

**Power PCB Relay RT1 Inrush**

- 1 pole 16 A, 1 CO or 1 NO contact
- For inrush peak currents up to 80 A
- Mono- or bistable coil
- 5 kV / 10 mm coil-contact
- Reinforced insulation
- Ambient temperature 85°C

**Applications**

Domestic appliances, heating control, lighting control



F0177-C

**Approvals**

VDE REG.-Nr. 6106, cULus E214025, cSP® 14385  
 Technical data of approved types on request

**Contact data**

Contact configuration	1 CO or 1 NO
Contact set	single contact
Type of interruption	micro disconnection
Rated voltage / max. switching voltage AC	250 / 400 VAC
Rated current	16 A
Limiting continuous current	16 A, UL: 20 A (K-version only)
Maximum breaking capacity AC	4000 VA
Limiting making capacity, max 4 s, duty factor 10%	30 A
max 20 ms (incandescent lamps), RT33L version	80 A
Contact material	AgNi 90/10, AgSnO <sub>2</sub>
Rated frequency of operation with / without load	6 / 1200 min <sup>-1</sup>
Operate- / release time DC coil	max 9 / 6 ms
Operate- / reset time bistable	max 10 / 10 ms
Bounce time NO / NC contact	max 3 / 6 ms

**Contact ratings**

Type	Contact Load	Ambient temp. [°C]	Cycles
------	--------------	--------------------	--------

**IEC 61810**

RT33L NO	16 A, 250 VAC, cosφ=1	85°C	50x10 <sup>3</sup>
RT33K NO	16 A, 250 VAC, cosφ=1	85°C	30x10 <sup>3</sup>

**UL 508**

RT33K NO	20 A, 277 VAC, general purpose	40°C	10x10 <sup>3</sup>
RT33L NO	16 A, 277 VAC, resistive	85°C	50x10 <sup>3</sup>
RT33L NO	1000 W Tungsten, 120 VAC, 60 Hz	40°C	6x10 <sup>3</sup>
RT33L NO	1000 W standard ballast, 120 VAC, 60 Hz	40°C	6x10 <sup>3</sup>

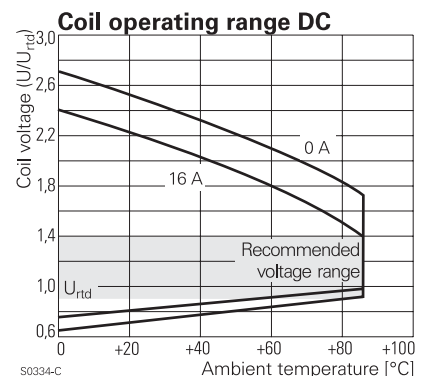
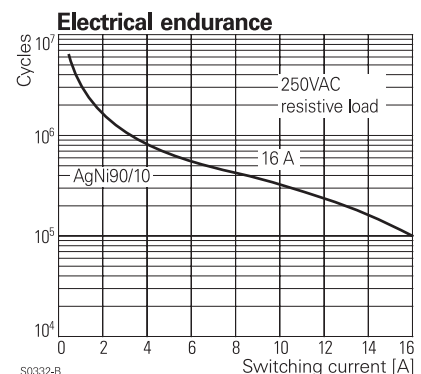
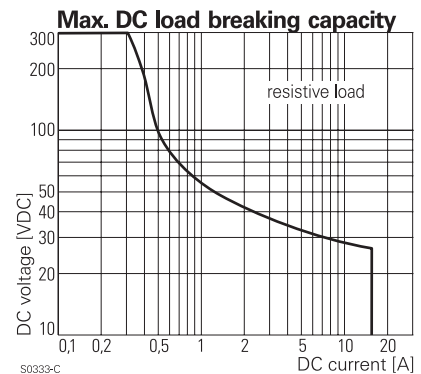
**Coil data, DC-coil**

Rated coil voltage range	5...110 VDC
Operative range to IEC 61810	2
Coil insulation system according UL1446	class F

**Coil versions, DC-coil**

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω	Rated coil power mW
005	5	3.5	0.5	62±10%	403
006	6	4.2	0.6	90±10%	400
<b>012</b>	<b>12</b>	<b>8.4</b>	<b>1.2</b>	<b>360±10%</b>	<b>400</b>
<b>024</b>	<b>24</b>	<b>16.8</b>	<b>2.4</b>	<b>1440±10%</b>	<b>400</b>
048	48	33.6	4.8	5520±10%	417
060	60	42.0	6.0	8570±12%	420

All figures are given for coil without preenergization, at ambient temperature +23°C  
 Other coil voltages on request



**Power PCB Relay RT1 Inrush (Continued)**

Coil data, bistable coils	1 coil	2 coils
Rated coil voltage range	5...24 VDC	
Operative range to IEC 61810	2	
Limiting voltage, % of rated coil voltage	120%	150%
Minimum energization duration	30 ms	
Maximum energization duration	1 min at < 10% DF	
Coil insulation system according UL1446	class F	

**Coil versions, bistable coil**

Coil code	Rated voltage VDC	Operate voltage VDC	Reset voltage VDC	Coil resistance Ω	Rated coil power mW
<b>bistable, 1 coil</b>					
A05	5	3.5	2.8	62±10%	403
A06	6	4.2	3.3	90±10%	400
<b>A12</b>	<b>12</b>	<b>8.4</b>	<b>6.6</b>	<b>360±10%</b>	<b>400</b>
<b>A24</b>	<b>24</b>	<b>16.8</b>	<b>13.2</b>	<b>1440±10%</b>	<b>400</b>
<b>bistable, 2 coils</b>					
F05	5	3.5	2.8	42±10%	595
F06	6	4.2	3.3	55±10%	655
<b>F12</b>	<b>12</b>	<b>8.4</b>	<b>6.6</b>	<b>240±10%</b>	<b>600</b>
<b>F24</b>	<b>24</b>	<b>16.8</b>	<b>13.2</b>	<b>886±10%</b>	<b>650</b>

All figures are given for coil without preenergization, at ambient temperature +23°C  
Other coil voltages on request

**Coils - operation**

Version	1 coil		2 coils	
Coil terminals	A1	A2	A1	A3 A2
Pull-in	+	-		+ -
Reset	-	+	-	+

Contact position not defined at delivery

**Insulation**

Dielectric strength coil-contact circuit	5000 V <sub>rms</sub>	
open contact circuit	1000 V <sub>rms</sub>	
Clearance / creepage coil-contact circuit	≥ 10 / 10 mm	
Material group of insulation parts	IIIa	
Tracking index of relay base	PTI 250 V	
Insulation to IEC 61810-1		
Type of insulation coil-contact circuit	reinforced	
open contact circuit	micro disconnection	
Rated insulation voltage	250 V	
Pollution degree	3	2
Rated voltage system	240 V	230 / 400 V
Overvoltage category	III	

**Other data**

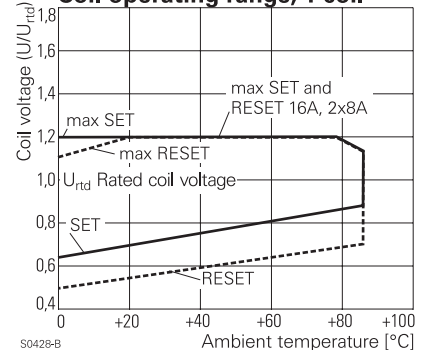
Mechanical endurance monostable	> 30 x 10 <sup>6</sup> cycles
bistable	> 5 x 10 <sup>6</sup> cycles
Material	RoHS - Directive 2002/95/EC compliant as per product date code 0413
Environment	
Ambient temperature range DC coil	-40...+85°C
bistable 1 coil	-10...+85°C
bistable 2 coils	-40...+85°C
Vibration resistance DC coil (function) NO / NC cont.20 / 5 g, 30 ... 500 Hz	
Shock resistance (destruction)	100 g
Category of protection	RTII - flux proof
Processing	
Mounting	pcb or on socket*)
Mounting distance	≥ 0 mm
Resistance to soldering heat flux-proof version	270 °C / 10 s
Relay weight	14 g
Packaging unit DC coil, bistable 1 coil	20 / 500 pcs
bistable 2 coils	100 pcs

\*) socket available for 1 coil version only, see Accessories

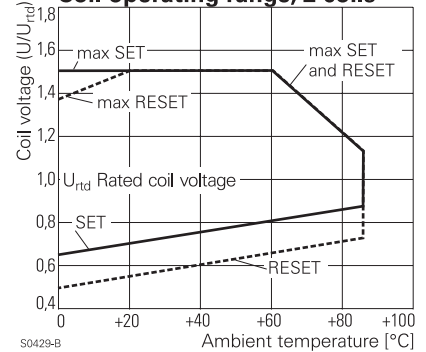
**Accessories**

For details see datasheet Accessories Power Relay RT

**Coil operating range, 1 coil**



**Coil operating range, 2 coils**

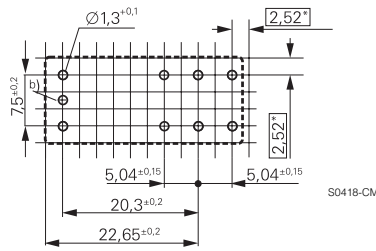


**Power PCB Relay RT1 Inrush (Continued)**

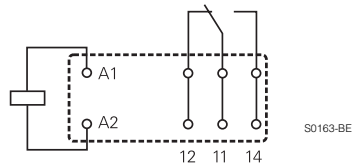
**PCB layout / terminal assignment**

Bottom view on solder pins

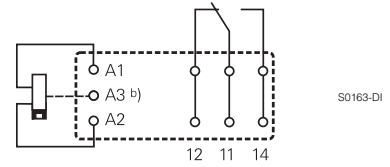
16 A, 1 CO contact, pinning 5 mm



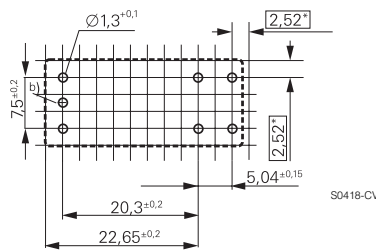
monostable version



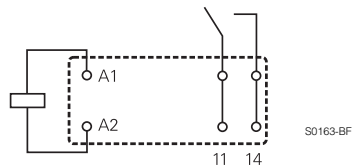
bistable version a)



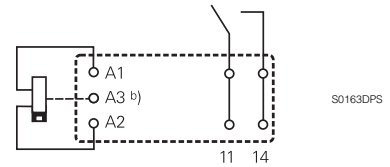
16 A, 1 NO contact, pinning 5 mm



monostable version



bistable version a)

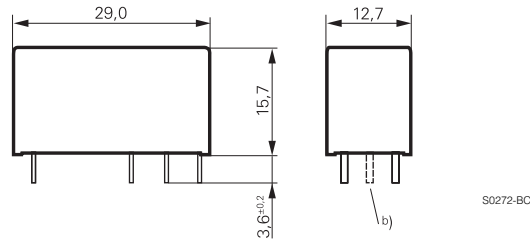


\*) With the recommended PCB hole sizes a grid pattern from 2.5 mm to 2.54 mm can be used.

a) Indicated contact position during or after coil energization with reset voltage.

b) for 2 coil version only

**Dimensions**



**Product key**

Typical product key

**RT 3 3 L 012**

**Type**

**RT** Power PCB Relay RT1 Inrush

**Version**

**3** 16 A, pinning 5 mm, flux proof

**Contact configuration**

**1** 1 CO contact (1 form C)      **3** 1 NO contact (1 form A)

**Contact material**

**K** AgNi 90/10      **L** AgSnO<sub>2</sub>

**Coil**

Coil code: please refer to coil versions table, preferred types in bold print

Product key	Version	Contacts	Contact material	Coil	Part number
RT33K012	16 A	1 NO contact	AgNi 90/10	12 VDC	2-1393240-3
RT33K024	pinning 5 mm			24 VDC	2-1393240-4
RT33K048				48 VDC	2-1393240-5
RT33L012			AgSnO <sub>2</sub>	12 VDC	3-1393240-3
RT33L024				24 VDC	3-1393240-5
RT33L048				48 VDC	3-1393240-6