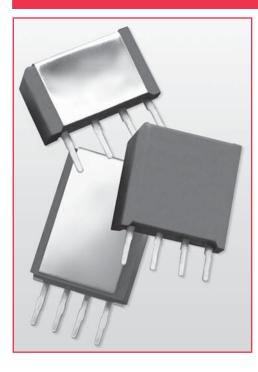
9011, 9012 & 9117 Miniature SIP Relays



Model 9011

Miniature Molded SIP Reed Relays

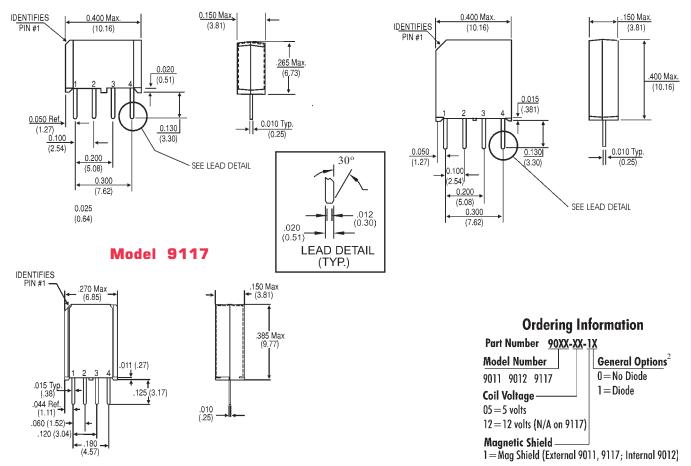
The 9012 package dimensions are 47% smaller than standard 9000 SIPs, yet the relay retains the 10W switch ratings of its larger counterparts. The 9011 package dimensions are 65% smaller than the standard 9000 SIPs and incorporates Coto's 7mm switch rated at 3W. The 9117 goes one step further, reducing package size by 65% from standard 9000 SIPs. This is the smallest SIP footprint with a 3W rating. 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.

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
- 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

Dimensions in Inches (Millimeters)

Model 9012



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9011, 9012 & 9117 Miniature SIP Relays

Model Number			9011 ^{2,4}	9012 ^{2,4} (10 Watt)	9117 ^{2,4} (3 Watt)
			(3 Watt)		
Parameters	Test Conditions	Units	4 Pin SIP	4 Pin SIP	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	0.250	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	50 × 11 10 × 4	Ω	0.150	0.120	0.120
Resistance (max. init.)	50mV, 10mA	77	0.150	0.120	0.120
Dynamic Contact	0.5V, 50mA	Ω	0.200	0.200	0.200
Resistance (max. init.)	at 100 Hz, 1.5 msec	27	0.200	0.200	0.200
RELAY					
SPECIFICATIONS					
nsulation Resistance	Between all Isolated Pins	Ω	1 0 12	1 0 12	1 0 12
minimum)	at 100V, 25°C, 40% RH	12	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	Between Contacts	VDC/peak AC	200	200	150
minimum)	Contacts to Coil	VDC/peak AC	1500	1500	1500
Derate Time - including	At Nominal Coil Voltage,				
ounce - Typical	30 Hz Square Wave	msec.	0.35	0.35	0.2
elease Time - Typical	Zener-Diode Suppression ³	msec.	0.1	0.1	0.1
	•	Top View:	1		

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

Notes:

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

²Optional 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. ³Consists of 56V Zener diode and 1N4148 diode in

series, connected in parallel with coil. 49011 & 9117 external mag shield. 9012 internal mag

shield.

Environmental Ratings:

Storage Temp: -35°C to \pm 100°C; Operating Temp: -20°C to \pm 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