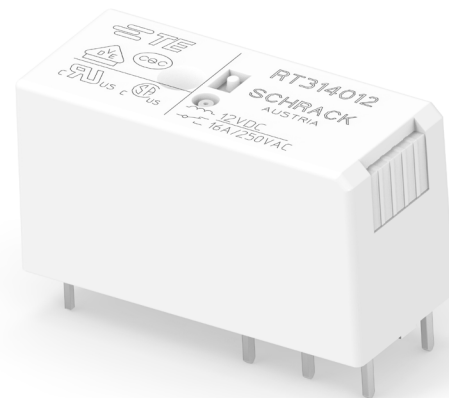


# SCHRACK POWER PCB RELAY RT1

## GENERAL PURPOSE PCB RELAYS

### FEATURES

- 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)
- Product in accordance to IEC 60335-1
- Reflow version: for THR (Through-Hole Reflow) soldering process



### APPLICATIONS

- Boiler control
- Timers
- Garage door control
- POS automation
- Interface modules

### APPROVALS

- VDE Cert. No. 40007571
- cULus E214025
- cCSAus 1142018
- CQC 20002275223 (China production)
- CQC 08001027262 (China production)
- CQC 18002197247 (monostable)



Technical data of approved types on request

# POWER PCB RELAY RT1

## GENERAL PURPOSE RELAYS PCB RELAYS

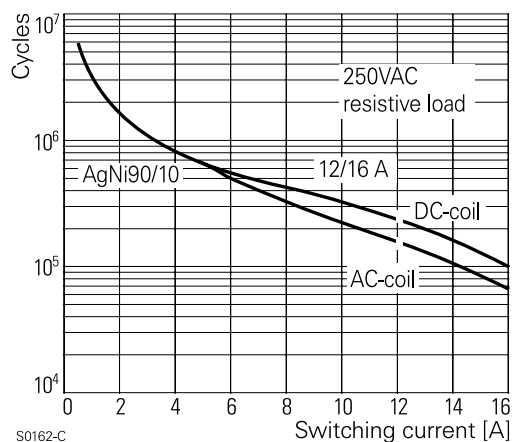
### CONTACT DATA

|                                                     | 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 continous current                          | 12A                                          | 16A, UL: 20A |
| Limiting making current<br>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 <sup>-1</sup>                     |              |
| AC coil                                             | 360/36000h <sup>-1</sup>                     |              |
| Operate/release<br>time max., DC coil               | 8/6ms                                        |              |
| Bounce time max., DC<br>coil, form A/form B         | 4/6ms                                        |              |
| Electrical endurance                                | see electrical endurance graph <sup>1)</sup> |              |

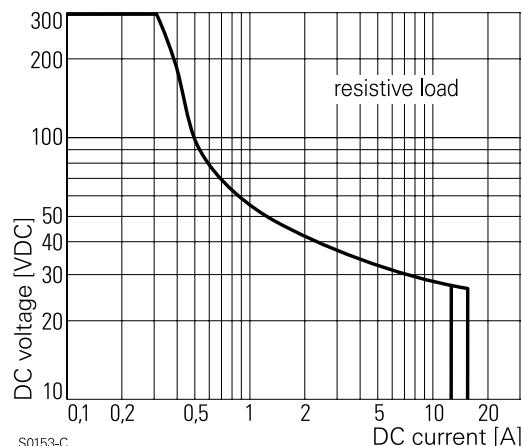
### CONTACT RATINGS

| Type                                                                                                             | Contact                        | Load                               | Cycles              |
|------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------------|---------------------|
| <b>IEC 61810</b>                                                                                                 |                                |                                    |                     |
| RT314 DC-coil                                                                                                    | A (NO)                         | 16A, 250VAC, cosφ=1, 85°C          | 30x10 <sup>3</sup>  |
| RT314 DC-coil                                                                                                    | C (CO)                         | 16A, 250VAC, cosφ=1, 85°C          | 10x10 <sup>3</sup>  |
| RT314 DC-coil                                                                                                    | A (NO)                         | 10A, 400VAC, cosφ=1, 85°C          | 150x10 <sup>3</sup> |
| RT114 DC-coil                                                                                                    | A (NO)                         | 12A, 250VAC, cosφ=1, 85°C          | 50x10 <sup>3</sup>  |
| RT114 AC-coil                                                                                                    | A (NO)                         | 12A, 250VAC, cosφ=1, 70°C          | 100x10 <sup>3</sup> |
| <b>UL 61810-1 (former UL 508)</b>                                                                                |                                |                                    |                     |
| RT314                                                                                                            | A/B (NO/NC)                    | 20A, 250VAC, general purpose, 85°C | 6x10 <sup>3</sup>   |
| RT334                                                                                                            | A (NO)                         | 16A, 250VAC, gen. purpose, 85°C    | 50x10 <sup>3</sup>  |
| RT314                                                                                                            | A (NO)                         | 1hp, 240VAC, 40°C                  | 1x10 <sup>3</sup>   |
| RT314                                                                                                            | A (NO)                         | FLA/LRA, 4.5/13.1A, 480VAC, 70°C   | 100x10 <sup>3</sup> |
| <b>EN60947-4-1</b>                                                                                               |                                |                                    |                     |
| RT314                                                                                                            | A (NO)                         | 250V/2A, AC-3                      | 6.050               |
| <b>EN60947-5-1</b>                                                                                               |                                |                                    |                     |
| RT314 DC-coil                                                                                                    | A/B (NO/NC)                    | 2A, 24VDC, DC13                    | 6.050               |
| RT314                                                                                                            | A (NO)                         | 250/3A, AC-15                      | 6.050               |
| <b>EN60730-1</b>                                                                                                 |                                |                                    |                     |
| RT314 DC-coil                                                                                                    | A (NO)                         | 12(2)A, 250VAC, 85°C               | 100x10 <sup>3</sup> |
| 1) For reflow solderable versions: actual contact performance may be influenced by the reflow soldering process. |                                |                                    |                     |
| Mechanical endurance                                                                                             |                                |                                    |                     |
| DC coil                                                                                                          | >30x10 <sup>6</sup> operations |                                    |                     |
| AC coil                                                                                                          | >10x10 <sup>6</sup> operations |                                    |                     |
| AC coil, reflow version                                                                                          | >5x10 <sup>6</sup> operations  |                                    |                     |

### ELECTRICAL ENDURANCE



### MAX. DC LOAD BREAKING CAPACITY



# POWER PCB RELAY RT1

## GENERAL PURPOSE RELAYS PCB RELAYS

### 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 $\Omega \pm 10\%$ | Rated coil 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                 |
| 018       | 18                | 12.6                | 1.8                 | 770                               | 420                 |
| 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 <sup>2)</sup>                | 420                 |
| 110       | 110               | 77.0                | 11.0                | 28800 <sup>2)</sup>               | 420                 |

2) Coil resistance  $\pm 12\%$ .

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

### COIL VERSIONS, AC COIL 50/60Hz

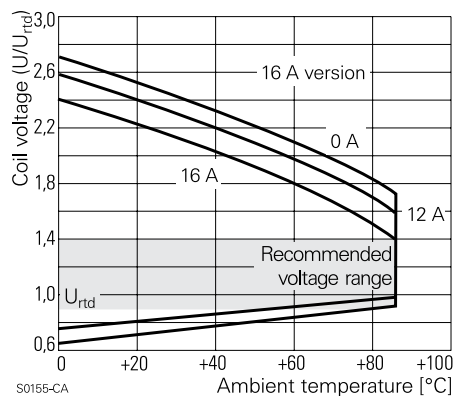
| Coil code | Rated voltage VAC | Operate voltage VAC | Release voltage VAC | Coil resistance $\Omega \pm 15\%$ | Rated coil power VA |
|-----------|-------------------|---------------------|---------------------|-----------------------------------|---------------------|
| 524       | 24                | 18.0                | 3.6                 | 350 <sup>3)</sup>                 | 0.76                |
| 548       | 48                | 36.0                | 7.2                 | 1420                              | 0.74                |
| 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  $\pm 10\%$ .

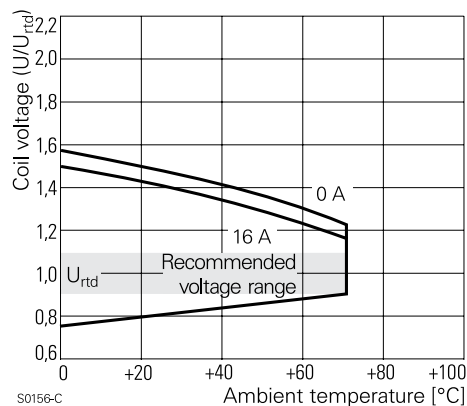
All figures are given for coil without pre-energization, at ambient temperature + 23°C, 50Hz.

Other coil voltages on request.

### COIL OPERATING RANGE DC



### COIL OPERATING RANGE AC



## INSULATION DATA

|                                    |                      |
|------------------------------------|----------------------|
| Initial dielectric strength        |                      |
| between open contacts              | 1000V <sub>rms</sub> |
| between contact and coil           | 5000V <sub>rms</sub> |
| 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 <a href="http://www.te.com/customer-support/rohssupportcenter">www.te.com/customer-support/rohssupportcenter</a> |
| Resistance to heat and fire                     | according EN60335, par30                                                                                                                                                                                           |
| Ambient temperature range                       |                                                                                                                                                                                                                    |
| 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/<br>Form B contact,<br>30 to 500Hz       | 20g/5g                                                                                                                                                                                                             |
| Shock resistance<br>(destructive)               | 100g                                                                                                                                                                                                               |
| 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<br>(for reflow version)         | forced gas convection <sup>4)</sup> or vapour phase <sup>5)</sup> |
| Temperature profile                              | according EN61730                                                 |
| Packaging/unit                                   | tube/20 pcs., box/500 pcs.                                        |

4) infrared heating not allowed  
5) recommended fluid LS/230

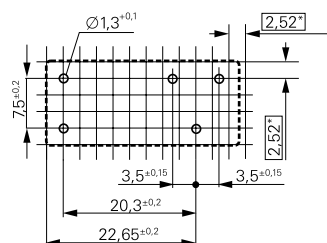
## ACCESSORIES

|                                                                                                                                                                       |                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| For details see datasheet                                                                                                                                             | <a href="#">Accessories Industrial Power Relay RT</a> |
| 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. |                                                       |

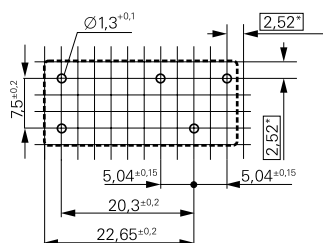
## PCB LAYOUT / TERMINAL ASSIGNMENT

Bottom view on solder pins

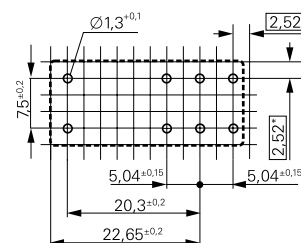
12A, pinning 3.5mm



12A, pinning 5mm

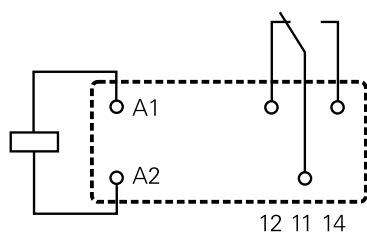


16A, pinning 5mm

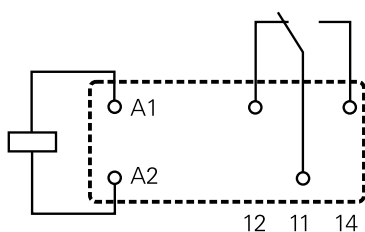


\*) With the recommended PCB hole sizes a grid pattern from 2.5mm to 2.54mm can be used.

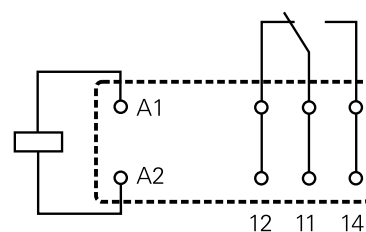
1 form C (CO) contact



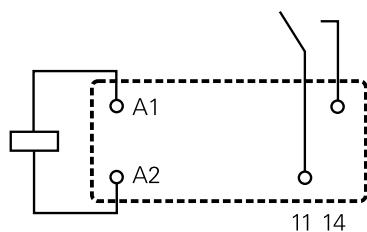
1 form C (CO) contact



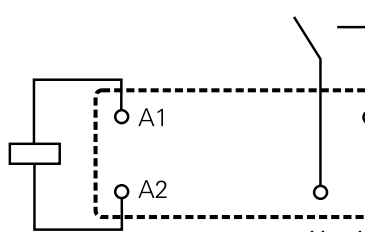
1 form C (CO) contact



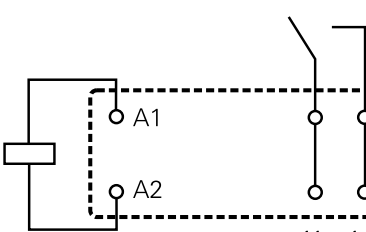
1 form A (NO) contact



1 form A (NO) contact

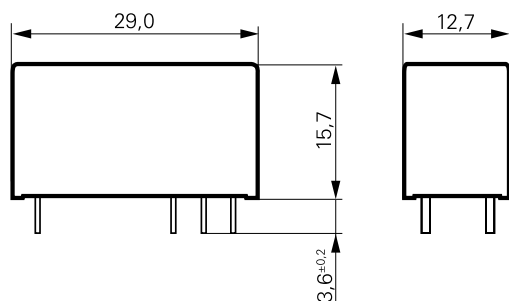


1 form A (NO) contact

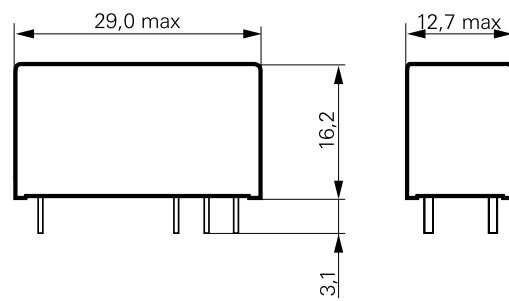


## DIMENSIONS (Unit:mm)

THT version



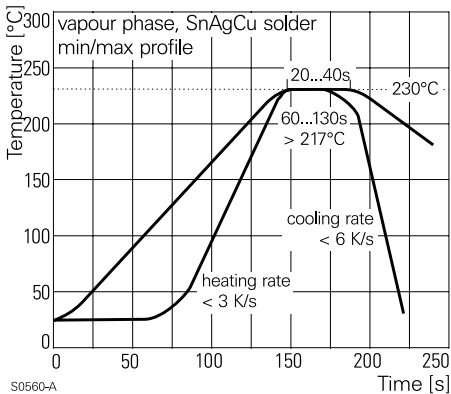
THR version (reflow solderable)



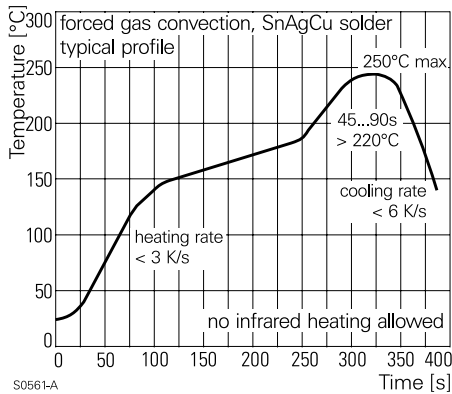
PROCESS CONDITIONS FOR REFLOW SOLDERING

according to EN61760-1

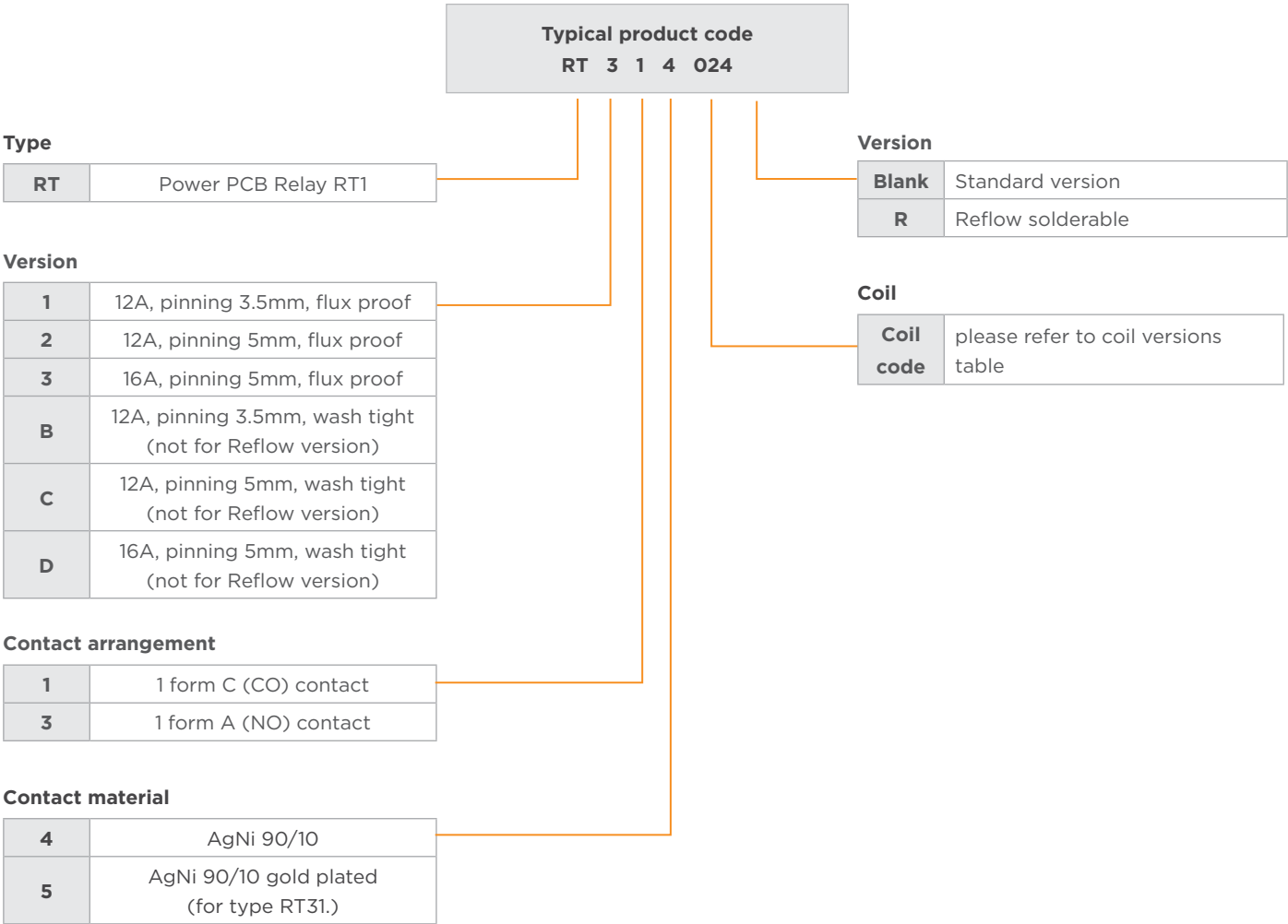
REFLOW TEMPERATURE PROFILE



REFLOW TEMPERATURE PROFILE



PRODUCT CODE STRUCTURE



# POWER PCB RELAY RT1

## GENERAL PURPOSE RELAYS PCB RELAYS

### PRODUCT INFORMATION

| Product code | Version                              | Contacts                 | Contact material       | Coll        | Version              | Part Number |             |
|--------------|--------------------------------------|--------------------------|------------------------|-------------|----------------------|-------------|-------------|
|              |                                      |                          |                        |             |                      | Austria     | China       |
| RT114009     | 12A, pinning<br>3.5mm,<br>flux proof | 1 form C (CO)<br>contact | AgNi 90/10             | 9VDC        | Standard             | 1393239-9   | 1-1649326-2 |
| RT114012     |                                      |                          |                        | 12VDC       |                      | 1419108-1   | 1-1649326-3 |
| RT114024     |                                      |                          |                        | 24VDC       |                      | 1-1393239-3 | 1-1649326-5 |
| RT114048     |                                      |                          |                        | 48VDC       |                      | 1-1393239-4 | 1-1649326-6 |
| RT114110     |                                      |                          |                        | 110VDC      |                      | 1-1393239-6 | -           |
| RT114730     |                                      |                          |                        | 230VAC      |                      | 1-1393239-9 | -           |
| RT115024     |                                      | 1 form A (NO)<br>contact | AgNi 90/10<br>gold pl. | 24VDC       |                      | 2-1393239-1 | 3-1833000-9 |
| RT134012     |                                      |                          |                        | 12VDC       |                      | 2-1393239-6 | 3-1649326-1 |
| RT134024     |                                      |                          |                        | 24VDC       |                      | 3-1393239-0 | 3-1649326-3 |
| RT134048     |                                      |                          |                        | 48VDC       |                      | 3-1393239-1 | 3-1649326-4 |
| RT134110     | 110VDC                               |                          |                        | 3-1393239-2 |                      | -           |             |
| RT214012     | 12A, pinning<br>5mm,<br>flux proof   |                          | 12VDC                  | 5-1393239-4 |                      | 1-1649327-3 |             |
| RT214024     |                                      |                          | 24VDC                  | 5-1393239-5 |                      | 1-1649327-5 |             |
| RT214524     |                                      |                          | 24VAC                  | 5-1393239-9 |                      | -           |             |
| RT214730     |                                      |                          | 230VAC                 | 1419108-6   |                      | -           |             |
| RT314005     | 5VDC                                 |                          | 9-1393239-1            | 1-1649328-0 |                      |             |             |
| RT314006     | 6VDC                                 |                          | 9-1393239-3            | 1-1649328-1 |                      |             |             |
| RT314009     | 9VDC                                 |                          | 9-1393239-4            | -           |                      |             |             |
| RT314012     | 12VDC                                |                          | 9-1393239-5            | 1-1649328-3 |                      |             |             |
| RT314012R    | 1 form C (CO)<br>contact             |                          | AgNi 90/10             | 12VDC       | Reflow<br>solderable | 4-1415543-6 | -           |
| RT314018     |                                      |                          |                        | Standard    | 18VDC                | 9-1393239-7 | 1-1649328-4 |
| RT314024     |                                      |                          |                        |             | 24VDC                | 9-1393239-8 | 1-1649328-5 |
| RT314048     |                                      | 48VDC                    |                        |             | 1393240-1            | 1-1649328-6 |             |
| RT314060     |                                      | 60VDC                    |                        |             | 1-1649328-7          | 1-1649328-7 |             |
| RT314110     |                                      | 110VDC                   |                        |             | 1393240-3            | -           |             |
| RT314524     |                                      | 24VAC                    |                        |             | 1393240-4            | -           |             |
| RT314548     |                                      | 48VAC                    |                        |             | 1393240-5            | -           |             |
| RT314615     |                                      | 115VAC                   |                        |             | 1393240-6            | -           |             |
| RT314730     |                                      | 230VAC                   |                        |             | 1393240-7            | -           |             |
| RT315024     |                                      | AgNi 90/10<br>gold pl    |                        |             | 24VDC                | 1-1393240-4 | 3-1833002-7 |
| RT334012     |                                      | 1 form A (NO)<br>contact | AgNi 90/10             |             | 12VDC                | 4-1393240-5 | 3-1649328-1 |
| RT334024     |                                      |                          |                        |             | 24VDC                | 4-1393240-8 | 3-1649328-3 |
| RT334048     |                                      |                          |                        |             | 48VDC                | 5-1393240-0 | 3-1649328-4 |

## PRODUCT INFORMATION

| Product code | Version                              | Contacts                 | Contact material | Coil                     | Version  | Part Number                 |                             |                             |
|--------------|--------------------------------------|--------------------------|------------------|--------------------------|----------|-----------------------------|-----------------------------|-----------------------------|
|              |                                      |                          |                  |                          |          | Austria                     | China                       |                             |
| RTB14005     | 12A, pinning<br>3.5mm,<br>wash tight | 1 form C (CO)<br>contact | AgNi 90/10       | 5VDC                     | Standard | <a href="#">1-1393238-2</a> | <a href="#">1649326-1</a>   |                             |
| RTB14012     |                                      |                          |                  | 12VDC                    |          | <a href="#">1-1393238-5</a> | <a href="#">1649326-4</a>   |                             |
| RTB14024     |                                      |                          |                  | 24VDC                    |          | <a href="#">1-1393238-9</a> | <a href="#">1649326-6</a>   |                             |
| RTB14524     |                                      |                          |                  | 24VAC                    |          | <a href="#">2-1393238-4</a> | -                           |                             |
| RTB34012     |                                      | 1 form A (NO)            |                  | 12VDC                    |          | <a href="#">3-1393238-0</a> | <a href="#">2-1649326-2</a> |                             |
| RTC14024     | 12A, 5mm,<br>wash tight              | 1 form C (CO)<br>contact |                  | 24VDC                    |          | <a href="#">5-1393238-0</a> | <a href="#">1649327-6</a>   |                             |
| RTD14005     | 16A, pinning<br>5mm,<br>wash tight   |                          |                  | 5VDC                     |          | <a href="#">5-1393238-9</a> | <a href="#">1649328-1</a>   |                             |
| RTD14012     |                                      |                          |                  | 12VDC                    |          | <a href="#">6-1393238-2</a> | <a href="#">1649328-4</a>   |                             |
| RTD14024     |                                      |                          |                  | 24VDC                    |          | <a href="#">6-1393238-8</a> | <a href="#">1649328-6</a>   |                             |
| RTD14048     |                                      |                          |                  | 48VDC                    |          | <a href="#">6-1393238-9</a> | <a href="#">1649328-7</a>   |                             |
| RT214005     | 12A, pinning<br>5mm,<br>flux proof   |                          |                  | 5VDC                     |          | -                           | <a href="#">1-1649327-0</a> |                             |
| RT234012     | 12A, pinning<br>3.5mm,<br>wash tight |                          |                  | 12VDC                    |          | -                           | <a href="#">1-1649327-3</a> |                             |
| RT234024     |                                      |                          |                  | 24VDC                    |          | -                           | <a href="#">1-1649327-5</a> |                             |
| RTB14048     |                                      |                          |                  | 48VDC                    |          | -                           | <a href="#">1649326-7</a>   |                             |
| RTB34005     |                                      |                          |                  | 5VDC                     |          | -                           | <a href="#">1-1649326-9</a> |                             |
| RTD14060     | 16A, pinning<br>5mm,<br>wash tight   |                          |                  | 1 form A (NO)<br>contact |          | 60VDC                       | -                           | <a href="#">1649328-8</a>   |
| RTD34012     |                                      |                          |                  |                          |          | 12VDC                       | -                           | <a href="#">2-1649328-2</a> |
| RTD34015     |                                      |                          |                  |                          |          | 15VDC                       | -                           | <a href="#">4-1833002-0</a> |
| RTD34024     |                                      |                          |                  |                          |          | 24VDC                       | -                           | <a href="#">2-1649328-4</a> |

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

### Notes:

- 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.

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06/25 ED