

Power PCB Relay RT1

- 1 pole 12A/16A, 1 form C (CO) or 1 form A (NO) contact
- **■** DC or AC coil
- 5kV/10mm coil-contact, reinforced insulation
- Ambient temperature 85°C (DC coil)
- WG version: product in accordance to IEC 60335-1
- Reflow version: for THR (Through-Hole Reflow) soldering process

Typical applications

Boiler control, timers, garage door control, POS automation, interface modules



E0144-C









Approvals

VDE REG.-Nr. 6106, cULus E214025, cCSAus 14385; CQC

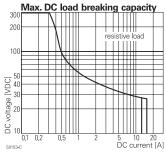
Technical data of approved types on request

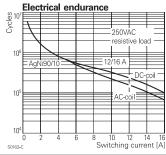
Contact Data	12A	16A			
Contact arrangement	1 form C (CO) or 1 form A (NO)				
Rated voltage	25	0VAC			
Max. switching voltage	40	0VAC			
Rated current	12A	16A			
Limiting continuous current	12A	16A, UL: 20A			
Limiting making current					
max. 4s, duty factor 10%	25A	30A			
Breaking capacity max.	3000VA	4000VA			
Contact material	AgNi 90/10, Ag	Ni 90/10 gold plated			
Frequency of operation, with/without	load				
DC coil	360/7	'2000h ⁻¹			
AC coil	360/36000h ⁻¹				
Operate/release time max., DC coil	8/	6ms			
Bounce time max., DC coil, form A/fo	orm B 4/	6ms			
Electrical endurance	see electrical e	ndurance graph ¹⁾			

C_{α}	ntact	ratio	nae

S		
Contact	Load	Cycles
A (NO)	16A, 250VAC, cosφ=1, 85°C	$30x10^3$
C (CO)	16A, 250VAC, cosφ=1, 85°C	$10x10^3$
A (NO)	10A, 400VAC, cosφ=1, 85°C	150x10 ³
A (NO)	12A, 250VAC, cosφ=1, 85°C	$50x10^3$
A (NO)	12A, 250VAC, cosφ=1, 70°C	100x10 ³
A/B (NO/NC)	20A, 250VAC, general purpose, 85°C	C 6x10 ³
A (NO)	16A, 250VAC, gen. purpose, 85°C	$50x10^3$
A (NO)	1hp, 240VAC, 40°C	1x10 ³
A (NO)	FLA/LRA, 4.5/13.1A, 480VAC, 70°C	$100x10^3$
A/B (NO/NC)	2A, 24VDC, DC13	6.050
•		
A (NO)	12(2)A, 250VAC, 85°C	100x10 ³
	Contact A (NO) C (CO) A (NO)	Contact Load A (NO) 16A, 250VAC, cosφ=1, 85°C C (CO) 16A, 250VAC, cosφ=1, 85°C A (NO) 10A, 400VAC, cosφ=1, 85°C A (NO) 12A, 250VAC, cosφ=1, 85°C A (NO) 12A, 250VAC, cosφ=1, 70°C A/B (NO/NC) 20A, 250VAC, general purpose, 85°C A (NO) 16A, 250VAC, gen. purpose, 85°C A (NO) 16A, 250VAC, 40°C A (NO) 1hp, 240VAC, 40°C A (NO) FLA/LRA, 4.5/13.1A, 480VAC, 70°C A/B (NO/NC) 2A, 24VDC, DC13

¹⁾ For reflow solderable versions: actual contact performance may be influenced by the reflow soldering process





Contact Data (continued)	
Mechanical endurance	
DC coil	>30x10 ⁶ operations
AC coil	>10x10 ⁶ operations
AC coil, reflow version	>5x10 ⁶ operations

Coil Data	
Coil voltage range, DC coil/ AC coil	5 to 110VDC / 24 to 230VAC
Operative range, IEC 61810	2
Coil insulation system according UL	class F

Coil versions, DC coil

Coil	Rated	Operate	Release	Coil	Rated coil
code	voltage	voltage	voltage	resistance	power
	VDC	VDC	VDC	$\Omega \pm 10\%^{2)}$	mW
005	5	3.5	0.5	62	403
006	6	4.2	0.6	90	400
009	9	6.3	0.9	200	400
012	12	8.4	1.2	360	400
024	24	16.8	2.4	1440	400
048	48	33.6	4.8	5520	417
060	60	42.0	6.0	8570 ²⁾	420
110	110	77.0	11.0	28800 ²⁾	420

2) Coil resistance ±12%

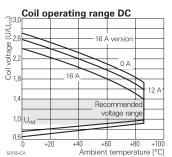
All figures are given for coil without pre-energization, at ambient temperature +23°C. Other coil voltages on request.

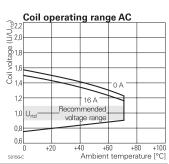
Coil versions, AC coil 50/60 Hz

	,				
Coil	Rated	Operate	Release	Coil	Rated coil
code	voltage	voltage	voltage	resistance	power
	VAC	VAC	VAC	$\Omega \pm 15\%^{(3)}$	VA
524	24	18.0	3.6	350 ³⁾	0.76
615	115	86.3	17.3	8100	0.76
620	120	90.0	18.0	8800	0.75
700	200	150.0	30.0	24350	0.76
730	230	172.5	34.5	32500	0.74

3) Coil resistance ±10%

All figures are given for coil without pre-energization, at ambient temperature +23°C, 50 Hz. Other coil voltages on request.





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Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section. Datasheets and product data is subject to the terms of the disclaimer and all chapters of the 'Definitions' section, available at http://relays.te.com/definitions

Datasheets, product data, 'Definitions' section, application notes and all specifications are subject to change.



Power PCB Relay RT1 (Continued)

Insulation Data	
Initial dielectric strength	
between open contacts	$1000V_{rms}$
between contact and coil	5000V _{rms}
Clearance/creepage	
between contact and coil	≥10/10mm
Material group of insulation parts	Illa
Tracking index of relay base	PTI 250V
reflow version	PTI 175V

Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter

Resistance to heat and fire

according EN60335, par30 WG version or Reflow version Ambient temperature

-40 to 85°C DC coil AC coil -40 to 70°C

Category of environmental protection, IEC 61810

standard version RTII - flux proof, RTIII - wash tight

reflow version RTII - flux proof

Vibration resistance (functional)

form A/form B contact, 30 to 500Hz 20g/5g Shock resistance (destructive) 100g

Other Data (continued) Terminal type

standard version PCB-THT, plug-in reflow version PCB-THR Mounting distance AC coil: ≥2.5mm Weight 14g

Resistance to soldering heat THT, IEC 60068-2-20 270°C/10s 260°C/5s

Resistance to soldering heat THR

reflow soldering (for reflow version) forced gas convection 4) or vapour phase 5)

temperature profile according EN61730 Packaging/unit tube/20 pcs., box/500 pcs.

4) infrared heating not allowed

5) recommended fluid LS/230

Accessories

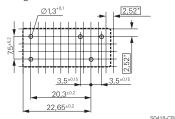
For details see datasheet Accessories Industrial Power Relay RT NOTE: indicated contact ratings and electrical endurance data for direct wiring of relays (according IEC 61810-1); for relays mounted on sockets deratings may apply.

PCB layout / terminal assignment

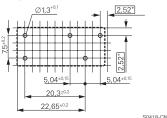
Bottom view on solder pins

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

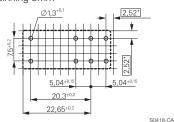




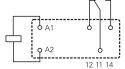
12A, pinning 5mm



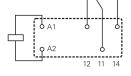
16A, pinning 5mm



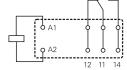
1 form C (CO) contact



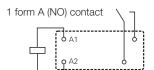
1 form C (CO) contact

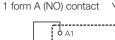


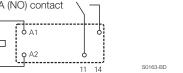
1 form C (CO) contact

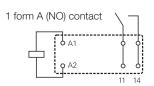


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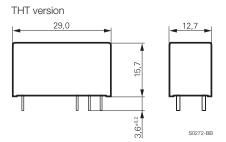
S0163-BG

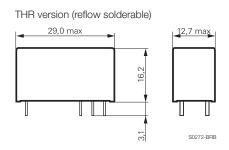
S0163-BC



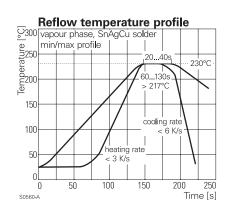
Power PCB Relay RT1 (Continued)

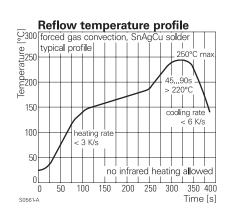
Dimensions





Process conditions for Reflow soldering according to EN61760-1





Product	code structure	Typical product code	RT	3	1	4	024
уре							
R1	Power PCB Relay RT1						
ersion							
1	12A, pinning 3.5mm, flux proof						
2	12A, pinning 5mm, flux proof *)						
3	16A, pinning 5mm, flux proof						
В	12A, pinning 3.5mm, wash tight						
D	16A, pinning 5mm, wash tight						
ontact a	arrangement						
1	1 form C (CO) contact						
3	1 form A (NO) contact						
ontact r	material						
4	AgNi 90/10						
5	AgNi 90/10 gold plated (for type RT31.)						
oil							
Co	oil code: please refer to coil versions table						
ersion							
Bl	ank Standard version						

WG Product in accordance with IEC 60335-1 (domestic appliances) Reflow solderable R

*) Wash tight version on request



Power PCB Relay RT1 (Continued)

Product code	Version	Contacts	Contact material	Coil	Version	Part number
RT114009	12A, pinning 3.5mm,	1 form C (CO)	AgNi 90/10	9VDC	Standard	1393239-9
RT114012	flux proof	contact		12VDC		1419108-1
RT114012WG					IEC60335-1 compliant	7-1415538-6
RT114024				24VDC	Standard	1-1393239-3
RT114024WG					IEC60335-1 compliant	1415539-4
RT114730				230VAC	Standard	1-1393239-9
RT115024			AgNi 90/10 gold pl.	24VDC		2-1393239-1
RT134012		1 form A (NO)	AgNi 90/10	12VDC		2-1393239-6
RT134024		contact	_	24VDC		3-1393239-0
RT214012	12A, pinning 5mm,	1 form C (CO)		12VDC		5-1393239-4
RT214024	flux proof	contact		24VDC		5-1393239-5
RT214524	·			24VAC		5-1393239-9
RT214730				230VAC		1419108-6
RT314005	16A, pinning 5mm,			5VDC		9-1393239-1
RT314006	flux proof			6VDC		9-1393239-3
RT314012	'			12VDC		9-1393239-5
RT314012WG					IEC60335-1 compliant	8-1415535-6
RT314024				24VDC	Standard	9-1393239-8
RT314024WG					IEC60335-1 compliant	1415538-7
RT314048				48VDC	Standard	1393240-1
RT314730				230VAC		1393240-7
RT315024			AgNi 90/10 gold pl.	24VDC		1-1393240-4
RT334009WG		1 form A (NO)	AgNi 90/10	9VDC	IEC60335-1 compliant	3-1415538-1
RT334012		contact		12VDC	Standard	4-1393240-5
RT334012WG					IEC60335-1 compliant	1-1415527-1
RT334024				24VDC	Standard	4-1393240-8
RT334048				48VDC		5-1393240-0
RTB14005	12A, pinning 3.5mm,	1 form C (CO)		5VDC		1-1393238-2
RTB14012	wash tight	contact		12VDC		1-1393238-5
RTB14024				24VDC		1-1393238-9
RTB14524				24VAC		2-1393238-4
RTD14005	16A, pinning 5mm,			5VDC		5-1393238-9
RTD14012	wash tight			12VDC		6-1393238-2
RTD14024				24VDC		6-1393238-8
RTD14048				48VAC		6-1393238-9
RTD34012		1 form A (NO)		12VDC		3-1419108-5
RTD34024		contact		24VDC		3-1419108-8

This list represents the most common types and does not show all variants covered by this datasheet. Other types on request