

# 40 Amp Power PCB Relay

**PTRD-OT**



**OT2 & OT3**



**OT4 & OT5**

## FEATURES

- Popular Power PCB Relay Footprint - T91
- 40 Amp 250 VAC General Purpose UL Rating
- 2 HP 250 VAC Rating
- Two Versions:
  - ◆ OT2 (1A), OT3 (1C) PC Pins & QC Pins
  - ◆ OT4 (1A), OT5 (1C) QC Pins with Mounting Tabs
- UL Class F Insulation Standard
- Meets UL 508 and UL 873 Spacing
- RoHS Compliant

## UL / CUL Ratings

**UL** **us** **E93379**

| Load Type       | Voltage | Cycles  | 1 Form A (SPST-NO) | 1 Form B (SPDT-NC) | 1 Form C (SPDT) |        |
|-----------------|---------|---------|--------------------|--------------------|-----------------|--------|
|                 |         |         |                    |                    | NO              | NC     |
| General Purpose | 240 VAC | 6,000   | 30 A               | 20 A               | 30 A            | 20 A   |
|                 | 277 VAC | 6,000   | 30 A               | 20 A               | 30 A            | 20 A   |
|                 | 280 VAC | 6,000   | 5 A                | 5 A                | 5 A             | 5 A    |
| Resistive       | 240 VAC | 250,000 | 40 A               | 30 A               | 40 A            | 30 A   |
|                 | 240 VAC |         | 20 A               | —                  | 20 A            | —      |
|                 | 277 VAC | 100,000 | 25 A               | —                  | 25 A            | —      |
|                 | 30 VDC  |         | 40 A               | 30 A               | 40 A            | 30 A   |
| Motor           | 250 VAC | 30,000  | 2 HP               | 1.5 HP             | 2 HP            | 1.5 HP |
|                 | 120 VAC | 30,000  | 1 HP               | —                  | 1 HP            | —      |
| Ballast         | 280 VAC | 6,000   | 5 A                | 5 A                | 5 A             | 5A     |

## CONTACT DATA

|                            |                                                                     |                                |
|----------------------------|---------------------------------------------------------------------|--------------------------------|
| Material                   | AgCdO, AgSnO <sub>2</sub> In <sub>2</sub> O <sub>3</sub> , AgCdO+Au |                                |
| Initial Contact Resistance | 50 mΩ Max. @ 1 A, 6 VDC                                             |                                |
| Maximum Switching Voltage  | 110 VDC, 300 VAC                                                    |                                |
| Maximum Switching Current  | 40 A                                                                |                                |
| Maximum Switching Power    | 1200 W, 10,000 VA                                                   |                                |
| Service Life               | Mechanical                                                          | 1 X 10 <sup>7</sup> Operations |
|                            | Electrical                                                          | 5 X 10 <sup>4</sup> Operations |

Meets UL 508 and UL 873 Spacing - 3.18 mm Through Air, 6.36 mm Over Surface

## CHARACTERISTICS

|                       |                                                                                                                 |
|-----------------------|-----------------------------------------------------------------------------------------------------------------|
| Shock Resistance      | 200 m/s, 11 ms                                                                                                  |
| Dielectric Strength   | 50 Hz 2,500 V 1 Min Between Coil and Contacts<br>4,000 V without Pin 6<br>50 Hz 1,500 V 1 min. Between Contacts |
| Terminal Strength     | 10N                                                                                                             |
| Solderability         | 260 °C for 5 seconds                                                                                            |
| Storage Temp. Range   | -55°C to 125°C                                                                                                  |
| Operating Temp. Range | -55°C to 100°C                                                                                                  |
| Relative Humidity     | 85% (at 40°C)                                                                                                   |
| Weight                | 13.5 grams                                                                                                      |
| Material Compliant To | EU RoHS V2, EU REACH V3                                                                                         |
| Insulation Resistance | 1,000 MΩ min, at 500 VDC, 50% RH                                                                                |

## Additional UL / CUL Ratings for AgSnO Contacts

| Load Type | Voltage     | Cycles | Temp. | 1 Form A (SPST-NO) | 1 Form C (SPDT-NO) |
|-----------|-------------|--------|-------|--------------------|--------------------|
| Resistive | 277/250 VAC | 30,000 | 40°C  | 30 A               | 30 A               |

## ORDERING INFORMATION

|                       |                                                                                                           |     |     |   |   |     |    |   |     |
|-----------------------|-----------------------------------------------------------------------------------------------------------|-----|-----|---|---|-----|----|---|-----|
| Example:              | PTRD                                                                                                      | -1C | -12 | S | T | OT3 | -X | A | 0.6 |
| Model:                | PTRD (PTRD-OT)                                                                                            |     |     |   |   |     |    |   |     |
| Contact Form:         | 1A, 1B, 1C                                                                                                |     |     |   |   |     |    |   |     |
| Coil Voltage:         | 3, 5, 6, 9, 12, 15, 18, 24, 28, 48, 110                                                                   |     |     |   |   |     |    |   |     |
| Enclosure:            | OT2 & OT3: <b>C</b> : Dust Cover; <b>S</b> : Sealed;<br>OT4 & OT5: <b>S</b> : Covered, Not Washable       |     |     |   |   |     |    |   |     |
| Insulation Material:  | Nil: Class F                                                                                              |     |     |   |   |     |    |   |     |
| Contact Material:     | Nil: AgCdO; T: AgSnO <sub>2</sub> In <sub>2</sub> O <sub>3</sub>                                          |     |     |   |   |     |    |   |     |
| Mounting Type:        | OT2: 1 Form A PCB & QC; OT3: 1 Form C PCB & QC;<br>OT4: 1 Form A Panel all QC; OT5: 1 Form C Panel all QC |     |     |   |   |     |    |   |     |
| RoHS Compliant:       | -X                                                                                                        |     |     |   |   |     |    |   |     |
| Pinout:               | A: Alternate Quick Connect Pinout (OT2 & OT3 Only)                                                        |     |     |   |   |     |    |   |     |
| Coil Sensitivity:     | Nil: 0.9 W*; 0.6: 0.6 W (*0.9 W is Industry Standard)                                                     |     |     |   |   |     |    |   |     |
| Gold Plated Contacts: | Nil: None; G: AgCdO+Au                                                                                    |     |     |   |   |     |    |   |     |

OT2 & OT3 Box Quantity: 600; Inner Box 300, OT4 & OT5 Box Quantity: 400; Inner Box:100

**COIL DATA**

| Coil Voltage (VDC) |      | Coil Power (W)          |       | Must Operate Voltage Max (VDC) | Must Release Voltage Min (VDC) |
|--------------------|------|-------------------------|-------|--------------------------------|--------------------------------|
|                    |      | Resistance (Ohms ± 10%) |       |                                |                                |
| Rated              | Max  | 0.6 W                   | 0.9 W |                                |                                |
| 3                  | 3.9  | 15                      | 10    | 2.25                           | 0.3                            |
| 5                  | 6.5  | 42                      | 28    | 3.75                           | 0.5                            |
| 6                  | 7.8  | 60                      | 40    | 4.50                           | 0.6                            |
| 9                  | 11.7 | 135                     | 90    | 6.75                           | 0.9                            |
| 12                 | 15.6 | 240                     | 150   | 9.00                           | 1.2                            |
| 15                 | 19.5 | 375                     | 260   | 10.25                          | 1.5                            |
| 18                 | 23.4 | 540                     | 380   | 13.50                          | 1.8                            |
| 24                 | 31.2 | 960                     | 640   | 18.00                          | 2.4                            |
| 28                 | 36.4 | 1307                    | 871   | 21.0                           | 2.8                            |
| 48                 | 62.4 | 3840                    | 2560  | 36.00                          | 4.8                            |
| 110                | 143  | 20167                   | 13445 | 82.50                          | 11.0                           |

\*0.9 W is Industry Standard

**COIL DATA Continued**

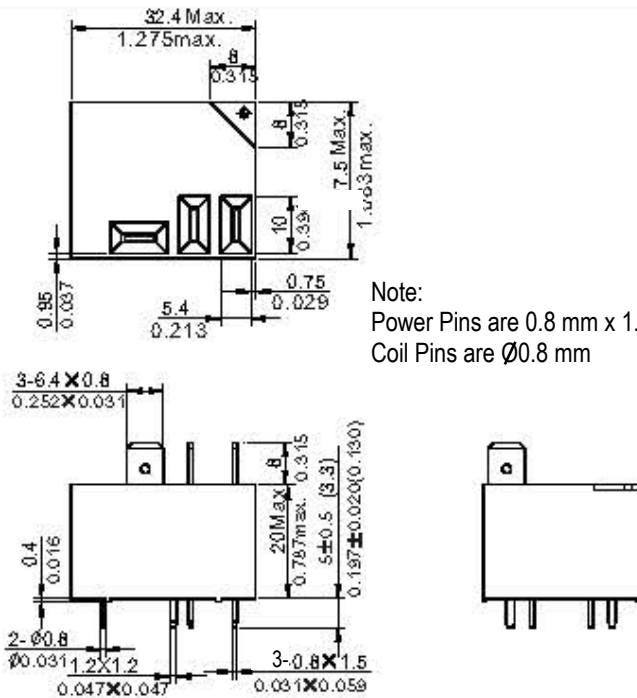
|                   |                 |
|-------------------|-----------------|
| Operate Time      | Less than 15 ms |
| Release Time      | Less than 10 ms |
| Power Consumption | 0.9 W, 0.6 W    |

**NOTES:**

The use of any coil voltage less than the rated voltage will compromise the operation of the relays. Must Operate Voltage and Must Release Voltages are for test purposes only and are not to be used as design criteria.

**MOUNTING TYPE (mm/inches)**

Knock off, on top corner, nib for ventilation after soldering and water wash.

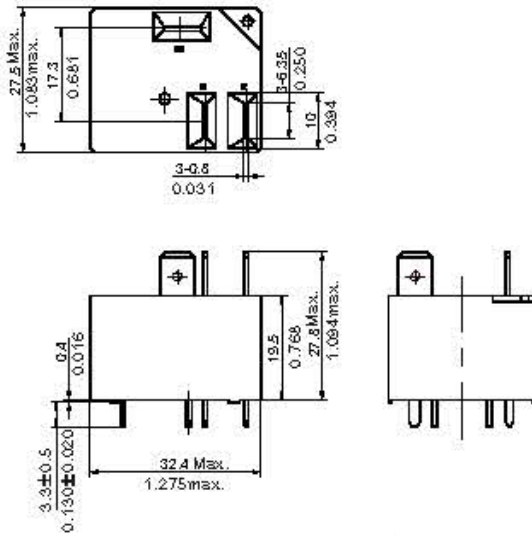


“OT2” & “OT3”

“OT4” & “OT5”

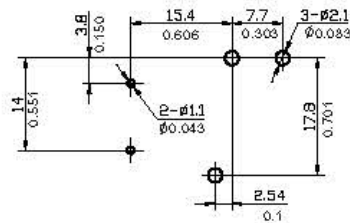
**ALTERNATE MOUNTING TYPE (mm/inches)**

Knock off, on top corner, nib for ventilation after soldering and water wash.



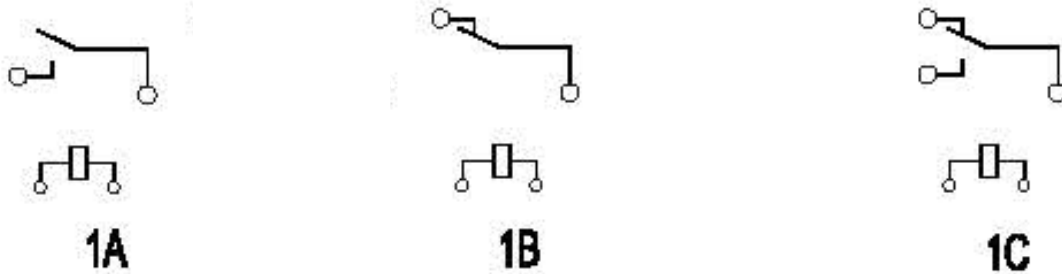
**“A”  
OT2 & OT3**

**PRINTED CIRCUIT BOARD LAYOUT**



(Bottom View)

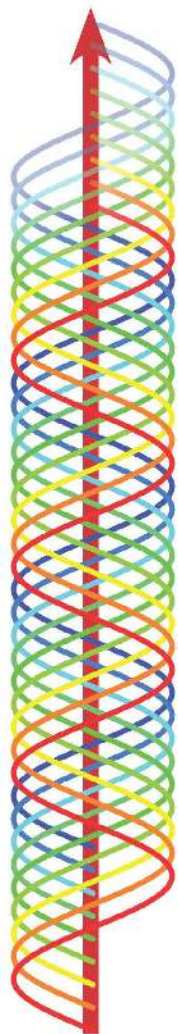
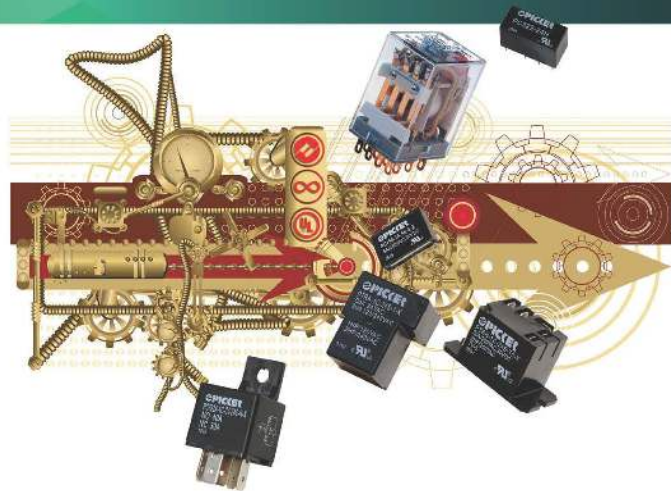
**CONTACT FORMS**



(Bottom View)



# T90 Style Relays



## 50 Amp **PTR 50/35 Amp 1,500 W, 12,000 VA**

- Larger Contacts than PTRD/PTRDE
- **Braided Copper Wire Added to Dissipate Heat from Contacts to the Coil Frame and PCB Pins**
- 50 Amp 240 VAC 10,000 Cycle UL Resistive Rating
- Class F Material -40° to 125° C Standard



## 40+ Amp **PTRDE 40/30 Amp 1,200 W, 10,000 VA**

- **Braided Copper Wire Added to Dissipate Heat from Contacts to the Coil Frame and PCB Pins**
- 40 Amp 240 VAC 50,000 Cycle UL Resistive Rating
- Class F Material -40° to 125° C Standard

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## 40 Amp **PTRD 40/30 Amp 1,200 W, 10,000 VA** **PTRA AC Coil Options from 12 to 277 VAC**

- Larger Contacts than PTRH
- 40 Amp 240VAC UL Resistive Rating
- 25 Amp 277 VAC 100K Cycles UL Resistive Rating
- Class F Material -40° to 125° C Standard



## 30 Amp **PTRH 30/20 Amp 900 W, 7,500 VA**

- 30 Amp 277 VAC UL General Purpose Rating
- 30 Amp 250 VAC 100K Cycle UL Resistive Rating
- Class B -40° to 100° C Standard, Optional Class F

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### Packaging Options (i.e. PTRH-T)



Dust Cover or Sealed with Scratch off Nib



-T (T2 & T3) with PC Pins and Contact QC



-T (T4 & T5) w/QC Tabs & Mounting Ears



-OT (OT2 & OT3) with PC Pins and Contact QC



-OT (OT4 & OT5) w/QC Tabs & Mounting Ears