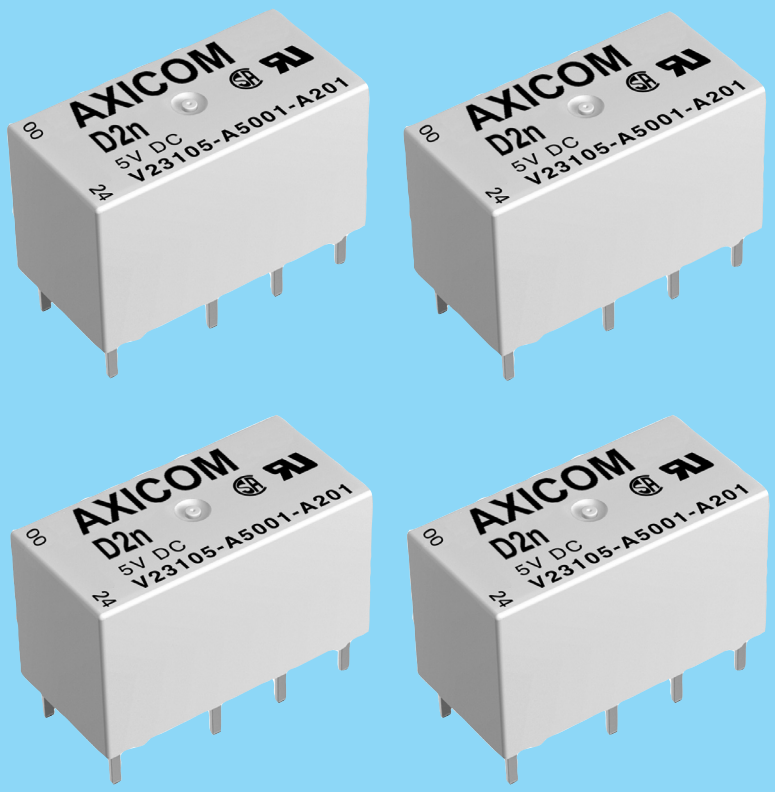

AXICOM

Telecom-, Signal and RF Relays

D2n V23105 Relay

108-98007 • Nov. 07 Rev A • ECOC: JM10

Tyco Electronics

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D2n V23105 Relay

Disclaimer

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The dimensions in this datasheet are for reference purpose only and are subject to change without notice. Specifications are subject to change without notice.

Index

UL 508 File No. E 111441

D2n V23105 Relay

2 pole telecom relay, non-polarized,
Through Hole Type (THT)

Relay types: non-latching with 1 coil

ROHS compliant (Directive 2002/95/EC) as per product date code 0418.

Features

- Standard DIL relay
- Dimensions 20 x 10 x 11 mm,
  0.795 x 0.394 x 0.433 inch
- Switching and continous current 3 A
- 2 changeover contacts (2 form C / DPDT)
- Single contacts
- Immersion cleanable
- Four different coil sensitivities
- (150, 200, 400, > 500 mW)
- Surge voltage resistance meets FCC Part 68 requirement:
  1.5 kV (10 / 700 µs) between coil and contacts

Typical applications

- Communications equipment
- Office equipment
- Measurement and control equipment
- Entertainment electronics
- Medical Equipment
- Consumer electronics

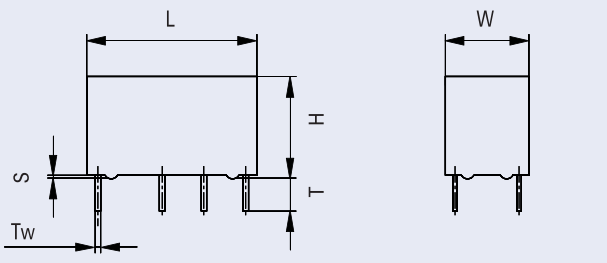
D2n V23105 Relay

Dimensions

Dimensions in mm

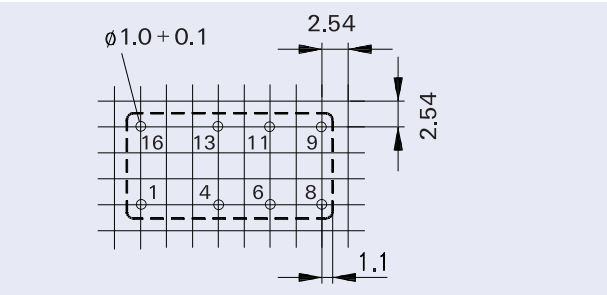
	THT	
	mm	inch
L W H	20.2 + 0.05/-0.02 10 + 0.05/-0.02 11 + 0.1/-0.2	0.795 + 0.002/-0.0008 0.393 + 0.002/-0.0008 0.433 + 0.004/-0.008
T T1 T2 S Tw	3.1 ± 0.3 N / A 7.62 ± 0.15 0.55 0.5	0.122 ± 0.011 N / A 0.3 ± 0.005 0.021 0.020

THT Version



Mounting hole layout

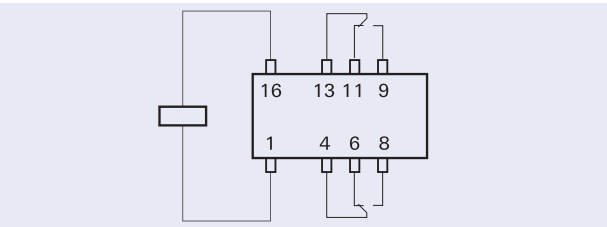
View onto the component side of the PCB (top view)



Basic grid 2.54 mm

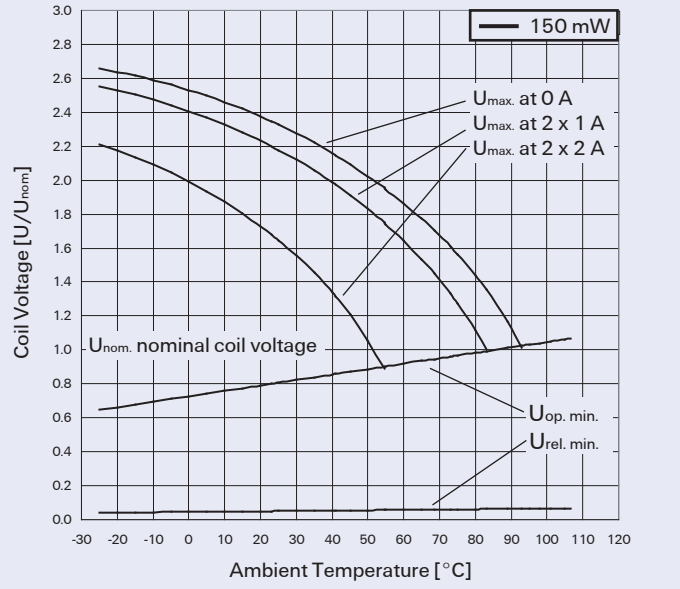
Terminal assignment

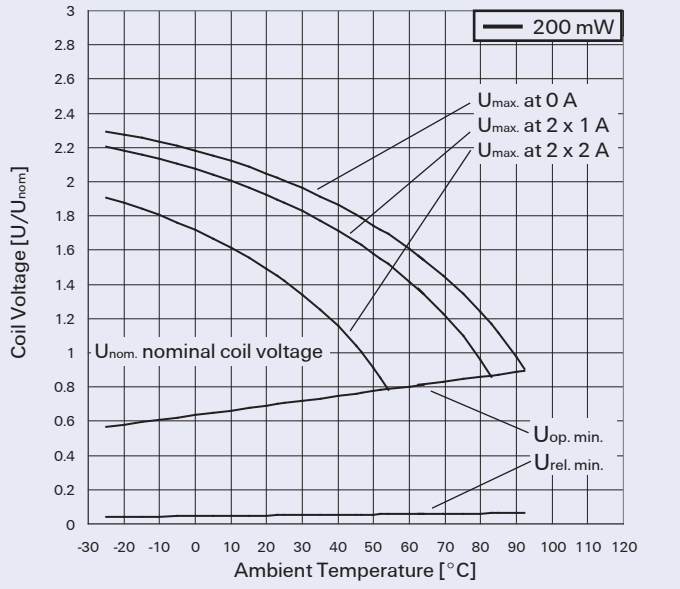
Relay – top view

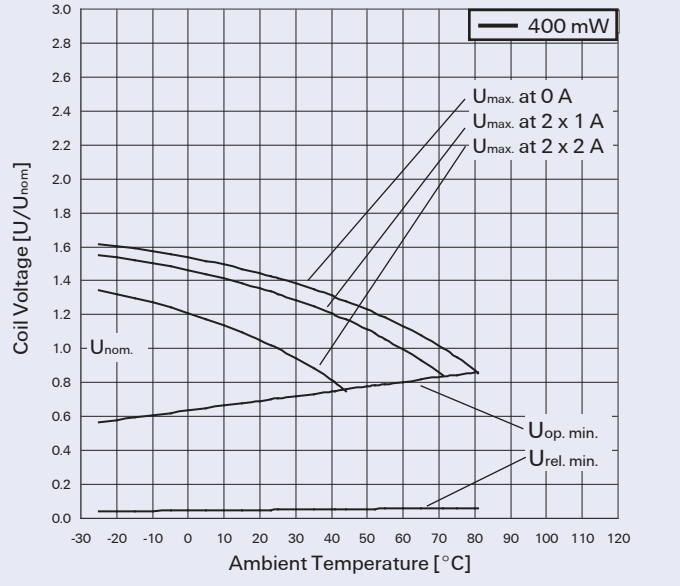


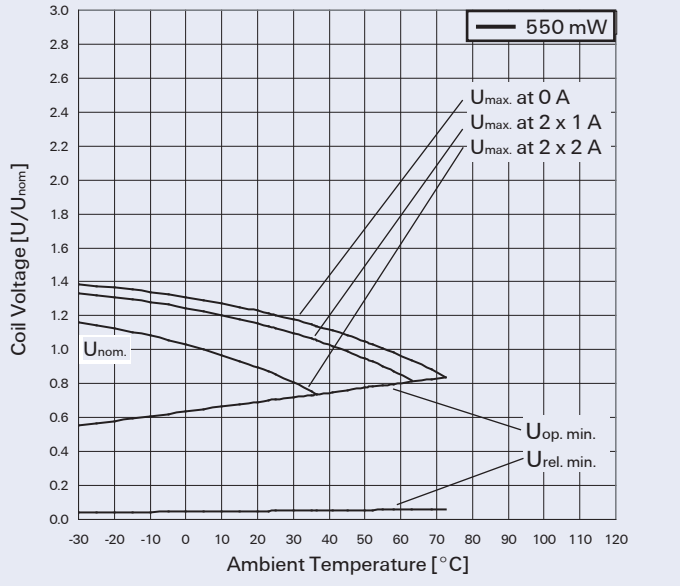
D2n V23105 Relay

Coil Operating Range









U_{nom} = Nominal coil voltage

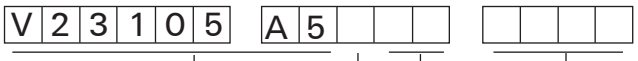
$U_{max.}$ = Upper limit of the operative range of the coil voltage (limiting voltage) when coils are continously energized

$U_{op.\ min.}$ = Lower limit of the operative range of the coil voltage (reliable operate voltage)

$U_{rel.\ min.}$ = Lower limit of the operative range of the coil voltage (reliable release voltage)

D2n V23105 Relay

Relay Code



D2n Relay Identification

Version
0 = 150 mW nominal power consumption
3 = 200 mW
4 = 400 mW
5 = 550 mW

Coil number
08 = 3 V nominal voltage (only with 150/200 mW nominal coil power consumption*)
01 = 5 V nominal voltage
02 = 6 V
06 = 9 V
04 = 10 V
03 = 12 V
05 = 24 V
07 = 48 V

BT 47 versions
475 = 5 V nominal voltage
479 = 10 V
476 = 12 V
477 = 24 V
478 = 48 V

Contact assembly
A201 = 2 changeover contacts; silver nickel, gold-plated, against silver nickel, gold-plated

*) Coils with 400/500 mW nominal power consumption on request

D2n V23105 Relay

Coil Data (values at 23 °C) — Ordering Information

Nominal voltage U_{nom} Vdc	Operate/set voltage range: Minimum voltage U_{min} Vdc	Operate/set voltage range: Maximum voltage U_{max} Vdc	Release/ reset voltage Minimum Vdc	Coil power mW	Coil Resistance Ω / ± 10 %	Relay code	Tyco part number
150 mW nominal power consumption, non-latching							
5	4.0	11.7	0.25	150	167	V23105A5001A201	8-1393792-5
6	4.8	14.0	0.30	150	240	V23105A5002A201	8-1393792-7
9	7.2	21.0	0.45	150	540	V23105A5006A201	9-1393792-1
12	9.6	28.0	0.60	150	960	V23105A5003A201	8-1393792-8
24	19.2	56	1.20	150	3840	V23105A5005A201	9-1393792-0
200 mW nominal power consumption, non-latching							
3	2.1	6.1	0.15	200	45	V23105A5308A201	1393793-5
5	3.5	10.1	0.25	200	125	V23105A5301A201	9-1393792-3
6	4.2	12.2	0.30	200	180	V23105A5302A201	9-1393792-5
9	6.3	18.2	0.45	200	405	V23105A5306A201	1393793-2
12	8.4	24.3	0.60	200	720	V23105A5303A201	9-1393792-7
24	16.8	48.6	1.20	200	2880	V23105A5305A201	9-1393792-9
48	33.6	97.2	2.40	200	11520	V23105A5307A201	1393793-3
400 mW nominal power consumption, non-latching							
5	3.5	7.2	0.25	400	62	V23105A5401A201	1393793-6
6	4.2	8.6	0.30	400	90	V23105A5402A201	1393793-7
9	6.3	12.9	0.42	400	203	V23105A5406A201	1-1393793-0
12	8.4	17.2	0.60	400	360	V23105A5403A201	1393793-8
24	16.8	34.3	1.20	400	1440	V23105A5405A201	1393793-9
48	33.6	68.6	2.40	400	5760	V23105A5407A201	1-1393793-1
> 500 mW nominal power consumption, non-latching							
5	3.5	6.1	0.25	695	36	V23105A5501A201	1-1393793-6
6	4.2	7.3	0.30	515	70	V23105A5502A201	1-1393793-8
9	6.3	10.9	0.45	580	140	V23105A5506A201	2-1393793-3
12	8.4	14.5	0.60	515	280	V23105A5503A201	1-1393793-9
24	16.8	29.1	1.20	550	1050	V23105A5505A201	2-1393793-1
48	33.6	58.1	2.40	575	4000	V23105A5507A201	2-1393793-4

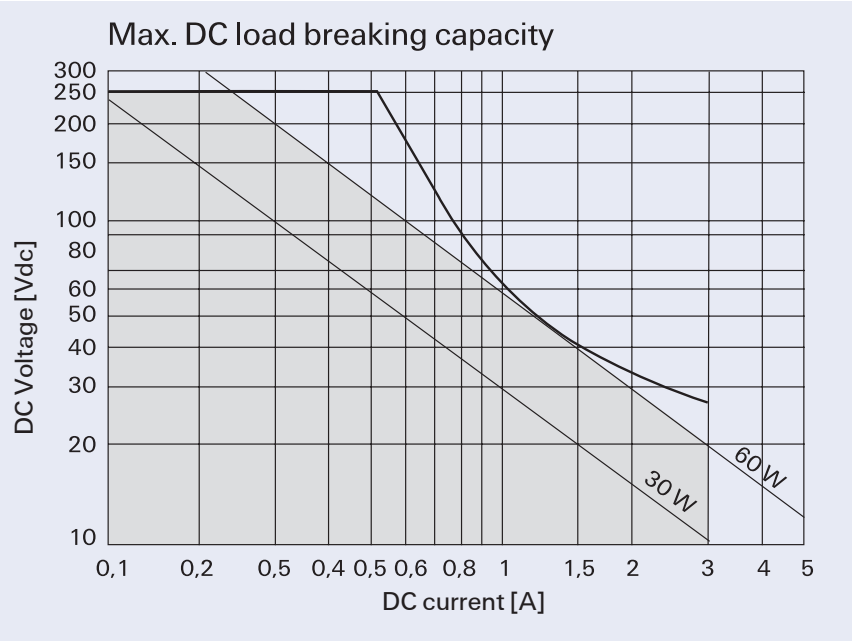
Nominal voltage Vdc	Operate ing current mA	Nomainal power consumption Vdc	Resistance mW	British Telecom Code Ω / ± 10 %	Relay code	Tyco part number
Coil versions, BT 47 type / specification T4563 C (current tested)						
5	80.0	695	36	47 W / 5	V23105A5475A201	1-1393793-2
10	32.5	500	200	47 W / 9	V23105A5479A201	3-1393794-0
12	27.0	515	280	47 W / 6	V23105A5476A201	1-1393793-3
24	14.0	550	1050	47 W / 7	V23105A5477A201	1-1393793-4
48	7.0	575	4000	47 W / 8	V23105A5478A201	1-1393793-5

D2n V23105 Relay

Contact Data

Number of contacts and type	2 changeover contacts
Contact assembly	single contacts
Contact material	Silver-nickel, gold-covered
Limiting continuous current at max. ambient temperature	3 A
Maximum switching current	3 A
Maximum swichting voltage	220 Vdc 250 Vac
Maximum switching capacity	60 W, 125 VA
Thermoelectric potential	< 10 µV
Minimum switching voltage	100 µV
Initial contact resistance / measuring condition: 10 mA / 20 mV	< 100 mΩ
Electrical endurance at 230 Vac / 0.5 A at 6 Vdc / 0.1 A at 30 Vdc / 1 A at 30 Vdc / 2 A	typ. 3.0 x 10^5 operations typ. 2.0 x 10^6 operations typ. 5.0 x 10^5 operations typ. 1.0 x 10^5 operations
Mechanical endurance	typ. 15.0 x 10^6 operations
UL contact ratings	30 Vdc / 1.0 A 100 Vdc / 0.3 A 125 Vac / 0.5 A for 150 mW and 200 mW coil 125 Vac / 1.0 A for 400 mW and 500 mW coil

Max. DC Load Breaking Capacity



D2n V23105 Relay

Insulation

Insulation resistance at 500 Vdc	> 10^9 Ω
Dielectric test voltage (1 min) between coil and contacts between adjacent contact sets between open contacts	 1050 Vrms 750 Vrms 750 Vrms
Surge voltage resistance according to FCC 68 (10 / 700 µs) between coil and contacts between adjacent contact sets between open contactss	 1500 V 1500 V 1500 V

High Frequency Data

Capacitance between coil and contacts between adjacent contact sets between open contacts	 max. 4 pF max. 2 pF max. 2 pF
RF Characteristics Isolation at 100 / 900 MHz Insertion loss at 100 / 900 MHz V.S.W.R. at 100 / 900 MHz	 -39.0 dB / -20.7 dB -0.02 dB / -0.27 dB 1.04 / 1.40

General Data

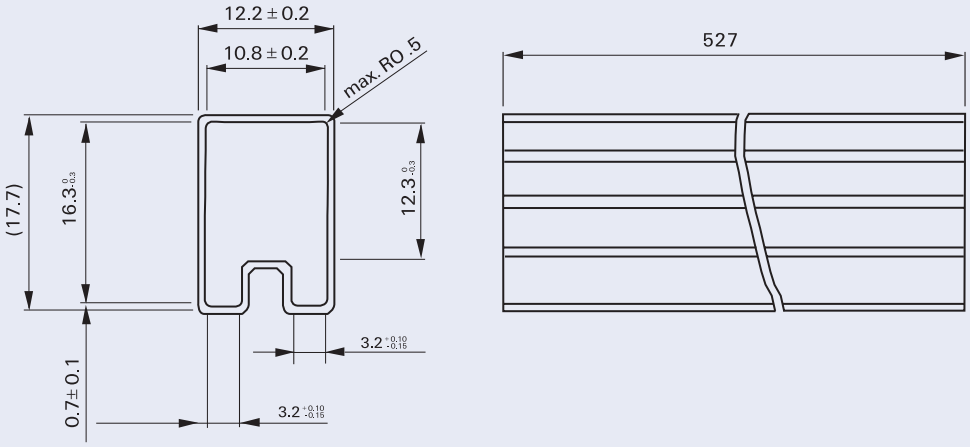
Operate time at U_{nom} typ. / max.	5 ms / 6 ms
Release time without diode in parallel, typ. / max.	4 ms / 4 ms
Release time with diode in parallel, typ. / max.	5 ms / 5 ms
Bounce time at closing contact, typ. / max.	3 ms / 5 ms
Maximum switching rate without load	50 operations/s
Ambient temperature 150 and 200 mW coil 400 mW coil 500 mW coil	 -25 °C ... +85 °C -25 °C ... +75 °C -25 °C ... +60 °C
Thermal resistance	< 85 K/W
Maximum permissible coil temperature	115 °C
Vibration resistance (function)	10 g 10 to 55 Hz
Shock resistance, half sinus, 11 ms	10 g (function) 50 g (damage)
Degree of protection / Environmental protection	immersion cleanable, IP 67 / RT III
Needle flame test	application time 10 s
Mounting position	any
Processing information	Ultrasonic cleaning is not recommended
Weight (mass)	max. 6 g
Terminal coating	SnCu 0.7
Resistance to soldering heat	265 °C / 10 s

All data refers to 23 °C unless otherwise specified.

D2n V23105 Relay

Packing

Dimensions in mm



Tube for THT version
25 relays per tube
1‘000 relays per box

D2n V23105 Relay

IM Relays

4th generation slim line – low profile polarized 2 c/o telecom signal 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 50 ... 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. It is currently the only 2 A rated 4G relay on the market. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV – 2 / 10 µs) and FCC part 68 (1,5 kV – 10 / 160 µs). The IM relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950.
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 Telcordia requirements according GR 1089 (2,5 kV – 2 / 10 µs) and FCC part 68 (1,5 kV – 10 / 160 µs). The P2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950.
Dimensions approx. 15 x 7,5 mm board space and 10 mm height.

FX2 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 Telcordia requirements according GR 1089 (2,5 kV – 2 / 10 µs) and FCC part 68 (1,5 kV – 10 / 160 µs). The FX2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950.
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 Telcordia requirements according GR 1089 (2,5 kV – 2 / 10 µs) and FCC part 68 (1,5 kV – 10 / 160 µs). The FT2/FU2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950.
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 FP2 Relay is available as through hole type and capable to switch loads up to 60 W/62,5 VA. Dielectric strength fulfills FCC part 68 (1,5 kV – 10 / 160 µs). The FP2 is tested according CECC/IECQ approved.
Dimensions approx. 14 x 9 mm board space and 5 mm height.

MT2

2nd generation non polarized, non latching 2 c/o telecom and signal relay with bifurcated contacts. Nominal voltage range from 3 ... 48 V, coil power consumption 150/200/300/400 and 550 mW. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV – 10 / 160 µs).
Dimensions approx. 20 x 10 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 µs). Dimensions approx. 20 x10 mm board space and 11 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 µs). 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 series), Small General Purpose Relay (V23006 series), Small Polarized Relay (V23063 ... V23067 and V23163 ... V23167 series). Accessories like sockets, hold down springs, etc. optional.

High Frequency Relays

HF3 / HF3S / HF6 series RF relays offering excellent RF characteristics in a small package. All HF series relays are suitable for SMD soldering processes. Available as non latching or latching versions with 1 or 2 coils and a nominal coil voltage range from 3 … 24 V, a coil power consumption of 140 mW or 70 mW (single coil latching types).

HF3: Low cost RF relay suitable up to 3 GHz. Impedance 50 and 75 Ohm. 50 W hot switching and 50 W RF power carry capability.
Dimensions 14.6 x 7.3 x 10.3 mm.

HF3S: High performance, high power RF relay suitable up to 3 GHz, 50 W hot switching and 150 W RF power carry capability.
Dimensions 15 x 7.6 x 10.6 mm.

HF6: High performance, high power RF relay suitable up to 6 GHz, 50 W hot switching and 50 W RF power carry capability.
Dimensions 15 x 7.6 x 10.6 mm.

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