

# 9104 SERIES/HIGH VOLTAGE SIP REED RELAYS



## 9104 Series Hi Voltage SIP Reed Relays

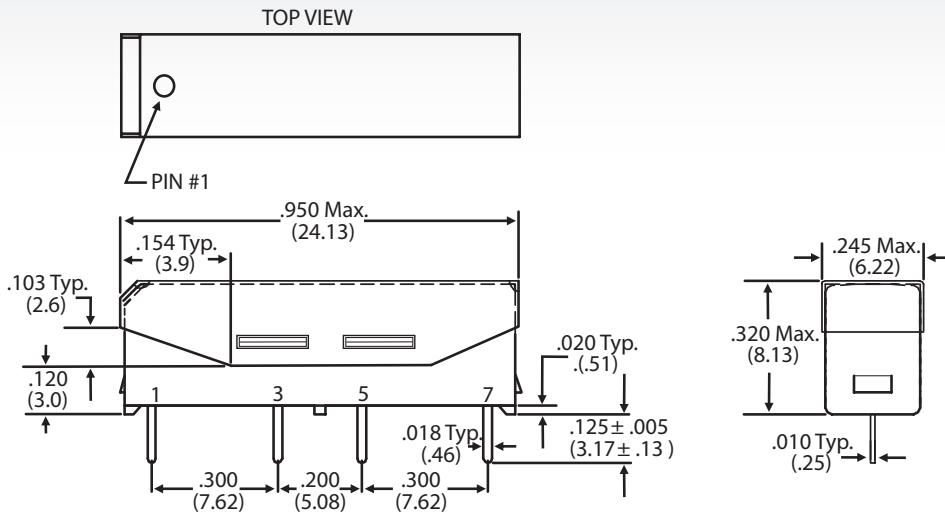
Molded SIP relays are the industry standard when high reliability and consistent performance are desired in a compact package. The 9104 Series adds high voltage switching capability and high voltage standoff capability to a SIP relay package. These high voltage, high performance relays are ideally suited for Automatic Test Equipment, Instrumentation, Battery Management, Solar and Process Control applications where voltage isolation is a key design requirement.

## 9104 Series Features

- ▶ High voltage switching up to 1000 V
- ▶ High dielectric strength (up to 3000 V DC)
- ▶ High Insulation Resistance –  $10^{11}\Omega$  minimum
- ▶ High reliability, hermetically sealed contacts for long life
- ▶ High speed switching compared to electromechanical relays
- ▶ Molded thermoset body on integral lead frame design
- ▶ Optional Coil Suppression Diode – protects coil drive circuits
- ▶ Magnetic Shield – reduces interaction
- ▶ UL File #E67117 - Contact factory for details
- ▶ RoHS compliant

## DIMENSIONS

*in Inches (Millimeters)*

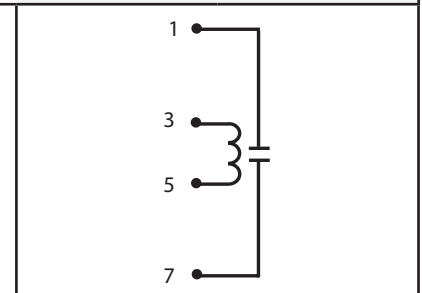


## Ordering Information

<b>Part Number</b>	<b>9XXX-XX-XX</b>	<b>General Options</b>
<b>Model Number</b>	9104	0=No Diode 1=Diode <sup>2</sup>
<b>Coil Voltage</b>	05=5 volts 12=12 volts	<b>Dielectric Strength (Min) / Contacts Shield to Coil</b>
		1=2000/3000 3=3000/3000

MODEL NUMBER			9104 <sup>2</sup>
Parameters	Test Conditions	Units	4 Pin SIP
<b>COIL SPECS.</b>			
Nom. Coil Voltage		VDC	5 12
Max. Coil Voltage		VDC	6.5 15.0
Coil Resistance	+/- 10%, 25° C	Ω	175 500
Operate Voltage	Must Operate by	VDC - Max.	3.75 9.0
Release Voltage	Must Release by	VDC - Min.	0.5 1.0
<b>CONTACT RATINGS</b>			
Switching Voltage <sup>3</sup>	Max DC/Peak AC Resist.	Volts	1000
Switching Current	Max DC/Peak AC Resist.	Amps	0.5
Carry Current	Max DC/Peak AC Resist.	Amps	1.3
Contact Rating	Max DC/Peak AC Resist.	Watts	10
Life Expectancy-Typical <sup>1</sup>	Signal Level 1.0V, 10mA	x 10 <sup>6</sup> Ops.	300
Static Contact Resistance (max. init.)	50mV, 10mA	Ω	0.150
Dynamic Contact Resistance (max. init.)	0.5V, 50mA at 100 Hz, 1.5 msec	Ω	0.200
<b>RELAY SPECIFICATIONS</b>			
Insulation Resistance (minimum)	Between all Isolated Pins at 100V, 25°C, 40% RH	Ω	10 <sup>11</sup>
Capacitance - Typical Across Open Contacts	No Shield	pF	1.0
Open Contact to Coil	No Shield	pF	-
Dielectric Strength <sup>4</sup> (minimum)	Between Contacts Contacts/Shield to Coil	VDC/peak AC VDC/peak AC	2000 / 3000 2000 / 3000
Operate Time - including bounce - Typical	At Nominal Coil Voltage, 30 Hz Square Wave	msec.	0.75
Release Time - Typical		msec.	0.5

Top View:  
Dot stamped on top of relay refers to pin #1 location  
Grid = .1"x.1" (2.54mm x 2.54mm)



**Notes:**

- <sup>1</sup> Consult factory for life expectancy at other switching loads.
- <sup>2</sup> Optional diode is connected to pin #3(+) and pin #5(-). Correct coil polarity must be observed.
- <sup>3</sup> Switch current limited to 1.0mA @ 1000V.

Dielectric Strength	9104-XX-1X	9104-XX-3X
VDC/peak AC	2000/3000	3000/3000

**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