



## RT series (DC Coil)

### 16 Amp PC Board Miniature Relay

File E22575

File LR15734

NR 6106

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

#### Features

- SPST through DPDT contact arrangements.
- Immersion cleanable and flux tight versions available.
- VDE 10mm spacing, 5kV dielectric, coil to contacts.
- UL Class F (155°C) coil insulation system.
- Conforms to UL 508, 1873, 353 and 1950.
- Low profile; 15.7mm height.
- Sensitive coil; 400mW.
- Withstand surge voltage of 10,000V.
- Potter & Brumfield or Schrack brand.

#### Contact Data

**Arrangements:** 1 Form A (SPST-NO) Wiring Diagram Code 1, 2, 3.  
2 Form A (DPST-NO) Wiring Diagram Code 5.  
1 Form C (SPDT) Wiring Diagram Code 1, 2, 3.  
2 Form C (DPDT) Wiring Diagram Code 5.

**Material:** Silver-nickel 90/10.

**Minimum Load:** 12V/100mA.

**Expected Mechanical Life:** 10 million operations.

**Initial Contact Resistance:** 100 milliohms max @ 1A 12VDC.

**Designed to meet UL/CSA/VDE ratings @ 25°C with relay properly vented. Remove vent nib after soldering and cleaning.**

#### Ratings @ 25°C

| Code | NO/NC Load               | Type         | Operations |
|------|--------------------------|--------------|------------|
| 1    | 10A/10A @ 277VAC         | Resistive/GP | 100K       |
|      | 10A/10A @ 30VDC          | Resistive    | 100K       |
|      | 12A/12A @ 250VAC         | Resistive/GP | 30K        |
|      | 12A/12A @ 30VDC          | Resistive    | 30K        |
|      | 3/4 HP @ 480VAC*         | Motor        | 6K         |
|      | 1/2 HP @ 240VAC*         | Motor        | 6K         |
|      | 1/3 HP @ 120VAC*         | Motor        | 6K         |
|      | 48 LRA/10 FLA @ 240VAC*  | Motor        | 30K        |
|      | TV-3 @ 120VAC*           | Tungsten     | 25K        |
|      | A300, 720VA @ 240VAC*    | Pilot Duty   | 30K        |
| 3    | 16A/16A @ 250VAC         | Resistive/GP | 50K        |
|      | 20A/20A @ 277VAC         | Resistive/GP | 30K        |
|      | 20A/20A @ 24VDC          | Resistive    | 30K        |
|      | 16A/16A @ 30VDC          | Resistive    | 30K        |
|      | 1 HP @ 480VAC*           | Motor        | 6K         |
|      | 1 HP @ 240VAC*           | Motor        | 6K         |
|      | 1/2 HP @ 120VAC*         | Motor        | 6K         |
|      | 60 LRA/10 FLA @ 250VAC*  | Motor        | 30K        |
|      | TV-5 @ 120VAC*           | Tungsten     | 25K        |
|      | A300, 720VA @ 240VAC*    | Pilot Duty   | 30K        |
| 5    | 8A/8A @ 277VAC           | Resistive/GP | 100K       |
|      | 8A/8A @ 30VDC            | Resistive    | 100K       |
|      | 10A/10A @ 250VAC         | Resistive/GP | 30K        |
|      | 10A/10A @ 30VDC          | Resistive    | 30K        |
|      | 1/2 HP @ 240VAC*         | Motor        | 6K         |
|      | 1/4 HP @ 120VAC*         | Motor        | 6K         |
|      | 34.8 LRA/6 FLA @ 120VAC* | Motor        | 30K        |
|      | 17.4 LRA/5 FLA @ 240VAC* | Motor        | 30K        |
|      | B300, 360VA @ 240VAC*    | Pilot Duty   | 30K        |
|      | TV-3 @ 120VAC*           | Tungsten     | 25K        |

\* Form A only

\*\* Form B only

#### Initial Dielectric Strength

**Between Open Contacts:** >1,000VAC (1 minute).

**Between Poles (code 5):** >2,500VAC (1 minute).

**Between Coil and Contacts:** >5,000VAC (1 minute).

**Surge Voltage (DC):** >10,000VAC x (1.2 x 50 µsec).

#### Coil Data @ 25°C

**Voltage:** 5 to 110VDC.

**Nominal Power @ 25°C:** 400mW.

**Duty Cycle:** Continuous.

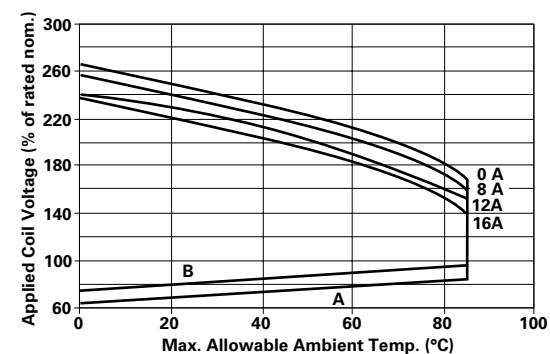
**Initial Insulation Resistance:** 10,000 megohms, min., at 25°C, 500VDC and 50% rel. humidity.

**Coil Construction:** UL Class F (155°C).

#### Coil Data @ 25°C

| Nominal Voltage VDC | DC Resistance in Ohms ±10% | Must Operate Voltage VDC | Nominal Coil Current (mA) – 50/60Hz. |
|---------------------|----------------------------|--------------------------|--------------------------------------|
| 005                 | 62                         | 3.5                      | 80                                   |
| 006                 | 90                         | 4.2                      | 66.7                                 |
| 009                 | 202                        | 6.3                      | 44.4                                 |
| 012                 | 360                        | 8.4                      | 33.3                                 |
| 018                 | 810                        | 12.6                     | 22.2                                 |
| 024                 | 1,440                      | 16.8                     | 16.7                                 |
| 048                 | 5,760                      | 33.6                     | 8.3                                  |
| 060                 | 9,000                      | 42.0                     | 8.0                                  |
| 110                 | 30,250                     | 77.0                     | 4.3                                  |

#### Max. Ambient Temp. vs. Coil Voltage



A: Coil temperature = Ambient temperature.

B: 110% of nominal coil voltage at rated contact load.

#### Operate Data @ 25°C

**Must Operate Voltage(DC):** 70% of nominal.

**Must Release Voltage(DC):** 10% of nominal.

**Operate Time (Excluding Bounce):**

7 ms, typ., 15ms max. at nom. voltage.

**Release Time (Excluding Bounce):**

3 ms, typ., 6ms max. at nom. voltage.

#### Environmental Data

**Temperature Range:**

**Storage:** -40°C to +105°C.

**Operating:** -40°C to +85°C at rated current.

**Vibration, Operational**

N.O.:0.065"(1.65mm) max. excursions from 10 - 55 Hz:

N.C.:0.032"(0.82mm) max. excursions from 10 - 55 Hz:

with no contact opening >10µs.

#### Mechanical Data

**Termination:** Printed circuit terminals.

**Enclosures:** RT 1, 2, 3, 4: Flux-tight, top vented, plastic case.

RT B, C, D, E: Immersion cleanable, plastic case.

**Weight:** 0.35 oz. (10g) approximately.

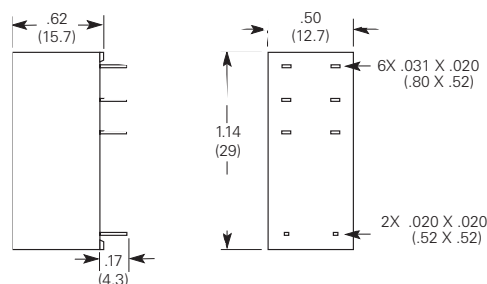
## Ordering Information (DC Coil Models)

| Typical Part Number ▶                                                                                                                                                                                                                                                                      |  | RT                                                                                                                                                                                                | B | 3 | 4 | 012 | F |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|-----|---|
| <b>1. Basic Series:</b><br>RT = Miniature, printed circuit board relay.                                                                                                                                                                                                                    |  |                                                                                                                                                                                                   |   |   |   |     |   |
| <b>2. Enclosure:</b><br>1 = 1 pole 12A, Pinning 3.5mm, flux-tight (Code 1).<br>2 = 1 pole 12A, Pinning 5mm, flux-tight (Code 2).<br>3 = 1 pole 16A, Pinning 5mm, flux-tight (Code 3).<br>4 = 2 pole 8A, Pinning 5mm, flux-tight (Code 5).                                                  |  | B = 1 pole 12A, Pinning 3.5mm, sealed (Code 1).<br>C = 1 pole 12A, Pinning 5mm, sealed (Code 2).<br>D = 1 pole 16A, Pinning 5mm, sealed (Code 3).<br>E = 2 pole 8A, Pinning 5mm, sealed (Code 5). |   |   |   |     |   |
| <b>3. Contact Arrangement:</b><br>1 = 1 Form C (SPDT) (Requires wiring diagram codes 1, 2 or 3.)<br>2 = 2 Form C (DPDT) (Requires wiring diagram code 5.)<br>3 = 1 Form A (SPST-NO) (Requires wiring diagram codes 1, 2 or 3.)<br>4 = 2 Form A (DPST-NO) (Requires wiring diagram code 5.) |  |                                                                                                                                                                                                   |   |   |   |     |   |
| <b>4. Contact Material:</b><br>4 = Silver-nickel 90/10 (standard stock).                                                                                                                                                                                                                   |  |                                                                                                                                                                                                   |   |   |   |     |   |
| <b>5. Coil Voltage:</b><br>005 = 5VDC    009 = 9VDC    018 = 18VDC    048 = 48VDC    110 = 110VDC<br>006 = 6VDC    012 = 12VDC    024 = 24VDC    060 = 60VDC                                                                                                                               |  |                                                                                                                                                                                                   |   |   |   |     |   |
| <b>5. Coil Insulation Classification, Brand and Case Color</b><br>F = UL Class F, Potter & Brumfield Brand, Black Case                                                                                                                                                                     |  | Leave Blank = UL Class F, Schrack Brand, Orange Case                                                                                                                                              |   |   |   |     |   |

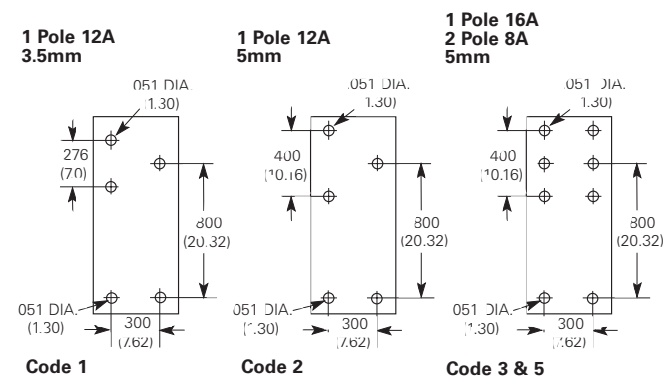
**Our authorized distributors are more likely to stock the following items for immediate delivery.**

RT114012F   RTB14012F   RTB34024F   RTD14005F   RTD34012F   RTE24005F   RTE44012F  
RT114024F   RTB14024F   RT314012F   RTD14012F   RT424012F   RTE24012F   RTE44024F  
RTB14005F   RTB34012F   RT314024F   RTD14024F   RT424024F   RTE24024F

## Outline Dimensions

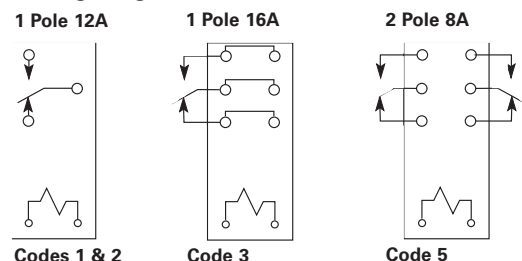


## PC Board Layouts (Bottom View)



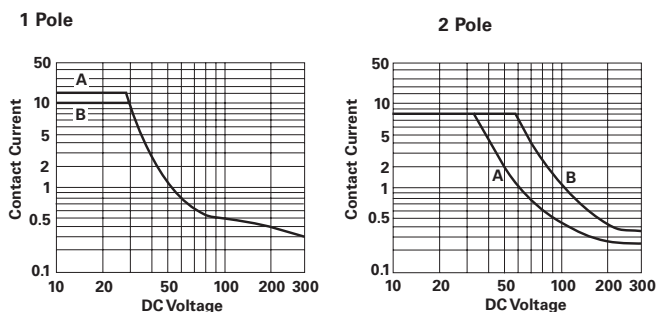
**Notes:** 1. On single throw models, only necessary terminals are present.  
2. With the recommended PCB hole sizes, a grid with a pattern from 0.0984 to 0.1 in (2.5 - 2.54 mm) can be used.

## Wiring Diagrams (Bottom View)



**Note:** On single throw models, only necessary terminals are present.

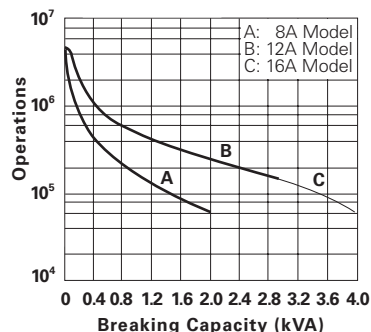
## Breaking Capacity



A: 16A Version.  
B: 12A Version.

A: 1 Contact.  
B: 2 Contacts in series.

## Contact Life for Resistive AC Load (Typical)



**Note:** Data from 250VAC @ 70°C.

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