

# 9104 SERIES/HIGH VOLTAGE SIP REED RELAYS



## 9104 Series Hi Voltage SIP Reed Relays

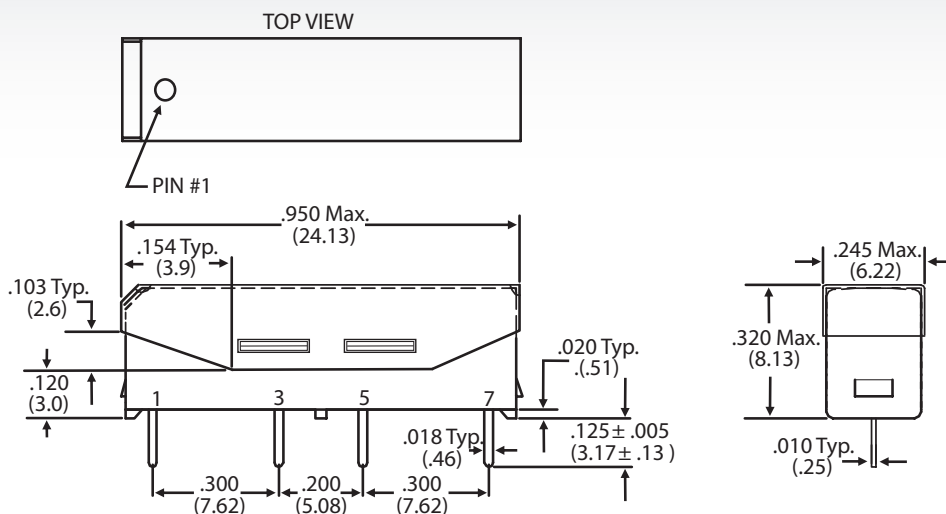
Molded SIP relays are the industry standard when high reliability and consistent performance are desired in a compact package. The 9104 Series adds high voltage switching capability and high voltage standoff capability to a SIP relay package. These high voltage, high performance relays are ideally suited for Automatic Test Equipment, Instrumentation, 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 (2000 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)*

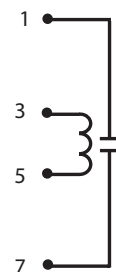


## Ordering Information

| Part Number     | 9XXX-XX-1X                 | General Options                    |
|-----------------|----------------------------|------------------------------------|
| Model Number    | 9104                       | 0=No Diode<br>1=Diode <sup>2</sup> |
| Coil Voltage    | 05=5 volts 12=12 volts     |                                    |
| Magnetic Shield | 1=External Magnetic Shield |                                    |

| 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<br>at 100 Hz, 1.5 msec                  | Ω                      | 0.200             |
| <b>RELAY SPECIFICATIONS</b>                   |                                                    |                        |                   |
| Insulation Resistance (minimum)               | Between all Isolated Pins<br>at 100V, 25°C, 40% RH | Ω                      | 10 <sup>11</sup>  |
| Capacitance - Typical<br>Across Open Contacts | No Shield                                          | pF                     | 1.0               |
| Open Contact to Coil                          | No Shield                                          | pF                     | -                 |
| Dielectric Strength (minimum)                 | Between Contacts                                   | VDC/peak AC            | 2000              |
|                                               | Contacts to Coil                                   | VDC/peak AC            | 3000              |
|                                               | Contacts/Shield to Coil                            | VDC/peak AC            | 3000              |
| Operate Time -<br>including bounce - Typical  | At Nominal Coil Voltage,<br>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 #2(+) and pin #3(-). Correct coil polarity must be observed.

<sup>3</sup> Switch current limited to 1.0mA @ 1000V.

#### 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