



Relay Products Shortform Catalog



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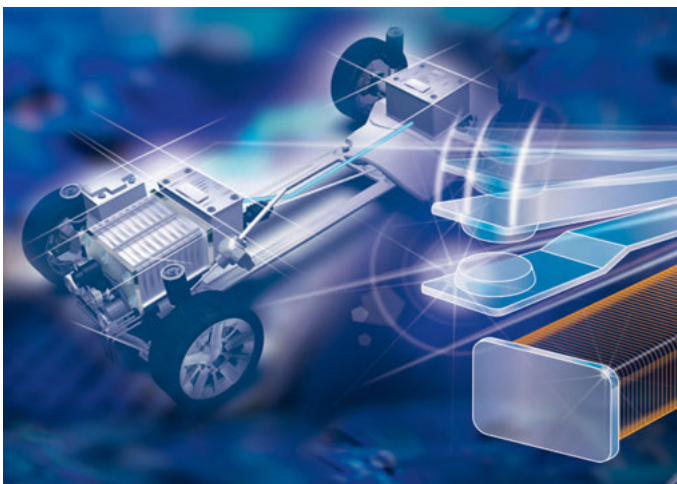


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PCB Relays

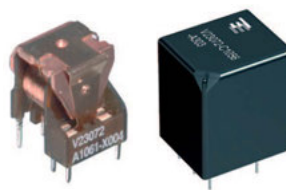
**Power K
(V23133/V23076)**

- Limiting continuous current 45A (V23076/133)
- High current/open version Power K-S (V23071): 70/50A at 23°/85°C, very low voltage drop¹⁾
- Wide voltage range
- 24VDC versions available



**Mini K
(V23072-A/C)**

- Limiting continuous current 20A
- 24VDC versions with special contact gap
- Various contact arrangements and materials



**DMR
(V23084)**

- Limiting continuous current 30A



Contact Data

Contact arrangement	1 form A/C, 1 NO/CO	1 form A, 1 NO	1 form C, 1 CO	1 form U, 2 NO	2 form C, 2 CO
Rated voltage	12, (24)VDC ⁶⁾	12, (24)VDC ⁶⁾	(NO/NC)	12VDC	12VDC
Limiting continuous current at 23/85°C	NO/NC 45/30A / 30/25A	15/10A	15/10A / 10/5A	2x10/2x6A	20/15A both systems
Limiting making current	100/30A	60A	60/12A	2x40A	35A
Limiting breaking current	60/30A	20A	20/10A	2x20A	35A
Limiting short-time current, overload current, ISO 8820-3: rated current:					
1.35x rated current, t					
2.00x rated current, t					
3.50x rated current, t					
6.00x rated current, t					
Operate/release time max. (typ.)	5/3ms	3/1.5ms	3/1.5ms	3/1.3ms	3/1.3ms

Coil Data

Rated coil voltage	12, 24VDC	12, 24VDC	12VDC
Rated coil power	1.6W	1.1W	0.56/0.81W

Other Data

Ambient temperature	-40 to +85°C	-40 to +85°C	-40 to +85°C
Category of environmental protection	Open or sealed	Open or sealed	Sealed
Terminal type	PCB	PCB	PCB
Mounting			
Dimensions lwh	Open: 24x19.25x18.5mm Sealed: 26.5x21.5x21.5mm	Open: 16x13.2x18mm Sealed: 17.2x15x19.5mm	17.6x17x13.4mm

Accessories

1) Please contact TE Connectivity application engineering support for more details (data below not applicable). 2) Please contact TE Connectivity application engineering support for higher current (LCC). 3) QC=quick connect. 4) For products V23086-C1021-A502 / V23086-C1001-A602 lamp load/flasher. 5) Current and time are compatible with circuit protection by a typical automotive fuse. Relay will make, carry and break the specified current. 6) Given data only valid for 12VDC systems; for 24VDC versions please refer to datasheets.

Plug-in Relays

Micro ISO

- High current version with limiting cont. current 30A at 85°C
- ISO plug-in terminals, pin assignment according to ISO 7588 part 3
- Customized versions on request: 24VDC versions with special contact gap, integrated components, customer marking, special covers



Micro Low Noise (V23145)

- Noise level below 50dBA
- Pin assignment according to ISO 7588 part 3
- Plug-in terminals
- Customized versions on request: special marking, special covers (e.g. notches, release features)



Mini/Maxi Shrouded Relays

- Protection class IP67 to IEC 529 (EN 60 529) if used with special connector
- Plug-in terminals
- Pin assignment according to ISO 7588 part 1
- Bracket
- Customized versions on request: integrated components (e.g. diode), customized marking



Contact Data

Contact arrangement	1 form A, 1 NO	1 form C, 1 CO	High Current 1 form A, 1 NO	1 form A, 1 NO	1 form C, 1 CO	1 form A, 1 NO (Mini)	1 form C, 1 CO (Mini)	1 form A, 1 NO (Maxi)
Rated voltage	12, (24)VDC ⁶⁾			12VDC		12VDC		
Limiting continuous current at 23/85°C	30/25A	NO/NC 30/20A / 25/15A	35A/30A	20/15A	NO/NC 20/15A / 15/10A	60A/40A	NO/NC 60/45A / 40/30A	70/50A
Limiting making current	120A	120/40A	120A	100A	40A	120A	120/45A	240A
Limiting breaking current	30A	30/15A	30A	30A	30A	60A	60/40A	70A
Limiting short-time current, overload current, ISO 8820-3: rated current:								
1.35x rated current, t	25A	30A		20A		40A	50A	
2.00x rated current, t	34A, 1800s	40A, 1800s		27A, 1800s		54A, 1800s	67A, 1800s	
3.50x rated current, t	50A, 5s	60A, 5s		40A, 5s		80A, 5s	100A, 5s	
6.00x rated current, t	87A, 0.5s	105A, 0.5s		70A, 0.5s		140A, 0.5s	175A, 0.5s	
Operate/release time max. (typ.)	150A, 0.1s	180A, 0.1s		120A, 0.1s		240A, 0.1s	300A, 0.1s	
	5/3ms			3/2ms	3/4ms	8.5/4ms		

Coil Data

Rated coil voltage	12, 24VDC	12VDC	12VDC	12VDC	12VDC	12VDC	12VDC	12VDC
Rated coil power	1.4W	typ. 1.1W		0.9W	0.6W	1.5W	1.5W	1.8W

Other Data

Ambient temperature	-40 to +125°C			-40 to +125°C		-40 to +125°C		
Category of environmental protection	Dustproof			Dustproof		Shrouded: protection class IP67 if used with special connector		
Terminal type	Plug-in, QC ³⁾			Plug-in, QC ³⁾		Plug-in, QC ³⁾		
Mounting	Bracket			Bracket		Bracket		
Dimensions lwh	23x15.5x25.4mm 23x15.5x26.0mm			23x15.5x25.4mm		32.7x35.5x54.2mm 32.0x32.0x39.0mm		

Accessories

Connectors for Micro ISO Relays Connectors for Micro ISO Relays Connectors for Mini ISO Relays

1) Please contact TE Connectivity application engineering support for more details (data below not applicable). 2) Please contact TE Connectivity application engineering support for higher current (LCC). 3) QC=quick connect. 4) For products V23086-C1021-A502 / V23086-C1001-A602 lamp load/flasher. 5) Current and time are compatible with circuit protection by a typical automotive fuse. Relay will make, carry and break the specified current. 6) Given data only valid for 12VDC systems; for 24VDC versions please refer to datasheets. 7) For 12 VDC only.

High Current and Latching*) Solutions

BDS-A (V23130)

- Limiting continuous current 190A at 85°C
- Electrically settable and resettable ON/OFF bistable device
- Suitable for voltage levels up to 42VDC
- High peak current carrying capability up to 1500A

Mini ISO Latching (V23141-L)

- Magnetically latched Mini ISO plug-in relay
- 70A (Maxi) version available on request
- Two coils with set and reset function
- Pin assignment similar to ISO 7588 part 1
- Customized versions on request: special marking, special covers (e.g. notches, release features, brackets)

PK2 Latching THT/THR (V23201-L/T)

- 50A at 125°C, due to reduced coil power consumption (2 coil system)
- 60% volume reduced Power K at increased performance
- PCB area requirements minimized by 50% to 293mm²
- High shock and vibration resistance
- No change of switching state version at breakdown of battery voltage
- For monostable version refer to PK2 THT/THR (V23201-C/R)



Contact Data

Contact arrangement	1 form X (NO-DM)	1 form A, 1 NO	1 form A, 1 NO
Rated voltage	12, (24)VDC ⁶⁾	12VDC	12VDC
Limiting continuous current at 23/85°C	260/190A	40/30A	50/40A
Limiting making current	1500A (>5ops.)	200A	200A
Limiting breaking current	1500A (>5ops.)	40A	40A
Operate/release time max. (typ.)	<15/<15ms	1.5/1.5ms	1.5ms

Coil Data

Rated coil voltage	12, 24VDC	12VDC	12VDC
Rated coil power	(only impulse needed)	(only impulse needed)	(only impulse needed)

Other Data

Ambient temperature	-40 to +120°C	-40 to +125°C	-40 to +125°C
Category of environmental protection	Dustproof/Weatherproof	Dustproof	Sealed/Vented
Terminal type	Plug-in, QC (coil)/ Screw terminals (load)	Plug-in, QC ³⁾	PCB
Mounting			
Dimensions lwh	36x33x60mm	30.1x30.1x31.1mm	18.5x16.2x16.1mm

Accessories

Connectors for Mini ISO Relays

1) Please contact TE Connectivity application engineering support for more details (data below not applicable). 2) Please contact TE Connectivity application engineering support for higher current (LCC). 3) QC=quick connect. 4) For products V23086-C1021-A502 / V23086-C1001-A602 lamp load/flasher. 5) Current and time are compatible with circuit protection by a typical automotive fuse. Relay will make, carry and break the specified current. 6) Given data only valid for 12VDC systems; for 24VDC versions please refer to datasheets. 7) Max. continuous operation time is limited and depends on operating conditions. Consult TE for details. 8) Min. 10 fault break operations. *) Further latching solutions on request.

General Purpose

Low Power PCB Relays

PE

- Sensitive coil 200mW
- 4kV coil-contact
- Low height 10.0mm
- Polarized bistable version available



RE/REL

- Sensitive coil 200mW
- 4kV coil-contact (REL)
- PCB area 200mm²



EJ

- Slim outline
- Sensitive coil 200mW
- Ambient temperature 85°C
- Coil UL class F (155°C) insulation system



Contact Data

Contact arrangement	1 form C, 1 CO	1 form A, 1 NO	1 form A, 1 NO
Rated voltage	250VAC	250VAC	250VAC/30VDC
Rated current	5A	6/5A	3A/5A
Switching power	1250VA	1500/1250VA	1250VA/150W
Contact material	AgNi90/10, AgSnO	AgNi, AgNi0.15, AgCdO	AgNi
Min. recommended contact load			100mA at 5VDC

Coil Data

Magnetic system	DC, bistable	DC	DC
Rated coil voltage	3 to 48VDC	5 to 48VDC	3 to 24VDC
Rated coil power	200mW	200/360mW	200mW

Insulation Data

Initial dielectric strength			
between open contacts	1000Vrms	1000Vrms	750Vrms
between contact and coil	4000Vrms	4000/3000Vrms	4000Vrms
between adjacent contacts			
Clearance/creepage			
between contact and coil	3.2/4mm	4/4mm	5.5/8mm (WG type)

Other Data

Ambient temperature (max.)	+85°C	+85/+70°C	+85°C (standard type) +105°C (WG type)
Category of environmental protection IEC 61810	RTII	RTIII (RE), RTII (REL)	RTII, RTIII
Terminal type	THT	THT	THT
Mounting	PCB	PCB	PCB
Dimensions lwh	20x10x10mm	20x10x10.6mm/20.7x10.7x12mm	20.4x6.9x15mm

Accessories

1) Recommended minimum load indication for contact material: Au and gold plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCdO and AgSnO₂: 100mA at 12VDC. Please contact technical support for detailed technical data.

Low Power PCB Relays

PCN

- Only 5mm wide slim type, permitting high density spacing
- Sensitive coil 120mW
- Cadmium free contacts
- Reinforced insulation type available
- UL class F (155°C) available



SNR

- Only 5mm wide
- Cadmium-free contacts
- Sensitive coil 170mW
- 4kV coil-contact
- 6/8mm creepage/clearance
- Protection class II



RYII

- 5kV/8mm coil-contact
- Reinforced insulation
- Low height 12.3mm
- Pinnings 3.2 and 5mm
- Reflow solderable version



Contact Data

Contact arrangement

1 form A, 1 NO

1 form C, 1 CO
1 form A, 1 NO

1 form C, 1 CO
1 form A, 1 NO
1 form B, 1 NC

Rated voltage

250VAC/30VDC

250VAC

250VAC

Rated current

3A/5A

6A

8A

Switching power

750VA/1250VA

1500VA

2000VA

Contact material

AgNi gold plated bifurcated contact

AgNi0.15, AgSn0

Min. recommended contact load

1mA, 5VDC

1)

1)

Coil Data

Magnetic system

DC

DC

DC

Rated coil voltage

3 to 24VDC

5 to 48VDC

5 to 60VDC

Rated coil power

120mW

170mW

220mW

Insulation Data

Initial dielectric strength

between open contacts

750Vrms

1000Vrms

1000Vrms

between contact and coil

3000Vrms

4000Vrms

5000Vrms

between adjacent contacts

Clearance/creepage

between contact and coil

min. 3.5/3.5mm

6/8mm

8/8mm

Other Data

Ambient temperature (max.)

+70°C
(+85°C under a specific condition)

+85°C

+70°C

Category of environmental protection
IEC 61810

RTIII

RTIII

RTII, RTIII

Terminal type

THT

THT

THT, THR

Mounting

PCB

PCB or on socket

PCB or on socket

Dimensions lwh

20x5x12.5mm

28x5x15mm

28.5x10.1x12.3mm

Accessories

DIN rail sockets

PCB sockets

1) Recommended minimum load indication for contact material: Au and gold plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCd0 and AgSn0₂: 100mA at 12VDC. Please contact technical support for detailed technical data.

Low Power PCB Relays

OZ

- UL TV-8 (OZT) available
- Meet 5kV dielectric voltage between coil and contacts
- Meet 10kV surge voltage between coil and contacts



RP3SL

- 4kV/8 mm coil-contact for 120A/20ms inrush peak current
- Bistable version



RP-2pole 1.5mm

- 2 pole 8A
- 1.5mm contact gap per pole
- Creepage distance complies with IEC 60950



Contact Data

Contact arrangement	1 form A, 1 NO 1 form C, 1 CO	1 form A, 1 NO	2 form A, 2 NO
Rated voltage	240VAC/24VDC	250VAC	250VAC
Rated current	16A	16A	8A
Switching power	3840VA/380W	4000VA	2000VA
Contact material	AgSnO	AgSnO	AgSnO
Min. recommended contact load	100mA at 5VDC		

Coil Data

Magnetic system	DC	DC	DC
Rated coil voltage	5 to 48VDC	6 to 110VDC	5 to 110VDC
Rated coil power	540mW/720mW	500mW	780mW

Insulation Data

Initial dielectric strength			
between open contacts	1000Vrms	2000Vrms	1000Vrms
between contact and coil	5000Vrms	4000Vrms	4000Vrms
between adjacent contacts			2500Vrms
Clearance/creepage			
between contact and coil	5.5/8mm	8/8mm	7/8mm

Other Data

Ambient temperature (max.)	+60°C (standard type) +70°C (sensitive type)	+70°C	+40°C
Category of environmental protection IEC 61810	RTII, RTIII	RTII, RTIII	RTII, RTIII
Terminal type	THT	THT	THT
Mounting	PCB	PCB or on socket	PCB or on socket
Dimensions lwh	29.2x12.8x20.6mm	29x12.6x25.5mm	29x12.6x25.5mm

Accessories

PCB and DIN rail sockets PCB and DIN rail sockets

1) Recommended minimum load indication for contact material: Au and gold plated: 1mA at 6VDC; Ag, AgNi0.15and AgNi90/10: 10mA at 12VDC; AgCd0 and AgSNO₂: 100mA at 12VDC. Please contact technical support for detailed technical data.

General Purpose

Low Power PCB Relays

PB/PBH

- Environmentally-friendly cadmium-free contacts
- Ambient temperatures up to 105°C (PBH)
- Compact and simple design gives high process security



ORWH

- Compact relay with 1 form A and 1 form C contact arrangement
- 10A switching capacity
- Flux proof or sealed type available



430

- 4kV/8mm coil-contact
- DC or AC coil
- PCB mounting or QC²⁾
- Mounting brackets or snap mounting
- 1 or 2 pole versions



Contact Data

Contact arrangement	1 form C, 1 CO 1 form A, 1 NO	1 fom A, 1 NO 1 form C, 1 CO	1 or 2 form C, 2 CO 1 or 2 form A, 2 NO
Rated voltage	250VAC	277VAC/28VDC	250VAC
Rated current	10A	10A	10A
Switching power	2500VA	2770VA/360W	2500/4000VA
Contact material	AgNi90/10, AgSnO	AgZnO, AgCdO, AgNi	
Min. recommended contact load		100mA at 5VDC	1)

Coil Data

Magnetic system	DC	DC	DC, AC
Rated coil voltage	5, 6, 12, 24VDC	3 to 48VDC	6 to 110VDC/6 to 240VAC
Rated coil power	360mW/500mW	360mW	1W/1.8VA

Insulation Data

Initial dielectric strength			
between open contacts	1000Vrms	750Vrms	1000Vrms
between contact and coil	2500Vrms	1500Vrms	4000Vrms
between adjacent contacts			
Clearance/creepage			
between contact and coil	3/4mm	1.6/3.2mm	8/8mm

Other Data

Ambient temperature (max.)	+85°C/+105°C	+70°C/+105°C	+70°C
Category of environmental protection IEC 61810	RTII	RTII, RTIII	RTI
Terminal type	THT	THT	THT, QC ²⁾ terminals
Mounting	PCB	PCB	PCB, panel mount
Dimensions lwh	15x15x20mm	19.0x15.5x15.8mm	35.5x16.4x30.5mm

Accessories

1) Recommended minimum load indication for contact material: Au and gold plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCdO and AgSnO₂: 100mA at 12VDC. Please contact technical support for detailed technical data. 2) QC=quick connect.

Force Guided Relays

SR2M

- 2 pole relay with force guided contacts according to EN 50205
- Reinforced insulation between poles



SR4 D/M

- 4 pole relay with force guided contacts according to EN 50205
- Compact design, space efficient



SR6

- 4/6 pole relay with force guided contacts according to EN 50205
- Reinforced insulation between all contacts



Contact Data

Contact arrangement

1 form A + 1 form B, 1 NO + 1NC
2 form C, 2 CO

3 form A + 1 form B, 3 NO + 1 NC
2 form A + 2 form B, 2 NO + 2 NC

3 form A + 1 form B, 3 NO + 1 NC
2 form A + 2 form B, 2 NO + 2 NC
3 form A + 3 form B, 3 NO + 3 NC
4 form A + 2 form B, 4 NO + 2 NC
5 form A + 1 form B, 5 NO + 1 NC

Rated voltage

250VAC

250VAC

250VAC

Rated current

6A

8A

8A

Switching power

Contact material

AgNi

AgSnO₂

AgSnO₂

Min. recommended contact load

5VDC/10mA

5VDC/10mA

5VDC/10mA

Coil Data

Magnetic system

DC

DC

DC

Rated coil voltage

5 to 110VDC

5 to 110VDC

5 to 110VDC

Rated coil power

700mW

800mW

1200/800mW

Insulation Data

Initial dielectric strength

between open contacts

1500Vrms

1500Vrms

1500Vrms

between contact and coil

4000Vrms

4000Vrms

4000Vrms

between adjacent contacts

3000Vrms

2500Vrms

3000/4000Vrms

Clearance/creepage

between contact and coil

8/8mm

10/10mm

5.5/5.5mm, 15/15mm

Other Data

Ambient temperature (max.)

+70°C

+70°C

+70°C

Category of environmental protection

IEC 61810

RTIII

RTIII

RTIII

Terminal type

THT

THT

THT

Mounting

PCB

PCB

PCB

Dimensions lwh

29x12.6x25.5mm

40x13x16.5mm

55x16.5x16.5mm

Accessories

Sockets and relay clips

PCB sockets

1) Recommended minimum load indication for contact material: Au and Au plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCdO and AgSnO₂: 100mA at 12VDC. Please contact technical support for detailed technical data. 2) QC=quick connect.

Panel / Plug-In Relays

R10

- Broad range of coil options provide sensitivity ranging from 25 to 750mW
- Various contacts switch from dry circuit to 7.5A
- Many mounting and termination options



PT/KH/PTH

- Sensitive coil
- Low height 29/33mm
- Cadmium-free contacts
- Mechanical indicator
- Manual test tab, optionally lockable
- optional LED, protection diode



Contact Data

Contact arrangement	1, 2, 3, 4, 6, 8 form C (CO)
Rated voltage	115VAC, 115VDC
Rated current	0.5/2/3/7.5A
Switching power	862VA max.
Contact material	Ag, AgCdO, Ag w/ Au overlay
Min. recommended contact load	Dry circuit to 12VDC/300mA

Coil Data

Magnetic system	DC, AC
Rated coil voltage	3 to 115VDC/6 to 115VAC
Rated coil power	36mW to 1.6W/1.5VA

Insulation Data

Initial dielectric strength	
between open contacts	500/1000Vrms
between contact and coil	1000Vrms
between adjacent contacts	
Clearance/creepage	
between contact and coil	

Other Data

Ambient temperature (max.)	+75°C
Category of environmental protection IEC 61810	RTI, RTIII
Terminal type	Solder/plug-in and PCB
Mounting	Socket, panel mount and PCB
Dimensions lwh	29.6x18.7x30.2mm

Accessories

Solder/PCB sockets, clips, hold down strap, mounting strip

Contact arrangement	2 form C, 2 CO; 3 form C, 3 CO; 4 form C, 4 CO
Rated voltage	240VAC
Rated current	1/2/5/6/10/12A
Switching power	1500/2500/3000VA
Contact material	AgNi90/10, AgNi90/10 Au plated
Min. recommended contact load	¹⁾ Bifurcated contacts for dry circuit available on KH

Magnetic system	DC, AC
Rated coil voltage	6 to 220VDC/6 to 240VAC
Rated coil power	750 to 900mW/1 to 1.2VA

Initial dielectric strength	
between open contacts	1200Vrms
between contact and coil	2500Vrms
between adjacent contacts	2000/2500Vrms
Clearance/creepage	
between contact and coil	≥4/4mm

Ambient temperature (max.)	+70°C
Category of environmental protection IEC 61810	RTII
Terminal type	THT, plug-in, QC ²⁾
Mounting	Socket, PCB
Dimensions lwh	28x22.5x29/30/36mm

DIN rail and PCB sockets, clips, marking tags, modules, jumper bars

¹⁾ Recommended minimum load indication for contact material: Au and Au plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCdO and AgSnO₂: 100mA at 12VDC. Please contact technical support for detailed technical data. ²⁾ QC=quick connect.

Panel / Plug-In Relays

RM2/3/7

- Wide selection of termination and mounting styles
- PC terminals available
- Push to test button and indicator lamps
- Class B coil insulation



KUP/KUMP/KUIP

- Wide selection of termination and mounting styles
- Broad range of contact forms
- PC terminals available
- Push to test button and indicator lamps
- Class B coil insulation



RM8/C/D

- Power relay with push-on and solder terminals
- Various mounting options
- Class B coil insulation
- Optional push to test button, indicator lamps and mechanical indicator



Contact Data

Contact arrangement	2 form C, 2 CO 3 form C, 3 CO
Rated voltage	400VAC
Rated current	10/16A
Switching power	3800/6000VA
Contact material	AgCdO, AgNi90/10 in preparation
Min. recommended contact load	1)

Coil Data

Magnetic system	DC, AC
Rated coil voltage	6 to 220VDC/6 to 400VAC
Rated coil power	1.2 to 1.8W/2 to 2.8VA

Insulation Data

Initial dielectric strength	
between open contacts	1500Vrms
between contact and coil	2500Vrms
between adjacent contacts	2500Vrms
Clearance/creepage	
between contact and coil	≥4/14.9mm

Other Data

Ambient temperature (max.)	+50/+70°C
Category of environmental protection IEC 61810	RTI
Terminal type	THT, Plug-in, solder, QC ²⁾
Mounting	Socket, PCB, bracket, flange mount and DIN-snap-on
Dimensions lwh	38.5x35.5x48.5mm

Accessories

DIN rail and PCB sockets, clips

1, 2, 3, 4 form C (CO); 1, 2, 3 form A (NO); 2, 3 form B (NC) 1 form X (NO-DM); 1 form Y (NC-DB); 1 form Z (CO-DM/DB)
240VAC
10/15A
2400/4155VA
Ag, AgCdO, AgSnInO
12VDC/100mA (Ag)
12VDC/300mA (AgCdO, AgSnInO)

DC, AC
5 to 110VDC/6 to 240VAC
1.2 to 1.8W/2 to 2.7VA

1200Vrms
2200/3750Vrms
2200Vrms

DC +50/+70/+95°C
AC +45/+55/+70°C

RTI
THT, Plug-in, solder, QC ²⁾

Socket, PCB, bracket, flange, stud and tapped core
38.9x35.7x48.4mm

DIN rail, panel and PCB sockets, clips

1 form C, 1 CO 2 form C, 2 CO
400VAC
20/30A
6000/7500VA
AgCdO, AgNi90/10 in preparation
1)

DC, AC
6 to 220VDC/6 to 400VAC
1.2W/2.7VA

1500/2000Vrms
2500Vrms
4000Vrms

DC +60/+65°C
AC +40°C

RTI
Solder, QC ²⁾

Bracket, top flange panel mount and DIN-snap-on
38.5x35.5x48.5mm

No sockets

1) Recommended minimum load indication for contact material: Au and Au plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCdO and AgSnO₂: 100mA at 12VDC. Please contact technical support for detailed technical data. 2) QC=quick connect.

Panel / Plug-In Relays

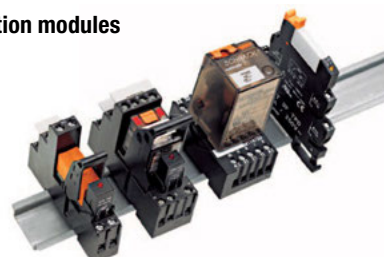
KUEP

- 10A relay with various contact arrangements
- Magnetic blowout for 150VDC load switching
- Indicator lamp option



Accessories

- DIN rail and PCB sockets
- Screw and screwless fingersafe terminals
- Retaining and ejection clips
- Marking tags, jumper bars, jumper links
- LED and protection modules



Sets

- Relay package consisting of relay, DIN rail socket, plastic retaining clip, marking tag and module



Contact Data

Contact arrangement

1 form X (NO-DM)
2 form A, 2 NO
2 form C, 2 CO

1 form C, 1 CO
2 form C, 2 CO
3 form C, 3 CO
4 form C, 4 CO

1 form C, 1 CO
2 form C, 2 CO
3 form C, 3 CO
4 form C, 4 CO

Rated voltage

150VDC/240VAC

240/250VAC

240/250VAC

Rated current

10A

6 to 16A

6 to 16A

Switching power

1500W/2400VA

1500 to 4000VA

Contact material

AgCdO, AgSnOInO

Min. recommended contact load

12VDC/300mA

1)

Coil Data

Magnetic system

DC, AC

DC, AC

Rated coil voltage

5 to 110VDC/6 to 240VAC

6 to 220VDC/6 to 230VAC

Rated coil power

1.2W to 1.8W/2 to 2.7VA

170 to 700mW/0.4 to 1VA

Insulation Data

Initial dielectric strength

between open contacts

1200Vrms

between contact and coil

2200Vrms

between adjacent contacts

2200Vrms

Clearance/creepage

between contact and coil

Other Data

Ambient temperature (max.)

AC +55/+70°C
DC +50/+70°C

Category of environmental protection IEC 61810

RTI

IP20

Terminal type

QC²⁾/solder and PCB

Screw, screwless, plate mount, PCB

Screw, screwless

Mounting

Socket, PCB, bracket and top flange mount

Dimensions lwh

38.9x35.7x48.4mm

Accessories

DIN rail, track mount, chassis mount, and snap-in sockets, clips

PCB, panel mount and DIN rail

DIN, panel mount

1) Recommended minimum load indication for contact material: Au and Au plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCdO and AgSnO₂: 100mA at 12VDC. Please contact technical support for detailed technical data. 2) QC=quick connect.

General Purpose

PCB High Power, Metering and Solar Relays

T9A/T9E/T90

- High breaking capacity
- PCB and QC²⁾ connections and chassis mount version
- UL-class F as standard
- Ambient temperature 85°C
- Open version available



T9S

- Specially designed to meet the requirements for the solar industry
- Contact gap >1.5mm
- 350mW hold power,
- Product in accordance to IEC 60335-1
- EN 61095: AC7 at 85°C



T92

- Switching capacity 7500VA
- DC or AC coil
- 4kV/8mm coil-contact
- PCB or QC²⁾ connections or chassis mount



Contact Data

Contact arrangement	1 form C, 1 CO 1 form A, 1 NO	1 form A, 1 NO	2 form C, 2 CO 2 form A, 2 NO
Rated voltage	250VAC	277VAC	400VAC
Rated current	30A	35A	30A
Switching power	7500VA	8750VA	7500VA
Contact material	AgCdO, AgSnInO	AgNi	AgCdO, AgSnInO
Min. recommended contact load	1A at 5VDC or 12VAC		100mA at 6VAC/VDC

Coil Data

Magnetic system	DC	DC	DC, AC
Rated coil voltage	6 to 48VDC	12VDC	6 to 110VDC/12 to 277VAC
Rated coil power	1W/900mW	2.25W/350mW hold power	1.7W/4.0VA

Insulation Data

Initial dielectric strength			
between open contacts	1500Vrms	2500Vrms	1500Vrms
between contact and coil	2500Vrms	4000Vrms	4000Vrms
between adjacent contacts			2000Vrms
Clearance/creepage			
between contact and coil	3.1/6.3mm	3/4 mm	8/9.5mm

Other Data

Ambient temperature (max.)	+85°C	+85°C	+65°C, +85°C
Category of environmental protection IEC 61810	RTO, RTI, RTII, RTIII	RTII	RTI, RTII, RTIII
Terminal type	THT, QC ²⁾	THT	THT, QC ²⁾
Mounting	PCB, panel mount	PCB	Panel mount, PCB
Dimensions lwh	32.3x27.4x20.4mm	32.5x27.4x20.4mm	52.3x34.6x30.8mm

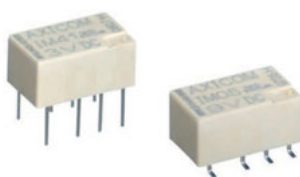
Accessories

1) Recommended minimum load indication for contact material: Au and gold plated: 1mA at 6VDC; Ag, AgNi0.15 and AgNi90/10: 10mA at 12VDC; AgCdO and AgSnO₂: 100mA at 12VDC. Please contact technical support for detailed technical data. 2) QC=quick connect.

Signal Relays

IM

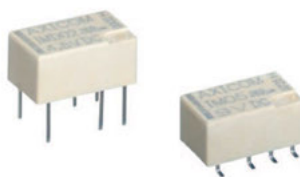
- 4G telecom/signal relay
- Slim line 10x6mm
- Low profile 5.65mm
- High dielectric version
- High current version
- High contact stability version
- 2/5A UL rating
- Meets Telcordia Technologies Inc. requirements



C **UL** US IEC 60950

IMD/E

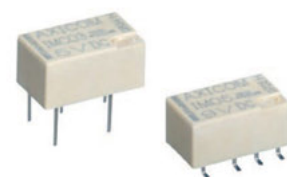
- 4G telecom/signal relay
- 2 pole make or break
- Slim line 10x6mm
- Low profile 5.65mm
- High dielectric version
- 2A UL rating
- Meets Telcordia Technologies Inc. requirements



C **UL** US IEC 60950

IMC

- 4G telecom/signal relay
- 1 pole changeover
- Slim line 10x6mm
- Low profile 5.65mm
- High dielectric version
- 3A UL rating
- Meets Telcordia Technologies Inc. requirements



C **UL** US IEC 60950

Contact Data

Contact arrangement

2 form C, 2 CO
Bifurcated contacts

Rated voltage

250VAC/220VDC

Rated current

2/5A

Switching power

60W/62.5VA

Min. recommended contact load

100µV/1µA

Initial contact resistance

<50mΩ

Coil Data

Magnetic system

Polarized

Rated coil voltage

1.5 to 24VDC

Rated coil power

DC coil/bistable 1 coil/2 coils

50 to 200mW/-/

Insulation Data

Initial dielectric strength

between open contacts

1000 to 1500Vrms

between contact and coil

1500 to 1800Vrms

between adjacent contacts

1000 to 1800Vrms

Initial surge withstand voltage

between open contacts

1500 to 2500Vp

between contact and coil

2500Vp

between adjacent contacts

1500 to 2500Vp

Isolation 100/900MHz

-37.0/-18.8dB

Insertion loss 100/900MHz

-0.03/-0.33dB

Volt. standing wave ratio 100/900MHz

1.06/1.49

Capacitance

between open contacts

max. 1pF

Other Data

Ambient temperature

-40 to +85°C (+125°C)

Category of environmental protection

IP67/RTV

Terminal type

THT, SMT

Dimensions lwh

10x6x5.65mm

2 form B, 2 NC
2 form A, 2 NO
Bifurcated contacts

250VAC/220VDC

2A

60W/62.5VA

100µV/1µA

<50mΩ

Polarized

1.5 to 24VDC

140mW/-/

1000Vrms

1800Vrms

1000Vrms

1500Vp

2500Vp

1500Vp

-37.0/-18.8dB

-0.03/-0.33dB

1.6/1.49

max. 1pF

-40 to +85°C

IP67/RTV

THT, SMT

10x6x5.65mm

1 form C, 1 CO
Bifurcated contacts

250VAC/220VDC

2/3A

60W/62.5VA

100µV/1µA

<100mΩ

Polarized

1.5 to 24VDC

140mW/-/

1000Vrms

1800Vrms

1500Vp

2500Vp

-37.0/-18.8dB

-0.03/-0.33dB

1.6/1.49

max. 1pF

-40 to +85°C

IP67/RTV

THT, SMT

10x6x5.65mm

Signal Relays

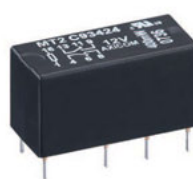
D2N V23105

- 2G telecom/signal relay
- 4 coil sensitivities
- 3A UL rating



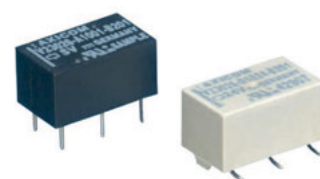
MT2

- 2G telecom/signal relay
- 5 coil sensitivities
- 2A UL rating



P1 V23026

- Very high sensitive relay
- Low profile
- High vibration and shock resistance
- Version: symmetric pin layout
- Temperature range up to 85°C
- 1500Vrms across opened contacts



Contact Data

Contact arrangement	2 form C, 2 CO Single contacts	2 form C, 2 CO Bifurcated contacts	1 form C, 1 CO Bifurcated contacts
Rated voltage	250VAC/220VDC	250VAC/220VDC	150VAC/125VDC
Rated current	3A	2A	1A
Switching power	60W/125VA	60W/62.5VA	30W/60VA
Min. recommended contact load	100µV/10µA	100µV/1µA	100µV/1µA
Initial contact resistance	<100mΩ	<70mΩ	<50mΩ

Coil Data

Magnetic system	Non polarized	Non polarized	Polarized
Rated coil voltage	3 to 48VDC	3 to 48VDC	3 to 24VDC
Rated coil power			
DC coil/bistable 1 coil/2 coils	150 to 700mW/-/-	150 to 550mW/-/-	65 to 130mW/30 to 130mW/70 to 200mW

Insulation Data

Initial dielectric strength			
between open contacts	750Vrms	750Vrms	500Vrms
between contact and coil	1000Vrms	1000Vrms	1500Vrms
between adjacent contacts	750Vrms	750Vrms	
Initial surge withstand voltage			
between open contacts	1500Vp	1500Vp	
between contact and coil	1500Vp	1500Vp	2500Vp
between adjacent contacts	1500Vp	1500Vp	
Isolation 100/900MHz	-39.0/-20.7dB	-31.8/-14.2dB	-30.0/-18.0dB
Insertion loss 100/900MHz	-0.02/-0.27dB	-0.02/-0.97dB	-0.12/-1.90dB
Volt. standing wave ratio 100/900MHz	1.04/1.40	1.03/1.31	1.06/1.75
Capacitance			
between open contacts	max. 2pF	max. 2pF	max. 5pF

Other Data

Ambient temperature	-25 to +85°C	-55 to +85°C	-40 to +85°C
Category of environmental protection	IP67/RTIII	IP67/RTIII	IP67/RTIII
Terminal type	THT	THT	THT, SMT
Dimensions lwh	20.2x10x11.4mm	20.2x10x11mm	13x7.6x6.9mm

High Frequency Relays/Switches

HF3

- High performance RF relay/switch for up to 3GHz
- Low power consumption ≤70/140 mW
- 50 and 75Ω version
- Very small design



HF3S

- High performance RF relay/switch for up to 3GHz
- Low power consumption ≤70/140mW
- 50 and 75Ω version
- RF power 100W at 2GHz
- Very small design



HF6

- High performance RF relay/switch for up to 6GHz
- Low power consumption ≤70/ 140mW
- 50Ω version
- Very small design



Contact Data

Contact arrangement	1 form C, 1 CO Bridge contacts	1 form C, 1 CO Bridge contacts	1 form C, 1 CO Bridge contacts
Rated voltage	250VAC/220VDC	250VAC/220VDC	250VAC/220VDC
Rated current	2A	2A	2A
Switching power	60W/62.5VA/50W (2.5GHz)	60W/62.5VA/50W (2.5GHz)	60W/62.5VA/50W (2.5GHz)
Min. recommended contact load	100µV/1µA	100µV/1µA	100µV/1µA
Initial contact resistance	<100mΩ	<100mΩ	<100mΩ

Coil Data

Magnetic system	Polarized	Polarized	Polarized
Rated coil voltage	3 to 24VDC	3 to 24VDC	3 to 24VDC
Rated coil power DC coil/bistable 1 coil/2 coils	140mW/70mW/140mW	140mW/70mW/140mW	140mW/70mW/140mW

Insulation Data

Initial dielectric strength	between open contacts	600Vrms	600Vrms	600Vrms
	between contact and coil	1000Vrms	1000Vrms	1000Vrms
	between adjacent contacts			
Initial surge withstand voltage	between open contacts	1000Vp	1000Vp	1000Vp
	between contact and coil	1500Vp	1500Vp	1500Vp
	between adjacent contacts			
Capacitance between open contacts	max. 1pF	max. 1pF	max. 1pF	

RF Data

Isolation	0.1/0.9/3GHz	0.1/0.9/3GHz	0.9/3/6GHz
Insertion loss	-80/-72/-45dB	-95/-80/-55dB	-80/-60/-30dB
Voltage standing wave ratio (VSWR)	-0.03/0.12/-0.35dB	-0.03/-0.12/-0.30dB	-0.05/-0.15/-0.80dB
	1.05/1.15/1.20	1.05/1.10/1.25	1.05 / 1.10 / 1.40

Other Data

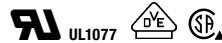
Ambient temperature	-55 to +85°C	-55 to +85°C	-55 to +85°C
Category of environmental protection	IP67/RTIII	IP67/RTIII	IP67/RTIII
Terminal type	SMT	SMT	SMT
Dimensions lwh	14.6x7.2x10mm	15x7.6x10.6mm	15x7.6x10.6mm

General Purpose

Circuit Breakers

W28

- Replaces slow blow glass cartridge fuse and holder
- Snap-in mounting
- Button provides visible trip indication
- Push-to-reset
- Right angle QC¹⁾ optional



W23/W31

- Toggle and push/pull actuator; can not be reset against overload



W33

- Combines optional illuminated on/off switching and circuit protection in a single unit
- Optional auxiliary switch



Contact Data

Type	Thermal	Thermal	Thermal
Contact arrangement number of poles	1	1	1-2
Circuit function	Series trip	Series trip	Series trip both poles; series trip 1 pole/ switch only 1 pole; switch only 2 poles
Max. switching voltage (max. operating voltage)	32VDC 250VAC	50VDC 240VAC	50VDC 250VAC
Rated current	0.5A to 20A	0.5A to 50A	2A to 20A
Interrupt capacity	1000A at 250VAC, 50/60Hz, 32VDC	1000A for 0.5 to 50A at 240 VAC/0 to 50A at 50VDC both with 4X max. fuse protection; 2000A for 0.5 to 25A at 50VDC/10 to 20A at 120VAC both without 4X max. fuse protection	1000A at 50VDC, 250VAC/60Hz and 125/250VAC 400Hz; 1500A at 25/250VAC/60Hz
Trip time at 200% of rating	0.25 to 2A models 4.5 to 28s; 3 to 20A models 2.2 to 15s	0.5 to 4A models 11 to 30s; 5 to 50A models 6 to 22s	3 to 33s
Insulation Data			
Initial dielectric strength	1500Vrms	1500Vrms	2000Vrms
Other Data			
Ambient temperature	-20 to +60°C	-20 to +65°C	-20 to +65°C
Terminal type	QC ¹⁾	Screw	QC ¹⁾
Mounting	Snap-in	3/8"-24 threaded bushing	Snap-in
Manual operation Actuator	Push-to-reset	Push/pull and toggle	Rocker
Dimensions lwh	39.0x15.9x13.7mm	40.6x17.5x35.2mm	43.8x24.9x48.0mm
Accessories	Protective boot, push-on lockwasher	Hex nut, lockwasher, knurl nut	

1) QC=quick connect.

Industry Applications



Product Lines

Technical Features

Alternative Energy

Alternative Power Vehicle / Charging

Appli

	Product Lines	Technical Features	Alternative Energy	Alternative Power Vehicle / Charging	Appli
AUTOMOTIVE	 Low Power PCB Relays	1 and 2 poles 10 to 45A DC and bistable		✓	
	 Low Power Plug-In Relays	20 to 70A up to 125°C		✓	
	 High Power High Current Devices	1 pole, star point up to 255A up to 125°C		✓	
	 High Power High Voltage Relays	900VDC up to 200A DC and bistable	✓	✓	
GENERAL PURPOSE	 Low Power PCB Relays	1 and 2 poles 250VAC 0 to 16A DC, AC, bistable	✓	✓	✓
	 High Power Relays	1 and 2 poles 250 to 400VAC 20 to 30A	✓	✓	✓
	 High Power Latching Relays	250VAC up to 120A DC, bistable			
	 Solar Relays	up to 277VAC up to 35A	✓		
	 Force Guided Relays	2 to 6 poles 250VAC 6 to 8A			
	 Panel / Plug-In Relays	1 to 4 poles up to 400VAC 0.5 to 30A (50A) DC, AC, bistable		✓	
	 Circuit Breakers	1 to 4 poles up to 250VAC (480VAC) 0.2 to 50A			✓
	 Signal Relays	1 to 2 (8) poles up to 250VAC/VDC 0 to 5A			✓
SIGNAL	 High Frequency Relays/Switches	220VAC/250VDC up to 2A 70 to 140mW			✓

This Line Card provides a further brief overview of key product lines available from TE Relay Products. More complete details on the products described above, as well as specialty relays, contactors, timers, solid state relays and power transformers, can be found in our datasheets at <http://relays.te.com> and at www.te.com.

Industry Overview

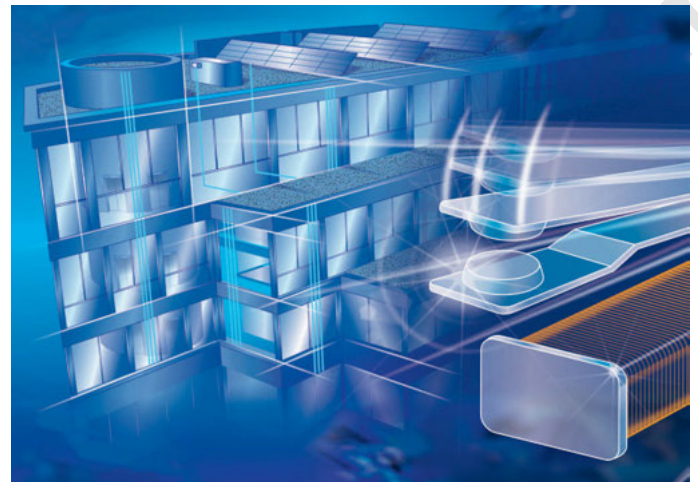
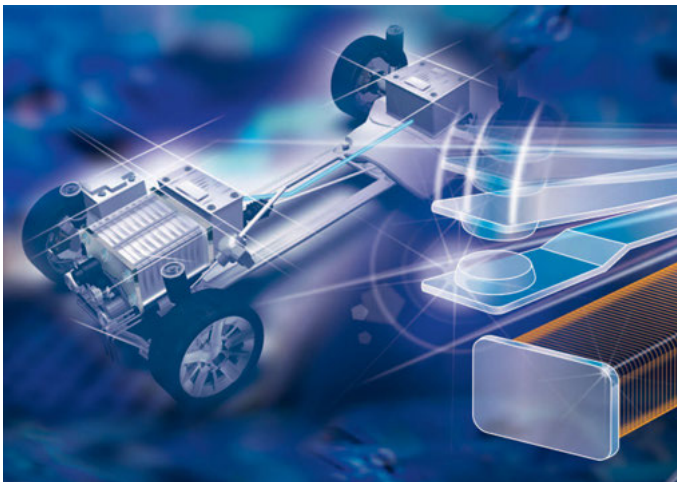


Alternative Energy

Relays meeting the specific requirements for use in power inverters are among the switching components offered by TE Relay Products for alternative energy applications.

Automotive

TE Relay Products supplies many different switching products for automotive applications. These range from basic electromechanical relays to special function relays, contactors and hybrid modules.



Alternative Power Vehicle/Charging

From miniature relays for PCB mounting to large power contactors, TE Relay Products offers an array of switching solutions for alternative power vehicles and the associated infrastructure.

Building Equipment/Lighting

TE Relay Products provides a broad range of products for use in building equipment such as elevators, HVAC systems, alarms and more.

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