

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



F0144-C



Typical applications

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

Approvals

VDE Cert. No. 40007571, cULus E214025, cCSAus 1142018; CQC in preparation

Technical data of approved types on request

| Contact Data | 12A | 16A |
|---|--|--------------|
| Contact arrangement | 1 form C (CO) or 1 form A (NO) | |
| Rated voltage | 250VAC | |
| Max. switching voltage | 400VAC | |
| 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, AgNi 90/10 gold plated | |
| Frequency of operation, with/without load | | |
| DC coil | 360/72000h ⁻¹ | |
| AC coil | 360/36000h ⁻¹ | |
| Operate/release time max., DC coil | 8/6ms | |
| Bounce time max., DC coil, form A/form B | 4/6ms | |
| Electrical endurance | see electrical endurance graph ¹⁾ | |

Contact ratings

| Type | Contact | Load | Cycles |
|------------------|---------|---------------------------|---------------------|
| IEC 61810 | | | |
| RT314 DC-coil | A (NO) | 16A, 250VAC, cosφ=1, 85°C | 30x10 ³ |
| RT314 DC-coil | C (CO) | 16A, 250VAC, cosφ=1, 85°C | 10x10 ³ |
| RT314 DC-coil | A (NO) | 10A, 400VAC, cosφ=1, 85°C | 150x10 ³ |
| RT114 DC-coil | A (NO) | 12A, 250VAC, cosφ=1, 85°C | 50x10 ³ |
| RT114 AC-coil | A (NO) | 12A, 250VAC, cosφ=1, 70°C | 100x10 ³ |

UL 508

| | | | |
|-------|-------------|------------------------------------|---------------------|
| RT314 | A/B (NO/NC) | 20A, 250VAC, general purpose, 85°C | 6x10 ³ |
| RT334 | A (NO) | 16A, 250VAC, gen. purpose, 85°C | 50x10 ³ |
| RT314 | A (NO) | 1hp, 240VAC, 40°C | 1x10 ³ |
| RT314 | A (NO) | FLA/LRA, 4.5/13.1A, 480VAC, 70°C | 100x10 ³ |

EN60947-5-1

| | | | |
|---------------|-------------|-----------------|-------|
| RT314 DC-coil | A/B (NO/NC) | 2A, 24VDC, DC13 | 6.050 |
|---------------|-------------|-----------------|-------|

EN60730-1

| | | | |
|---------------|--------|----------------------|---------------------|
| RT314 DC-coil | A (NO) | 12(2)A, 250VAC, 85°C | 100x10 ³ |
|---------------|--------|----------------------|---------------------|

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 code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance Ω±10% ²⁾ | Rated power 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 |
| 020 | 20 | 14.0 | 2.0 | 952 | 420 |
| 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 code | Rated voltage VAC | Operate voltage VAC | Release voltage VAC | Coil resistance Ω±15% ³⁾ | Rated power 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.



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 | IIIa |
| 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/customer-support/rohssupportcenter

| | |
|---|---------------------------------------|
| Resistance to heat and fire | |
| WG version or Reflow version | according EN60335, par30 |
| Ambient temperature | |
| DC coil | -40 to 85°C |
| 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 |
| RTII | 270°C/10s |
| RTIII | 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 3.5mm



S0418-CB

12A, pinning 5mm



S0418-CN

16A, pinning 5mm



S0418-CA

1 form C (CO) contact



S0163-BG

1 form C (CO) contact



S0163-BC

1 form C (CO) contact



S0163-BE

1 form A (NO) contact



S0163-BH

1 form A (NO) contact



S0163-BD

1 form A (NO) contact



S0163-BF

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**

Type

RT Power PCB Relay RT1

Version

- 1** 12A, pinning 3.5mm, flux proof
- 2** 12A, pinning 5mm, flux proof *)
- 3** 16A, pinning 5mm, flux proof
- B** 12A, pinning 3.5mm, wash tight
- D** 16A, pinning 5mm, wash tight

Contact arrangement

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

Contact material

- 4** AgNi 90/10
- 5** AgNi 90/10 gold plated (for type RT31.)

Coil

Coil code: please refer to coil versions table

Version

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

*) 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, flux proof | 1 form C (CO) contact | AgNi 90/10 | 9VDC | Standard | 1393239-9 |
| RT114012 | | | | 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) contact | AgNi 90/10 | 12VDC | | 2-1393239-6 |
| RT134024 | | | | 24VDC | | 3-1393239-0 |
| RT214012 | 12A, pinning 5mm, flux proof | 1 form C (CO) contact | | 12VDC | | 5-1393239-4 |
| RT214024 | | | | 24VDC | | 5-1393239-5 |
| RT214524 | | | | 24VAC | | 5-1393239-9 |
| RT214730 | | | | 230VAC | | 1419108-6 |
| RT314005 | 16A, pinning 5mm, flux proof | | | 5VDC | | 9-1393239-1 |
| RT314006 | | | | 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) contact | AgNi 90/10 | 9VDC | IEC60335-1 compliant | 3-1415538-1 |
| RT334012 | | | | 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, wash tight | 1 form C (CO) contact | | 5VDC | | 1-1393238-2 |
| RTB14012 | | | | 12VDC | | 1-1393238-5 |
| RTB14024 | | | | 24VDC | | 1-1393238-9 |
| RTB14524 | | | | 24VAC | | 2-1393238-4 |
| RTD14005 | 16A, pinning 5mm, wash tight | | | 5VDC | | 5-1393238-9 |
| RTD14012 | | | | 12VDC | | 6-1393238-2 |
| RTD14024 | | | | 24VDC | | 6-1393238-8 |
| RTD14048 | | | | 48VAC | | 6-1393238-9 |
| RTD34012 | | 1 form A (NO) contact | | 12VDC | | 3-1419108-5 |
| RTD34024 | | | | 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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[TE Connectivity:](#)

[RT114024](#)