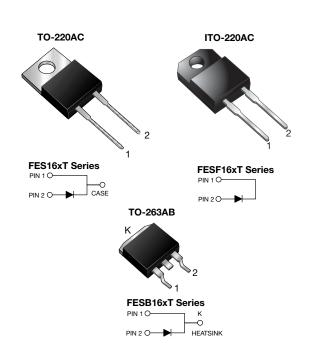
FES16xT, FESF16xT, FESB16xT

Vishay General Semiconductor

RoHS

Ultrafast Plastic Rectifier

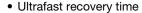


PRIMARY CHARACTERISTICS						
I _{F(AV)}	16 A					
V_{RRM}	50 V to 600 V					
I _{FSM}	250 A					
t _{rr}	35 ns, 50 ns					
V _F	0.975 V, 1.30 V, 1.50 V					
T _J max.	150 °C					
Package	TO-220AC, ITO-220AC, TO-263AB					
Diode variations	Single die					

FEATURES

Power pack





· Low switching losses, high efficiency

High forward surge capability

 Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)

- Solder dip 275 °C max. 10 s, per JESD 22-B106 (for TO-220AC and ITO-220AC package)
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, inverters, freewheeling diodes, DC/DC converters, and other power switching application.

MECHANICAL DATA

Case: TO-220AC, ITO-220AC, TO-263AB Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commerical grade Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per

 $\ensuremath{\mathsf{J-STD}}\xspace-002$ and $\ensuremath{\mathsf{JESD}}\xspace 22\ensuremath{\mathsf{-B102}}\xspace$

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix

meets JESD 201 class 2 whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs max.

MAXIMUM RATINGS (T _C = 25 °C unless otherwise noted)										
PARAMETER	SYMBOL	FES 16AT	FES 16BT	FES 16CT	FES 16DT	FES 16FT	FES 16GT	FES 16HT	FES 16JT	UNIT
Maximum repetitive peak reverse voltage	V _{RRM}	50	100	150	200	300	400	500	600	V
Maximum RMS voltage	V _{RMS}	35	70	105	140	210	280	350	420	V
Maximum DC blocking voltage	V _{DC}	50	100	150	200	300	400	500	600	V
Maximum average forward rectified current at T _C = 100 °C	I _{F(AV)}	16						Α		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	250						А		
Operating storage and temperature range	T _J , T _{STG}	- 65 to + 150						°C		
Isolation voltage (ITO-220AC only) from terminal to heatsink t = 1 min	V _{AC}	1500						V		



FES16xT, FESF16xT, FESB16xT

Vishay General Semiconductor

ELECTRICAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)											
PARAMETER	TEST CONDITIONS	SYMBOL	FES 16AT	FES 16BT	FES 16CT	FES 16DT	FES 16FT	FES 16GT	FES 16HT	FES 16JT	UNIT
Maximum instantaneous forward voltage	16 A	V _F ⁽¹⁾	0.975 1.30 1.50				50	V			
Maximum DC reverse T _C = 25 °C		10									
current at rated DC blocking voltage	T _C = 100 °C	I _R	500								μA
Maximum reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$	t _{rr}	35 50						ns		
Typical junction capacitance	4.0 V, 1 MHz	CJ	175 145				45	pF			

Note

 $^{^{(1)}}$ Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted)								
PARAMETER SYMBOL FES FESF FESB UN								
Typical thermal resistance, junction to case	$R_{ heta JC}$	1.2	1.7	1.2	°C/W			

ORDERING INFORMATION (Example)									
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE				
TO-220AC	FES16JT-E3/45	1.78	45	50/tube	Tube				
ITO-220AC	FESF16JT-E3/45	1.80	45	50/tube	Tube				
TO-263AB	FESB16JT-E3/45	1.33	45	50/tube	Tube				
TO-263AB	FESB16JT-E3/81	1.33	81	800/reel	Tape and reel				
TO-220AC	FES16JTHE3/45 (1)	1.78	45	50/tube	Tube				
ITO-220AC	FESF16JTHE3/45 (1)	1.80	45	50/tube	Tube				
TO-263AB	FESB16JTHE3/45 (1)	1.33	45	50/tube	Tube				
TO-263AB	FESB16JTHE3/81 (1)	1.33	81	800/reel	Tape and reel				

Note

⁽¹⁾ AEC-Q101 qualified



Vishay General Semiconductor

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

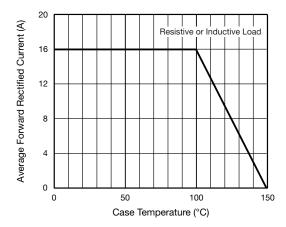


Fig. 1 - Maximum Forward Current Derating Curve

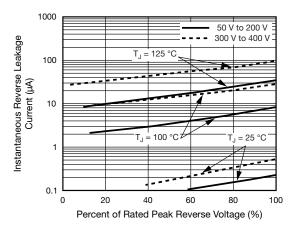


Fig. 4 - Typical Reverse Leakage Characteristics

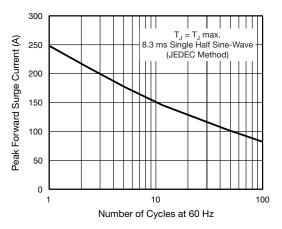


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

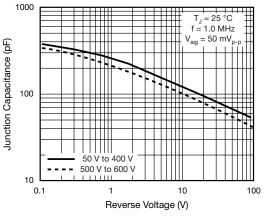


Fig. 5 - Typical Junction Capacitance

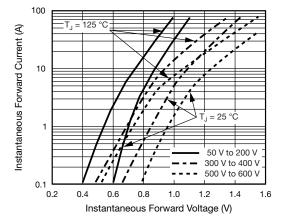


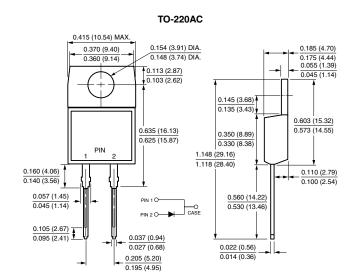
Fig. 3 - Typical Instantaneous Forward Characteristics

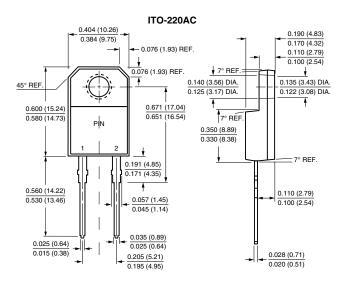


FES16xT, FESF16xT, FESB16xT

Vishay General Semiconductor

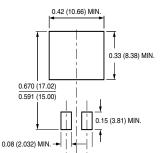
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





TO-263AB 0.411 (10.45) 0.190 (4.83) 0.380 (9.65) 0.055 (1.40) 0.160 (4.06) 0.245 (6.22) 0.045 (1.14) MIN. 0.055 (1.40) 0.360 (9.14) 0.047 (1.19) 0.320 (8.13) 0.624 (15.85) K 2 0.591 (15.00) -0 to 0.01 (0 to 0.254) 0.110 (2.79) 0.090 (2.29) 0.037 (0.940) 0.021 (0.53) 0.027 (0.686) 0.014 (0.36) 0.105 (2.67) 0.140 (3.56) 0.095 (2.41) 0.205 (5.20) 0.110 (2.79)

0.195 (4.95)



0.105 (2.67)

0.095 (2.41)

Mounting Pad Layout



Legal Disclaimer Notice

Vishay

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

Revision: 02-Oct-12 Document Number: 91000