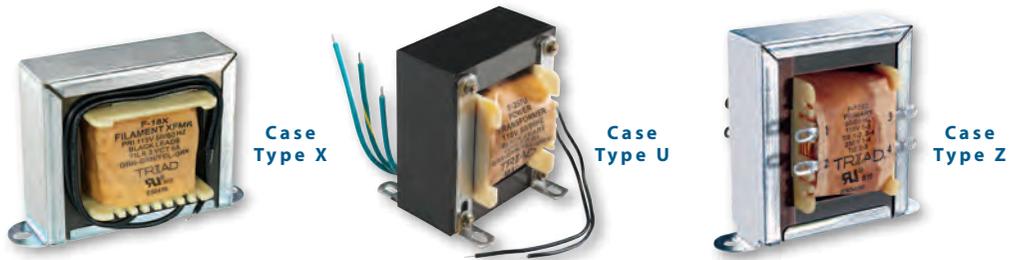
60 Hz CT = Center Tap Mounting hole sizes: X = 3/16" U = 1/16" x 3/16"

:: Outline Dimensions



Power Transformers

Chassis Mount: Multiple Secondary

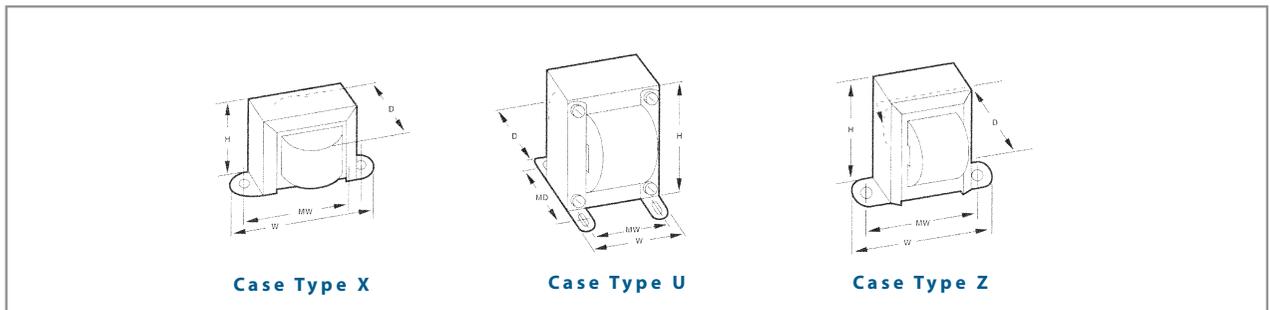


:: Multiple Secondary

Section	Type No.	Secondary		Primary Voltage	RMS Test Voltage (Sec.)	Case Type	Connections	Dimensions (in)					Wt. Lbs.
		Volts	Amps					H	W	D	MW	MD	
A	F-235Z#	12.0 CT	0.250	115	1,500	Z	Lugs	2	2 ³ / ₈	1 ¹ / ₁₆	2	•	0.6
		12.0 CT	0.250										
	F-236Z#	12.0 CT	0.500										
		12.0 CT	0.500										
	F-237Z#	12.0 CT	1.000										
12.0 CT		1.000											
B	F-241U# <i>f</i>	18.0 CT	1.000	115	1,500	U	Lugs	2 ¹ / ₂	3	2 ¹ / ₂	2 ¹ / ₂	2	2.2
		18.0 CT	1.000										
	F-243U# <i>f</i>	18.0 CT	4.000										
		18.0 CT	4.000										
	F-244U# <i>f</i>	18.0 CT	8.000										
		18.0 CT	8.000										
C	F-195X	32.0 CT	0.250	115	1,500	X	Leads	2 ¹ / ₄	3 ³ / ₄	1 ¹ / ₈	3 ³ / ₈	•	1.3
		15.5 CT	0.750										
C		32.0 CT	1.000	115	1,500	U	Leads	3 ³ / ₈	2 ¹³ / ₁₆	2 ⁷ / ₈	2 ¹ / ₄	2 ¹ / ₄	4.0
		15.5 CT	2.000										
D		32.0 CT	1.000	115	1,500	U	Leads	3 ³ / ₄	3 ³ / ₈	2 ⁹ / ₁₆	2 ¹ / ₂	2 ¹ / ₄	4.7
		15.0 CT	4.0										
E	F-198U	32.0 CT	1.000	115	1,500	U	Leads	3 ³ / ₄	3 ³ / ₈	3 ³ / ₁₆	2 ¹ / ₂	2 ¹ / ₄	6.2
		15.0 CT	6.000										

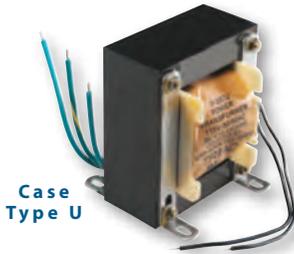
f Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3 V windings @ 2A in series would be 12.6 V @ 2A. Windings may also be connected in parallel to obtain combined current. Example: Two 6.3 V windings @ 2A in parallel would be 6.3 V @ 4A. # 60 Hz CT = Center Tap Mounting hole sizes X = 3/16" U = 1/8" x 3/16" Z = 3/16"

:: Outline Dimensions



Power Transformers

Chassis Mount: Universal



Case Type U



Case Type A



Case Type X

:: Description

Triad chassis mount power transformers provide maximum performance when integrated into full wave center tap or bridge type circuits with silicon or selenium rectifiers. The secondary voltages are selected by primary taps. The secondaries of the Series F-90 transformers may be connected to provide a wide variety of output voltages (see Technical Notes). The Series F-90 transformers are designed for use with silicon diode rectifiers to supply the DC voltages for transistors in their various

applications. They are intended for use with full wave center tap or bridge rectifiers, but may be used with voltage doubler circuits at one-half of the rated current.

:: Specifications

Primary: 115 V, 230 V, 50/60 Hz

Secondary AC: F-90 Series - 14 to 40 (FWCT)

F-90 Series - 7 to 30 (FWB)

:: Universal Secondaries

Section	Type No.	Primary Voltage	Secondary AC		Case Type	Connections	Dimensions (in)					Wt. lbs.
			Volts	Amps			H	W	D	MW	MD	
A	F-360U	115/230	0-6.5/13/19.5/26	3.0	U	Leads	3 $\frac{3}{4}$	2 $\frac{1}{16}$	2 $\frac{7}{8}$	2 $\frac{1}{4}$	2 $\frac{7}{16}$	3.50
B	F-361U	115/230	0-24/27/30/33/36	3.0	U	Leads	3 $\frac{3}{4}$	3 $\frac{3}{8}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{8}$	5.65

Mounting hole sizes: U = $\frac{1}{16}$ x $\frac{3}{16}$ "

:: Universal, 115 Volts

Section	Type No.	Primary Volts	Secondary A		Case Type	Connections	Dimensions (in)					Wt. lbs.
			AC Volts	*DC Amps			H	W	D	MW	MD	
C	F-94X	115†	10-20 CT-40 CT	0.035	X	Leads	1 $\frac{1}{2}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2	•	0.50
D	F-90X	115†	10-20 CT-40 CT	0.1	X	Leads	1 $\frac{3}{8}$	2 $\frac{1}{16}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	•	0.70
E	F-91X	115†	10-20 CT-40 CT	0.3	X	Leads	2 $\frac{1}{32}$	3 $\frac{1}{16}$	2	3 $\frac{1}{8}$	•	1.50
F	F-93X	115†	10-20 CT-40 CT	0.75	X	Leads	2 $\frac{1}{32}$	4	2 $\frac{1}{4}$	3 $\frac{1}{16}$	•	2.40
G	F-92A	115†	10-20 CT-40 CT	1.0	A	Leads	3	2 $\frac{1}{2}$	3	2	2 $\frac{1}{16}$	3.25

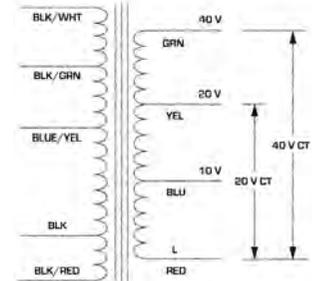
†Tapped primary to produce lower voltages CT = Center Tap Mounting hole sizes: X = $\frac{3}{16}$ " A = $\frac{3}{8}$ x $\frac{13}{64}$ "

See Technical Notes below for voltages selected by various combinations of primary tap interconnections.

*DC amp rating with a full wave bridge rectifier bi-pot tested at 1,500 VRMS

Technical Notes

Primary 115 Volts		Secondary			
Lead	Lead	Leads Green to Red	Leads Green to Blue	Leads Yellow to Red	Leads Blue to Red
Black/Yellow	Black	40V CT Yellow	30.0V	20V CT Blue	10.0V
Black/Yellow	Black/Red	38V CT Yellow	28.5V	19V CT Blue	9.5V
Black/Green	Black	34V CT Yellow	25.5V	17V CT Blue	8.5V
Black/Green	Black/Red	32V CT Yellow	24.0V	16V CT Blue	8.0V
Black/White	Black	30V CT Yellow	22.5V	15V CT Blue	7.5V
Black/White	Black/Red	28V CT Yellow	21.0V	14V CT Blue	7.0V



F-90 Series

Power Transformers

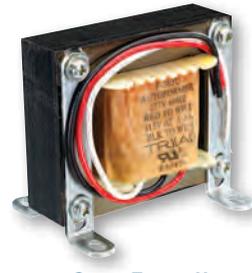
Autotransformers



Case Type X



Case Type M



Case Type U

:: Description

Triad autotransformers are single winding transformers in which the primary coil is a fraction of the entire winding for voltage step-up or the secondary coil is a fraction of the entire winding for voltage step-down (see Technical Notes for an equivalent circuit diagram). In ordinary double wound power transformers, the primary and secondary are isolated and all the power is transferred by induction. In autotransformers, part of the power is transferred conductively through

the windings. Triad autotransformers come in a variety of configurations, case types and output watts (VA) ratings in excess of 2,000 watts. A universal isolation/autotransformer/voltage control model is available with up to a 4,000 output watts rating when operated as an autotransformer.

:: Specifications

See Technical Notes

:: Step-Up/Step-Down Autotransformers

Section	Part No.	VA	Primary Voltage	Secondary		Case Type	Connections	Dimensions (in)					Wt. Lbs.
				Volts ±5%	RMS Amps			H	W	D	MW	MD	
A	N-1X	50	230	115	0.435	X (1)	Leads	2 ⁹ / ₃₂	3 ³ / ₁₆	2	3 ¹ / ₈	•	1.50
B	N-3MG	85	230	115	0.74	M (3)	6' Cord, Plug & Socket	3 ⁹ / ₃₂	2 ³ / ₃₂	3 ¹ / ₂	2 ¹ / ₄	2 ³ / ₈	3.00
C	N-2X	100	230	115	0.87	X (1)	Leads	2 ⁷ / ₈	4	2 ¹ / ₁₆	3 ⁵ / ₈	•	2.10
D	N-150MG	150	115	230	0.65	M (3)	6'-3 Wire Cord, Plug & Socket	3 ⁹ / ₃₂	2 ³ / ₃₂	3 ³ / ₁₆	2 ¹ / ₄	2 ³ / ₈	4.90
	F-302U#	150	277	115	1.30	U (2)	Leads	2 ³ / ₁₆	3 ³ / ₈	2 ¹ / ₄	2 ¹³ / ₁₆	2	2.90
	N-4MGA	150	230	115	1.30	M (3)	6' Cord, Plug & Socket	3 ⁹ / ₃₂	2 ³ / ₃₂	4 ¹ / ₄	2 ¹ / ₄	2 ³ / ₄	4.70
E	N-6U	200	230	115	1.70	U (2)	Leads	3 ⁷ / ₈	2 ⁹ / ₁₆	2 ¹ / ₁₆	2 ¹ / ₄	2 ¹ / ₄	3.60
F	N-250MGA	250	115	230	1.10	M (3)	6'-3 Wire Cord, Plug & Socket	3 ⁷ / ₈	3 ¹ / ₄	3 ¹ / ₁₆	2 ¹ / ₂	2 ¹ / ₁₆	6.60
G	N-5MGA	250	230	115	2.17	M (3)	6' Cord, Plug & Socket	3 ⁷ / ₈	3 ³ / ₃₂	4 ¹ / ₁₆	2 ¹ / ₂	3 ¹ / ₂	7.00
H	N-500MGA	500	115	230	2.20	M (3)	6'-3 Wire Cord, Plug & Socket	4 ⁷ / ₈	3 ⁷ / ₈	4 ¹ / ₄	3	3 ³ / ₈	11.20
I	N-7MGA	600	230	115	5.22	M (3)	6' Cord, Plug & Socket	4 ⁷ / ₈	3 ¹ / ₁₆	5	3	3 ³ / ₈	12.00
J	N-1000MGA	1,000	115	230	4.35	M (4)	6'-3 Wire Cord, Plug & Socket	5 ⁷ / ₈	4 ¹ / ₂	5 ¹ / ₂	3 ¹ / ₂	4 ¹ / ₈	17.39
K	N-9MGA	1,250	230	115	10.85	M (4)	6' Cord, Plug & Socket	5 ⁷ / ₈	4 ¹ / ₂	6	3 ¹ / ₂	4 ¹ / ₂	21.00
L	N-11MGA	2,000	230	115	17.40	M (4)	6' Cord, Plug & Socket	5 ⁷ / ₈	4 ¹ / ₂	8 ¹ / ₄	3 ¹ / ₂	6 ¹ / ₈	33.25

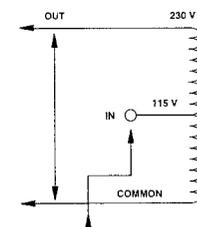
Δ Has 3-wire plug, cord and socket # 60 Hz Mounting hole sizes: (1) = $\frac{3}{16}$ " (2) = $\frac{13}{64}$ x $\frac{3}{8}$ " (3) = $\frac{3}{8}$ x $\frac{3}{64}$ "

:: Outline Dimensions

Technical Notes

- Output wattage (VA) ratings 50 to 2,000 W.
- Wide selection of case types, including 6' line cords, plugs, sockets and lugs.
- All transformers are 50/60 Hz line frequency, except as noted.
- Hi-pot tested at 1,500 VRMS.

Autotransformer



(Single winding input providing input/output)

Power Transformers

Isolation



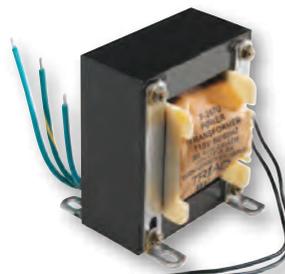
Case Type X



Case Type A



Case Type M



Case Type U

:: Description

Triad isolation transformers are power transformers for isolating equipment from direct connection to the power line. They are offered in a variety of voltages and case types. Triad isolation transformers are also offered in hospital type (designed with an MD suffix) which are designed and constructed to meet the low leakage current requirements for today's medical equipment. The transformers are constructed with nonconcentrically wound coils. The primary and secondary are wound on separate arbors, then assembled on a laminate core side-by-side separated by insulation. This prevents electrical

connection, under normal or overload conditions, between the primary and secondary windings. These hospital type units are offered with a resettable circuit breaker, providing protection from overload and short circuit conditions.

:: Specifications

Primary: 115/230 VAC, 50/60 Hz

Secondary: 115/230 VAC

Output Watts: 15 to 1,000 VA

:: Standard Applications

Section	Part No.	VA	Primary Voltage	Secondary		Case Type	Connections	Lead Holes Used	Dimensions (in)					Wt. Lbs.
				Volts ±5%	Amps				H	W	D	MW	MD	
A	N-48X	15	115	115.0	0.13	X (1)	Leads	•	1 ¹⁵ / ₁₆	3 ³ / ₁₆	2	2 ¹ / ₁₆	•	1.35
B	N-51X	35	115	115.0	0.3	X (1)	Leads	•	2 ⁷ / ₃₂	3 ¹ / ₁₆	2 ¹ / ₈	3 ¹ / ₈	•	1.70
C	N-68X	50	115/230§	115.0	0.435	X (1)	Leads	•	2 ⁷ / ₃₂	3 ¹ / ₁₆	2 ¹ / ₈	3 ¹ / ₈	•	1.70
	N-53MG√	85	115	115.0	0.74	M (3)	6' Cord, Plug & Socket	•	3 ⁹ / ₃₂	2 ⁹ / ₃₂	4 ¹ / ₈	2 ¹ / ₄	2 ¹ / ₈	4.70
E	N-76U*	100	115	115.0	0.86	U (2)	Leads	•	3 ⁷ / ₁₆	2 ¹ / ₁₆	3	2 ¹ / ₄	2 ¹ / ₂	4.00
	N-77U*	100	115/230	115.0	0.86	U (2)	Leads	•	3 ³ / ₈	2 ¹ / ₁₆	3	2 ¹ / ₄	2 ¹ / ₂	4.00
F	N-54MG√	150	115	115.0	1.3	M (3)	6' Cord, Plug & Socket	•	3 ⁷ / ₈	3 ³ / ₃₂	5 ¹ / ₁₆	2 ¹ / ₂	3 ¹ / ₂	7.00
	N-73A	150	115	115/230§	0.65	A (3)	Leads	1	3 ⁷ / ₈	3 ³ / ₃₂	3 ³ / ₈	2 ¹ / ₂	2 ¹ / ₄	7.00
	N-67A	150	115/230§	115.0	2.17	A (3)	Leads	2	3 ⁷ / ₈	3 ³ / ₃₂	3 ³ / ₈	2 ¹ / ₂	3	7.00
G	N-55MG√	250	115	115.0	2.17	M (3)	6' Cord, Plug & Socket	•	4 ¹ / ₈	3 ⁵ / ₁₆	5	3	3 ⁵ / ₁₆	11.00
	N-255MG√	250	230	115.0	2.17	M (3)	6' Cord, Plug & Socket	•	4 ¹ / ₈	3 ⁵ / ₁₆	5	3	3 ⁵ / ₁₆	11.00
	N-66A	250	115/230§	115.0	2.17	A (3)	Leads	2	4 ¹ / ₈	3 ⁵ / ₁₆	4 ¹ / ₈	3	3 ³ / ₈	11.00

§ Split winding √With ground wire *Unit does not include static shield
 Mounting hole sizes: (1) = 3/16" (2) = 1/4" x 3/8" (3) = 3/8" x 3/16" (5) = 1/2" x 1/4"

:: Standard Applications continued

Section	Type No.	VA	Primary Voltage	Secondary		Case Type	Connections	Lead Holes Used	Dimensions (in)					Wt. Lbs.
				Volts $\pm 5\%$	Amps				H	W	D	MW	MD	
H	N-57MGV	500	115	115.0	4.35	M (5)	6' Cord, Plug & Socket	•	5 $\frac{1}{16}$	4 $\frac{1}{2}$	6 $\frac{1}{4}$	3 $\frac{1}{2}$	5 $\frac{1}{8}$	23.75
	N-257MGV	500	230	115.0	4.35	M (5)	6' Cord, Plug & Socket	•	5 $\frac{1}{16}$	4 $\frac{1}{2}$	6 $\frac{1}{4}$	3 $\frac{1}{2}$	5 $\frac{1}{8}$	23.75
I	N-59MGV	1,000	115	115.0	8.70	M (5)	6' Cord, Plug & Socket	•	5 $\frac{1}{16}$	4 $\frac{1}{2}$	7 $\frac{1}{8}$	3 $\frac{1}{2}$	6	31.0
	N-259MGV	1,000	230	115.0	8.70	M (5)	6' Cord, Plug & Socket	•	5 $\frac{1}{16}$	4 $\frac{1}{2}$	7 $\frac{1}{8}$	3 $\frac{1}{2}$	6	31.0

√With ground wire Mounting hole sizes: (5) = $\frac{1}{2} \times \frac{1}{4}$ "

Technical Notes

- Line cord, plug and receptacle are U.L. listed and verified to meet federal specifications.
- Connections are by leads, plugs and sockets.
- Hi-pot tested at 1,500 VRMS.
- All units have static shields except those marked with an asterisk.

Section	Type No.	VA	Primary Voltage	Secondary		Case Type	Connections	Lead Holes Used	Dimensions (in)					Wt. Lbs.
				Volts $\pm 5\%$	RMS Amps				H	W	D	MW	MD	
J	N-90MD	250	115	115.0	2.17	M (3)	6' Cord, Plug & Socket Circuit Breaker	•	4 $\frac{1}{8}$	3 $\frac{3}{8}$	6 $\frac{1}{8}$	3	4 $\frac{1}{16}$	11.9
K	N-92MD	500	115	115.0	4.35	M (4)	6' Cord, Plug & Socket Circuit Breaker	•	5 $\frac{1}{32}$	4 $\frac{1}{2}$	7	3 $\frac{1}{2}$	5 $\frac{1}{8}$	17.6

Mounting hole sizes: (3) = $\frac{3}{8} \times \frac{3}{16}$ " (4) = $\frac{7}{32} \times \frac{1}{2}$ "

Leakage current from primary to secondary is rated at less than 50 micro-amps and is typically measured at less than 10 micro-amps.

When stock is a problem elsewhere, try us. We routinely have hundreds of thousands of completed standard units on hand. Call your nearest Triad distributor for a "stock status" on the industry's best -- Triad Transformers..

Power Transformers

UL Recognized
UL File: E65390

Class 2
UL

Control Transformers - Class 2



:: Description

Triad control transformers come with tamper resistant shrouds for safety and steel bracket welded to the bottom of the transformer for ease of mounting.

:: Specifications

Maximum Power: 3 VA, 40 VA, 50 VA

Input (50/60 Hz): 120 V, 240 V, 120/208/240 V, 120/240 V, 208/240 V

Output: 10 V, 12 V, 24 V

:: Control Transformers

Section	Type No.	Primaries	Secondary	VA	Connections	Dimensions (mm)			Mounting Dimensions	Wt. Lbs.	Fig.	
						H	W	D				
A	TCT3-03E07AE	120V	12V	3	Lugs	54	42.5	60.0	48.77	0.5	A	
	TCT3-04E07AE	240V	12V	3	Lugs	54	42.5	60.0	48.77	0.5	A	
	TCT3-11E07AE	120V	10V	3	Lugs	54	42.5	60.0	48.77	0.5	A	
	TCT3-12E07AE	240V	10V	3	Lugs	54	42.5	60.0	48.77	0.5	A	
B	TCT40-01E07AB	120V	24V	40	Lugs	56.5	92.5	61.0	79.38	1.5	B	
	TCT40-01E07AE	120V	24V	40	Lugs	62.5	95.0	57.0	79.38	1.5	C	
	TCT40-01E07K	120V	24V	40	Leads	56.5	92.5	61.0	79.38	1.5	D	
	TCT40-02E07AB	240V	24V	40	Lugs	56.5	92.5	61.0	79.38	1.5	B	
	TCT40-02E07AE	240V	24V	40	Lugs	62.5	95.0	57.0	79.38	1.5	C	
	TCT40-02E07K	240V	24V	40	Leads	56.5	92.5	61.0	79.38	1.5	D	
	TCT40-05E07AB	120/208/240	24V	40	Lugs	56.5	92.5	61.0	79.38	1.5	B	
	TCT40-05E07AE	120/208/240	24V	40	Lugs	62.5	95.0	57.0	79.38	1.5	C	
	TCT40-05E07K	120/208/240	24V	40	Leads	56.5	92.5	61.0	79.38	1.5	D	
	TCT40-06E07AB	120/240	24V	40	Lugs	56.5	92.5	61.0	79.38	1.5	B	
	TCT40-06E07AE	120/240	24V	40	Lugs	62.5	95.0	57.0	79.38	1.5	C	
	TCT40-06E07K	120/240	24V	40	Leads	56.5	92.5	61.0	79.38	1.5	D	
C	TCT40-07E07AB	120/208/240	12V	40	Lugs	56.5	92.5	61.0	79.38	1.5	B	
	TCT40-07E07AE	120/208/240	12V	40	Lugs	62.5	95.0	57.0	79.38	1.5	C	
	TCT40-07E07K	120/208/240	12V	40	Leads	56.5	92.5	61.0	79.38	1.5	D	
	TCT40-08E07AB	120/240	12V	40	Lugs	56.5	92.5	61.0	79.38	1.5	B	
	TCT40-08E07AE	120/240	12V	40	Lugs	62.5	95.0	57.0	79.38	1.5	C	
	TCT40-08E07K	120/240	12V	40	Leads	56.5	92.5	61.0	79.38	1.5	D	
	TCT40-10E07AB	208/240	12V	40	Lugs	56.5	92.5	61.0	79.38	1.5	B	
	TCT40-10E07AE	208/240	12V	40	Lugs	62.5	95.0	57.0	79.38	1.5	C	
	TCT40-10E07K	208/240	12V	40	Leads	56.5	92.5	61.0	79.38	1.5	D	
	D	TCT50-01E07AB	120V	24V	50	Lugs	56.5	92.5	71.5	79.38	2.0	B
		TCT50-01E07AE	120V	24V	50	Lugs	71.5	95.0	57.0	79.38	2.0	C
		TCT50-01E07K	120V	24V	50	Leads	56.5	92.5	71.5	79.38	2.0	D
TCT50-02E07AB		240V	24V	50	Lugs	56.5	92.5	71.5	79.38	2.0	B	
TCT50-02E07AE		240V	24V	50	Lugs	71.5	95.0	57.0	79.38	2.0	C	
TCT50-02E07K		240V	24V	50	Leads	56.5	92.5	71.5	79.38	2.0	D	
TCT50-05E07AB		120/208/240	24V	50	Lugs	56.5	92.5	71.5	79.38	2.0	B	
TCT50-05E07AE		120/208/240	24V	50	Lugs	71.5	95.0	57.0	79.38	2.0	C	
TCT50-05E07K		120/208/240	24V	50	Leads	56.5	92.5	71.5	79.38	2.0	D	
TCT50-06E07AB		120/240	24V	50	Lugs	56.5	92.5	71.5	79.38	2.0	B	
TCT50-06E07AE		120/240	24V	50	Lugs	71.5	95.0	57.0	79.38	2.0	C	
TCT50-06E07K		120/240	24V	50	Leads	56.5	92.5	71.5	79.38	2.0	D	
TCT50-09E07AB	208/240	24V	50	Lugs	56.5	92.5	71.5	79.38	2.0	B		
TCT50-09E07AE	208/240	24V	50	Lugs	71.5	95.0	57.0	79.38	2.0	C		
TCT50-09E07K	208/240	24V	50	Leads	56.5	92.5	71.5	79.38	2.0	D		

Power Transformers

Control Transformers - Class 2

:: Control Transformers continued

Section	Type No.	Primaries	Secondary	VA	Connections	Dimensions (mm)			Mounting Dimensions	Wt. Lbs.	Fig.
						H	W	D			
E	TCT50-03E07AB	120V	12V	50	Lugs	56.5	92.5	71.5	79.38	2.0	B
	TCT50-03E07AE	120V	12V	50	Lugs	71.5	95.0	57.0	79.38	2.0	C
	TCT50-03E07K	120V	12V	50	Leads	56.5	92.5	71.5	79.38	2.0	D
	TCT50-04E07AB	240V	12V	50	Lugs	56.5	92.5	71.5	79.38	2.0	B
	TCT50-04E07AE	240V	12V	50	Lugs	71.5	95.0	57.0	79.38	2.0	C
	TCT50-04E07K	240V	12V	50	Leads	56.5	92.5	71.5	79.38	2.0	D
	TCT50-07E07AB	120/208/240	12V	50	Lugs	56.5	92.5	71.5	79.38	2.0	B
	TCT50-07E07AE	120/208/240	12V	50	Lugs	71.5	95.0	57.0	79.38	2.0	C
	TCT50-07E07K	120/208/240	12V	50	Leads	56.5	92.5	71.5	79.38	2.0	D
	TCT50-08E07AB	120/240	12V	50	Lugs	56.5	92.5	71.5	79.38	2.0	B
	TCT50-08E07AE	120/240	12V	50	Lugs	71.5	95.0	57.0	79.38	2.0	C
	TCT50-08E07K	120/240	12V	50	Leads	56.5	92.5	71.5	79.38	2.0	D
	TCT50-10E07AB	208/240	12V	50	Lugs	56.5	92.5	71.5	79.38	2.0	B
	TCT50-10E07AE	208/240	12V	50	Lugs	71.5	95.0	57.0	79.38	2.0	C
TCT50-10E07K	208/240	12V	50	Leads	56.5	92.5	71.5	79.38	2.0	D	

:: Outline Dimensions

Technical Notes
[mm]

Figure A

Figure B

Figure C

Figure D

Power Transformers

Chassis Mount: Control



Case Type Z



Case Type U

:: Description

Triad control transformers supply secondary voltages that are commonly utilized in various electronic, electro-magnetic and electrical control conditions. These include such applications as use with relays, solenoids, small motors, speed changers, pumps, heating elements, control valves for fluids and gases, fans and blowers, electronic tubes, automatic assembly equipment, recording devices, elevators, door openers, and low voltage lamps.

:: Specifications

Primary: 115/230 VAC, 50/60 Hz
VA Range: 12 to 192
Secondary: 6/12/24 VAC

:: Primary, 115/230 Volts / Secondaries, 6/12/24 Volts

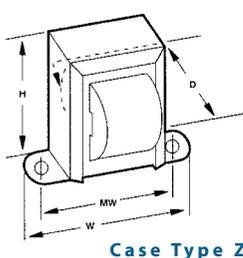
Section	Type No.	Secondaries		VA	Case Type	Connections	Dimensions (in)					Wt. Lbs.
		Series	Parallel				H	W	D	MW	MD	
A	F-105Z	12.0V CT @ 1.0A	6.0V @ 2.0A	12	Z	Lugs	2 ³ / ₈	2 ¹ / ₈	1 ¹ / ₄	2 ¹ / ₈	•	1.000
	F-211Z	48.0V CT @ 0.25A	24.0V @ 0.5A										0.678
B	F-106Z	12.0V CT @ 2.0A	6.0V @ 4.0A	24	Z	Lugs	2 ³ / ₈	3 ³ / ₈	2	2 ¹ / ₁₆	•	1.500
	F-212Z	48.0V CT @ 0.50A	24.0V @ 1.0A										1.050
C	F-107Z	24.0V CT @ 2.0A	12.0V @ 4.0A	48	Z	Lugs	3 ³ / ₈	3 ³ / ₈	2 ³ / ₈	3 ³ / ₈	•	2.500
	F-213Z	48.0V CT @ 1.0A	24.0V @ 2.0A										2.250
D	F-398U	24.0V CT @ 3.0A	12.0V @ 6.0A	72	U	Lugs	3 ¹ / ₂	3 ¹ / ₁₆	2 ¹ / ₁₆	2 ¹ / ₄	2 ¹ / ₄	4.250
E	F-108U	24.0V CT @ 4.0A	12.0V @ 8.0A	96	U	Lugs	3 ¹ / ₂	2 ¹ / ₁₆	3 ¹ / ₁₆	2 ¹ / ₄	2 ¹ / ₄	4.250
	F-214U	48.0V CT @ 2.0A	24.0V @ 4.0A										3.240
F	F-399U	24.0V CT @ 6.0A	12.0V @ 12.0A	144	U	Lugs	4 ¹ / ₄	3 ³ / ₈	3 ¹ / ₂	2 ¹ / ₂	2 ³ / ₈	5.900
	F-400U	48.0V CT @ 3.0A	24.0V @ 6.0A									
G	F-109U	24.0V CT @ 8.0A	12.0V @ 16.0A	192	U	Lugs	4 ⁷ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆	2 ³ / ₄	3	8.00
	F-215U	48.0 V CT @ 4.0A	24.0V @ 8.0A										6.060

CT = Center Tap Mounting hole sizes: Z = 3/16" U = 1/8" x 3/8"

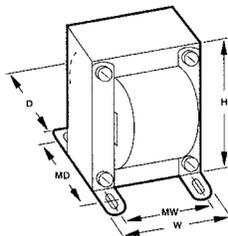
:: Outline Dimensions

Technical Notes

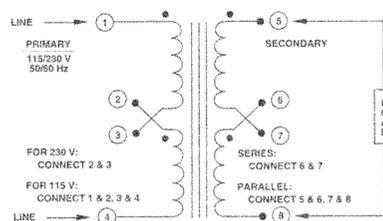
1. Hi-pot tested at 1,500 VRMS.
2. Secondaries may be connected in series or parallel for expanded voltage and current ranges. See Control Transformer Connections diagram.
3. Transformer termination is solder lug.



Case Type Z



Case Type U



Control Transformer Connections

MEDICAL TRANSFORMERS



Power Transformers

UL Recognized Class F
UL File: E122529



Toroidal Mount Medical Transformer Series



:: Description

The toroidal construction of the VPM Series Power Transformers inherently reduces stray fields, increases efficiency and minimizes size compared to traditional EI transformers. The addition of a flux band further reduces the remaining stray fields. The shield between the primary and secondary improves safety, reduces common mode signals and minimizes leakage current. They are built with a Class F (155°) insulation system. A 140°C self-resetting thermal switch is included in the primary.

:: Specifications

Primary: 100, 120, 208 or 240 V, 50/60 Hz
VA Ranges: 25 to 10,000

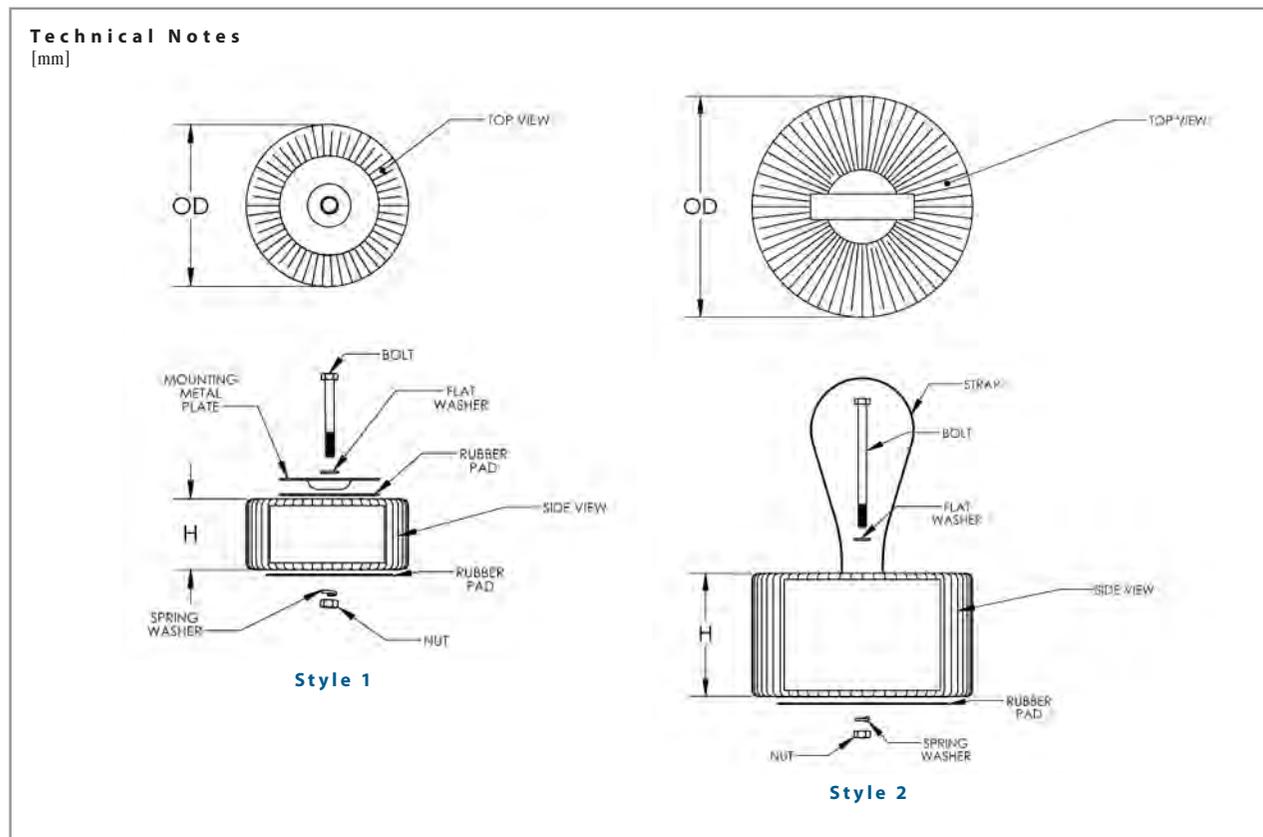
:: Toroidal Mounts: VPM Series

Section	Part Number	VA	Secondary		Regulation Typical	Efficiency Typical	Temp Rise Typ (Degrees C)	Style
			Series	Parallel				
A	VPM12-2080	25	12 V CT @ 2.08 A	6.0 V @ 4.16 A	10.5%	89%	25	1
A	VPM18-1390	25	18 V CT @ 1.39 A	9.0 V @ 2.78 A	10.3%	89%	25	1
A	VPM24-1040	25	24 V CT @ 1.04 A	12 V @ 2.08 A	10.3%	89%	25	1
A	VPM30-830	25	30 V CT @ 0.83 A	15 V @ 1.66 A	11.0%	89%	25	1
A	VPM36-690	25	36 V CT @ 0.69 A	18 V @ 1.38 A	11.1%	88%	25	1
A	VPM48-520	25	48 V CT @ 0.52 A	24 V @ 1.04 A	10.6%	89%	25	1
A	VPM240-100	25	240 V CT @ 0.104 A	120 V @ 0.208 A	10.7%	89%	25	1
B	VPM12-4170	50	12 V CT @ 4.17 A	6.0 V @ 8.34 A	11.4%	89%	45	1
B	VPM18-2780	50	18 V CT @ 2.78 A	9.0 V @ 5.56 A	12.3%	88%	45	1
B	VPM24-2080	50	24 V CT @ 2.08 A	12 V @ 4.16 A	11.7%	89%	45	1
B	VPM30-1670	50	30 V CT @ 1.67 A	15 V @ 3.34 A	11.8%	88%	45	1
B	VPM36-1390	50	36 V CT @ 1.39 A	18 V @ 2.78 A	11.5%	89%	45	1
B	VPM48-1040	50	48 V CT @ 1.04 A	24 V @ 2.08 A	11.5%	89%	45	1
B	VPM240-210	50	240 V CT @ 0.21 A	120 V @ 0.42 A	12.0%	88%	45	1
C	VPM12-8330	100	12 V CT @ 8.33 A	6.0 V @ 16.66 A	8.9%	91%	50	1
C	VPM18-5560	100	18 V CT @ 5.56 A	9.0 V @ 11.12 A	8.7%	91%	50	1
C	VPM24-4170	100	24 V CT @ 4.17 A	12 V @ 8.34 A	8.9%	91%	50	1
C	VPM30-3330	100	30 V CT @ 3.33 A	15 V @ 6.66 A	8.5%	91%	50	1
C	VPM36-2780	100	36 V CT @ 2.78 A	18 V @ 5.56 A	8.7%	91%	50	1
C	VPM48-2080	100	48 V CT @ 2.08 A	24 V @ 4.16 A	8.9%	91%	50	1
C	VPM240-420	100	240 V CT @ 0.42 A	120 V @ 0.84 A	8.4%	91%	50	1
D	VPM12-13500	160	12 V CT @ 13.5 A	6.0 V @ 26.6 A	7.6%	92%	50	1
D	VPM18-8800	160	18 V CT @ 8.8 A	9.0 V @ 17.60 A	7.7%	92%	50	1
D	VPM24-6670	160	24 V CT @ 6.67 A	12 V @ 13.34 A	7.5%	92%	50	1
D	VPM30-5330	160	30 V CT @ 5.33 A	15 V @ 10.66 A	7.9%	92%	50	1
D	VPM36-4440	160	36 V CT @ 4.44 A	18 V @ 8.88 A	7.1%	92%	50	1
D	VPM48-3300	160	48 V CT @ 3.33 A	24 V @ 6.66 A	7.5%	92%	50	1
D	VPM240-670	160	240 V CT @ 0.67 A	120 V @ 1.33 A	7.4%	92%	50	1
E	VPM12-20800	250	12 V CT @ 20.8 A	6.0 V @ 41.60 A	6.2%	93%	55	1
E	VPM18-13800	250	18 V CT @ 13.8 A	9.0 V @ 27.60 A	6.2%	93%	55	1
E	VPM24-10420	250	24 V CT @ 10.42 A	12 V @ 20.84 A	6.2%	93%	55	1
E	VPM36-6940	250	36 V CT @ 6.94 A	18 V @ 13.88 A	6.2%	93%	55	1
E	VPM48-5200	250	48 V CT @ 5.20 A	24 V @ 10.4 A	6.2%	93%	55	1
E	VPM240-1040	250	240 V CT @ 1.04 A	120 V @ 2.08 A	5.9%	94%	55	1
F	VPM48-10400	500	48 V CT @ 10.4 A	24 V @ 20.8 A	4.4%	95%	50	1
F	VPM100-5000	500	100 V CT @ 5.0 A	50 V @ 10.0 A	4.4%	95%	50	1
F	VPM240-2080	500	240 V CT @ 2.08 A	120 V @ 4.16 A	4.2%	95%	50	1
G	VPM48-20830	1000	48 V CT @ 20.83 A	24 V @ 41.66 A	3.0%	96%	50	1
G	VPM100-10000	1000	100 V CT @ 10.0 A	50 V @ 20.0 A	3.1%	96%	50	1
G	VPM240-4170	1000	240 V CT @ 4.17 A	120 V @ 8.34 A	3.0%	96%	50	1
H	VPM100-25000	2500	100 V CT @ 25.0 A	50 V @ 50.0 A	1.9%	96%	50	2
H	VPM240-10400	2500	240 V CT @ 10.40 A	120 V @ 21.80 A	1.7%	95%	55	2
I	VPM240-12500	3000	240 V CT @ 12.50 A	120 V @ 25.0 A	1.5%	95%	50	2
J	VPM240-15600	3750	240 V CT @ 15.60 A	120 V @ 31.20 A	1.4%	95%	50	2
K	VPM240-20800	5000	240 V CT @ 20.80 A	120 V @ 41.60 A	1.4%	95%	50	2
L	VPM240-28100	6750	240 V CT @ 28.15 A	120 V @ 56.26 A	0.9%	95%	45	2
M	VPM240-31200	7500	240 V CT @ 31.25 A	120 V @ 62.50 A	0.9%	95%	45	2
N	VPM240-36400	8750	240 V CT @ 36.40 A	120 V @ 72.92 A	0.9%	95%	45	2
O	VPM240-41600	10000	240 V CT @ 41.67 A	120 V @ 83.33 A	0.7%	95%	45	2

:: VPM Series continued

VA	OD (mm)	HT (mm)	Weight (kg)	Mounting Plate (mm dia)	Pubber Pdads (mm dia)	Mounting Hardware
25	84	37	0.5	55	57	M5 x 40mm
50	92	38	0.7	55	57	M5 x 45mm
100	96	52	1.2	55	57	M6 x 55mm
160	113	52	1.8	75	75	M6 x 60mm
250	123	60	2.5	75	75, 90	M6 x 65mm
500	147	64	4.5	90	90, 115	M8 x 70mm
1000	183	74	8.5	112	115, 148	M8 x 80mm
2500	215	120	20	N/A	165	M8 x 120mm
3000	222	130	25	N/A	165	M8 x 100mm
3750	235	140	30	N/A	165	M8 x 120mm
5000	277	140	41	N/A	190	M12 x 125mm
6750	310	140	55	N/A	240	M12 x 140mm
7500	330	140	62	N/A	240	M12 x 140mm
8750	335	140	74	N/A	240	M12 x 140mm
10000	416	140	91	N/A	320	M12 x 140mm

:: Outline Dimensions



Power Transformers



Medical Grade Isolation Power Transformer



:: Description

These medical grade isolation boxes are built with toroidal transformers that inherently helps reduce stray fields, increases efficiency and minimizes size compared to traditional EI transformers. They are built with a Class F (155°C) insulation system. The enclosure is made of steel and is powder coated white.

:: Specifications (@ 25°C)

Max Power: 250 – 2400 V-A (depending on model)

Input: 120-240 V (depending on model) | **Output:** 120 V

Efficiency: 92-94% typical@ full load (depending on model)

Safety*: Medical isolation transformer box is certified to UL60601-1, 2nd edition medical standard and CSA-C22.2.

No. 601.1M90, 2005 UL: (E352717), UL60601-1, 2nd edition and CAN/CSA22.2 No. 601.1M90, 2005

**Note: Not for use in life critical applications.*

:: MD Series

Part Number	Max Power (V-A)	Input (V)	Output (V)	Dimensions (mm)			Weight (kg)
				H	L	W	
MD-250 E	250	240	120	130	134	176	4.0
MD-250 U	250	120	120	130	134	176	4.0
MD-500-E	500	240	120	146	162	209	6.8
MD-500-U	500	120	120	146	162	209	6.8
MD-1000-E	1000	240	120	146	182	230	10.0
MD-1000-U	1000	120	120	146	182	230	10.0
MD-2000-U	2000	120	120	173	222	270	19.1
MD-2400-E	2400	240	120	173	222	270	19.1

:: Outline Dimensions

Technical Notes
[mm]

Mounting
Rubber feet for horizontal mounting

Connections
Input: 11 ft medical grade power cord with NEMA 5-15P or 6-15P plug.
Output: Duplex receptacle NEMA 5-15R

Style 1

Style 2

POWER SUPPLIES



Wall Plug-Ins



Switchmode Power Supplies



:: Description

Triad prepackaged wall plug-in power supplies decrease product design time. These plug-in power sources eliminate the need for internal power supply cooling devices, thereby reducing the noise level, size and weight of the end product. In addition, these compact power sources keep heat away from sensitive circuits, and supply a safer lower output to the end product. Wall plug-in sources are completely enclosed to prevent tampering. They are offered in a wide range of popular voltages, power levels and reversed polarity (-R). Their output voltage is regulated; which means the output voltage will

not vary much with load. Models are available with generous six foot cord lengths. Available in 50-60Hz operating frequency.

:: Specifications

Maximum Power From: 6.75 to 36 W

Input Voltage: 100 - 240 VAC, 50-60 Hz

Output Voltage From: 4.5 to 24 VDC

Level IV and V efficiency. Meets ELIAS 2007 energy efficiency requirements for external power supplies

:: WSU Series: 2.1 mm x 5.5 mm x 11 mm Plug

Section	Part No. & Polarity		Input Voltage (VAC)	Output		Type	Dimensions (mm)			Figure
	Center (+)	Center (-)		VDC	IDA (A)		H	W	D	
A	WSU045-1500	WSU045-1500-R	100-240	4.5	1.5	Switchmode	60.00	39.00	31.00	1
	WSU045-2000	WSU045-2000-R	100-240	4.5	2	Switchmode	71.00	43.00	30.00	1
	WSU045-3000	WSU045-3000-R	100-240	4.5	3	Switchmode	77.00	48.00	31.00	2
B	WSU050-1500	WSU050-1500-R	100-240	5	1.5	Switchmode	60.00	39.00	31.00	1
	WSU050-2000	WSU050-2000-R	100-240	5	2	Switchmode	71.00	43.00	30.00	1
	WSU050-3000	WSU050-3000-R	100-240	5	3	Switchmode	77.00	48.00	31.00	2
	WSU050-4000	WSU050-4000-R	100-240	5	4	Switchmode	77.00	48.00	31.00	2
C	WSU060-1250	WSU060-1250-R	100-240	6	1.25	Switchmode	60.00	39.00	31.00	1
	WSU060-2000	WSU060-2000-R	100-240	6	2	Switchmode	71.00	43.00	30.00	1
	WSU060-3000	WSU060-3000-R	100-240	6	3	Switchmode	77.00	48.00	31.00	2
	WSU060-4000	WSU060-4000-R	100-240	6	4	Switchmode	77.00	48.00	31.00	2
D	WSU075-1000	WSU075-1000-R	100-240	7.5	1	Switchmode	60.00	39.00	31.00	1
	WSU075-1500	WSU075-1500-R	100-240	7.5	1.5	Switchmode	71.00	43.00	30.00	1
	WSU075-2400	WSU075-2400-R	100-240	7.5	2.4	Switchmode	77.00	48.00	31.00	2
	WSU075-3200	WSU075-3200-R	100-240	7.5	3.2	Switchmode	77.00	48.00	31.00	2
E	WSU090-0800	WSU090-0800-R	100-240	9	0.8	Switchmode	60.00	39.00	31.00	1
	WSU090-1300	WSU090-1300-R	100-240	9	1.3	Switchmode	71.00	43.00	30.00	1
	WSU090-2000	WSU090-2000-R	100-240	9	2	Switchmode	77.00	48.00	31.00	2
	WSU090-2500	WSU090-2500-R	100-240	9	2.5	Switchmode	77.00	48.00	31.00	2
	WSU090-3500	WSU090-3500-R	100-240	9	3.5	Switchmode	84.00	53.00	31.00	2
F	WSU120-0700	WSU120-0700-R	100-240	12	0.7	Switchmode	60.00	39.00	31.00	1
	WSU120-1000	WSU120-1000-R	100-240	12	1	Switchmode	71.00	43.00	30.00	1
	WSU120-1500	WSU120-1500-R	100-240	12	1.5	Switchmode	77.00	48.00	31.00	2
	WSU120-2000	WSU120-2000-R	100-240	12	2	Switchmode	77.00	48.00	31.00	2
	WSU120-3000	WSU120-3000-R	100-240	12	3	Switchmode	84.00	53.00	31.00	2
G	WSU135-0620	WSU135-0620-R	100-240	13.5	0.62	Switchmode	60.00	39.00	31.00	1
	WSU135-0880	WSU135-0880-R	100-240	13.5	0.88	Switchmode	71.00	43.00	30.00	1
	WSU135-1330	WSU135-1330-R	100-240	13.5	1.33	Switchmode	77.00	48.00	31.00	2
	WSU135-1770	WSU135-1770-R	100-240	13.5	1.77	Switchmode	77.00	48.00	31.00	2
	WSU135-2660	WSU135-2660-R	100-240	13.5	2.66	Switchmode	84.00	53.00	31.00	3

Wall Plug-Ins

Switchmode Power Supplies

:: WSU Series: 2.1mm x 5.5mm x 11mm Plug continued

Section	Part No. & Polarity		Input Voltage (VAC)	Output		Type	Dimensions (mm)			Figure
	Center (+)	Center (-)		VDC	IDA (A)		H	W	D	
H	WSU150-0560	WSU150-0560-R	100-240	15	0.56	Switchmode	60.00	39.00	31.00	1
	WSU150-0800	WSU150-0800-R	100-240	15	0.8	Switchmode	71.00	43.00	30.00	1
	WSU150-1200	WSU150-1200-R	100-240	15	1.2	Switchmode	77.00	48.00	31.00	2
	WSU150-1600	WSU150-1600-R	100-240	15	1.6	Switchmode	77.00	48.00	31.00	2
	WSU150-2400	WSU150-2400-R	100-240	15	2.4	Switchmode	84.00	53.00	31.00	3
I	WSU180-0450	WSU180-0450-R	100-240	18	0.45	Switchmode	60.00	39.00	31.00	1
	WSU180-0660	WSU180-0660-R	100-240	18	0.66	Switchmode	71.00	43.00	30.00	1
	WSU180-1000	WSU180-1000-R	100-240	18	1	Switchmode	77.00	48.00	31.00	2
	WSU180-1330	WSU180-1330-R	100-240	18	1.33	Switchmode	77.00	48.00	31.00	2
	WSU180-2000	WSU180-2000-R	100-240	18	2	Switchmode	84.00	53.00	31.00	3
J	WSU240-0500	WSU240-0500-R	100-240	24	0.5	Switchmode	71.00	43.00	30.00	1
	WSU240-0750	WSU240-0750-R	100-240	24	0.75	Switchmode	77.00	48.00	31.00	2
	WSU240-1000	WSU240-1000-R	100-240	24	1	Switchmode	77.00	48.00	31.00	2
	WSU240-1500	WSU240-1500-R	100-240	24	1.5	Switchmode	84.00	53.00	31.00	3

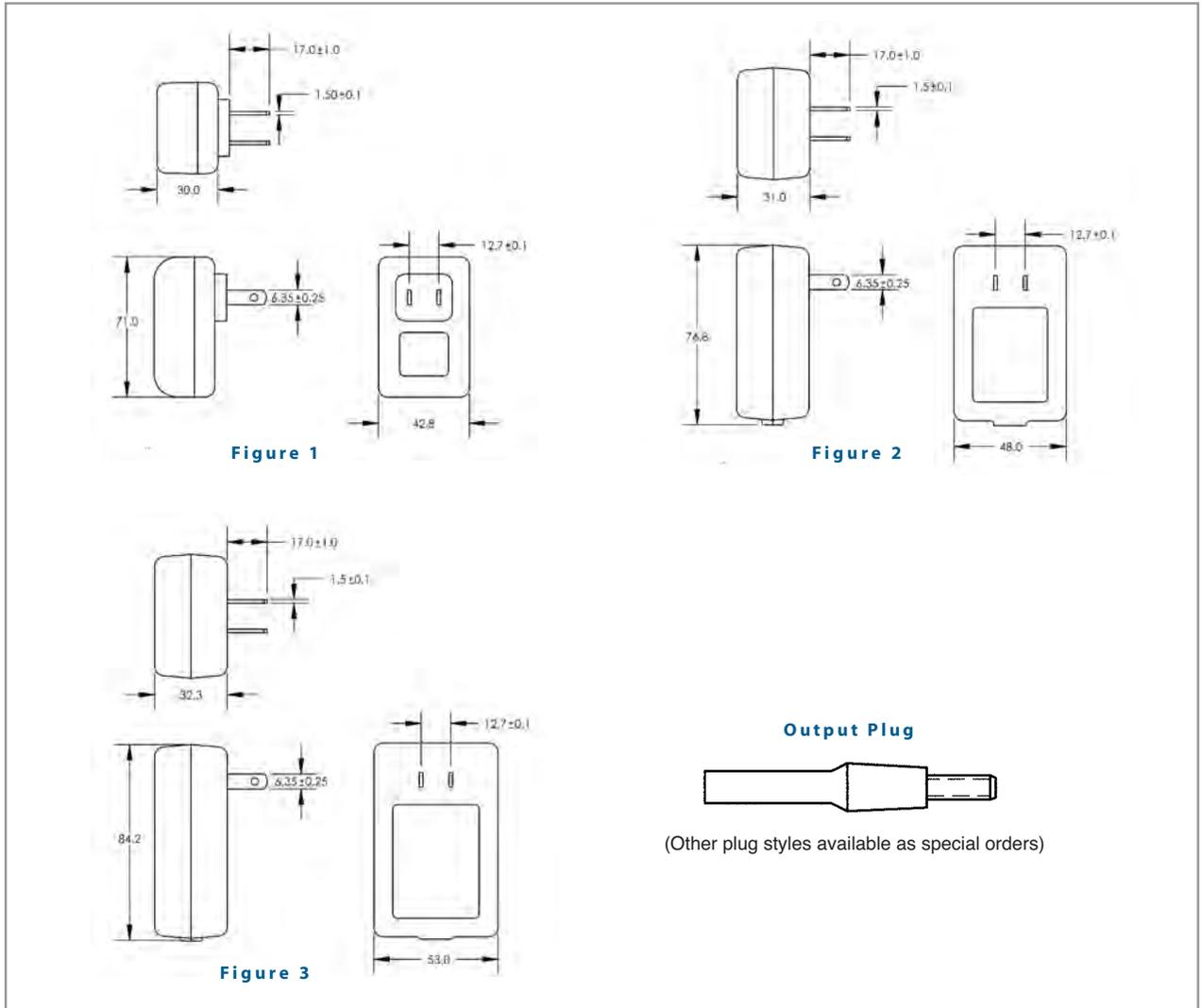
:: WSU Series: 2.5mm x 5.5mm x 11mm Plug

Section	Part No. & Polarity		Input Voltage (VAC)	Output		Type	Dimensions (mm)			Figure
	Center (+)	Center (-)		VDC	IDA (A)		H	W	D	
K	WSU045-1500-13	WSU045-1500-R13	100-240	4.5	1.5	Switchmode	60.00	39.00	31.00	1
	WSU045-2000-13	WSU045-2000-R13	100-240	4.5	2	Switchmode	71.00	43.00	30.00	1
	WSU045-3000-13	WSU045-3000-R13	100-240	4.5	3	Switchmode	77.00	48.00	31.00	2
L	WSU050-1500-13	WSU050-1500-R13	100-240	5	1.5	Switchmode	60.00	39.00	31.00	1
	WSU050-2000-13	WSU050-2000-R13	100-240	5	2	Switchmode	71.00	43.00	30.00	1
	WSU050-3000-13	WSU050-3000-R13	100-240	5	3	Switchmode	77.00	48.00	31.00	2
	WSU050-4000-13	WSU050-4000-R13	100-240	5	4	Switchmode	77.00	48.00	31.00	2
M	WSU060-1250-13	WSU060-1250-R13	100-240	6	1.25	Switchmode	60.00	39.00	31.00	1
	WSU060-2000-13	WSU060-2000-R13	100-240	6	2	Switchmode	71.00	43.00	30.00	1
	WSU060-3000-13	WSU060-3000-R13	100-240	6	3	Switchmode	77.00	48.00	31.00	2
	WSU060-4000-13	WSU060-4000-R13	100-240	6	4	Switchmode	77.00	48.00	31.00	2
N	WSU075-1000-13	WSU075-1000-R13	100-240	7.5	1	Switchmode	60.00	39.00	31.00	1
	WSU075-1500-13	WSU075-1500-R13	100-240	7.5	1.5	Switchmode	71.00	43.00	30.00	1
	WSU075-2400-13	WSU075-2400-R13	100-240	7.5	2.4	Switchmode	77.00	48.00	31.00	2
	WSU075-3200-13	WSU075-3200-R13	100-240	7.5	3.2	Switchmode	77.00	48.00	31.00	2
O	WSU090-0800-13	WSU090-0800-R13	100-240	9	0.8	Switchmode	60.00	39.00	31.00	1
	WSU090-1300-13	WSU090-1300-R13	100-240	9	1.3	Switchmode	71.00	43.00	30.00	1
	WSU090-2000-13	WSU090-2000-R13	100-240	9	2	Switchmode	77.00	48.00	31.00	2
	WSU090-2500-13	WSU090-2500-R13	100-240	9	2.5	Switchmode	77.00	48.00	31.00	2
	WSU090-3500-13	WSU090-3500-R13	100-240	9	3.5	Switchmode	84.00	53.00	31.00	2
P	WSU120-0700-13	WSU120-0700-R13	100-240	12	0.7	Switchmode	60.00	39.00	31.00	1
	WSU120-1000-13	WSU120-1000-R13	100-240	12	1	Switchmode	71.00	43.00	30.00	1
	WSU120-1500-13	WSU120-1500-R13	100-240	12	1.5	Switchmode	77.00	48.00	31.00	2
	WSU120-2000-13	WSU120-2000-R13	100-240	12	2	Switchmode	77.00	48.00	31.00	2
	WSU120-3000-13	WSU120-3000-R13	100-240	12	3	Switchmode	84.00	53.00	31.00	2
Q	WSU135-0620-13	WSU135-0620-R13	100-240	13.5	0.62	Switchmode	60.00	39.00	31.00	1
	WSU135-0880-13	WSU135-0880-R13	100-240	13.5	0.88	Switchmode	71.00	43.00	30.00	1
	WSU135-1330-13	WSU135-1330-R13	100-240	13.5	1.33	Switchmode	77.00	48.00	31.00	2
	WSU135-1770-13	WSU135-1770-R13	100-240	13.5	1.77	Switchmode	77.00	48.00	31.00	2
	WSU135-2660-13	WSU135-2660-R13	100-240	13.5	2.66	Switchmode	84.00	53.00	31.00	3
R	WSU150-0560-13	WSU150-0560-R13	100-240	15	0.56	Switchmode	60.00	39.00	31.00	1
	WSU150-0800-13	WSU150-0800-R13	100-240	15	0.8	Switchmode	71.00	43.00	30.00	1
	WSU150-1200-13	WSU150-1200-R13	100-240	15	1.2	Switchmode	77.00	48.00	31.00	2
	WSU150-1600-13	WSU150-1600-R13	100-240	15	1.6	Switchmode	77.00	48.00	31.00	2
	WSU150-2400-13	WSU150-2400-R13	100-240	15	2.4	Switchmode	84.00	53.00	31.00	3
S	WSU180-0450-13	WSU180-0450-R13	100-240	18	0.45	Switchmode	60.00	39.00	31.00	1
	WSU180-0660-13	WSU180-0660-R13	100-240	18	0.66	Switchmode	71.00	43.00	30.00	1
	WSU180-1000-13	WSU180-1000-R13	100-240	18	1	Switchmode	77.00	48.00	31.00	2
	WSU180-1330-13	WSU180-1330-R13	100-240	18	1.33	Switchmode	77.00	48.00	31.00	2
	WSU180-2000-13	WSU180-2000-R13	100-240	18	2	Switchmode	84.00	53.00	31.00	3

:: WSU Series: 2.5mm x 5.5mm x 11mm Plug continued

Section	Part No. & Polarity		Input Voltage (VAC)	Output		Type	Dimensions (mm)			Figure
	Center (+)	Center (-)		VDC	IDA (A)		H	W	D	
T	WSU240-0500-13	WSU240-0500-R13	100-240	24	0.5	Switchmode	71.00	43.00	30.00	1
	WSU240-0750-13	WSU240-0750-R13	100-240	24	0.75	Switchmode	77.00	48.00	31.00	2
	WSU240-1000-13	WSU240-1000-R13	100-240	24	1	Switchmode	77.00	48.00	31.00	2
	WSU240-1500-13	WSU240-1500-R13	100-240	24	1.5	Switchmode	84.00	53.00	31.00	3

:: Outline Dimensions



Wall Plug-Ins

UL Standard UL60950    

Switchmode Power Supplies with Interchangeable Prongs



:: Description

With a modular design featuring four interchangeable input prongs for use around the globe, the highly versatile WSX Series Wall Plug-In Power Supply from Triad Magnetics offers exceptional flexibility, performance and value in a device meeting the latest Level VI energy efficiency requirements.

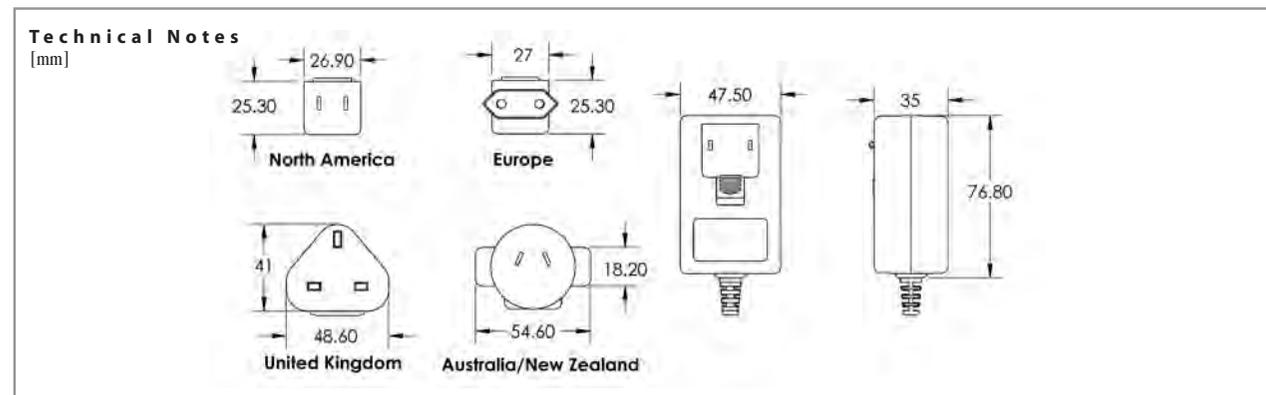
:: WSX Series: 2.1mm x 5.5mm x 11mm Plug

Part Number & Polarity		Input Voltage (VAC)	Output Power (W)	Output		Dimensions (mm)			Efficiency Level
Center (+)	Center (-)			VDC	IDC	H	W	D	
WSX050-4000	WSX050-4000-R	100 to 240	20.0	5.0	4.0	76.8	47.5	35	VI
WSX060-4000	WSX060-4000-R	100 to 240	24.0	5.9	4.0	76.8	47.5	35	VI
WSX075-3200	WSX075-3200-R	100 to 240	24.0	7.5	3.2	76.8	47.5	35	VI
WSX090-2500	WSX090-2500-R	100 to 240	22.5	9.0	2.5	76.8	47.5	35	VI
WSX120-2000	WSX120-2000-R	100 to 240	24.0	12.0	2.0	76.8	47.5	35	VI
WSX135-1770	WSX135-1770-R	100 to 240	24.0	13.5	1.77	76.8	47.5	35	VI
WSX150-1600	WSX150-1600-R	100 to 240	24.0	15.0	1.6	76.8	47.5	35	VI
WSX180-1330	WSX180-1330-R	100 to 240	24.0	18.0	1.33	76.8	47.5	35	VI
WSX240-1000	WSX240-1000-R	100 to 240	24.0	24.0	1.0	76.8	47.5	35	VI

:: WSX Series: 2.5mm x 5.5mm x 11mm Plug

Part Number & Polarity		Input Voltage (VAC)	Output Power (W)	Output		Dimensions (mm)			Efficiency Level
Center (+)	Center (-)			VDC	IDC	H	W	D	
WSX050-4000-13	WSX050-4000-R13	100 to 240	20.0	5.0	4.0	76.8	47.5	35	VI
WSX060-4000-13	WSX060-4000-R13	100 to 240	24.0	5.9	4.0	76.8	47.5	35	VI
WSX075-3200-13	WSX075-3200-R13	100 to 240	24.0	7.5	3.2	76.8	47.5	35	VI
WSX090-2500-13	WSX090-2500-R13	100 to 240	22.5	9.0	2.5	76.8	47.5	35	VI
WSX120-2000-13	WSX120-2000-R13	100 to 240	24.0	12.0	2.0	76.8	47.5	35	VI
WSX135-1770-13	WSX135-1770-R13	100 to 240	24.0	13.5	1.77	76.8	47.5	35	VI
WSX150-1600-13	WSX150-1600-R13	100 to 240	24.0	15.0	1.6	76.8	47.5	35	VI
WSX180-1330-13	WSX180-1330-R13	100 to 240	24.0	18.0	1.33	76.8	47.5	35	VI
WSX240-1000-13	WSX240-1000-R13	100 to 240	24.0	24.0	1.0	76.8	47.5	35	VI

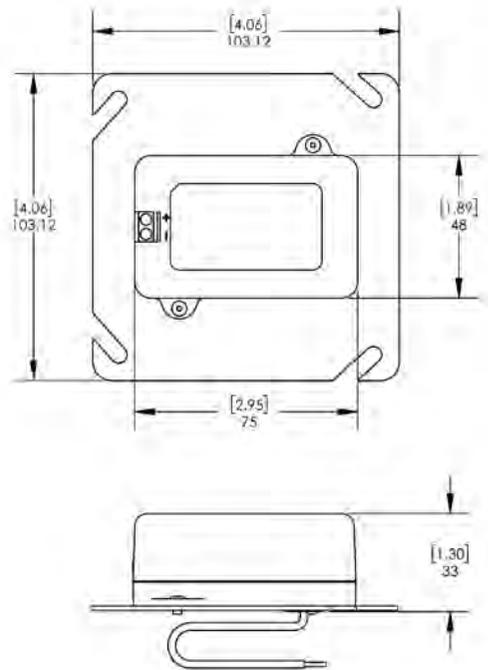
:: Outline Dimensions



JSU Series

UL File: E204980 

18W Permanently Connected Power Supply for 4x4 Junction Box



Technical Notes
[mm]

:: Specifications (@ 25°C)

Input Voltage Rating:	100-240 VAC, 50-60 Hz
Input Voltage Range:	90-265 VAC
Input Current:	(0.5A/RMS) @ 115 VAC
Max Inrush Current:	80 A peak @ 115 VAC (cold start)
Output Voltage:	12 or 24 VAC
Output Current:	1.50 or 0.75 A
Regulation (Line and Load):	±5%
Ripple and Noise:	150 mV peak to peak maximum
No Load Power (Standby):	<100 mW*
Average Efficiency:	>85.00%. Meets minimum Level VI efficiency

Environmental Specifications

Operating Temperature:	0 to 40°C @ full load
Storage Temperature:	-20 to 60°C
Humidity:	5 to 95%, non-condensing

Reliability Specifications

Leakage Current:	<0.25 mA (264 VAC)
Dielectric Strength (Hi-pot):	4242 VDC/3 secs., 5 mA maximum
Warranty:	5 years

Mechanical Parameters

Case Type:	Thermoplastic molded enclosure
Output:	Screw terminals
Input:	UL 60950

Safety & EMI Specifications

UL File No: E204980 conforms to UL STD: 60950-1
 Certified to CSA STD C22.2 No 60950-1
 Class II, double insulated
 EMI Standard: FCC Part 15 Class B
 Over voltage and short circuit protected

Part Number	Voltage	Current	Efficiency
JSU120-1500	12.0V	1.5A	86%
JSU240-0750	24.0V	0.75A	86%

Wall Plug-Ins



UL File: E341931

AC Plug-In Power Supply, Level VI



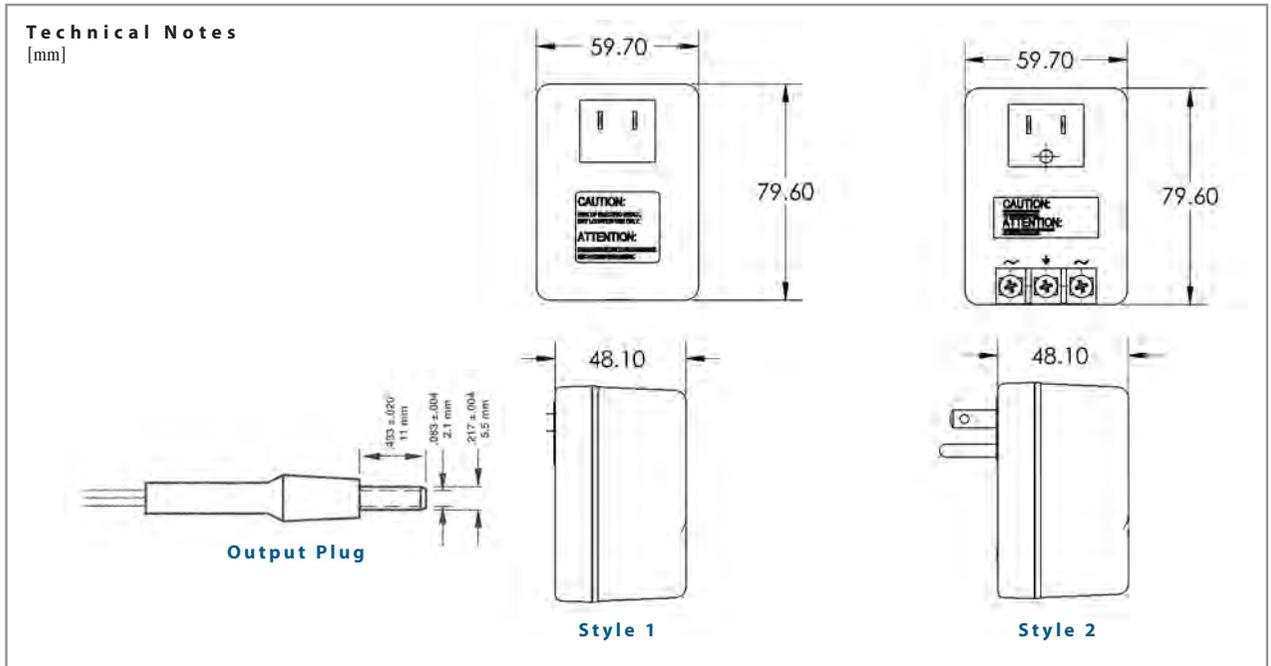
:: Description

Triad prepackaged wall plug-in power supplies meet Level VI energy efficiency requirements and decrease product design time. These plug-in power sources eliminate the need for internal power supply cooling devices, thereby reducing the noise level, size and weight of the end product. In addition, these compact power sources keep heat away from sensitive circuits and supply a safer lower output to the end product. Wall plug-in power sources are completely enclosed to prevent tampering. And since they carry many required agency listings, their use aids in gaining agency approvals. Offered in a wide range of popular voltages, the plug-in power sources are available in AC/AC unregulated models with generous six foot cord lengths. Available in 60 Hz only.

:: WAU Series

Part Number	Secondary Rating Input Voltage (VAC) 120	Output Connection Type	Pass-Through Ground	Approvals	Efficiency Level
WAU060-2000	6VAC @ 2000mA	5.5x2.1x11mm barrel plug	No	cULus Approved	VI
WAU060-2000-SG	6VAC @ 2000mA	3 Screw Terminal	Yes	cULus Approved	VI
WAU090-1200	9VAC @ 1200 mA	5.5x2.1x11mm barrel plug	No	cULus Approved	VI
WAU090-1200-SG	9VAC @ 1200 mA	3 Screw terminal	Yes	cULus Approved	VI
WAU120-1000	12VAC @ 1000 mA	5.5x2.1x11mm barrel plug	No	cULus Approved	VI
WAU120-1000-SG	12VAC @ 1000 mA	3 Screw Terminal	Yes	cULus Approved	VI
WAU160-750	16VAC @ 750 mA	5.5x2.1x11mm barrel plug	No	cULus Approved	VI
WAU160-750-SG	16VAC @ 750 mA	3 Screw Terminal	Yes	cULus Approved	VI
WAU200-600	20VAC @ 600 mA	5.5x2.1x11mm barrel plug	No	cULus Approved	VI
WAU200-600-SG	20VAC @ 600 mA	3 Screw Terminal	Yes	cULus Approved	VI
WAU240-500	24VAC @ 500 mA	5.5x2.1x11mm barrel plug	No	cULus Approved	VI
WAU240-500-SG	24VAC @ 500 mA	3 Screw Terminal	Yes	cULus Approved	VI

:: Outline Dimensions

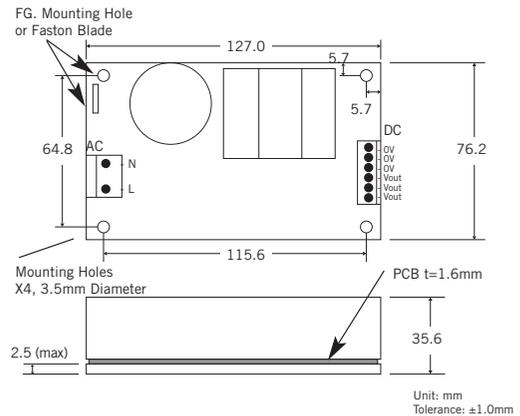


ALS50 Series

TUV Cert. No.: R50197686
UL File: E204980



50 Watt Single Output Open Frame Switching Power Supply for General Purpose Applications



:: Specifications (@25°C)

Input Characteristics

Input Voltage: 90 - 264 VAC / 120-370 VDC
 Input Frequency Range: 47 - 63 Hz
 Max Input Current: 1.0 / 0.5 A @ 110 / 220 VAC (max)
 Max Inrush Current: 30A @ 220 VAC (cold start)

Output Characteristics

Minimum Load: No minimum load
 Adjustable Output Range: ±10%
 Ripple/Noise (pk-pk 20MHz): 3.3/5/12/24 V = 50/75/120/240 mV
 Regulation: ±2.0% Load / ±1% Line
 Hold-up Time: 17 ms min, 100% Load @ 110 VAC
 Rise-up Time: 500 ms max @ 110 VAC
 Over Current Protection: >120% (Auto-recovery)
 Over Voltage Protection: >105% (Auto-recovery)

General Specifications

Dimension (LxWxH): 5.00 x 3.00 x 1.40" / 127 x 76.2 x 35.6 mm
 Weight: 300 g
 Warranty: 2 years

Environmental Specifications

Operating Temperature: 0~50°C Full Load, derate 3.0%/°C up to 60°C
 Storage Temperature: -25~+85°C
 Cooling: Convection Cooled Operation
 Humidity: 10~95% RH, non-condensing
 Vibration: 0 - 55 Hz, 2G 1min / cycle, period of 60min, each axis
 Reliability: >195,000 Hours MTBF

EMC & Safety Specifications

EMC Emissions: EN55022,VCCI,CISPR22 Class A (Conducted & Radiated); IEC-61000-4-2, 61000-4-4, 61000-4-5, 61000-4-11

Safety Approval: UL 60950 (UL File No: E204980)
 TUV EN60950 (TUV No: 50070245)

Dielectric Strength: Input-Output 3 kVAC / 1 min

Insulation Resistance: Input-Ground 2.5 kVAC / 1 min
 Output-Ground: >100 Mohm / 500 VDC

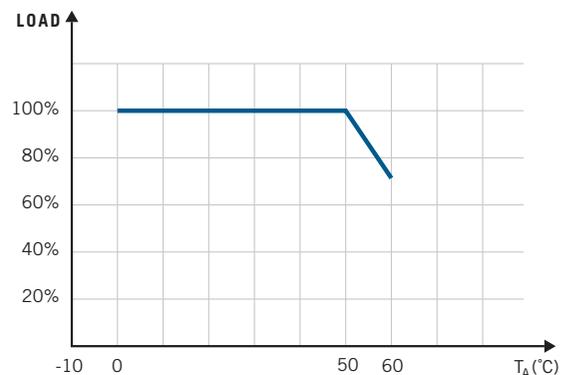
:: Connector Types

Input: Housing = Molex 09-50-3031 / Terminal = Molex 08-50-0105
 Output: Housing = Molex 09-50-3061 / Terminal = Molex 08-50-0105

:: Mounting Recommendation

7mm Standoff-spacers (X4)
 Located under Mounting-holes

:: Derating Curve



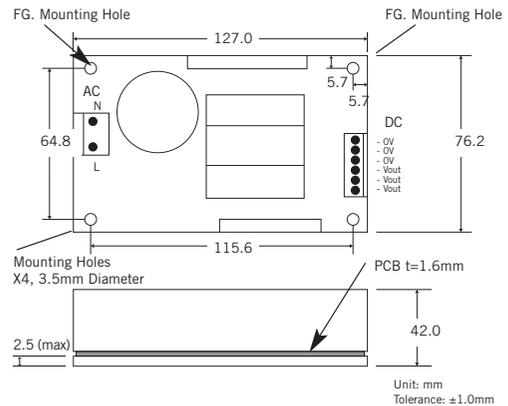
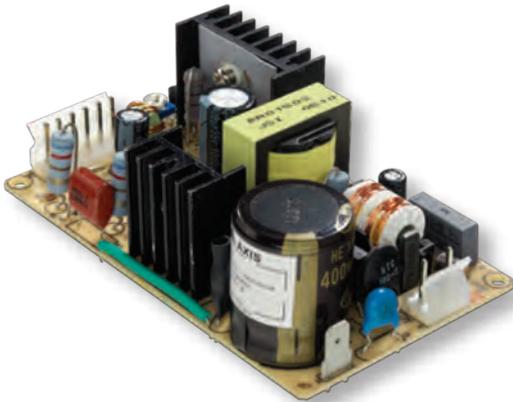
Part Number	Voltage	Current	Efficiency
ALS50-3.3	3.3V	9.1A	70%
ALS50-5	5.0V	9.0A	70%
ALS50-12	12V	4.2A	70%
ALS50-24	24V	2.1A	70%

ALS75 Series

TUV Cert. No.: R50200771
UL File: E204980



75 Watt Single Output Open Frame Switching Power Supply for General Purpose Applications



:: Specifications (@25°C)

Input Characteristics

Input Voltage:	90 - 264 VAC / 120-370 VDC
Input Frequency Range:	47 - 63 Hz
Max Input Current:	1.8 / 0.9 A @ 110 / 220 VAC (max)
Max Inrush Current:	30 A @ 220 VAC (cold start)

Output Characteristics

Minimum Load:	No minimum load
Adjustable Output Range:	±10%
Ripple/Noise (pk-pk 20MHz):	100 mv
Regulation:	±2.0% Load / ±1% Line
Hold-up Time:	17 ms min, 100% Load @ 110 VAC
Rise-up Time:	500 ms max @ 110 VAC
Over Current Protection:	>120%, recycle AC to reset
Over Voltage Protection:	>105% (Zener Diode)

General Specifications

Dimension (LxWxH):	5.00 x 3.00 x 1.40" / 127 x 76.2 x 35.6 mm
Weight:	350 g
Warranty:	2 years

Environmental Specifications

Operating Temperature:	0~50°C Full Load, derate 3.0%/°C up to 60°C
Storage Temperature:	-25~+85°C
Cooling:	Convection Cooled Operation
Humidity:	30~90% RH, non-condensing
Vibration:	0 - 55 Hz, 2G 1 min / cycle, period of 60 min, each axis
Reliability:	>186,000 Hours MTBF

EMC & Safety Specifications

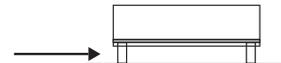
EMC Emissions:	EN55022,VCCI,CISPR22 Class A (Conducted & Radiated); IEC-61000-4-2, 61000-4-4, 61000-4-5, 61000-4-11
Safety Approval:	UL 60950 (UL File No: E204980) TUV EN60950 (TUV No: 50070245)
Dielectric Strength:	Input-Output 3 kVAC / 1 min Input-Ground 2 kVAC / 1 min
Insulation Resistance:	Output-Ground: >100M ohm / 500 VDC

:: Connector Types

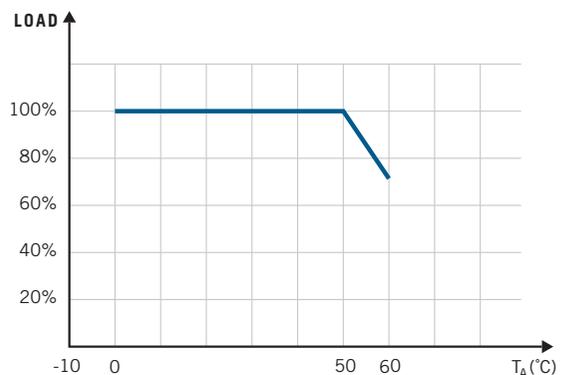
Input: Housing = Molex 09-50-3031 / Terminal = Molex 08-50-0105
Output: Housing = Molex 09-50-3061 / Terminal = Molex 08-50-0105

:: Mounting Recommendation

7mm Standoff-spacers (X4)
Located under Mounting-holes



:: Derating Curve



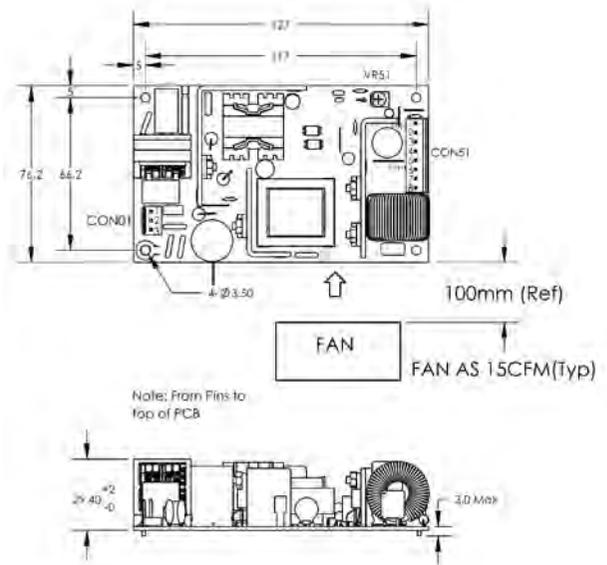
Part Number	Voltage	Current	Efficiency
ALS75-3.3	3.3V	12A	70%
ALS75-5	5.0V	12A	70%
ALS75-12	12V	6.2A	70%
ALS75-24	24V	3.1A	70%

ABU125 Series

TUV Cert. No.: R50219279
UL File: E204980



125 Watt Adjustable Output Voltage Range Open Frame Switch Mode Power Supply for General Purpose Applications



:: Specifications (@ 25 °C)

Input Characteristics

Input Voltage: 90 to 264 V (AC)
 Input Voltage: 127 to 373 V (DC)
 Input Frequency Range: 47 to 63 Hz
 Max Input Current: 1.6 A (@115 VAC)
 Maximum Inrush Current: 30 A (@115 VAC cold start)
 Maximum Inrush Current: 60 A (@230 VAC cold start)

Output Characteristics

Minimum Load: No minimum load
 Adjustable Output Range: $\pm 5\%$
 Ripple/Noise(pk-pk 20MHz): 100 mV / 240 mV
 Regulation: ± 1 load, $\pm 0.5\%$ line
 Hold-up Time: 14 ms min. @ 230 VAC
 Rise-up Time: 30 ms (115 or 230 VAC)
 Over Current Protection: > 105% Hiccup mode. Resets automatically once the fault condition is removed.
 Over Voltage Protection: > 110% (Auto-Recovery)

General Specifications

Dimension (L x W x H): 5.0 x 3.0 x 1.05" / 127 x 76.2 x 27mm
 Weight: 300 g
 Warranty: 5 years

Environmental Specifications

Operating Temperature: -20-50°C / -40-70°C
 Storage Temperature: -40-85°C
 Cooling: Convection or fan cooled operation
 Humidity: 20-90%
 Vibration: 10-500 Hz, 2G 20 min/cycle, period of 60 min, each X, Y & Z axis

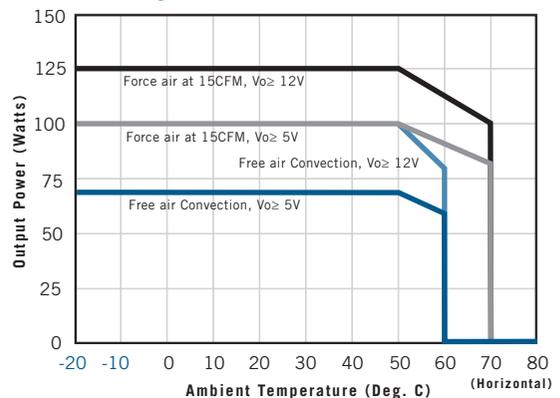
EMC & Safety Specifications

EMI Emissions: Compliance to EN55022, CISPR22 Class B (Conducted & Radiated)
 Safety Approval: TUV EN60950-1 (Insulation Class -1) UL 60950-1
 Dielectric Strength: Input/Output 3 kVAC
 Input-Floating Gate 1.5 kVAC
 Output-Floating Gate 0.5 kVAC
 Insulation Resistance: Input-Output 100 Mohm, 500 VDC
 Input-Floating Gate 100 Mohm, VDC
 Output-Floating Gate 100 MOhm, VDC

:: Connector Types

AC Input Connector (CON1) JST B3P-VH or equivalent
 DC Output Connector (CON51) JST B8P-VH or equivalent

:: Derating Curve



Part Number	Voltage	Current	Efficiency
ABU125-050	5 V	20 A	79%
ABU125-120	12 V	10.42 A	86%
ABU125-150	15 V	8.34 A	86%
ABU125-240	24 V	5.21 A	87%
ABU125-270	27 V	4.63 A	87%
ABU125-360	36 V	3.47 A	87.5%
ABU125-480	48 V	2.6 A	88%
ABU125-540	54 V	1.96 A	88%

AWSP40 Series

TUV Cert. No.: R50200771
UL File: E204980



40 Watt Single Output Enclosed Switching Power Supply for General Purpose Applications



:: Specifications (@25°C)

Input Characteristics

Input Voltage:	85 - 264 VAC
Input Frequency Range:	47 - 63 Hz
Max Input Current:	1.0 A (max)
Max Inrush Current:	20 / 40 A @ 110 / 220 VAC (cold start)

Output Characteristics

Minimum Load:	No minimum load
Adjustable Output Range:	±10%
Ripple/Noise (pk-pk 20MHz):	5/12/24 V = 75/100/100 mV
Regulation:	±1.0% Load / ±0.5% Line
Hold-up Time:	30ms min, 100% Load @ 220 VAC
Rise-up Time:	300 ms max @ 220 VAC
Over Current Protection:	>120%, Power cycle reset
Over Voltage Protection:	>110% (Zener Diode)

General Specifications

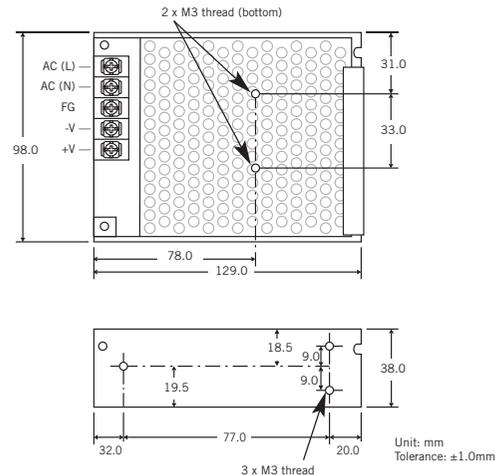
Switching Frequency:	50 kHz
Dimension (LxWxH):	5.08 x 3.86 x 1.50" / 129 x 98 x 38 mm
Weight:	360 g
Warranty:	2 years

Environmental Specifications

Operating Temperature:	0~+45°C Full Load, derate 3.33%/°C up to 60°C
Storage Temperature:	-25~+75°C
Cooling:	Convection Cooled Operation
Humidity:	10~95% RH, non-condensing
Vibration:	10 - 55 Hz, 2G 1 min / cycle, period of 60 min, each axis
Reliability:	>176,000 Hours MTBF

EMC & Safety Specifications

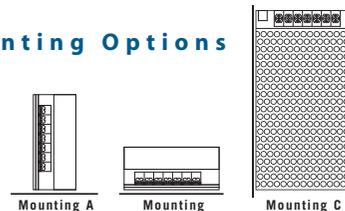
EMC Emissions:	EN55022, VCCI, CISPR22 Class B (Conducted & Radiated); IEC-61000-4-2, 61000-4-4, 61000-4-5, 61000-4-11
Safety Approval:	UL 60950 (UL File No: E204980) TUV EN60950 (TUV No: 50067240)
Dielectric Strength:	Input-Output 3 kVAC / 1 min Input-Ground 2.5 kVAC / 1 min
Insulation Resistance:	Output-Ground: >100 Mohm / 500 VDC



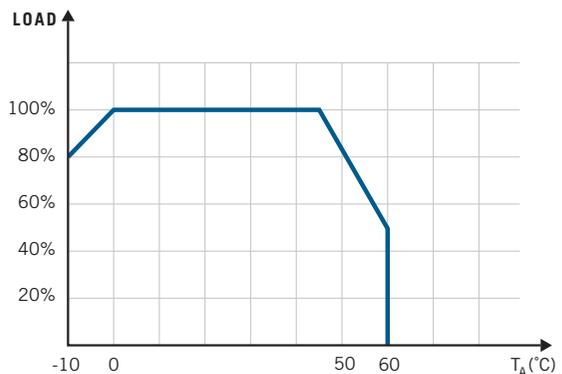
:: Connector Types

Input: Screw Terminals
Output: Screw Terminals

:: Mounting Options



:: Derating Curve



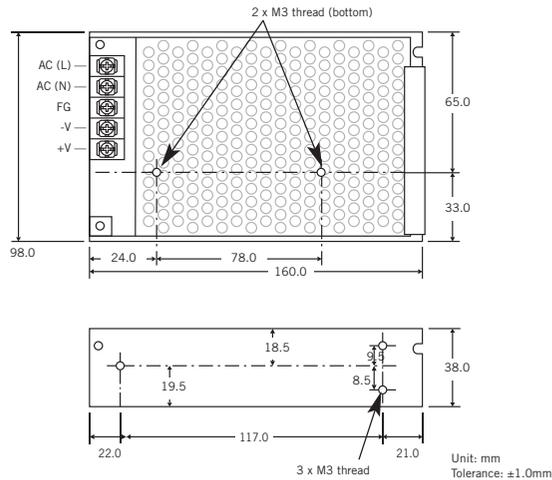
Part Number	Voltage	Current	Efficiency
AWSP40-5	5.0V	7.6A	72%
AWSP40-12	12V	3.3A	77%
AWSP40-24	24V	1.7A	80%

AWSP60 Series

TUV Cert. No.: R50200771
UL File: E204980



60 Watt Single Output Enclosed Switching Power Supply for General Purpose Applications



:: Specifications (@25°C)

Input Characteristics

Input Voltage: 85 - 264 VAC
 Input Frequency Range: 47 - 63 Hz
 Max Input Current: 1.3A (max)
 Max Inrush Current: 20 / 40 A @ 110 / 220 VAC (cold start)

Output Characteristics

Minimum Load: No minimum load
 Adjustable Output Range: ±10%
 Ripple/Noise (pk-pk 20MHz): 5/12/24 V = 75/100/100 mV
 Regulation: ±1.0% Load / ±0.5% Line
 Hold-up Time: 30ms min, 100% Load @ 220 VAC
 Rise-up Time: 300ms max @ 220 VAC
 Over Current Protection: >120%, Power cycle reset
 Over Voltage Protection: >110% (Zener Diode)

General Specifications

Switching Frequency: 45 kHz
 Dimension (LxWxH): 6.30 x 3.86 x 1.50" / 160 x 98 x38 mm
 Weight: 450g
 Warranty: 2 years

Environmental Specifications

Operating Temperature: 0~+45°C Full Load, derate 3.33%/°C up to 60°C
 Storage Temperature: -25~+75°C
 Cooling: Convection Cooled Operation
 Humidity: 10~95% RH, non-condensing
 Vibration: 10 - 55 Hz, 2G 1 min / cycle, period of 60 min, each axis
 Reliability: >150,000 Hours MTBF

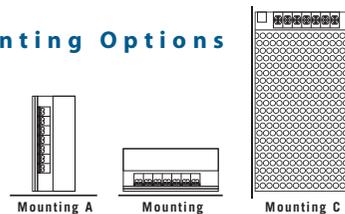
EMC & Safety Specifications

EMC Emissions: EN55022,VCCI,CISPR22 Class B (Conducted & Radiated); IEC-61000-4-2, 61000-4-4, 61000-4-5, 61000-4-11
 Safety Approval: UL 60950 (UL File No: E204980) TUV EN60950 (TUV No: 50067240)
 Dielectric Strength: Input-Output 3k VAC / 1 min
 Input-Ground 2.5 kVAC / 1 min
 Insulation Resistance: Output-Ground: >100M ohm / 500 VDC

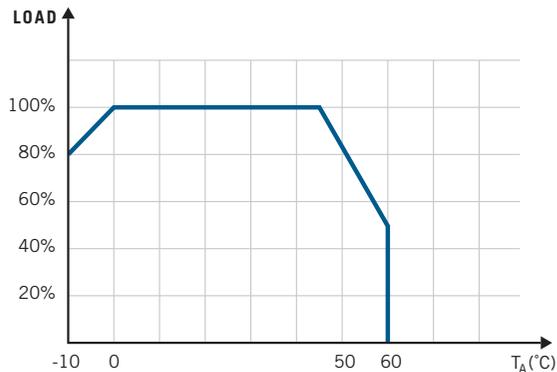
:: Connector Types

Input: Screw Terminals
 Output: Screw Terminals

:: Mounting Options



:: Derating Curve



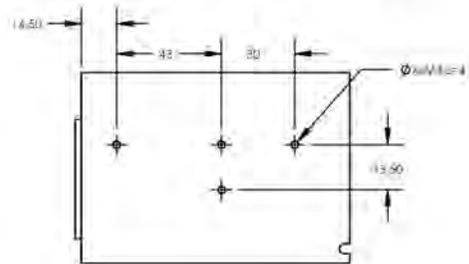
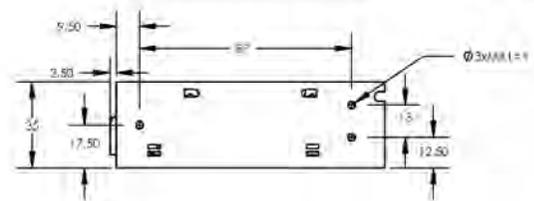
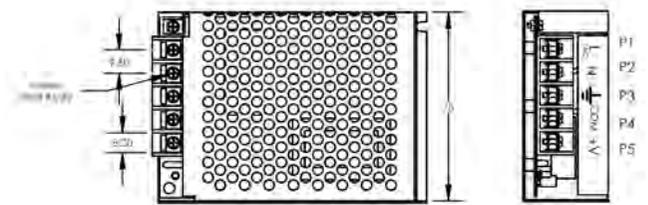
Part Number	Voltage	Current	Efficiency
AWSP60-5	5.0V	12A	73%
AWSP60-12	12V	5.0A	78%
AWSP60-24	24V	2.5A	81%

AEU65 Series

TUV Cert. No.: R50219138
UL File: E204980



65 Watt Single Output Enclosed Switching Power Supply for General Purpose Applications



:: Description

Input Characteristics

Input Voltage:	90 to 264 V (AC)
Input Voltage:	127 to 373 V (DC)
Input Frequency Range:	47 to 63 Hz
Max Input Current:	1.6 A (@115 VAC), 0.8A (@230 VAC typ.)
Maximum Inrush Current:	30 A (@115 VAC cold start)
Maximum Inrush Current:	60 A (@230 VAC cold start)

Output Characteristics

Minimum Load:	No minimum load
Adjustable Output Range:	±5%
Ripple/Noise(pk-pk 20MHz):	50 mV to 300 mV
Regulation:	±1 to 0.5 % load, ±0.5% line
Hold-up Time:	14 ms (115 or 230 VAC); 12 ms @ 115 VAC 24 ms @ 230 VAC
Rise-up Time:	30 ms (115 or 230 VAC)
Over Current Protection:	110 to 160% Hiccup mode. Resets automatically once the fault condition is removed.
Over Voltage Protection:	> 115% (Zener Diode)

General Specifications

Dimension (L x W x H):	4.3 x 3.1 x 1.38" / 110 x 78 x 35
Weight:	200 g
Warranty:	5 years

Environmental Specifications

Operating Temperature:	-20 to 50°C
Storage Temperature:	-40-85°C
Cooling:	Natural convection
Humidity:	10-95%
Vibration:	10-500 Hz, 2G 20 min/cycle, period of 60 min, each X, Y & Z axis

EMC & Safety Specifications

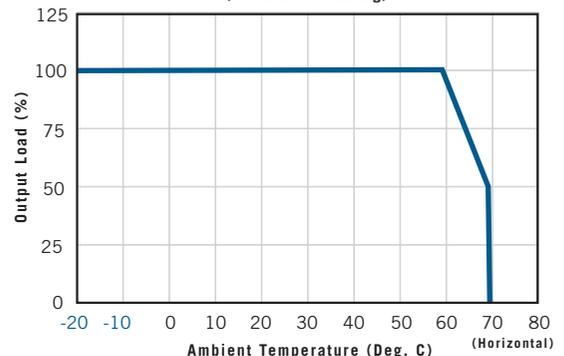
EMI Emissions:	Compliance to EN55022, CISPR22 Class B (Conducted & Radiated)
Safety Approval:	TUV EN60950-1 (Insulation Class -1) UL 60950-1
Dielectric Strength:	Input/Output 3 kV Input-Floating Gate 1.5 kV Output-Floating Gate 0.5 kV
Insulation Resistance:	Input-Output 100 Mohm, 500 Vdc Input-Floating Gate 100 Mohm, 500 Vdc Output-Floating Gate 100 MOhm, 500 Vdc

:: Connector Types

Input: Screw Terminals
Output: Screw Terminals

:: Derating Curve

*Output Derating VS Ambient Temperature (Horizontal Mounting)



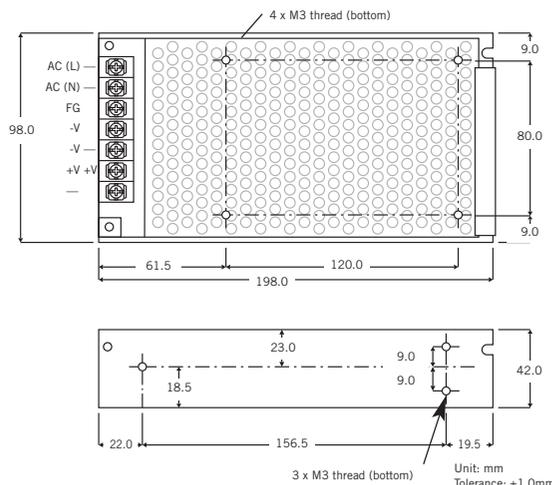
Part Number	Voltage	Current	Efficiency
AEU65-033	3.3 V	10 A	81%
AEU65-050	5 V	10 A	84%
AEU65-120	12 V	5.42 A	87%
AEU65-150	15 V	4.33 A	87%
AEU65-240	24 V	2.71 A	86.50%
AEU65-360	36 V	1.81 A	87.50%
AEU65-480	48 V	1.35 A	87.50%

AWSP100 Series

TUV Cert. No.: R50200771
UL File: E204980



100 Watt Single Output Enclosed Switching Power Supply with PFC for General Purpose Applications



:: Specifications (@25°C)

Input Characteristics

Input Voltage: 88 - 264 Vac
 Input Frequency Range: 47 - 63 Hz
 Max Input Current: 1.8 A @ Vin (rated)
 Max Inrush Current: 20A / 40 A @ 110 / 220 VAC (cold start)
 Power Factor: >0.92

Output Characteristics

Minimum Load: No minimum load
 Adjustable Output Range: ±10%
 Ripple & Noise: 100 mV
 Regulation: ±1.0% Load / ±0.5% Line
 Efficiency: 75%
 Start-up Time: 300 ms max @ 230 VAC
 Hold-up Time: 20 ms min, 100% Load@230 Vac
 Rise-up Time: 600 ms max, 100% Load@230 Vac
 Over Current Protection: 105% - 150%, Power cycle reset
 Over Voltage Protection: 125% - 145%

General Specifications

Switching Frequency: 134 kHz (PWM) / 67 kHz (PFC)
 Dimension (LxWxH): 7.83 x 3.86 x 1.65" / 199 x 98 x 42 mm
 Weight: 560 g net, 610 g gross
 Warranty: 2 years

Environmental Specifications

Operating Temperature: 0~60°C Full Load
 Storage Temperature: -25~+75°C
 Humidity: 20 to 90% RH, non-condensing
 Vibration: 10 - 55Hz, 2 G 1 min / cycle, period of 60 min, each axis
 Reliability: >167,000 Hours MTBF

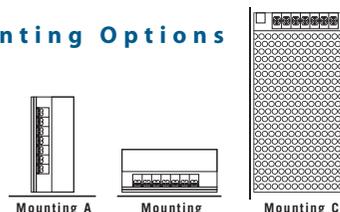
EMC & Safety Specifications

EMC Emissions: Conforms to EN55022, VCCI, CISPR22 Class B (Conducted & Radiated); IEC-61000-4-2, 61000-4-4, 61000-4-5, 61000-4-11
 Safety Approval: UL 60950 (UL File No: E204980)
 TUV EN60950 (TUV No: 50067240)

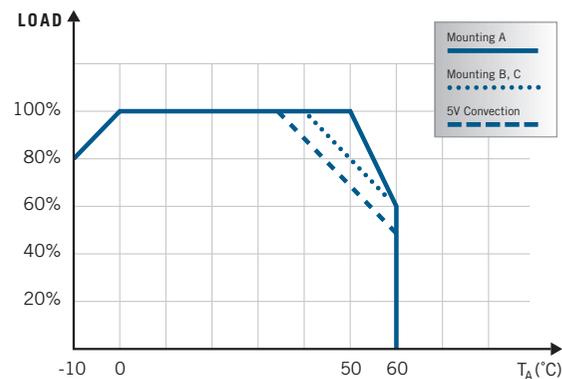
:: Connector Types

Input: Screw Terminals
 Output: Screw Terminals

:: Mounting Options



:: Derating Curve



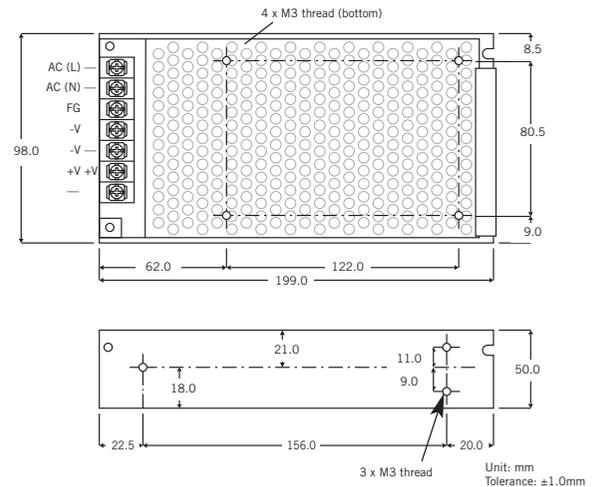
Part Number	Voltage	Current	Efficiency
AWSP100-5	5.0V	20A	75%
AWSP100-12	12V	8.4A	80%
AWSP100-24	24V	4.2A	84%

AWSP150 Series

TUV Cert. No.: R50200771
UL File: E204980



150 Watt Single Output Enclosed Switching Power Supply with PFC for General Purpose Applications



:: Specifications (@25°C)

Input Characteristics

Input Voltage:	88 - 264 VAC
Input Frequency Range:	47 - 63 Hz
Power Factor:	> 0.92
Max Input Current:	2.7A (max)
Max Inrush Current:	20 / 40 A @ 110 / 220 VAC (cold start)

Output Characteristics

Minimum Load:	No minimum load
Adjustable Output Range:	±10%
Ripple/Noise (pk-pk 20MHz):	5/12/24 V = 150/180/240 mV
Regulation:	±1.0% Load / ±0.5% Line
Hold-up Time:	20 ms min, 100% Load @ 220 VAC
Rise-up Time:	600 ms max @ 230 VAC
Over Current Protection:	>105~150%, Power cycle reset
Over Voltage Protection:	>125%

General Specifications

Switching Frequency:	134 kHz (PWM) / 687 kHz (PFC)
Dimension (LxWxH):	7.83 x 3.86 x 1.65" / 199 x 98 x 42 mm
Weight:	560g
Warranty:	2 years

Environmental Specifications

Operating Temperature:	0~+60°C Full Load (see derating curve)
Storage Temperature:	-25~+75°C
Cooling:	Convection Cooled Operation
Humidity:	10~95% RH, non-condensing
Vibration:	10 - 55 Hz, 2G 1min / cycle, period of 60 min, each axis
Reliability:	>144,000 Hours MTBF

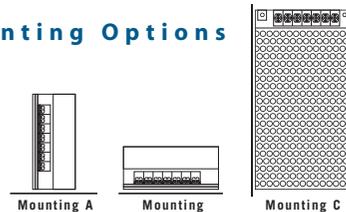
EMC & Safety Specifications

EMC Emissions:	EN55022, VCCI, CISPR22 Class B (Conducted & Radiated); IEC-61000-4-2, 61000-4-4, 61000-4-5, 61000-4-11
Safety Approval:	UL 60950 (UL File No: E204980) TUV EN60950 (TUV No: 50067240)
Dielectric Strength:	Input-Output 3 kVAC / 1 min Input-Ground 2.5 kVAC / 1 min
Insulation Resistance:	Output-Ground: >100 Mohm / 500 VDC

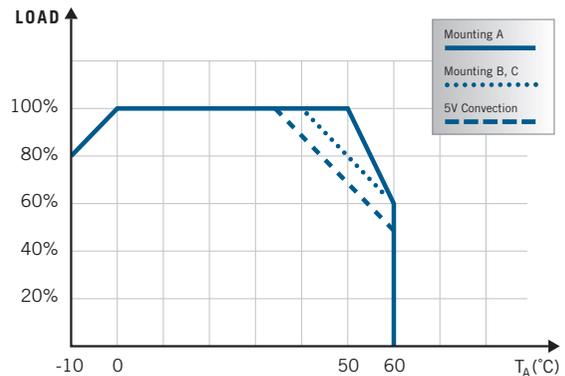
:: Connector Types

Input: Screw Terminals
Output: Screw Terminals

:: Mounting Options



:: Derating Curve

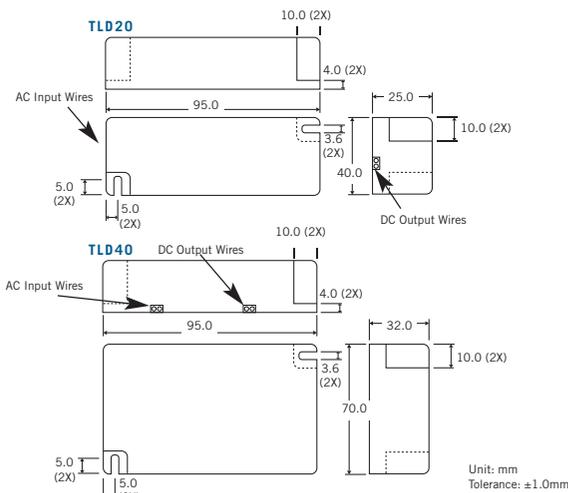


Part Number	Voltage	Current	Efficiency
AWSP150-5	5.0V	30A	75%
AWSP150-12	12V	12.5A	80%
AWSP150-24	24V	6.3A	83%

TLM1020/40 Series

UL File: E305150 

20-40 Watt Single Output Encapsulated Switching Power Supply with PFC for Indoor & Outdoor IP66/NEMA 4 Applications



:: Specifications (@25°C)

Input Characteristics

Input Voltage: 100-304 VAC
 Input Frequency Range: 47 - 63 Hz
 Power Factor: 0.9 at Full Load & 115 VAC
 Crest Factor (Ipk): 1.5 Max
 Max Input Current (max): TLD1020: 0.3/0.15 A @ 115/230 VAC
 TLD040: 0.5/0.25 A @ 115/230 VAC
 Max Inrush Current: 5 / 10A @ 115/230 VAC (cold start)

Output Characteristics

Adjustment Range: Fixed
 Setpoint Accuracy: ±5%
 Current Accuracy: ±1% (when applicable)
 Ripple/Noise (pk-pk 20MHz): ±5%
 Regulation: ±3.0% Load / ±3.0% Line
 Hold-up Time: 1/2 Cycle @ 120 VAC & 80% Load (min)
 Over Current Protection: 120% (Auto-recovery)
 Over Voltage Protection: 120% (Auto-recovery)

General Specifications

Dimension (LxWxH): TLD1020: 3.74 x 1.57 x 0.97" / 95 x 40 x 25mm
 TLD1040: 3.74 x 2.76 x 1.26" / 95 x 70 x 32mm
 Weight: 120g
 Reliability (MTBF): >100k hrs. (Full Load & 25°C Operation)
 Warranty: 3 years

Environmental Specifications

Operating Temperature: -30~+60°C Full Load,
 derate 1%/°C from 60~70°C max
 Storage Temperature: -40~+85°C
 Cooling: Convection Cooled Operation
 Humidity: 5~95% RH, non-condensing
 Vibration: 5 - 50 Hz, 2G 1 min / cycle,
 period of 60 min, each axis

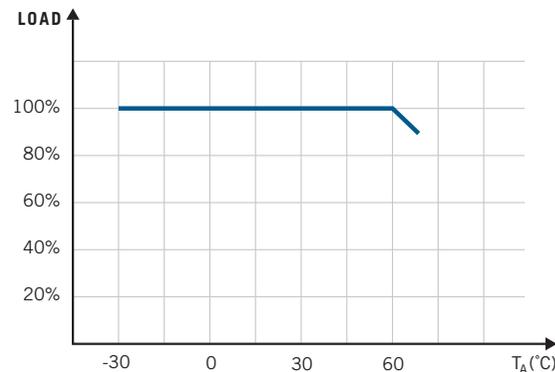
EMC & Safety Specifications

EMC Emissions: Compliant to 47CFR, Part 2, Part 15
 and CispR PUB, 22
 Class B Safety Approval: UL/cUL 1310, UL48, CE Mark (IVD)

:: Connector Types

Input: 18AWG Wire, 5 inch leads
 Output: 18AWG Wire, 5 inch leads

:: Derating Curve

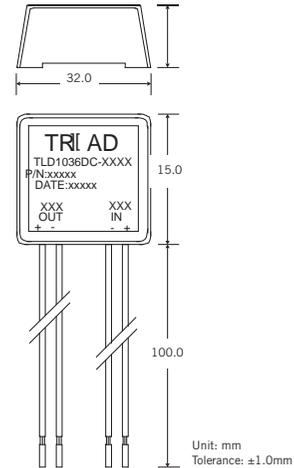


Constant Voltage Models	Voltage	Current	Efficiency
TLD1020-12	12V	1.66A	84%
TLD1020-24	24V	0.83A	84%
TLD1040-12	12V	3.33A	84%
TLD1040-24	24V	1.67A	84%

Constant Current Models	Adc	VDC	Efficiency
TLD1020-24-C0350	350mA	12-24V	84%
TLD1020-24-C0700	700mA	12-24V	84%
TLD1020-36-C0350	350mA	18-36V	84%
TLD1040-24-C1050	1050mA	12-24V	84%
TLD1040-36-C0700	700mA	18-36V	84%
TLD1040-36-C1050	1050mA	18-36V	84%

TLM40 Series

26 Watt Max Constant Current Encapsulated DC/DC Switching Power Supply for Indoor & Outdoor IP66 / NEMA 4 Applications



:: Specifications (@25°C)

Input Characteristics

Input Voltage: See table

Output Characteristics

Adjustment Range: Fixed
 Current Accuracy: ±5%
 Short Circuit Protection: Auto-Recovery
 Output: See table

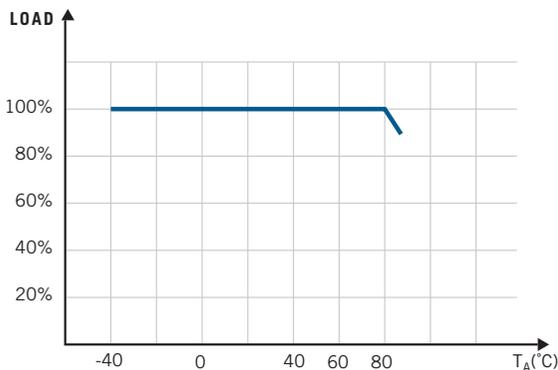
General Specifications

Dimension (LxWxH): 1.26 x 1.22 x 0.59" / 32 x 31 x 15 mm
 Weight: 120 g
 Reliability (MTBF): >100k hrs. (Full Load & 25°C Operation)
 Warranty: 3 years
 Efficiency: 90%

Environmental Specifications

Operating Temperature: -40~+60°C Full Load,
 derate 1%/°C from 60~70°C max
 Storage Temperature: -40~+80°C
 Cooling: Convection Cooled Operation
 Humidity: 5~95% RH, non-condensing
 Vibration: 5 - 50 Hz, 2 G 1 min / cycle,
 period of 60 min, each axis
 Reliability: >100k Hours MTBF (full load & 25°C)

:: Derating Curve



:: Connector Types

Input: 18 AWG Wire, 5 inch leads
 Output: 18 AWG Wire, 5 inch leads

TLM4036DC-0350

Vin (DC)	Vout (DC)	IDC (A)	Max Watts
40	2-36	0.350	13.0
36	2-32	0.350	11.2
32	2-28	0.350	9.8
30	2-26	0.350	9.1
28	2-24	0.350	8.4
24	2-20	0.350	7.0
15	2-12	0.350	4.2
12	2-10	0.350	3.5
10	2-8	0.350	2.8

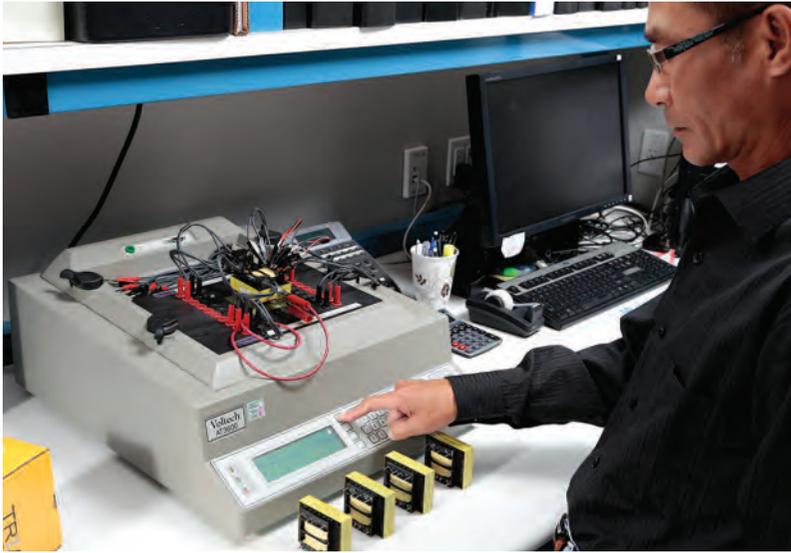
TLM4036DC-700

Vin (DC)	Vout (DC)	IDC (A)	Max Watts
40	2-32	0.700	22.4
36	2-30	0.700	21.0
32	2-28	0.700	19.6
30	2-26	0.700	18.2
28	2-24	0.700	16.8
24	2-22	0.700	15.4
15	2-12	0.700	8.4
12	2-10	0.700	7.0
10	2-8	0.700	5.6

TLM4036DC-1000

Vin (DC)	Vout (DC)	IDC (A)	Max Watts
30	2-26	1.0	26.0
28	2-24	1.0	24.0
24	2-20	1.0	22.0
15	2-12	1.0	13.0
12	2-10	1.0	10.0
10	2-8	1.0	9.0

CUSTOM MAGNETICS SOLUTIONS.



:: Custom magnetics specialists

While standard transformers and inductors meet most of today's typical electronic circuit requirements, they have their limitations. If you're designing advanced equipment for the automation, computer, industrial controls, medical, networking, telecom, alternative energy, or other industries, then you may need a custom magnetics solution. The best time to make that decision is early in the design process, which gives you the maximum flexibility.



Triad's North American design and manufacturing facility is located in Perris, California.

Triad Magnetics specializes in custom magnetics technology solutions. We're a global leader in the design and manufacture of transformers and inductors for industrial, commercial and consumer applications. Our expert engineering staff, modern test

labs, automated factories, certified quality, excellent service and competitive cost ensures your success. Bring us your next applications challenge, and we're ready with advanced magnetics technology solutions.

:: Your local design center

Our California facility houses our standard product magnetics business, which is sold directly through our extensive distributor network and finds application in a wide range of industrial, commercial and consumer devices. The Triad customer service, field applications engineering and design engineering staff offers hundreds of years of collective experience in magnetic components. We also utilize the latest in automated design, laboratory testing, manufacturing software and equipment.

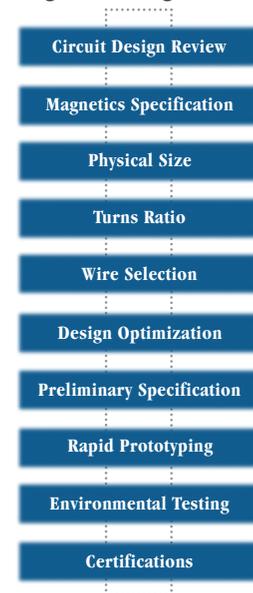
:: Power switching and filtering applications

As industrial, commercial and consumer equipment continues to become smarter, smaller and faster, the importance of power management and filtering continues to grow in circuit designs. Today's newest IC and ASIC based circuit designs require sophisticated magnetic components to support higher power, higher frequencies, higher densities and much more. With operating frequencies

spiraling upward in new equipment, power supply designers, for example, must now consider the characteristics of magnetic components, as their effectiveness varies based on switching frequency and the application. There are also new parameters to consider when selecting magnetics for: isolation, energy storage, current sensing and more. At Triad, we're ready to help with our expert engineers in fully equipped facilities:

- :: Design Centers: US and Taiwan
- :: Prototype Labs: US, China and Taiwan
- :: Production: US, China and the Philippines

Magnetics Design Process



Let us help you by asking the right questions to develop a custom magnetics component that meets your performance, reliability, long-life and cost requirements. Our capabilities include designing to a wide range of internationally recognized quality and performance standards:

- :: UL Insulation System Classes B (130° C) through R (220° C)
- :: FCC Part 68
- :: ISO9001-2015
- :: ISO22301-2012
- :: CSA
- :: TUV, CE, IEC
- :: Mil-T-27E

DESIGNED FOR PERFORMANCE AND RELIABILITY.

:: The Experience Factor

We have often heard systems design engineers refer to the Magnetics design engineering process as “black magic” or a mixture of intuition and mathematics. This marriage of creative thought and number crunching has taken up permanent residence at Triad where it is not really “black magic,” but a direct result of what we call the Experience Factor.



There are multiple variables in transformer design, i.e., core material, flux density, frequency, winding structure, distributed capacitance, load requirements, regulation, inductance, reflected impedance, distortion, and mechanical considerations. These variables all interact with each other in such a manner that one cannot change without changing another. These and other interacting factors are all turned over and over in the “black magic” melting cauldron that is the collective mind of our engineering staff.

:: Designed for performance and reliability

Activated by the education of mathematics and tempered with the creativity of years of practice, the magnetics engineering Experience Factor quickly places all the variables in their proper perspective, resulting in a

product design that is functional, reliable, efficient and replicable. The next time you have a magnetics requirement and are looking for someone to perform the “black magic” on your design, remember the Experience Factor and call Triad.

When you bring a custom project to Triad, we will guide you from a review of your design requirements to the final delivery of your first production order. Our concurrent design engineering process can assist you in two important ways:

- :: By designing-in critical design performance advantages that help you achieve performance and cost advantages.
- :: By speeding time-to-market with compressed design, qualification and procurement cycles for rapid ROI.

Our company’s modern corporate headquarters facility in Taiwan includes advanced R&D, test lab and prototyping facilities to support our design centers in the U.S. and around the globe. Your design will be reviewed early in the process by our production engineers to ensure its compatibility with the automated assembly lines at our factories which include:

- :: Dedicated Customer Custom Magnetics Assembly Lines
- :: Standard Product Transformer Assembly Lines
- :: Standard Product Inductor Assembly Lines
- :: Integrated Product PCB Assembly Lines

In addition to ISO9001-2015 certification, we are dedicated to a continuous improvement process based on Kaizen principles. We are constantly refining all aspects of our business based on the Kaizen 5S Disciplines that include:

- :: **Sorting:** Keeping our work areas free of unnecessary clutter
- :: **Setting In Order:** Organizing our assembly line work flows

- :: **Shining:** Maintaining all equipment for peak performance
- :: **Standardizing:** Documenting all process methodologies
- :: **Sustaining:** Auditing our performance to our own standards

Our manufacturing facilities employ more than 3,000 people, who are well educated and trained in all aspects of electronics manufacturing. Our staff is highly trained, motivated and rewarded when the company meets its business objectives. Our precision core gapping machines allow us to control performance characteristics with computer accuracy, making it possible to modify standard materials without assistance from external core vendors.

Wire winding

Our CNC wire winding machines ensure reliable, high-quality coils and bobbins. They are designed to process fine to heavy gauge wire from 54 to 4 AWG.

High-temperature soldering

We use fine pitch solder printing machines and high temperature soldering equipment. Lead-free processes meet environmental requirements including ROHS.

Inspection

Automated optical inspection and in-line circuit testing systems are located throughout the manufacturing process for high quality and reliability.

Environmental Testing

Our environmental test chambers ensure that our product meets your operating specifications for resistance to temperature, shock, humidity and vibration to MIL-T-27E criteria or higher upon request.

TRIAD

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**Custom magnetic solutions
designed for performance
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