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.

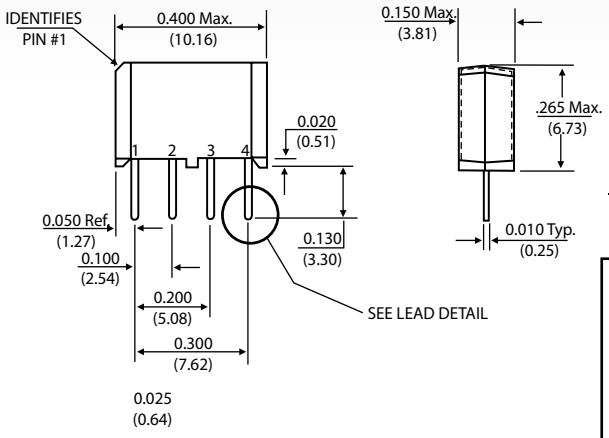
9011, 9012 & 9117 Series Features

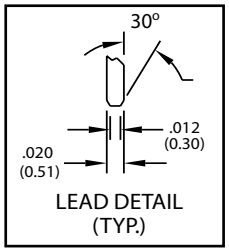
- 9012 is a 10W SIP relay (.400" x .150" x .400")
- 9011 is a 3W SIP relay (.400" x .150" x .265")
- 9117 is the smallest 3W SIP relay (.270" x .150" x .385")
- Magnetic shielding reduces interaction
- Optional coil suppression diode protects coil drive circuits
- UL File #E67117 - Contact factory for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

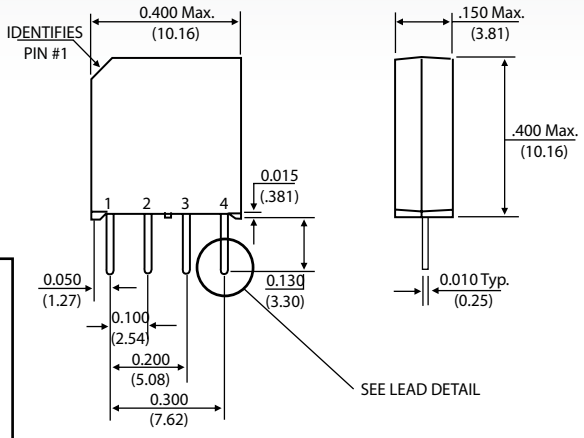
in Inches (Millimeters)

Model 9011

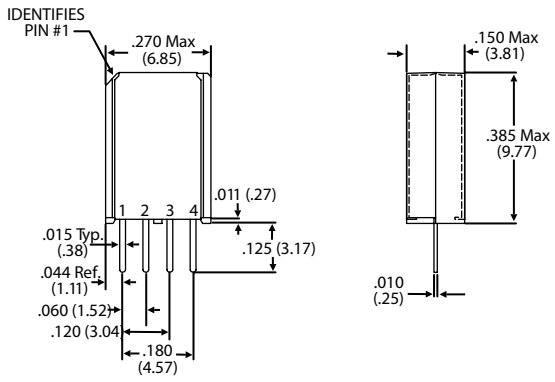




Model 9012



Model 9117



Ordering Information

Part Number 90XX-XX-1X

Model Number
9011 9012 9117

Coil Voltage
05=5 volts
12=12 volts (N/A on 9117)

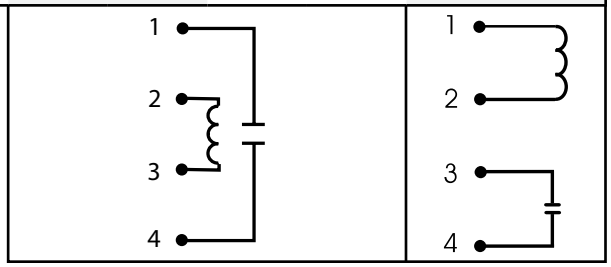
Magnetic Shield
1=Mag Shield (External 9011, 9117; Internal 9012)

General Options[2]
0=No Diode
1=Diode

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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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