

9011, 9012 & 9117 MINIATURE SIP RELAYS



9011, 9012 & 9117 Series Miniature Molded SIP Reed Relays

The 9011, 9012 & 9117 are compact versions of Coto's standard 9000 SIPs, with the 9011 and 9117 using 65% less board space and the 9012 using 47% less board space (LxW). These miniature SIP relays are 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.

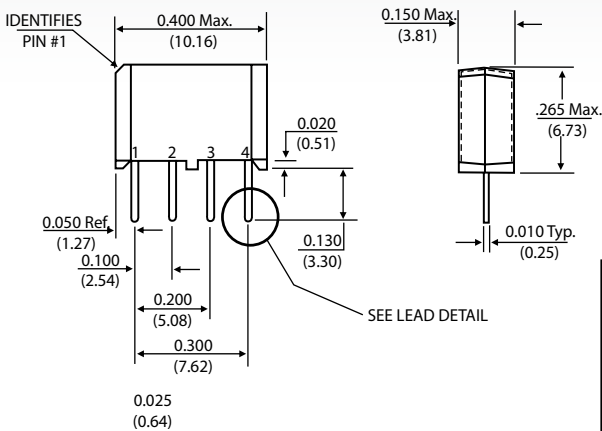
9011, 9012 & 9117 Series Features

- ▶ 9012 is a 10W SIP relay (.400" x .150" x .400")
- ▶ 9011 is a 3W SIP relay (.400" x .150" x .265")
- ▶ 9117 is the smallest 3W SIP relay (.270" x .150" x .385")
- ▶ Magnetic shielding reduces interaction
- ▶ Optional coil suppression diode protects coil drive circuits
- ▶ UL File #E67117 - Contact factory for details
- ▶ 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
- ▶ RoHS compliant

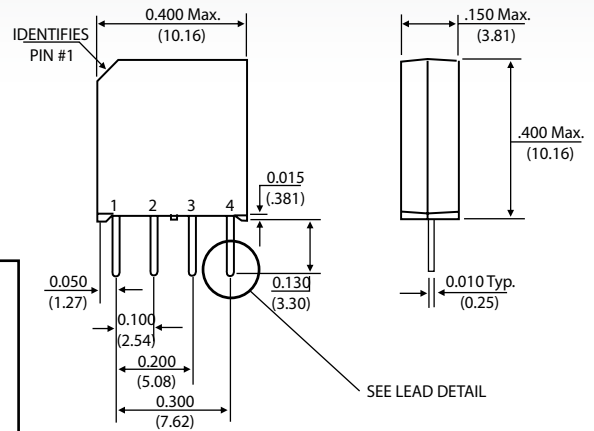
DIMENSIONS

in Inches (Millimeters)

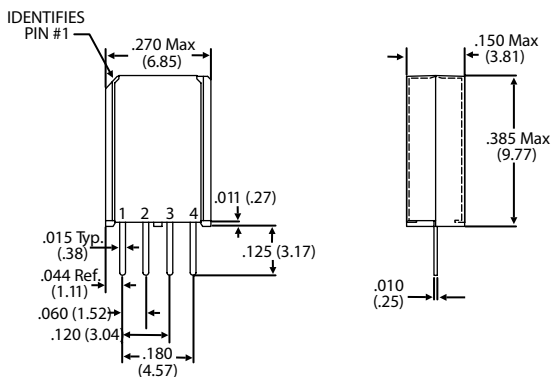
Model 9011



Model 9012



Model 9117



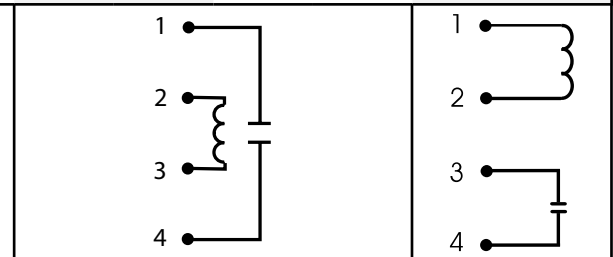
Ordering Information

| | | |
|-----------------|---|------------------------------|
| Part Number | 90XX-XX-1X | General Options ² |
| Model Number | 9011 9012 9117 | 0=No Diode 1=Diode |
| Coil Voltage | 05=5 volts 12=12 volts (N/A on 9117) | |
| Magnetic Shield | 1=Mag Shield (External 9011, 9117; Internal 9012) | |

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| MODEL NUMBER | | | 9011 ^{2,3} | 9012 ^{2,3} | 9117 ^{2,3} |
|---|--|----------------------------|-----------------------|------------------------|------------------------|
| Parameters | Test Conditions | Units | (3 Watt) 4 Pin SIP | (10 Watt) 4 Pin SIP | (3 Watt) Narrow Fit |
| COIL SPECS. | | | | | |
| Nom. Coil Voltage | | VDC | 5 12 | 5 12 | 5 |
| Max. Coil Voltage | | VDC | 6.5 15.0 | 6.5 15.0 | 6.0 |
| Coil Resistance | +/- 10%, 25° C | Ω | 500 750 | 500 750 | 400 |
| Operate Voltage | Must Operate by | VDC - Max. | 3.75 9.0 | 3.75 9.0 | 3.75 |
| Release Voltage | Must Release by | VDC - Min. | 0.4 1.0 | 0.4 1.0 | 0.5 |
| CONTACT RATINGS | | | | | |
| Switching Voltage | Max DC/Peak AC Resist. | Volts | 100 | 200 | 100 |
| Switching Current | Max DC/Peak AC Resist. | Amps | 0.25 | 0.5 | 0.25 |
| Carry Current | Max DC/Peak AC Resist. | Amps | 0.5 | 0.5 | 0.5 |
| Contact Rating | Max DC/Peak AC Resist. | Watts | 3 | 10 | 3 |
| Life Expectancy-Typical ¹ | Signal Level 1.0V, 10mA | x 10 ⁶ Ops. | 250 | 1000 | 250 |
| Static Contact Resistance (max. init.) | 50mV, 10mA | Ω | 0.150 | 0.120 | 0.120 |
| Dynamic Contact Resistance (max. init.) | 0.5V, 50mA at 100 Hz, 1.5 msec | Ω | 0.200 | 0.200 | 0.200 |
| RELAY SPECIFICATIONS | | | | | |
| Insulation Resistance (minimum) | Between all Isolated Pins at 100V, 25°C, 40% RH | Ω | 10 ¹² | 10 ¹² | 10 ¹² |
| Capacitance - Typical Across Open Contacts | | pF | 0.7 | 0.7 | 0.14 |
| Open Contact to Coil | | pF | 1.4 | 1.4 | N/A |
| Dielectric Strength (minimum) | Between Contacts Contacts to Coil | VDC/peak AC VDC/peak AC | 200 1500 | 200 1500 | 150 1500 |
| Operate Time - including bounce - Typical | At Nominal Coil Voltage, 30 Hz Square Wave | msec. | 0.35 | 0.35 | 0.2 |
| Release Time - Typical | | msec. | 0.1 | 0.1 | 0.1 |

Top View:
Grid = .1"x.1" (2.54mm x 2.54mm)



Notes:

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

² Optional diode is connected to pin #2(+) and pin #3(-) for 9011 & 9012; pin #1(+) and pin #2(-) for 9117. Correct coil polarity must be observed.

³ 9011 & 9117 external mag shield. 9012 internal 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

All electrical parameters measured at 25°C unless otherwise specified.

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

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