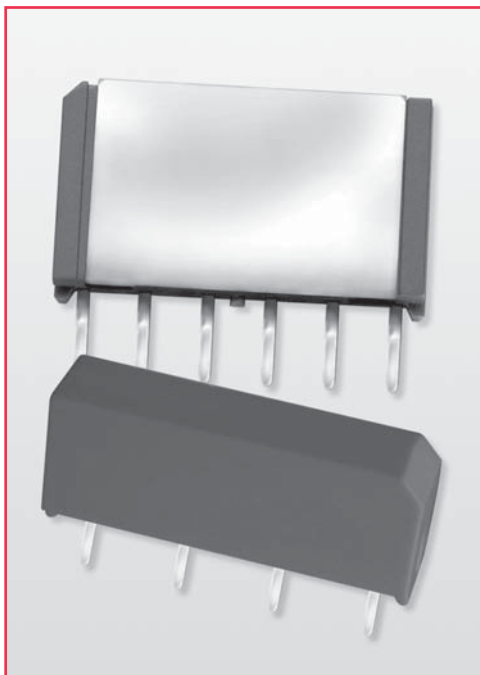


# 9091 & 9092 Miniature SIP Relays



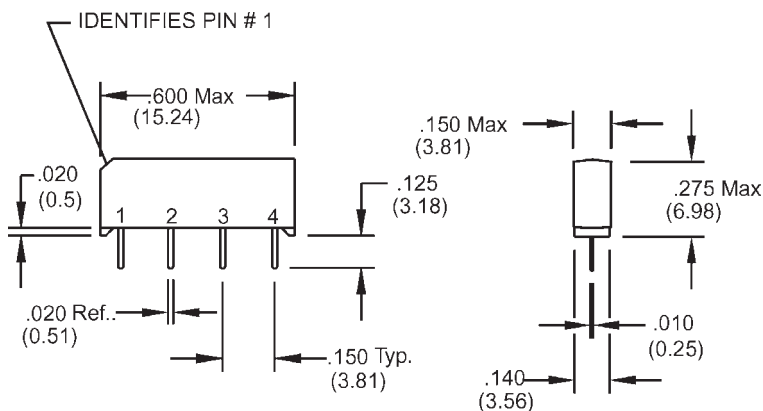
## Miniature Molded SIP Reed Relays

The 9091 is a compact version of the 9001 using 40% less board space (LxW). Because of its increased height, the 9092 model allows for incorporation of 2 form A switches in the same board space. These miniature SIP relays utilize Coto's 10W switch technology, making these SIP relays ideal for use in ATE applications and other high reliability test, measurement and telecommunications applications where high board density and long life are key requirements.

## Series Features

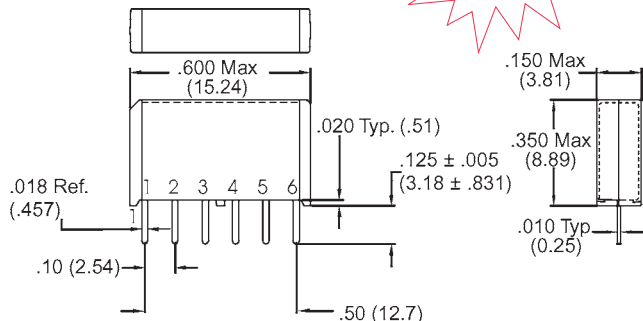
- ◆ 9091 is a 10W SIP relay measuring .600" x .150" x .275"
- ◆ 9092 is a 10W SIP relay measuring .600" x .150" x .350"
- ◆ Magnetic shield – reduces interaction
- ◆ Optional coil suppression diode protects coil drive circuits
- ◆ UL File # E67117 – (9092 UL Pending)
- ◆ High insulation resistance,  $10^{12} \Omega$  minimum
- ◆ High speed switching
- ◆ Molded thermoset body on integral lead frame design
- ◆ High reliability, hermetically sealed contacts for long life

## Model 9091



*Dimensions in Inches (Millimeters)*

## Model 9092



## Ordering Information

| Part Number                                                    | 90XX-XX-1X                   |
|----------------------------------------------------------------|------------------------------|
| Model Number                                                   | General Options <sup>2</sup> |
| 9091 9092                                                      | 0 = No Diode<br>1 = Diode    |
| Coil Voltage                                                   |                              |
| 05 = 5 volts<br>12 = 12 volts                                  |                              |
| Magnetic Shield                                                |                              |
| (Optional on Model 9091, Std. on 9092)                         |                              |
| 0 = No Shield<br>1 = Mag Shield (9091 Internal, 9092 External) |                              |

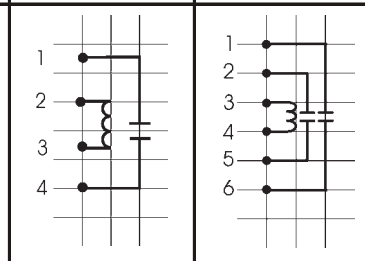
# 9091 & 9092 Miniature SIP Relays

**NEW!**

| Model Number                               |                                                    |                        | 9091 <sup>2,4</sup><br>(10 Watt) | 9092 <sup>2,4</sup><br>(10 Watt) |
|--------------------------------------------|----------------------------------------------------|------------------------|----------------------------------|----------------------------------|
| Parameters                                 | Test Conditions                                    | Units                  | 1 Form A SIP                     | 2 Form A SIP                     |
| <b>COIL SPECS.</b>                         |                                                    |                        |                                  |                                  |
| Nom. Coil Voltage                          |                                                    | VDC                    | 5 12                             | 5 12                             |
| Max. Coil Voltage                          |                                                    | VDC                    | 6.5 15.0                         | 6.5 15.0                         |
| Coil Resistance                            | +/- 10%, 25° C                                     | Ω                      | 500 1000                         | 375 750                          |
| Operate Voltage                            | Must Operate by                                    | VDC - Max.             | 3.75 9.0                         | 3.75 9.0                         |
| Release Voltage                            | Must Release by                                    | VDC - Min.             | 0.4 1.0                          | 0.4 1.0                          |
| <b>CONTACT RATINGS</b>                     |                                                    |                        |                                  |                                  |
| Switching Voltage                          | Max DC/Peak AC Resist.                             | Volts                  | 200                              | 200                              |
| Switching Current                          | Max DC/Peak AC Resist.                             | Amps                   | 0.5                              | 0.5                              |
| Carry Current                              | Max DC/Peak AC Resist.                             | Amps                   | 1.5                              | 1.2                              |
| Contact Rating                             | Max DC/Peak AC Resist.                             | Watts                  | 10                               | 10                               |
| Life Expectancy-Typical <sup>1</sup>       | Signal Level 1.0V, 10mA                            | x 10 <sup>6</sup> Ops. | 500                              | 500                              |
| Static Contact Resistance (max. init.)     | 50mV, 10mA                                         | Ω                      | 0.125                            | 0.140                            |
| Dynamic Contact Resistance (max. init.)    | 0.5V, 50mA<br>at 100 Hz, 1.5 msec                  | Ω                      | 0.150                            | 0.200                            |
| <b>RELAY SPECIFICATIONS</b>                |                                                    |                        |                                  |                                  |
| Insulation Resistance (minimum)            | Between all Isolated Pins<br>at 100V, 25°C, 40% RH | Ω                      | x 10 <sup>12</sup>               | x 10 <sup>12</sup>               |
| Capacitance - Typical Across Open Contacts |                                                    | pF                     | 0.1                              | 1.0                              |
| Open Contact to Coil                       |                                                    | pF                     | 2.0                              | 1.4                              |
| Dielectric Strength (minimum)              | Between Contacts                                   | VDC/peak AC            | 200                              | 200                              |
|                                            | Contacts to Coil                                   | VDC/peak AC            | 1500                             | 1500                             |
| Operate Time - including bounce - Typical  | At Nominal Coil Voltage,<br>30 Hz Square Wave      | msec.                  | 0.5                              | 0.75                             |
| Release Time - Typical                     | Zener-Diode Suppression <sup>3</sup>               | msec.                  | 0.30                             | 0.5                              |

Top View:

Grid = .1"x.1" (2.54mm x 2.54mm)



## Notes:

<sup>1</sup>Consult factory for life expectancy at other switching loads. Resistance >0.5Ω defines end of life or failure to open.

<sup>2</sup>Optional diode is connected to pin #2 (+) and pin #3(-) for 9091; pin #3 (+) and pin #4(-) for 9092. Correct coil polarity must be observed.

<sup>3</sup>Consists of 20V Zener-diode and 1N1002 diode in series, connected in parallel with coil.

<sup>4</sup>9091 internal mag shield. 9092 external mag shield.

## Environmental Ratings:

Storage Temp: -35°C to +100°C; Operating Temp: -20°C to +85°C  
Solder Temp: 270°C max; 10 sec. max

The operate and release voltage and the coil resistance are specified at 25°C. These values vary by approximately 0.4%/°C as the ambient temperature varies.

Vibration: 20 G's to 2000 Hz; Shock: 50 G's