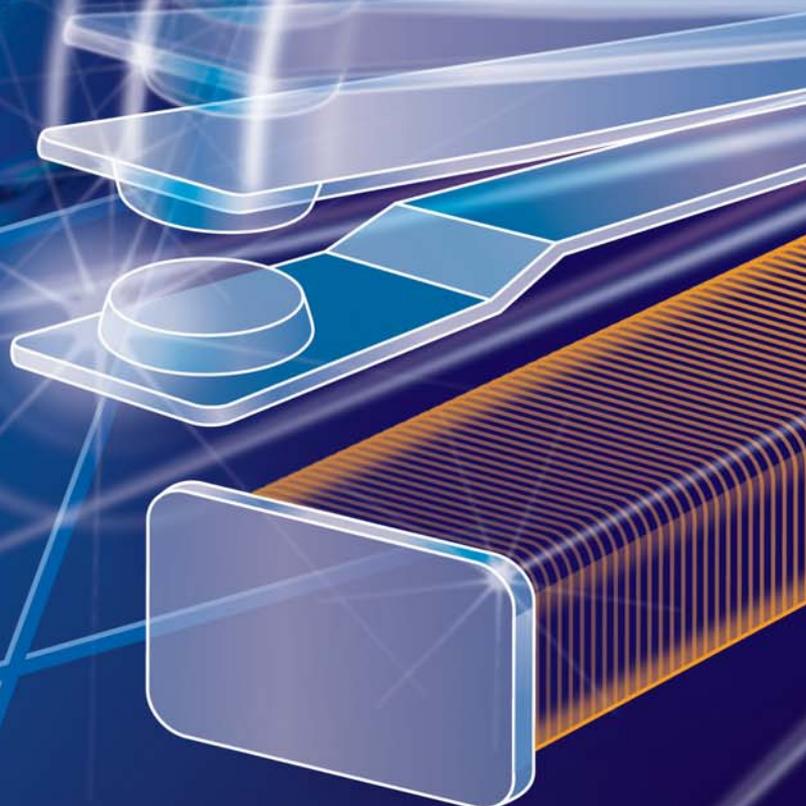
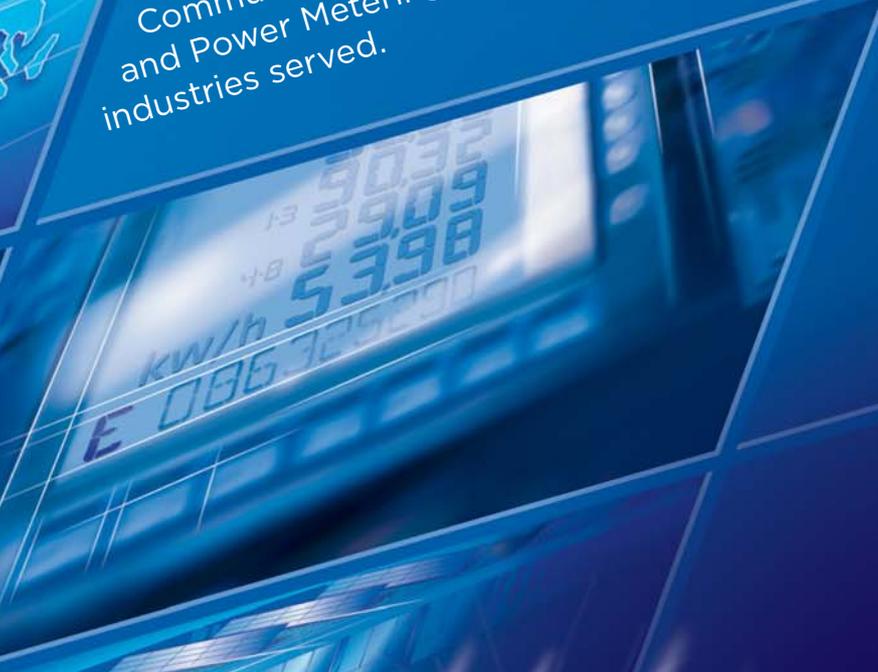




Relay Products Shortform Catalog



TE Relay Products offers an extremely broad range of relays for application in many different markets. Appliance, Alternative Energy, Automotive, Building Equipment, Industrial and Power Metering are some of the key industries served.



Index

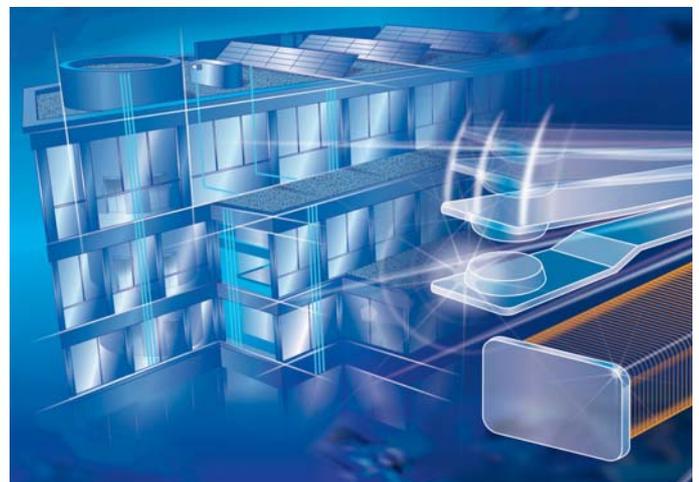
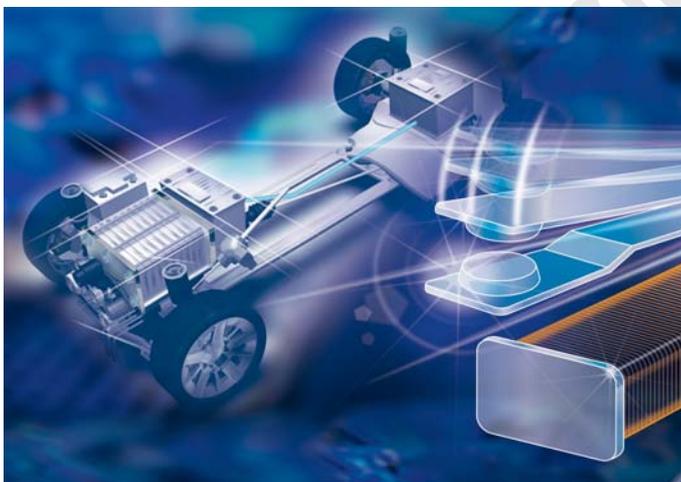


Alternative Energy

General Purpose	Page
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Automotive

Automotive	Page	Signal	Page
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Alternative Power Vehicle

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Building Equipment

General Purpose	Page	Signal	Page
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This shortform catalog provides a brief overview of key series available from TE Relay Products. For complete details on these and other products, view the complete datasheets at <http://relays.te.com>. Specifications and/or agency recognitions do not necessarily apply to all models within a particular series. Consult datasheets and/or footnotes as well as disclaimer on page 38-39 for details.

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Appliance

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Industrial

General Purpose	Page	Signal	Page
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■ Force Guided Relays	20		
■ Panel/Plug-In Relays	21		



Power Metering (ANSI¹⁾ Style)

General Purpose	Page
■ High Power Relays	28
■ Metering Relays	28

Communication

Signal	Page
■ High Frequency Relays/ Switches	35

1) ANSI is a trademark of American National Standards Institute.

PCB Relays

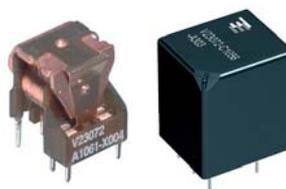
Power K (V23133-A/076-A)

- 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-C)

- Limiting continuous current 30A
- Easiest PCB routing among all PCB relays



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)VDC⁶⁾

Limiting continuous current at 23/85°C

NO/NC
45/30A / 30/25A

(NO/NC)
15/10A 15/10A / 2x10/2x6A
10/5A

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

3/1.3ms

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.

PCB Relays and Plug-in Relays

**PK2 THT/THR
(V23201-C/R)**

- Wave and reflow solderable versions
- 60% volume reduced Power K at increased performance
- PCB area minimized by 50%
- Limiting cont. current 40A²⁾
- High shock and vibration resistance
- For bistable (latching) version refer to PK2 Latching THT/THR (V23201-L/T)



**Micro K THT/THR
(V23086-C1/R1/C2/R2)**

- Wave (THT) and reflow (THR/pin-in-paste) solderable versions
- Single and twin versions
- Small power relay
- Limiting continuous current 30A
- Minimal weight
- Low noise operation



Mini ISO

- Pin assignment similar to ISO 7588 part 1
- Plug-in or PCB terminals
- Available for 42VDC applications
- Customized versions on request: 24VDC versions with 0.8mm contact gap, integrated components, customized marking/color, special covers, various contact arrangements and materials



Maxi ISO

- Latching version on request
- Pin assignment similar to ISO 7588 part 1
- Plug-in or PCB terminals
- Customized versions on request: 24VDC versions with 0.8mm contact gap, integrated components (e.g. resistor, diode), customized marking/color, special covers (e.g. notches, release features, brackets)



1 form A, 1 NO	1 form A, 1 NO	1 form C, 1 CO	2 form C, 2 CO	1 form A, 1 NO 1 form A, 1 NO (2 x 87)	1 form C, 1 CO	1 form U, 2 NO	1 form A, 1 NO
12VDC	12VDC			12, (24)VDC ⁶⁾			12, (24)VDC ⁶⁾
40/33A	30/20A	NO/NC 30/25A	NO/NC 20/15A	60/40A	NO/NC 60/45A / 40/30A	2x32/ 2x35A	70/50A
200A	40A (100A) ⁴⁾	40A	40A	120A	120/45A	2x100A	240A
40A	30A	30A	30A	60A	60/40A	2x40A	70A
3/1.5ms	3/1.5ms			40A 54A, 1800s 80A, 5s 140A, 0.5s 240A, 0.1s	7/2ms		50 A 67A, 1800s 100A, 5s 175A, 0.5s 300A, 0.1s
12VDC	12VDC			12, 24VDC			12, 24VDC
0.8W	0.55W	0.57W		typ. 1.6W			typ. 2.0W
-40 to +105°C Sealed/vented PCB	-40 to +105°C			-40 to +125°C Dustproof Plug-in, QC ³⁾ , PCB Bracket optional			-40 to +125°C Dustproof Plug-in, QC ³⁾ , PCB Bracket optional
18.5x16.2x16.1mm (293 mm ³⁾)	Single: 13.2x12.2x10.1 (10.4mm THR) Double: 23.8x13.2x10.1 (10.4mm THR)			26.2x26.2x25.2mm 28.0x28.0x25.5mm 28.5x28.5x25.3mm			26.2x26.2x25.2mm
				Connectors for Mini ISO Relays			Connectors for Maxi ISO Relays

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

	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)
Contact arrangement								
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:	25A		30A	20A		40A		50A
1.35x rated current, t	34A, 1800s		40A, 1800s	27A, 1800s		54A, 1800s		67A, 1800s
2.00x rated current, t	50A, 5s		60A, 5s	40A, 5s		80A, 5s		100A, 5s
3.50x rated current, t	87A, 0.5s		105A, 0.5s	70A, 0.5s		140A, 0.5s		175A, 0.5s
6.00x rated current, t	150A, 0.1s		180A, 0.1s	120A, 0.1s		240A, 0.1s		300A, 0.1s
Operate/release time max. (typ.)	5/3ms			3/2ms	3/4ms	8.5/4ms		

Coil Data

Rated coil voltage	12, 24VDC	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		
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.

High Current Solutions

**SPR
(V23135)**

- Full, symmetric star-point disconnection of an electric power steering motor
- Limiting continuous current 90A
- Disconnection of high over-currents up to 200A in 12VDC and up to 60A in 36VDC power nets
- Optimized dimensions



1 form 3, 3 NO
12, (24)VDC ⁶⁾
-/90A (60A at 125°C)
200A/>10 cycles
<20/<10ms
12, 24VDC 1.5W
-40 to +125°C
Sealed
Welding assembly
32.3x18.3x18.8mm

**HCR 75
(V23232)**

- Limiting continuous current 75A
- Dustproof and sealed versions



1 form A, 1 NO	1 form A, 1 NOBI (bifurcated contact)
12, (24)VDC ⁶⁾	12, (24)VDC ⁶⁾
75/50A	75/50A
75A 75A	150A 100A
<15/<15ms	
12, 24VDC 7.2, 4.4W	12VDC 3.1W
-40 to +125°C	
Dustproof	
Plug-in, QC ³⁾ (coil)/ Screw terminals (load)	
44x36x39mm	

**HCR 150
(V23132)**

- Limiting continuous current 150A at 85°C
- Current switching ability up to 300A
- Suitable for voltage levels up to 42VDC
- Heat moisture and vibration resistant
- Minimal contact resistance
- Dustproof and sealed versions



1 form A, 1 NO	1 form B, 1 NC	1 form X, 1 NO
1 form C, 1 CO		
12, (24)VDC ⁶⁾		
180A with cable 25mm ² / 130A with cable 25mm ²	170A with cable 5mm ² / 120A with cable 25mm ²	
300A	300A	
<30/<15ms		
12VDC 4.1W	24VDC 4.1W	
-40 to +125°C		
Dustproof/Sealed		
Plug-in, QC ³⁾ (coil)/ Screw terminals (load)		
63x40x71mm		

**HCR 200
(V23230)**

- Limiting continuous current 175A at 85°C
- Current switching ability up to 200A
- Heat moisture and vibration resistant
- Minimal contact resistance
- Protection class IP64



1 form B, 1 NC
12VDC
255A with cable 50mm ² / 175A with cable 50mm ²
200A 120A
<25/<20ms
12VDC 3.9W
-40 to +110°C
Sealed
Plug-in, QC ³⁾ (coil)/ Screw terminals (load)
72x35.5x64.5mm

High Current Solutions and Latching Solutions

**BDS-A
(V23130-C)**

- 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



**Micro ISO Latching
(V23145-L)**

- Magnetically latched Micro ISO plug-in relay
- Two coils with set and reset function
- Pin assignment according to ISO 7588 part 3
- Customized versions on request: special marking, special covers (e.g. notches, release features)



**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)



Contact Data

Contact arrangement	1 form X, 1 NO	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	25/20A	40/30A
Limiting making current	1500A (>5ops.)	50A	200A
Limiting breaking current	1500A (>5ops.)	30A	40A
Operate/release time max. (typ.)	<15/<15ms	1.5/1.5ms	1.5/1.5ms

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	Dustproof
Terminal type	Plug-in, QC (coil)/ Screw terminals (load)	Plug-in, QC ³⁾	Plug-in, QC ³⁾
Mounting			
Dimensions lwh	36x33x60mm	23x15.5x25.4mm	30.1x30.1x31.1mm

Accessories

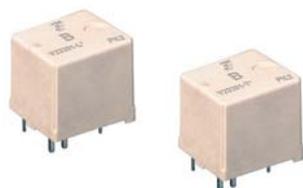
Connectors for Micro ISO Relays Connectors for Mini ISO Relays

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.

Latching Solutions and Kilovac Contactors

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%
- 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)



Micro K Latching (V23086-L)

- Smallest magnetically latched PCB relay
- Only set and reset pulse no continuous coil power required
- Increased ambient temperature up to 125°C
- Limiting continuous current up to 35A
- Footprint compatible with Micro Relay K
- Two coils with set and reset function
- Minimal weight



Kilovac LEV100

- 900VDC 100A, hermetically sealed DC contactor
- Side or bottom mount – not position sensitive



Kilovac EV200

- 900VDC 200A, hermetically sealed DC contactor
- Side or bottom mount – not position sensitive



1 form A, 1 NO
12VDC
50/40A
200A
40A
1.5ms
12VDC
(only impulse needed)
-40 to +125°C
Sealed/vented
PCB
18.5x16.2x16.1mm (293 mm ³)

1 form C, 1 CO
12VDC
NO/NC
40/20A / 30/15A
50/20A
30/20A
1.5/1.5ms
12VDC
(only impulse needed)
-40 to +125°C
Sealed
PCB
13.2x12.2x10.1mm

1 form X, NO-DM
900VDC
100/100A
600A (make) at +400VDC
1000A (break) at +400VDC
25/10ms
12VDC
5.5W (standard version), 9.5W (low pull-in version)
-40 to +85°C
Sealed
Stripped wires (coil)/ M5 threaded inserts (load)
Screws
54.2x35.4x57.8mm

1 form X, NO-DM
900VDC
300/200A
650A (make)
2000A (break) at 320VDC
15/12ms
12VDC
PWM required
-40 to +85°C
Sealed
Stripped wires (coil)/ M8 bolts (load)
Screws
80.5x58.2x72.3mm

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 155 (F) 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	+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

PCJ

- Slim outline
- Sensitive coil 200mW
- Meet 4kV dielectric between coil and contacts
- WG type available (IEC 60335-1)
- Ambient temperature up to 105°C
- Coil UL class 155 (F) insulation system



OSA

- Meet UL TV-3, CSA TV-4 ratings (DM5 type only)
- Meet 4kV dielectric voltage; 7kV surge voltage between coil and contacts



PCH

- Compact size
- Meet 8kV surge voltage between coil and contacts
- Cadmium-free contacts
- WG type available (IEC 60335-1)
- TV-3 ratings for NO contact



OJ/OJE/T77

- Miniature size
- Meet 4kV dielectric between coil and contacts (OJ/OJT)
- Sensitive coil 200mW type available
- Meet UL TV-5 ratings (OJT)



1 form A, 1 NO
250VAC
3A/5A (WG type)
750VA/1250VA (WG type)
AgNi
100mA at 5VDC
DC
5 to 24VDC
200mW
750Vrms
4000Vrms
8/>8 mm
+85°C (standard type)
+105°C (WG type)
RTII, RTIII
THT
PCB
20.4x7x15mm

2 form A, 2 NO
240VAC/30VDC
3A/5A
300VA/72W (DM3)
1100VA/150W (DM5)
AgSnO
100mA at 5VDC
DC
5 to 48VDC
540mW
1000Vrms
4000Vrms
2000Vrms
7/7mm
+60°C
RTII, RTIII
THT
PCB
24.4x12.9x25mm

1 form C, 1 CO
1 form A, 1 NO
277VAC/30VDC
3/5/10A
1400VA/150W (NO)
850VA/90W (NC)
100mA at 5VDC
DC, sensitive
3 to 48VDC
200/400mW
750Vrms
4000Vrms
1.6/3.2mm
+70°C (standard type)
+85°C (WG type)
RTII, RTIII
THT
PCB
20x10x15.2mm

1 form A, 1 NO
250VAC/28VDC
3/5/8/10A
720 to 2500VA/
90 to 240W
100mA at 5VDC
DC, sensitive
3 to 48VDC
200/250/450mW
750/1000Vrms
3000/4000Vrms
1.6/3.2mm and 3.2/6.4mm
up to 85°C
RTII, RTIII
THT
PCB
18.2x10.2x14.7mm

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

 +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.

General Purpose

Low Power PCB Relays

MSR/T75

- High inrush currents with AgSnO contacts
- 4kV/8mm coil-contact
- Reinforced insulation



1 form C, 1 CO 1 form A, 1 NO
250VAC 8/10A 2000VA AgNi90/10, AgSnO ₁)
DC 3 to 60VDC 220mW
1000Vrms 4000Vrms
8/8mm
+85°C
RTII, RTIII THT PCB 28.6x10x15mm

RZ

- Sensitive coil 400mW
- 5kV/10mm coil-contact
- Reinforced insulation
- Ambient temperature 85 or 105°C
- Height 15.7mm
- In acc. to IEC 60355-1



1 form C, 1 CO 1 form A, 1 NO
250VAC 16A 4000VA AgNi90/10, AgSnO
DC 5 to 48VDC 400mW
1000Vrms 5000Vrms
10/10mm
+85°C +105°C (HOT type) +70°C (transparent cover type)
RTII THT PCB 29x12.7x15.7mm

RT

- Sensitive DC and AC coil
- Bistable version
- 5kV/10mm coil-contact
- Reinforced insulation
- Ambient temperature 85°C
- THR (reflow) version
- WG version acc. to IEC 60355-1



1 form C, 1 CO 1 form A, 1 NO 2 form C, 2 CO 2 form A, 2 NO
250VAC 8/16A 2000/4000VA AgNi90/10, AgSnO
DC, AC, bistable 5 to 110VDC/24 to 230VAC 400mW/0.75VA
1000Vrms 5000Vrms 2500Vrms
10/10mm
+85°C +75°C (AC type)
RTII, RTIII THT, THR (DC and AC type) PCB or on socket 29x12.7x15.7mm
PCB and DIN rail sockets

RT specials

- Versions:
- Sensitive coil 250mW
- Inrush peak currents up to 165A
- 105°C ambient temperature
- Bifurcated contacts
- WG version acc. to IEC 60355-1



1 form C, 1 CO 1 form A, 1 NO
250VAC 12/16A 4000VA AgNi90/10, AgSnO, W
DC, bistable 5 to 110VDC 200/250/400mW
1000Vrms 5000Vrms
10/10mm
+85°C/+105°C
RTII, RTIII (sensitive and bifurcated type) THT PCB or on socket 29x12.7x15.7mm
PCB and DIN rail sockets

Low Power PCB Relays

RX

- 4kV/8mm coil-contact
- Reinforced insulation
- Height 15.7mm
- Transparent cover optional



OZ

- UL TV-8 (OZT) available
- Meet 5000V dielectric voltage between coil and contacts
- Meet 10000V surge voltage between coil and contacts



RP3SL

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



Contact Data

Contact arrangement	2 form C, 2 CO
Rated voltage	250VAC
Rated current	8A
Switching power	2000VA
Contact material	
Min. recommended contact load	

Coil Data

Magnetic system	DC, AC
Rated coil voltage	5 to 110VDC/24 to 230VAC
Rated coil power	500mW/0.75VA

Insulation Data

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

Other Data

Ambient temperature	+70°C
Category of environmental protection IEC 61810	RTII
Terminal type	THT
Mounting	PCB
Dimensions lwh	29x12.7x15.7mm

Accessories

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.

1 fom A, 1 NO	
1 form C, 1 CO	
240VAC/24VDC	
16A	
3840VA/380W	
AgSnO	
100mA at 5VDC	

DC	
5 to 48VDC	
540mW/720mW	

1000Vrms	
5000Vrms	
5.5/8mm	

+60°C (standard type)	
+70°C (sensitive type)	

RTII, RTIII	
THT	
PCB	
29.2x12.8x20.6mm	

1 form A, 1 NO	
250VAC	
16A	
4000VA	
AgSnO	

DC	
6 to 110VDC	
500mW	

2000Vrms	
4000Vrms	
8/8mm	

+70°C	
-------	--

RTII, RTIII	
THT	
PCB or on socket	
29x12.6x25.5mm	

PCB and DIN rail sockets

Low Power PCB Relays

RP-2pole 1.5mm

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



2 form A, 2 NO
250VAC
8A
2000VA
AgSnO
DC
5 to 110VDC
780mW
1000Vrms
4000Vrms
2500Vrms
7/8mm
+40°C
RTII, RTIII
THT
PCB or on socket
29x12.6x25.5mm
PCB and DIN rail sockets

OMI/OMIH/OMIT

- Meet 5kV dielectric voltage;
- 10kV surge voltage between coil and contacts
- Version with 1 form A, 1 NO contact TV-5 rating (OMIT)



1 form C, 1 CO
1 form A, 1 NO
250VAC/30VDC
10A/16A
2500VA/300W
4000VA/480W
AgSnO
100mA at 5VDC
DC
5 to 48VDC
540/720mW
1000Vrms
5000Vrms
>8/>8mm
+60°C (standard type)
+70°C (sensitive type)
RTII, RTIII
THT
PCB
29.2x12.8x20.6mm

OMI-2P

- Meet 5000V dielectric voltage between coil and contacts
- Meet 10000V surge voltage between coil and contacts



2 form A, 2 NO
2 formC, 2 CO
250VAC/30VDC
5A
1250VA, 150W
AgSnO
100mA at 5VDC
DC
5 to 48VDC
540mW/720mW
1000Vrms
5000Vrms
2500Vrms
5.5/8mm
+60°C (standard type)
+70°C (sensitive type)
RTII, RTIII
THT
PCB
29.2x12.8x20.6mm

SDT

- Meet UL TV-5 and TV-8 ratings
- Immersion cleanable, sealed version available
- Applications: appliance, HVAC, FPD, monitor display



1 form A, 1 NO
250VAC/30VDC
5A, 10A
1250VA, 150W (LMR)
2500VA, 300W (DMR)
100mA at 5VDC
DC
5 to 48VDC
250, 540mW
1000Vrms
4000Vrms
1.6/3.2mm
+70°C
RTII, RTIII
THT
PCB
24.4x10.4x25.0mm

Low Power PCB Relays

OSZ

- Meet UL TV-8 ratings
- Meet 4kV dielectric voltage; 7kV surge voltage between coil and contacts



RF

- QC² terminals on load side
- Ambient temperature up to 125°C
- Switching capacity 4000VA
- Coil power 400mW
- Reinforced insulation
- WG version acc. to IEC 60355-1



410

- Ambient temperature up to 125°C
- QC² terminals on load side
- Version with contact gap >3mm
- Insulation to VDE 0631 and VDE 0700
- WG version acc. to IEC 60355-1



Contact Data

Contact arrangement	1 form A, 1 NO	1 form A, 1 NO 1 form B, 1 NC	1 form A, 1 NO 1 form B, 1 NC
Rated voltage	240VAC/24VDC	250VAC	250VAC
Rated current	16A	16A	16A
Switching power	4000VA, 380W	4000VA	4000VA
Contact material	AgSnO	AgNi90/10	AgCdO, AgNi
Min. recommended contact load	100mA at 5VDC		

Coil Data

Magnetic system	DC	DC	DC
Rated coil voltage	5 to 48VDC	5 to 60VDC	6 to 60VDC
Rated coil power	540mW	400mW	360mW

Insulation Data

Initial dielectric strength			
between open contacts	1000Vrms	1000Vrms	1000Vrms
between contact and coil	4000Vrms	4000Vrms	4000Vrms
between adjacent contacts			
Clearance/creepage			
between contact and coil	>8/>8mm	8/8mm	8/8mm

Other Data

Ambient temperature	+60°C	+85°C +105°C (HOT type)	+125°C (standard type) +85°C (3mm type)
Category of environmental protection IEC 61810	RTII, RTIII	RTII	RTII
Terminal type	THT	THT/QC ² terminals	THT/QC ² terminals
Mounting	PCB	PCB	PCB
Dimensions lwh	24.4x12.9x24.8mm	40.5x12.7x16mm	40.5x12.5x28.5mm

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.

Low Power PCB Relays

OMIF

- #187 QC² terminal
- Meet 5kV dielectric voltage; 10kV surge voltage between coil and contacts



1 form A, 1 NO
240/250VAC, 30VDC
16A
4000VA/385W
100mA at 5VDC
DC
3 to 48VDC
540mW
1000Vrms
5000Vrms
9.8/10mm
+85°C
RTII
THT/QC ² terminals (#187)
PCB
29x12.6x24.5mm

EK

- #187 QC² terminal
- 20.1mm low profile (without tab)
- Meet 4kV dielectric voltage between coil to contacts
- Ambient temperature 85°C



1 form A, 1 NO
250VAC
16A
4000VA
100mA at 5VDC
DC
5 to 48VDC
500mW
1000Vrms
5000Vrms
6.3/7.4mm
+85°C
RTII
THT/QC ² terminals (#187)
PCB
23.7x12.3x20.1mm

PCK

- #187 QC² terminal
- Height 26.7mm (without tab)
- Meet 4kV dielectric voltage between coil to contacts
- Ambient temperature 85°C



1 form A, 1 NO
277VAC
16A
4000VA
DC
3 to 48VDC
500mW
1000Vrms
5000Vrms
9.6/13.7mm
+70°C
RTII
THT/QC ² terminals (#187)
PCB
22.8x11.6x26.7mm

PB/PBH

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



1 form C, 1 CO
1 form A, 1 NO
250VAC
10A
2500VA
AgNi90/10, AgSnO
DC
5, 6, 12, 24VDC
360mW/500mW
1000Vrms
2500Vrms
3/4mm
+85°C/+105°C
RTII
THT
PCB
15x15x20mm

Low Power PCB Relays
ORWH/T7S

- Compact relay with 1 form A and 1 form C contact arrangement
- 10A switching capacity
- Flux proof or sealed type available
- 105°C hot version available (T7S)
- Acc. to IEC 60335-1 (T7S)


PCE/T7N

- Low cost, small package, 10A switching capacity
- UL Class F (155°C) insulation system standard
- Immersion cleanable, sealed version available
- WG version acc. to IEC 60335-1 (T7N)


SRUDH/T7C

- Low cost, small package, 12A switching capacity (at 120VAC)
- Applications: HVAC, security system, garage opener control, emergency lighting


Contact Data

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

Coil Data

Magnetic system	DC
Rated coil voltage	3 to 48VDC
Rated coil power	360mW

Insulation Data

Initial dielectric strength	
between open contacts	750Vrms
between contact and coil	1500Vrms
between adjacent contacts	
Clearance/creepage	
between contact and coil	1.6/3.2mm

Other Data

Ambient temperature	+70°C/+105°C
Category of environmental protection	
IEC 61810	RTII, RTIII
Terminal type	THT
Mounting	PCB
Dimensions lwh	19.0x15.5x15.8mm

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.

Contact arrangement	1 form C, 1 CO 1 form A, 1 NO
Rated voltage	250VAC/28VDC
Rated current	10A
Switching power	2500VA, 280mW
Min. recommended contact load	100mA at 5VDC

Magnetic system	DC
Rated coil voltage	5 to 48VDC
Rated coil power	360mW

Initial dielectric strength	
between open contacts	750Vrms
between contact and coil	2000Vrms
between adjacent contacts	
Clearance/creepage	
between contact and coil	1.6/3.2mm

Ambient temperature	+85°C
Category of environmental protection	
IEC 61810	RTII, RTIII
Terminal type	THT
Mounting	PCB
Dimensions lwh	22x16x16.4mm

Contact arrangement	1 form C, 1 CO 1 form A, 1 NO
Rated voltage	240VAC/28VDC
Rated current	10A
Switching power	2400VA, 300W
Min. recommended contact load	100mA at 5VDC

Magnetic system	DC
Rated coil voltage	5 to 48VDC
Rated coil power	360mW

Initial dielectric strength	
between open contacts	750Vrms
between contact and coil	1500Vrms
between adjacent contacts	
Clearance/creepage	
between contact and coil	1.6/3.2mm

Ambient temperature	+60°C
Category of environmental protection	
IEC 61810	RTII, RTIII
Terminal type	THT
Mounting	PCB
Dimensions lwh	20.2x16.5x20.2mm

Low Power PCB Relays

LN/LNH

- High performance 10A version (LN1)
- 16A high capacity version available (LN3)
- Version for HOT applications (LNH)
- Flux proof
- Plastic materials acc. to IEC 60335-1 (domestic appliances)



1 form C, 1 CO 1 form A, 1 NO
250VAC
10A (LN1 + LNH), 16A (LN3)
2500VA (LN1 + LNH), 4000VA (LN3)
AgSnO ₂ , AgCdO
DC
5 to 48VDC
400mV
1000Vrms
2000Vrms
2.5/2.5mm
+85°C (LN1, LN3) +105°C (LNH)
RTII
THT
PCB
20.2x16.5x20.2mm

PCD/PCDF

- Low coil power 200mW
- Height 10.2mm
- Wash tight
- Version with QC² terminals available (PCDF)



1 form A, 1 NO
250VAC/24VDC
10A
1800VA, 240W
100mA at 5VDC
DC
5 to 48VDC
200mW
1000Vrms
2000Vrms
1.6/3.2mm
+70°C
RTII, RTIII
THT, QC ² terminals
PCB
23x16.1x10.2mm

430

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



1 or 2 form C, 2 CO 1 or 2 form A, 2 NO
250VAC
10A
2500/4000VA
1)
DC, AC
6 to 110VDC/6 to 240VAC
1W/1.8VA
1000Vrms
4000Vrms
8/8mm
+70°C
RTI
THT, QC ² terminals
PCB, panel mount
35.5x16.4x30.5mm

419

- Contact gap >3mm
- Switching capacity 4000VA
- DC or AC coil
- Safety mains insulation
- 4kV/8mm coil-contact
- QC² terminals
- Snap or screw mount



2 form A, 2 NO
250VAC
16A
4000VA
1)
DC, AC
6 to 24VDC/120 to 400VAC
1.3 W/2.0 to 2.5VA
2000Vrms
4000Vrms
6/8mm
+90°C
RTI
QC ² terminals, Rast 5
Panel mount
48x25.4x47.3mm

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 + 1 NC
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.

Force Guided Relays and Panel / Plug-In Relays

**Relay Module
SR2Z/SR6Z**

- 2/6 pole relay with force guided contacts according to EN50205
- DIN rail mounting



**Slim Interface
Relay SNR**

- Sensitive coil 170mW
- Strong coil pins for DIN-rail socket
- 4kV coil-contact, 6/8mm clearance/creepage
- Reinforced insulation
- Reduced system width



**Interface
Relay RT**

- Sensitive coil 400mW
- Cadmium-free contacts
- Reinforced insulation
- 4kV/8mm coil-contact



**Interface
Relay XT**

- Sensitive coil 400mW
- Cadmium-free contacts
- Reinforced insulation
- 4kV/8mm coil-contact
- Manual test tab
- Mechanical and electrical indicator



1 form A + 1 form B, 1 NO + 1NC 2 form C, 2 CO
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
250VAC
6/8A
AgNi/AgSnO ₂
5VDC/10mA
DC or AC/DC
6 to 230VAC/VDC
700mW/1200mW
1500/1000Vrms
4000/3000Vrms
2000Vrms
8/8mm, 5.5/5.5mm
+50°C
Screwless
DIN rail
Module width 20/46mm

1 form C, 1 CO
250VAC
6A
1500VA
AgSnO ₂ , AgSnO ₂ Au plated
¹⁾
DC
5 to 60VDC
170mW
1000Vrms
4000Vrms
≥6/8mm
relay +85°C, in socket +55°C
RTIII
Plug-in
Socket
28x5x15mm
DIN rail sockets, jumper bars

1 form C, 1 CO 2 form C, 2 CO
240VAC
8/16A
2000/4000VA
AgSnO ₂ , AgNi90/10, AgNi90/10 Au plated
¹⁾
DC, AC
12 to 110VDC/24 to 230VAC
400mW/0.75VA
1000Vrms
4000/5000Vrms
2500Vrms
≥8/8mm
+70/+85°C
RTII
Plug-in
Socket
29x13x15.7mm
DIN rail and PCB sockets, clips, marking tags, modules, jumper bars

1 form C, 1 CO 2 form C, 2 CO
240VAC
8/16A
2000/4000VA
AgNi90/10
12VDC/10mA
DC, AC
12 to 110VDC/24 to 230VAC
400mW/0.75VA
1000Vrms
4000/5000Vrms
2500Vrms
≥8/8mm
+70/+85°C
RTII
Plug-in
Socket
29x13x26.7mm
DIN rail and PCB sockets, clips, marking tags, modules, jumper bars

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	29.6x18.7x30.2

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

PTF/K10

- Mounting options include socket, PCB, top flange
- DC and AC coils
- LED versions available



2 form C, 2 CO
120/240VAC
10/15A
1800/2500VA
AgCdO, AgNi90/10 ¹⁾
DC, AC
6 to 220VDC/6 to 240VAC
750 to 900mW/1 to 1.2VA
1200/1000Vrms
2500/1500Vrms
2500/1500Vrms
≥3.1/3.1mm
+70°C
RTII
QC ²⁾ , solder, PCB
Socket and bracket mount
28x22.5x29/34.9mm

Screw, solder and PCB sockets and clips

KRPA/MT

- Industry standard octal/undecal type termination for quick installation
- DC and AC coils
- Mechanical indicator, indicator lamp and push-to-test options



1 form C, 1 CO (KRPA); 2 form C, 2 CO; 3 form C, 3 CO
240VAC
4/10A
500/2400/2500VA
AgCdO, AgNi90/10, AgNi90/10 Au plated
¹⁾ Bifurcated contacts for dry circuit available on MT
DC, AC
6 to 220VDC/6 to 240VAC
760mW to 1.3W/0.74 to 2.3VA
1000/1500Vrms
1000/2500Vrms
1000/2500Vrms
≥2.8/4mm
DC +60/+70°C
AC +50/+55°C
RTI
Plug-in
Socket
35.7x35.7x50.8/57mm

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

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	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)	1 form C, 1 CO 2 form C, 2 CO
Rated voltage	400VAC	240VAC	400VAC
Rated current	10/16A	10/15A	20/30A
Switching power	3800/6000VA	2400/4155VA	6000/7500VA
Contact material	AgCdO, AgNi90/10 in preparation	Ag, AgCdO, AgSnInO	AgCdO, AgNi90/10 in preparation
Min. recommended contact load	1)	12VDC/100mA (Ag) 12VDC/300mA (AgCdO, AgSnInO)	1)

Coil Data

Magnetic system	DC, AC	DC, AC	DC, AC
Rated coil voltage	6 to 220VDC/6 to 400VAC	5 to 110VDC/6 to 240VAC	6 to 220VDC/6 to 400VAC
Rated coil power	1.2 to 1.8W/2 to 2.8VA	1.2 to 1.8W/2 to 2.7VA	1.2W/2.7VA

Insulation Data

Initial dielectric strength			
between open contacts	1500Vrms	1200Vrms	1500/2000Vrms
between contact and coil	2500Vrms	2200/3750Vrms	2500Vrms
between adjacent contacts	2500Vrms	2200Vrms	4000Vrms
Clearance/creepage			
between contact and coil	≥4/14.9mm		≥4/14.9mm

Other Data

Ambient temperature (max.)	+50/+70°C	DC +50/+70/+95°C AC +45/+55/+70°C	DC +60/+65°C AC +40°C
Category of environmental protection IEC 61810	RTI	RTI	RTI
Terminal type	THT, Plug-in, solder, QC ²⁾	THT, Plug-in, solder, QC ²⁾	Solder, QC ²⁾
Mounting	Socket, PCB, bracket, flange mount and DIN-snap-on	Socket, PCB, bracket, flange, stud and tapped core	Bracket, top flange panel mount and DIN-snap-on
Dimensions lwh	38.5x35.5x48.5mm	38.9x35.7x48.4mm	38.5x35.5x48.5mm

Accessories

DIN rail and PCB sockets, clips DIN rail, panel and PCB sockets, clips 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

KUHP

- Power relay with push-on and solder terminals
- Various mounting options
- Designed to meet VDE space requirements
- Class B coil insulation



RM5/6/B 3mm

- 3mm contact gap
- DC or AC coil
- Push-to-test button
- Plug-in version, PCB terminals or chassis or DIN-rail mount



KUGP

- 3mm contact gap
- DC or AC coil
- Plug-in version, PCB terminals or chassis mount



KUL

- Magnetic latching
- Single and dual coils
- Panel mounting



1 form C, 1 CO 2 form C, 2 CO
240VAC, 50/60Hz; 28VDC 20/30A 4800/7200VA AgCdO, AgSnOInO
12VDC/300mA
DC, AC 6 to 110VDC 50/60Hz. 6 to 277VAC 1.2W/2.7VA
1200Vrms 3750Vrms 3750Vrms
DC +45°C AC +75°C
RTI, RTO Solder, PCB THT, QC ²⁾ Bracket and top flange panel mount 38.9x35.7x48.4mm
No sockets

2 form A, 2 NO 3 form A, 3NO
240/400VAC 10/16A 3800/6000VA AgCdO, AgNi90/10 in preparation
¹⁾
DC, AC 6 to 220VDC/6 to 400VAC 1.2W/2.7VA
2500Vrms 2500Vrms 2500Vrms
≥4/14.9mm
+50/+60°C
RTI Plug-in, solder, QC ²⁾ , PCB THT Socket, PCB, bracket, flange mount and DIN-snap-on 38.5x35.5x48.5mm
DIN rail and PCB sockets, clips

1 form C, 1 CO 2 form A, 2 NO 2 form C, 2 CO 3 form C, 3 CO
240/400VAC 10A 2400VA Ag, AgCdO 12VDC/100mA (Ag) 12VDC/300mA (AgCdO)
DC, AC 6-110VDC/6 to 240VAC 1.8W/2.7VA
3500Vrms 2200Vrms 2200Vrms
>8mm
DC +75°C AC +70°C
RTI THT, Plug-in, solder, QC ²⁾ , PCB Socket, PCB, bracket and flange mount 38.9x35.7x48.4mm
DIN rail and PCB sockets, clips

1 form C, 1 CO 2 form C, 2 CO 3 form C, 3 CO
28/240VAC 10A Ag, AgCdO 12VDC/100mA (Ag) 12VDC/300mA (AgCdO)
DC, AC 12 to 48VDC/24 to 120/240VAC 1.6W dual coil/1.2W single coil
500Vrms 1500Vrms 1500Vrms
DC +70°C AC +50/+70°C
RTI .187" QC ²⁾ /solder Socket, bracket 38.9x35.7x54.8mm
Screw, solder, PCB and QC sockets and clips

Panel / Plug-In Relays

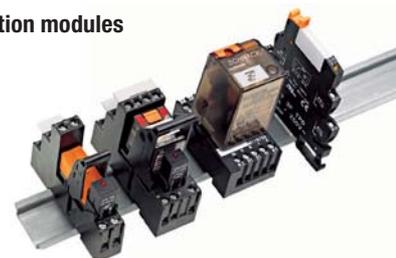
KUEP

- 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	QC ²⁾ /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.

Power Relay

PRD

- Contact ratings to 50A
- Magnetic blowout available for switching DC loads
- SPDT auxiliary switch available
- Class B insulation system



1 form A, 1 NO
1 form C, 1 CO
1 form X (NO-DM)
2 form A, 2 NO
2 form C, 2 CO
600VAC, 28/125VDC
50A
12000VA
Ag, AgCdO
1A, 12VDC or VAC
DC, AC
6 to 110VDC/6 to 480VAC
2W/9.8VA
2000Vrms
2000Vrms
2000Vrms
>8mm
DC +80°C
AC +45°C
RT 0/open
Screw, QC ²
Panel mount
85.7x63.8x63.5mm
Dust cover

onlinecomponents.com

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.

PCB High Power, Metering and Solar Relays

EF

- Low profile max. 20.0mm
- QC² terminals for load
- Meet 4kV dielectric voltage between coil and contact
- Ambient temperature 85°C



1 form A, 1 NO
250VAC
20A
5000VA
100mA at 5VDC
DC
5 to 48VDC
900mW
1000Vrms
4000Vrms
6.4/9.5mm
+85°C
RTII
THT/QC ² (#250)
PCB
30.4x16.0x20mm

PCF

- QC² terminal for load (PCF only)
- Height 26.5mm
- Meet 4kV dielectric voltage between coil and contact
- Ambient temperature 85°C



1 form A, 1 NO
250VAC
25A
6370VA
100mA at 5VDC
DC
6 to 24VDC
900mW
1000Vrms
4000Vrms
6.7/>8mm
+85°C
RTII
THT/QC ² (#250)
PCB
30.4x16x26.5mm

PCFN Solar

- Specially designed to meet the requirements for the solar inverter industry
- Contact gap >1.5mm
- 200mW hold power



1 form A, 1 NO
277VAC
26A
7200VA
AgSnO ₂
100mA at 12VDC
DC
12VDC
1.5W/200mW hold power
2500Vrms
4000Vrms
6.1/6.1mm
+85°C
RTII
THT
PCB
30.4x16x26.5mm

EW

- 80A switching capacity
- Heavy load 20000VA
- 1 coil bistable
- 4000VAC coil to contact dielectric endurance

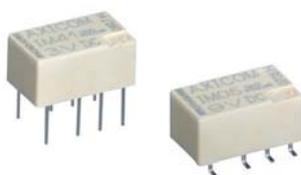


1 form A, 1 NO
250VAC
80A
20000VA
100mA at 12VAC
DC
5 to 24VDC
1W
1500Vrms
4000Vrms
6/6mm
+70°C
RTI
THT/lug
PCB, customized
36.8x17.2x30.4mm

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



UL US IEC 60950

IMD/E

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



UL US IEC 60950

IMA/B

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



UL US IEC 60950

Contact Data

Contact arrangement

2 form C, 2 CO
Bifurcated contacts

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

1 form B, 1 NC
1 form A, 1 NO
Bifurcated contacts

Rated voltage

220VAC/250VDC

220VAC/250VDC

220VAC/250VDC

Rated current

2/5A

2A

2A

Switching power

60W/62.5VA

60W/62.5VA

60W/62.5VA

Min. recommended contact load

100µV/1µA

100µV/1µA

100µV/1µA

Initial contact resistance

<50mΩ

<50mΩ

<100mΩ

Coil Data

Magnetic system

Polarized

Polarized

Polarized

Rated coil voltage

1.5 to 24VDC

1.5 to 24VDC

1.5 to 24VDC

Rated coil power

DC coil/bistable 1 coil/2 coils

50 to 200mW/-/

140mW/-/

140mW/-/

Insulation Data

Initial dielectric strength

between open contacts

1000 to 1500Vrms

1000Vrms

2500Vrms

between contact and coil

1500 to 1800Vrms

1800Vrms

4000Vrms

between adjacent contacts

1000 to 1800Vrms

1000Vrms

Initial surge withstand voltage

between open contacts

1500 to 2500Vp

1500Vp

3500Vp

between contact and coil

2500Vp

2500Vp

5600Vp

between adjacent contacts

1500 to 2500Vp

1500Vp

Isolation 100/900MHz

-37.0/-18.8dB

-37.0/-18.8dB

-37.0/-18.8dB

Insertion loss 100/900MHz

-0.03/-0.33dB

-0.03/-0.33dB

-0.03/-0.33dB

Volt. standing wave ratio 100/900MHz

1.06/1.49

1.6/1.49

1.6/1.49

Capacitance

between open contacts

max. 1pF

max. 1pF

max. 1pF

Other Data

Ambient temperature

-40 to +85°C (+125°C)

-40 to +85°C

-40 to +85°C

Category of environmental protection

IP67/RTV

IP67/RTV

IP67/RTV

Terminal type

THT, SMT

THT, SMT

THT, SMT

Dimensions lwh

10x6x5.65mm

10x6x5.65mm

10x6x5.65mm

Signal Relays

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

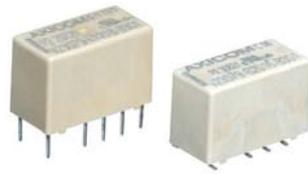


UL US IEC 60950

1 form C, 1 CO Bifurcated contacts
220VAC/250VDC 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

P2

- 3G telecom/signal relay
- Slim line 15x7.5mm
- Switching current max. 5A
- High dielectric version
- Meets Telcordia Technologies Inc. requirements



UL US IEC 60950

2 form C, 2 CO Bifurcated contacts
220VAC/250VDC 2A
60W/62.5VA 100µV/1µA <50mΩ
Polarized 2.4 to 24VDC
140mW/70mW/140mW
1000 to 1500Vrms 1500Vrms 1000 to 1500Vrms
2500Vp 2500Vp 2000Vp
-39.0/-20.7dB -0.02/-0.27dB 1.4/1.40
max. 1pF
-40 to +85°C IP67/RTIII THT, SMT
14.5x7.2x10.4mm, stand. 14.5x7.2x9.9mm, overm.

FX2

- 3G telecom/signal relay
- Slim line 15x7.5mm
- Standard and sensitive coil
- High mechanical shock resistance
- High dielectric version
- Meets Telcordia Technologies Inc. requirements

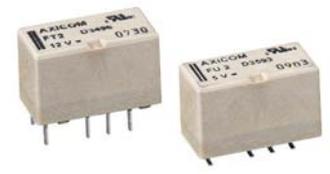


UL US IEC 60950

2 form C, 2 CO Bifurcated contacts
220VAC/250VDC 2A
60W/62.5VA 100µV/1µA <70mΩ
Polarized 3 to 48VDC
80 to 300mW/-/-
1800 to 2100Vrms 1800 to 3500Vrms 1800 to 2100Vrms
2500 to 2900Vp 3500 to 5000Vp 2500 to 2900Vp
-34.0/-15.1dB -0.03/-0.60dB 1.07/1.45
max. 2pF
-55 to +85°C IP67/RTV THT
15x7.3x10.7mm

FT2/FU2

- 3G telecom/signal relay
- Slim line 15x7.5mm
- Standard and sensitive coil
- 125°C ambient temperature
- Suitable for explosive environments
- High dielectric version
- Meets Telcordia Technologies Inc. requirements



UL US IEC 60950

2 form C, 2 CO Bifurcated contacts
220VAC/250VDC 2A
60W/62.5VA 100µV/10µA <70mΩ
Non polarized 3 to 48VDC
200 to 300mW/-/-
1500 to 1800Vrms 1500 to 4000Vrms 1000 to 1500Vrms
1500 to 2500Vp 2500 to 6000Vp 1500 to 2500Vp
-30.6/-13.7dB -0.02/-0.50dB 1.02/1.27
max. 1pF
-55 to +125°C IP67/RTIII/RTV THT, SMT
15x7.5x9.6mm

Signal Relays
FP2

- 3G telecom/signal relay
- Low profile 5mm
- Standard and sensitive coil
- High mechanical shock resistance


D2N V23105

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


MT2

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


Contact Data

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

Coil Data

Magnetic system	Polarized	Non polarized	Non polarized
Rated coil voltage	3 to 48VDC	3 to 48VDC	3 to 48VDC
Rated coil power	80 to 300mW/200 to 200mW	80 to 300mW/100 to 150mW/200mW	150 to 550mW/-/-
DC coil/bistable 1 coil/2 coils		150 to 700mW/-/-	

Insulation Data

Initial dielectric strength			
between open contacts	1000Vrms	750Vrms	750Vrms
between contact and coil	1000Vrms	1000Vrms	1000Vrms
between adjacent contacts	750Vrms	750Vrms	750Vrms
Initial surge withstand voltage			
between open contacts	1500Vp	1500Vp	1500Vp
between contact and coil	1500Vp	1500Vp	1500Vp
between adjacent contacts	1500Vp	1500Vp	1500Vp
Isolation 100/900MHz	-40.2/-22.3dB	-39.0/-20.7dB	-31.8/-14.2dB
Insertion loss 100/900MHz	-0.03/-0.25dB	-0.02/-0.27dB	-0.02/-0.97dB
Volt. standing wave ratio 100/900MHz	1.01/1.07	1.04/1.40	1.03/1.31
Capacitance			
between open contacts	max. 1pF	max. 2pF	max. 2pF

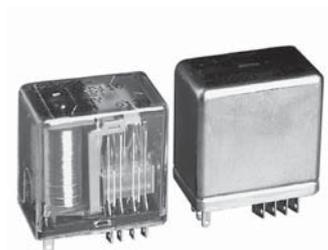
Other Data

Ambient temperature	-55 to +85°C	-25 to +85°C	-55 to +85°C
Category of environmental protection	IP67/RTIII	IP67/RTIII	IP67/RTIII
Terminal type	THT	THT	THT
Dimensions lwh	14x9x5mm	20.2x10x11.4mm	20.2x10x11mm

Signal Relays

Cradle

- Very high reliability
- Great variety of coils and contact sets
- Accessories for socket mounting



TSC

- Designed for thermostat, modem
- Computer peripherals, video recording and security applications
- Low coil power requirements
- IC compatibility



OUAZ/T81

- Gold overlay silver palladium alloy contact suitable for low loads
- High density available on PCB due to small size
- 2.54mm terminal pitch same as IC socket terminal pitch
- Sensitive and standard coils



Contact Data

Contact arrangement	Various	1 form C, 1 CO	1 form C, 1 CO 1 form A, 1 NO
Rated voltage	30 to 250VAC/VDC	120VAC, 30VDC	120VAC/24VDC
Rated current	0.2 to 5A	1A	1A
Switching power	5 W to 500VA	120VA, 24W	120VA, 30W
Min. recommended contact load	-	1mA at 1VDC	1mA at 1VDC
Initial contact resistance	on request	50mΩ at 100mA, 6VDC	

Coil Data

Magnetic system	Non polarized/Polarized	DC, sensitive	DC, sensitive
Rated coil voltage	5 to 220VDC/6 to 230VAC	3 to 24VDC	5 to 24VDC
Rated coil power DC coil/bistable 1 coil/2 coils	-/1450 to 1650mW/1450 to 1650mW	150, 300mW	200, 450mW

Insulation Data

Initial dielectric strength between open contacts	500 to 1000Vrms	400Vrms	500Vrms
between contact and coil	500 to 2000Vrms	1000Vrms	1000Vrms
between adjacent contacts	on request		
Initial surge withstand voltage between open contacts			
between contact and coil		1500Vp (10/160μs)	1500Vp (10/160μs)
between adjacent contacts			
Isolation			
Insertion loss			
Voltage standing wave ratio (VSWR)			
Capacitance between open contacts	on request		

Other Data

Ambient temperature	-40 to +70°C	-40 to +80°C	-40 to +75°C (sensitive) -40 to +60°C (standard)
Category of environmental protection	IP30 or RTI or RTIII	RTIII/IP67	RTII, RTIII
Terminal type	THT or plug-in	THT	THT
Dimensions lwh	24 to 35x19x30mm	12.5x7.5x10mm	15.4x10.4x11.2mm

High Frequency Relays/Switches

HF3

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



HF3S

- High performance small HF relay/switch up to 3GHz
- Low power consumption ≤70/140mW
- 50 and 75Ω version
- RF power 150W at 2GHz



HF6

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



Contact Data

Contact arrangement	1 form C, 2 CO Bridge contacts	1 form C, 2 CO Bridge contacts	1 form C, 2 CO Bridge contacts
Rated voltage	220VAC/250VDC	220VAC/250VDC	220VAC/250VDC
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

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.

General Purpose

Circuit Breakers

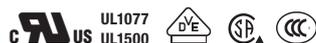
W51

- Compact, rocker actuated design
- Provides circuit protection and power switching in a single unit
- Optional indicator lamp



W54/W57

- Push-to-reset down to 3A with optional bottom marking
- Ignition protection compliant (UL1500) models



W58

- Push-to-reset down to 0.5A with optional bottom marking
- Ignition protection compliant (UL1500)



W6/W9

- Secondary protection, heavy duty magnetic hydraulic for the international market
- Multiple delay curve options
- Optional auxiliary switch, toggle guard and multiple pole single actuation
- Ignition protection compliant (UL1500) models



Thermal	Thermal	Thermal	Magnetic/Hydraulic
1	1	1	1-4
Series trip	Series trip	Series trip	Series trip
50VDC 125/250VAC (model dependent)	50VDC 250VAC	50VDC 250VAC	65VDC 277VAC 480VAC - 3Ø wye
5A to 20A	5A to 40A (W54) 3A to 20A (W57)	0.5A to 30A	0.20A to 50A
1000A	1000A	2000A at 50VDC; 1000A at 250VAC	UL1077 up to 2000ADC/5000AAC; UL1500 up to 3000VDC/1000VAC
4 to 40s	5 to 30s (W54) 4 to 40s (W57)	5 to 30A models 6 to 30s; 1 to 4A models 10 to 45s	30ms to 150s depending upon type of trip curve selected
1500VAC	1500VAC	1500Vrms	50/60Hz, 1500VDC; DC 1100VDC
0 to 60°C QC ¹⁾ and PCB	0 to 60°C QC ¹⁾ and screw	-20 to +65°C QC ¹⁾ and screw	-40 to +85°C QC ¹⁾ , screw and stud
Snap-in, PCB	3/8"-24, M11-1.0, M12-1.0 threaded bushing	7/16"-28, 15/32"-32, 3/8"-24 threaded bushing	6-32, M3 tapped holes
Rocker	Push-to-reset	Push-to-reset	Toggle and rocker
21.8x15.2x32.0mm	31.0x14.6x35.0mm (W54) 22.6x14.6x29.2mm (W57)	34.9x16.8x34.9mm	41.7x19.0x50.8mm (W6 per pole) 46.9x19.0x63.5mm (W9 per pole)
	Protective boot, knurl nut, hex nut, lockwasher, nameplate	Protective boot, knurl nut, hex nut, lockwasher	Toggle guard (W6 only)

Industry Overview



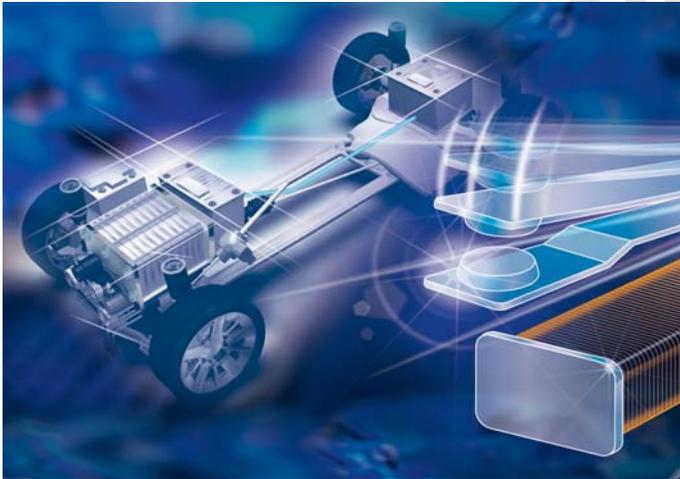
Alternative Energy

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



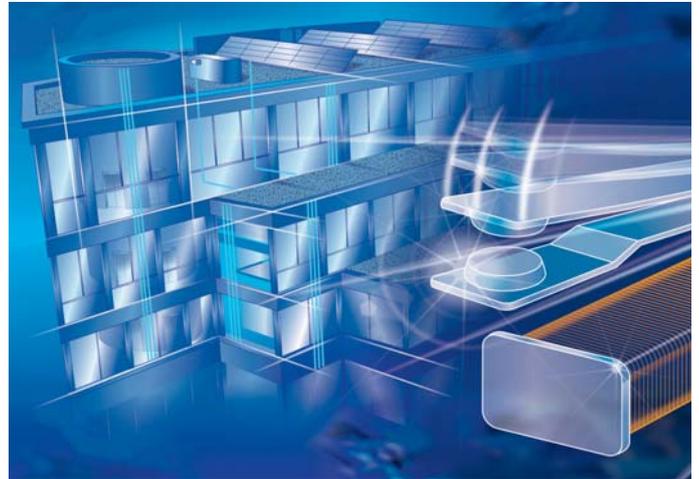
Automotive

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

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



Building Equipment

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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Industry Overview



Appliance

Among the many switching products TE Relay Products provides to appliance manufacturers are signal relays, general purpose relays and circuit breakers.



Industrial

Whether the application is a basic pump control circuit, a complex interface with a programmable logic controller or a safety circuit, industrial machinery designers specify components from TE Relay Products.



Power Metering (ANSI¹⁾ Style)

TE Relay Products is developing a global line of specialized high current relays for the expanding power metering market.



Communication

From high frequency relays for antenna switching to power control relays for end-user equipment, TE Relay Products offers the vast communications market an array of components.

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1) ANSI is a trademark of American National Standards Institute.



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1308033-1 Issued 03-2011 EVE1

