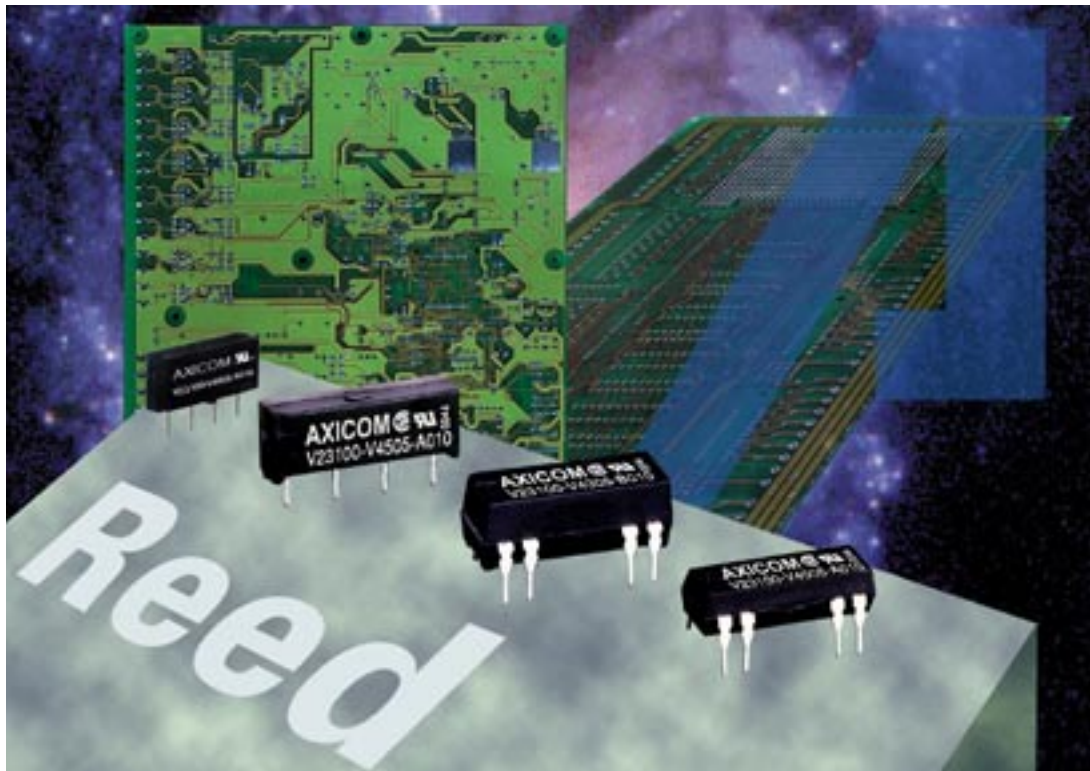


The Best Relaytion



Reed Relays



1 and 2 pole relays
non-polarized, non-latching

Features

- Direct coil control with TTL-signals possible
- Highly reliable switching
- High switching rates
- Ultrasonic cleanable
- High vibration and shock resistance

Typical applications

- Incircuit tester
- Measuring and control systems
- Telecom equipment
- Alarm and security equipment



European Directive conformance:

Reed relays product conformance according to:

- Directive 2000/53/EC: ELV (End of Life of Vehicles)
- Directive 2002/95/EC: ROHS (Restrictions of the use of certain hazardous substances in electrical and electronic equipment)

Compliance is evidenced by written declaration from all raw material suppliers.

Tyco Electronics AXICOM only has responsibility for the proper processing of these materials.

Confirmation is valid for date codes \geq 0501

Relay Types

DIP version (flat)

- Standard version
- Electrostatic shield between coil and contact
- Protective diode
- Electrostatic shield and protective diode
- Contact arrangement: 1 form a (1 normally open contact) or 1 form c (1 changeover contact)



DIP version (high)

- Standard version
- Electrostatic shield between coil and contact
- Protective diode
- Electrostatic shield and protective diode
- Contact arrangement: 2 form a (2 normally open contacts) or 1 form c (1 changeover contact)



SIL version

- Standard version
- Protective diode
- Contact arrangement: 1 form a (1 normally open contact)



Mini SIL version

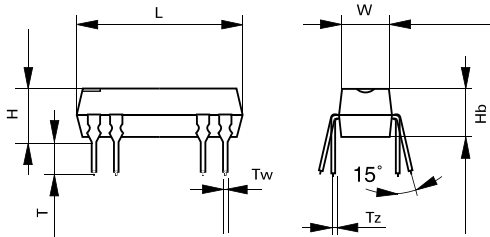
- Standard version
- Protective diode
- Standard internal magnetic shield
- Contact arrangement: 1 form a (1 normally open contact)



DIP version (flat)



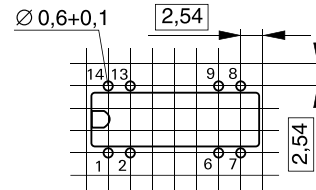
Dimensions drawing (in mm)



Dimensions

	DIP-flat version	
	mm	inch
L	19.3 - 0.2	0.760 - 0.008
W	6.40 - 0.2	0.252 - 0.008
H	5.70 - 0.2	0.224 - 0.008
Hb	5.10 - 0.2	0.201 - 0.008
T	3.20 ± 0.1	0.126 ± 0.004
Tw	0.50 ± 0.1	0.020 ± 0.004
Tz	0.25 ± 0.1	0.010 ± 0.004

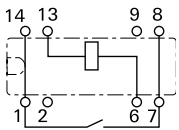
Mounting hole layout
Top view



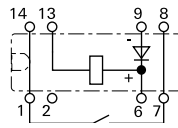
Terminal assignment

Relay - top view

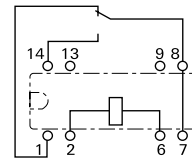
1 form a, standard
A000



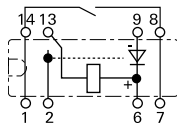
1 form a, with diode
A010



1 form c, standard
C000

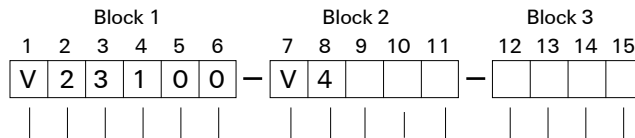


1 form a, with electrostatic shield and diode
A011



Ordering Information

Digit



Basic type number
of DIL/SIL reed relay

- 0 = DIL: 1 form A
- 3 = DIL: 2 form A or 1 form C
- 5 = SIL: 1 form A
- 6 = Mini SIL: 1 form A

- Coil number
- 05 = 5 Vdc coil
- 12 = 12 Vdc coil
- 15 = 15 Vdc coil
- 24 = 24 Vdc coil

Relay version (contact arrangement)
see page 3

Ordering example: V23100-V4005-A010

DIL reed relay with 1 make, 5 V nominal voltage, with clamping diode (spark suppression)

Coil Data (values at 23 °C)

Ordering Information

Nominal voltage U_{nom}	Operate/set voltage range		Release/ reset voltage Minimum	Coil power	Coil Resistance	Relay code	Tyco part number
	Minimum voltage U_{min} Vdc	Maximum voltage U_{max} Vdc					
Vdc			Vdc	mW	$\Omega / \pm 10\%$		

DIP version flat: 1 form a contact, standard

5	3.5	22	0.75	50	500	V23100-V4005-A000	0-1393763-1
12	8.4	33	1.80	144	1'000	V23100-V4012-A000	0-1393763-6
15	10.5	44	2.25	112	2'000	V23100-V4015-A000	1-1393763-0
24	16.8	44	3.60	288	2'000	V23100-V4024-A000	1-1393763-4

DIP version flat: 1 form a contact, with diode

5	3.5	14	0.75	50	500	V23100-V4005-A010	0-1393763-4
12	8.4	25	1.80	144	1'000	V23100-V4012-A010	0-1393763-8
15	10.5	47	2.25	112	2'000	V23100-V4015-A010	1-1393763-2
24	16.8	47	3.60	288	2'000	V23100-V4024-A010	1-1393763-6

DIP version flat: 1 form c contact, standard

5	3.5	13 (14.5) *	0.75	125	200	V23100-V4005-C000	2-1393763-0
12	8.4	22 (23.5) *	1.80	288	500	V23100-V4012-C000	2-1393763-8
15	10.5	44 (14.5) *	2.25	112	2'000	V23100-V4015-C000	3-1393763-4
24	16.8	44 (49) *	3.60	288	2'000	V23100-V4024-C000	4-1393763-0

DIP version flat: 1 form a contact, with electrostatic shield

5	3.5	22	0.75	50	500	V23100-V4005-A001	0-1393763-3
12	8.4	33	1.80	144	1'000	V23100-V4012-A001	0-1393763-7
15	10.5	44	2.25	112	2'000	V23100-V4015-A001	1-1393763-1
24	16.8	44	3.60	288	2'000	V23100-V4024-A001	1-1393763-5

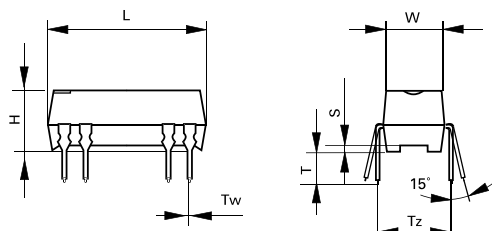
DIP version flat: 1 form a contact, with electrostatic shield and diode

5	3.5	14	0.75	50	200	V23100-V4005-A011	0-1393763-3
12	8.4	25	1.80	144	1'000	V23100-V4012-A011	0-1393763-9
15	10.5	47	2.25	112	2'000	V23100-V4015-A011	1-1393763-3
24	16.8	47	3.60	288	2'000	V23100-V4024-A011	1-1393763-7

DIP version (high)



Dimensions drawing (in mm)

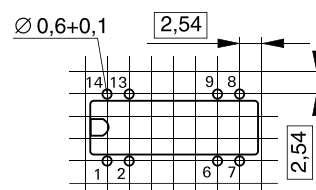


Dimensions

	DIP-flat version	
	mm	inch
L	19.3 -0.2	0.760 -0.008
W	7.00 -0.2	0.276 -0.008
H	7.50 -0.2	0.295 -0.008
S	0.50 ± 0.1	0.200 ± 0.004
T	3.20 ± 0.1	0.126 ± 0.004
Tw	0.50 ± 0.1	0.020 ± 0.004
Tz	0.25 ± 0.1	0.010 ± 0.004

Mounting hole layout

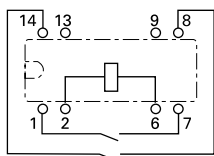
Top view



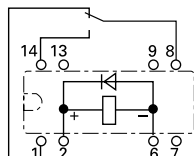
Terminal assignment

Top view

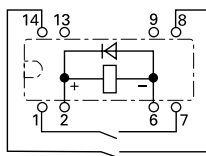
2 form a, standard



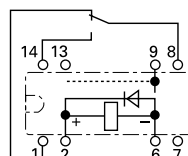
1 form c, with diode



2 form a, with diode



1 form c, with electrostatic shield and diode



Coil Data (values at 23 °C)				Ordering Information			
Nominal voltage U_{nom}	Operate/set voltage range		Release/reset voltage Minimum	Coil power	Coil Resistance	Relay code	Tyco part number
	Minimum voltage U_{min}	Maximum voltage U_{max}					
Vdc	Vdc	Vdc	Vdc	mW	$\Omega / \pm 10\%$		

DIP version high: 2 form a contact, standard

5	3.5	14	0.75	125	200	V23 100-V4305-B000	1-1393763-8
12	8.4	25	1.80	288	500	V23 100-V4312-B000	2-1393763-6
15	10.5	47	2.25	112	2'000	V23 100-V4315-B000	3-1393763-2
24	16.8	47	3.60	288	2'000	V23 100-V4324-B000	3-1393763-8

DIP version high: 2 form a contact, with diode

5	3.5	14	0.75	125	200	V23 100-V4305-B010	1-1393763-9
12	8.4	25	1.80	288	500	V23 100-V4312-B010	2-1393763-7
15	10.5	47	2.25	112	2'000	V23 100-V4315-B010	3-1393763-3
24	16.8	47	3.60	288	2'000	V23 100-V4324-B010	3-1393763-9

DIP version high: 1 form c contact, with diode

5	3.5	14.5	0.75	125	200	V23 100-V4305-C010	2-1393763-2
12	8.4	23.5	1.80	288	500	V23 100-V4312-C010	3-1393763-0
15	10.5	14.5	2.25	112	2'000	V23 100-V4315-C010	3-1393763-6
24	16.8	49	3.60	288	2'000	V23 100-V4324-C010	4-1393763-2

DIP version high: 1 form c contact, with diode and electrostatic screen

5	3.5	14.5	0.75	125	200	V23 100-V4305-C011	2-1393763-3
12	8.4	23.5	1.80	288	500	V23 100-V4312-C011	3-1393763-1
15	10.5	14.5	2.25	112	2'000	V23 100-V4315-C011	3-1393763-7
24	16.8	49	3.60	288	2'000	V23 100-V4324-C011	4-1393763-3

$U_I =$ Minimum voltage at 23° C after pre-energizing with nominal voltage without contact current

$U_{II} =$ Maximum continuous voltage at 23°

The operating voltage limits U_I and U_{II} depend on the temperature according to the formula:

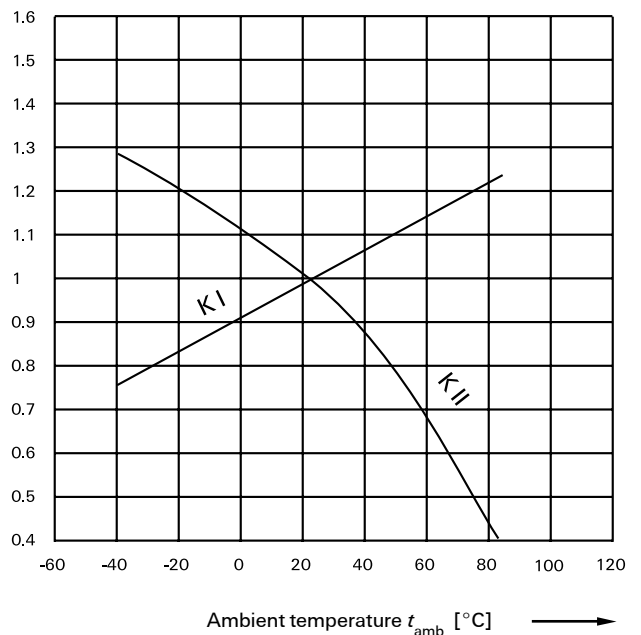
$U_{I\ tamb} = K_I \cdot U_{I\ 23^\circ C}$
and

$U_{II\ tamb} = K_{II} \cdot U_{II\ 23^\circ C}$
= Ambient temperature

$U_{I\ tamb}$ = Minimum voltage at ambient temperature, t_{amb}

$U_{II\ tamb}$ = Maximum voltage at ambient temperature, t_{amb}

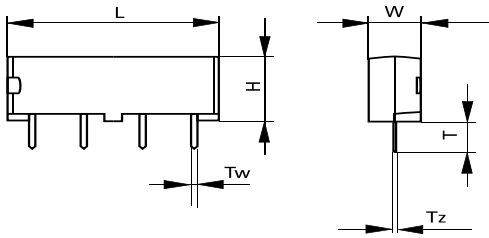
K_I, K_{II} = Factors (dependent on temperature), see diagram



SIL version



Dimensions drawing (in mm)

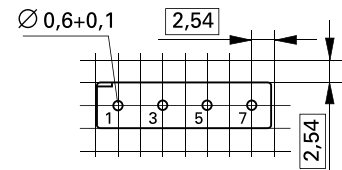


Dimensions

DIP-flat version		
	mm	inch
L	19.8 - 0.2	0.780 - 0.008
W	5.08 - 0.2	0.200 - 0.008
H	7.80 - 0.2	0.307 - 0.008
T	3.50 ± 0.2	0.138 ± 0.008
Tw	0.60 ± 0.1	0.024 ± 0.004
Tz	0.25 ± 0.1	0.010 ± 0.004

Mounting hole layout

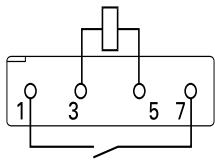
Top view



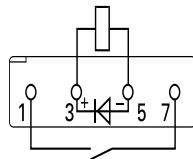
Terminal assignment

Top view

1 form a, standard



1 form a, with diode



Coil Data (values at 23°C)

Ordering Information

Nominal voltage U_{nom}	Operate/set voltage range		Release/reset voltage Minimum	Coil power	Coil Resistance	Relay code	Tyco part number
	Minimum voltage U_{min}	Maximum voltage U_{max}					
Vdc	Vdc	Vdc	Vdc	mW	$\Omega / \pm 10\%$		

SIL version: 1 form a contact

5	3.5	22	0.75	50	500	V23100-V4505-A000	4-1393763-4
12	8.4	33	1.80	144	1'000	V23100-V4512-A000	4-1393763-7
15	10.5	44	2.25	112	2'000	V23100-V4515-A000	4-1393763-9
24	16.8	44	3.60	288	2'000	V23100-V4524-A000	5-1393763-1

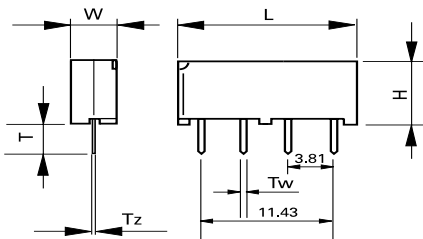
SIL version: 1 form a contact with diode

5	3.5	22	0.75	50	500	V23100-V4505-A010	4-1393763-5
12	8.4	33	1.80	144	1'000	V23100-V4512-A010	4-1393763-8
15	10.5	44	2.25	112	2'000	V23100-V4515-A010	5-1393763-0
24	16.8	44	3.60	288	2'000	V23100-V4524-A010	5-1393763-2

Mini SIL version



Dimensions drawing (in mm)

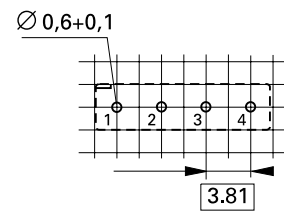


Dimensions

Mini SIL version		
	mm	inch
L	15.2 - 0.2	0.780 - 0.008
W	3.8 - 0.2	0.200 - 0.008
H	6.8 - 0.2	0.307 - 0.008
Tw	0.50 ± 0.1	0.024 ± 0.004
Tz	0.25 ± 0.1	0.010 ± 0.004

Mounting hole layout

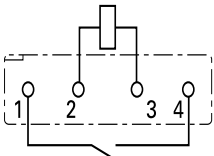
Top view



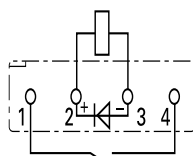
Terminal assignment

Relay-top view

1 form A



1 form a, with diode



Coil Data (values at 23°C)

Ordering Information

Nominal voltage U_{nom}	Operate/set voltage range		Release/reset voltage Minimum	Coil power	Coil Resistance	Relay code	Tyco part number
	Minimum voltage U_{min}	Maximum voltage U_{max}					
Vdc	Vdc	Vdc	Vdc	mW	$\Omega / \pm 10\%$		

SIL version: 1 form a contact

5	3.5	13.6	0.75	50	500	V23100-V4605-A000	0-1422026-2
12	8.4	21.6	1.8	205	700	V23100-V4612-A000	0-1422026-3

SIL version: 1 form a contact with diode

5	3.5	13.6	0.75	50	500	V23100-V4605-A010	0-1422026-5
12	8.4	21.6	1.8	205	700	V23100-V4612-A010	0-1422026-6

General data

Type of relay	DIP version		SIL Version	Mini SIL Version
Type of contact/s	1 form a	2 form a	1 form c	1 form a
Maximum operate time (including bounce)	0.5 ms		0.7 ms	0.5 ms
Maximum release time (including bounce)	0.1 ms		1.0 ms	0.1 ms
Maximum switching load without load	650 operations/s	500 operations/s	150 operations/s	650 operations/s
Operating temperature range	-40 ° C ... +70 ° C, + 85 ° C on request			
Storage temperature	-40 ° C ... + 95 ° C			
Thermal resistance	Approx. 75 K / W			
Maximum permissible coil temperature	105 ° C			
Vibration resistance (function)	30 G		30 G	30 G
	10 to 2000 Hz		10 to 2000 Hz	10 to 2000 Hz
Shock resistance, half sinus, 11 ms	150 G		150 G	50 G
Degree of protection	immersion cleanable, IP 67			
Typical mechanical endurance	10 ⁸ operations		10 ⁸ operations	10 ⁸ operations
Mounting position	any			
Resistance to soldering heat	10 s / 260 ° C			

Contact data

Type of relay	DIP version		SIL version	Mini SIL Version
Type of contact/s	1 form a	2 form a	1 form c	1 form a
Contact material	Gold covered with Rhodium			
Maximum continuous current	1 A		1.2 A	1 A
Maximum switching current	0.5 A		0.25 A	0.5 A
Maximum switching voltage at nominal voltage: 5 Vdc 12-24 Vdc	200 Vdc / Vac peak 200 Vdc / Vac peak		175 Vdc 175 Vdc peak	200 Vdc / Vac peak 200 Vdc / Vac peak
Maximum switching capacity				
DC voltage	10 W		3 W	10 W
AC voltage	10 VA		3 VA	10 VA
Thermoelectric potential	< 100 µV			
Initial contact resistance / measuring condition:	< 150 mΩ			
Electrical endurance				
12 V / 10 mA			5 x 10 ⁷	
24 V / 400 mA			5 x 10 ⁶	

Insulation

Insulation resistance at 500 VDC	contact coil > 10 ¹¹ Ω			
Dielectric test voltage (1 min)				
contact / coil	1500 Vdc	1500 Vdc	1500 Vdc	1500 Vdc
contact / contact	250 Vdc	200 Vdc	250 Vdc	225 Vdc

High Frequency Data

Capacitance	
between coil and contacts	max. 2 pF
between adjacent contact sets	max. 1 pF
between open contacts	max. 1 pF

IM Relays

4th generation slim line – low profile polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 coil. Nominal voltage range from 1.5... 24 V, coil power consumption of 140... 200 mW, latching relays with 1 coil 100 mW. The IM relay is available as through hole and surface mount type (J-Legs and Gull Wings) and capable to switch loads up to 60 W/62,5 VA. Dielectric strength fulfills the Bellcore requirements according GR 1089 (2,5 kV – 2 / 10 μ s) and FCC part 68 (1,5 kV – 10 / 160 μ s). The IM relay is CECC/IECQ approved and certified in accordance with IEC/EN 60950 and UL 1950. Dimensions approx. 10 x 6 mm board space and 5,65 mm height.

P2 Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 24 V, coil power consumption 140 mW, latching relays with 1 coil 70 mW. The P2 Relay is available as through hole or surface mount type and capable to switch currents up to 5 A. Dielectric strength fulfills the Bellcore requirements according GR 1089 (2,5 kV – 2 / 10 μ s) and FCC part 68 (1,5 kV – 10 / 160 μ s). Dimensions approx. 15 x 7,5 mm board space and 10 mm height.

FX Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 coil. Nominal voltage range from 3 ... 48 V, coil power consumption of 80 ... 260 mW for the high sensitive version, 140... 300 mW for the standard version, latching relays with 1 coil 100 mW. The FX2 relay is available as through hole type and capable to switch loads up to 60 W/62,5 VA. Dielectric strength fulfills the Bellcore requirements according GR 1089 (2,5 kV – 2 / 10 μ s) and FCC part 68 (1,5 kV – 10 / 160 μ s). The FX2 is CECC/IECQ approved and certified in accordance with IEC/EN 60950 and UL 1950. Dimensions approx. 15 x 7,5 mm board space and 10,7 mm height.

FT2 / FU2 Relays

3rd generation non polarized, non latching 2 c/o telecom relay with bifurcated contacts. Nominal voltage range from 3 ... 48 V, coil power consumption 200 ... 300 mW. Most sensitive 48 V relay. Available as through hole and surface mount type. Dielectric strength fulfills the Bellcore requirements according GR 1089 (2,5 kV – 2 / 10 μ s) and FCC part 68 (1,5 kV – 10 / 160 μ s). The FT2/FU2 is CECC/IECQ approved and certified in accordance with IEC/EN 60950 and UL 1950. Dimensions approx. 15 x 7,5 mm board space and 10 mm height.

FP2 Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 48 V, coil power consumption of 80 ... 260 mW for the high sensitive version, 140... 300 mW for the standard version, latching relays with 1 coil 100 mW. The FP1 Relay is available as through hole type and capable to switch loads up to 30 W/62,5 VA. Dielectric strength fulfills FCC part 68 (1,5 kV – 10 / 160 μ s). The FP2 is CECC/IECQ approved. Dimensions approx. 14 x 9 mm board space and 5 mm height.

MT2 / MT4

2nd generation non polarized, non latching 2 c/o and 4 c/o telecom and signal relay with bifurcated contacts. Nominal voltage range from 4.5 ... 48 V, coil power consumption 150/200/300/400 and 550 mW, and 300 mW (MT4). Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV – 10 / 160 μ s) for both and the Bellcore requirements according GR 1089 (2,5 kV – 2 / 10 μ s) the MT4 only. Dimensions MT2 approx. 20 x 10 mm board space and 11 mm height, MT4 approx. 20 x 15 mm board space and 11 mm height.

D2n Relays

2nd generation non polarized 2 c/o relay for telecom and various other applications. Nominal voltage range from 3 ... 48 V, coil power consumption from 150 ... 500 mW. The D2n relay is capable to switch currents up to 3 A. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV – 10 / 160 μ s). Dimensions approx. 20 x 10 mm board space and 11,5 mm height.

P1 Relays

Extremely sensitive, polarized 1 c/o relay with bifurcated contacts for a wide range of applications, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 24 V, coil power consumption 65 mW, latching relays with 1 coil 30 mW. The P1 relay is available as through hole or surface mount type and capable to switch currents up to 1 A. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV – 10 / 160 μ s). Dimensions approx. 13 x 7,6 mm board space and 7 mm height for THT or 8 mm height for SMT version.

W11 Relays

Low cost, non polarized 1 c/o relay for various applications. Nominal voltage range from 3 ... 24 V, coil power consumption 450 mW, sensitive versions 200 mW. The W11 relay is capable to switch currents up to 3 A. Dielectric strength 1000 Vrms. Dimensions approx. 15,6 x 10,6 mm board space and 11,5 mm height.

Reed Relays

High sensitive, non polarized relay for telecom and various other applications, available with 1 n/o, 2 n/o or 1c/o contacts. Nominal voltage range from 5 ... 24 V, coil power consumption 50...280 mW for 1 n/o and 125 ... 280 mW for 2 n/o or 1 c/o versions. Reedrelays are available in DIP or SIL housing and capable to switch currents up to 0,5 A. Integrated diode and/or electrostatic shield optional. Dielectric strength 1500 Vdc. Dimensions approx. 19,3 x 7 mm board space and 5 ... 7,5 mm height for DIP or 19,8 x 5 mm board space and 7,8 mm height for SIL version.

Cradle Relays

Extremely reliable and mature relay family of 1st generation for various signal switching applications. Available as non polarized, polarized / latching and relay with AC coil. The benefit is the possibility of combining various contact sets from 1 up to 6 poles, single and bifurcated contacts, different contact materials with a coil voltage range from 1,5 Vdc to 220 Vac. Cradle relays are available as dust protected and hermetically sealed versions, with plug in or solder terminals and are capable to switch currents up to 5 A. Forcibly guided (linked) contact sets optional. Dielectric strength 500 Vrms. Dimensions from approx. 19 x 24 to 19x35 mm board space and 30 mm height.

Other Relays

We offer a variety of different relay families for maintenance and replacement purposes. These relays are up to 60 years old now, such as Card Relay SN (V23030 / V23031 series), Small General Purpose Relay (V23006 series), Small Polarized Relay (V23063 ... V23067 and V23163 ... V23167 series). Accessories like sockets, hold down springs, etc. optional.

HF3 Relay

High performance low cost RF relay with excellent RF characteristics. Available with an impedance of 50 and 75 Ohm. Suitable for frequencies up to 3 GHz. Actually smallest RF relay available combining small size, excellent RF performance and SMD solderability. Available as non latching or latching relay with 1 or 2 coils and a nominal coil voltage range from 3 ... 24 V, coil power consumption 140 mW, latching relays with 1 coil 70 mW. Dimensions 14,6 x 7,3 x 10 mm.



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