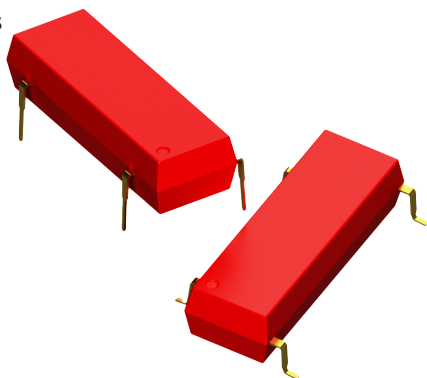


1 Description

The 9105 series is a high-voltage reed relay available in both SMD and through-hole packages (DIP). It is capable of switching up to 1 kV, with a breaking voltage of up to 4.25 kV and dielectric strength voltages of 7 kV. This molded relay features a robust design manufactured under Coto's higher quality standards, including an added diode for coil protection. It undergoes 100% testing, which includes high-voltage testing between all isolated points.

Device Packages



2 Features

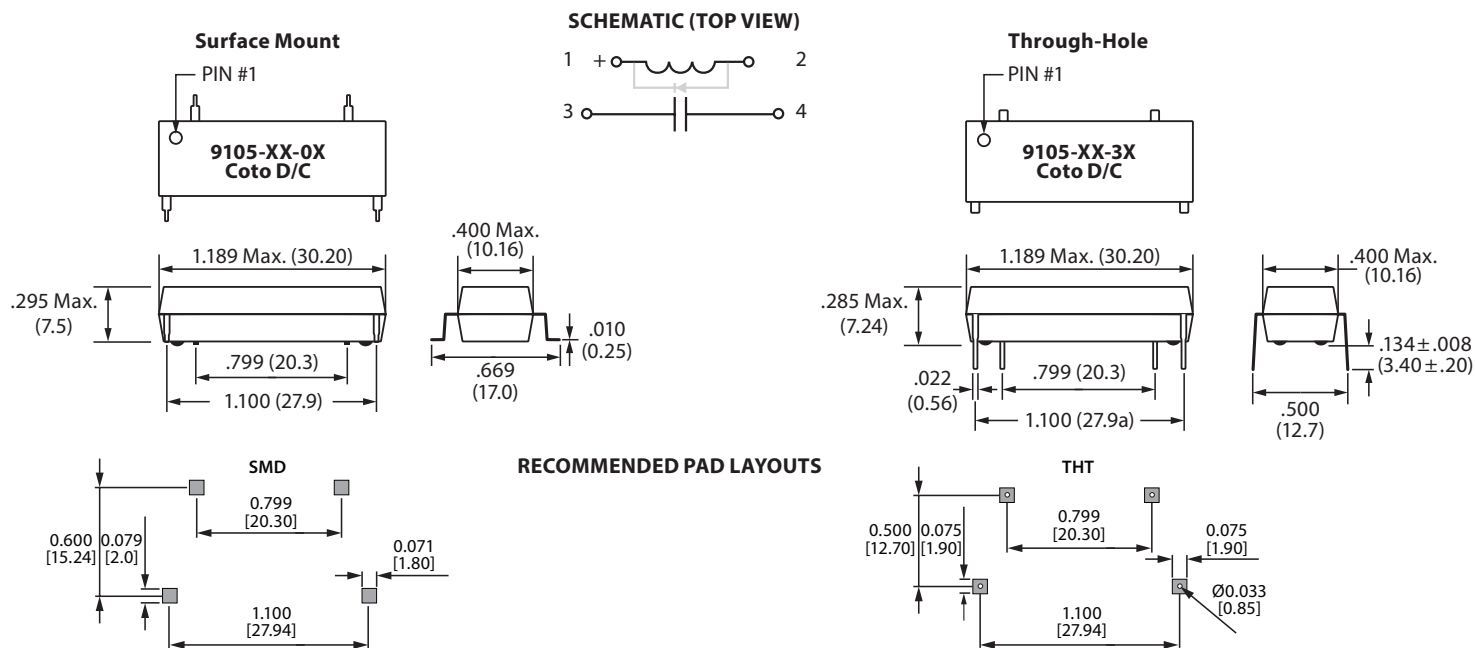
- ▶ High voltage switching up to 1000 V
- ▶ High dielectric strength up to 7000 V
- ▶ High Insulation Resistance – 10^{12}
- ▶ High reliability, hermetically sealed contacts for long life
- ▶ High speed switching compared to electromechanical relays
- ▶ Molded thermoset body on integral lead frame design
- ▶ Optional Coil Suppression Diode – protects coil drive circuits
- ▶ RoHS Certified⁴
- ▶ In compliance with IEC 60664-1 standard
- ▶ Gold plated terminals

3 Applications

- ▶ Solar Systems
- ▶ Battery Management Systems
- ▶ EV/Automotive
- ▶ Automated Test Equipment (ATE)
- ▶ Medical
- ▶ Instrumentation
- ▶ Process Control
- ▶ Telecommunications

4 Dimensions

Inches (Millimeters)



5 Ordering Information

Part Number	9105-XX-XX	General Options
Model Number	9105	0=No Diode 1=Diode ²
Coil Voltage	05=5 volts 12=12 volts	Package Style
		0 = SMD 3 = DIP

6 Parameters - Model Number 9105

Parameters	Test Conditions	Units	4 Pin	
Coil Specs.				
Nom. Coil Voltage		VDC	5.0	12.0
Max. Coil Voltage		VDC	6.5	15
Coil Resistance	+/- 10%, 25°C	Ω	140	475
Operate Voltage	Must Operate By	VDC - Max.	3.75	9.0
Release Voltage	Must Release By	VDC - Min.	0.5	1.0
Contact Ratings				
Switching Voltage ³	Max DC/Peak AC Resist.	Volts	1000	
Switching Current	Max DC/Peak AC Resist.	Amps	1.0	
Carry Current	Max DC/Peak AC Resist.	Amps	2.5	
Contact Rating	Max DC/Peak AC Resist.	Watts	100	
Life Expectancy - Typical ¹	Signal Level 1.0V, 10mA	x 10 ⁶ Ops.	300	
Static Contact Resistance (Max. Init.)	50mV, 10mA	Ω	0.100	
Dynamic Contact Resistance (Max. Init.)	0.5V, 50mA at 100Hz, 1.5msec.	Ω	0.150	
Relay Specifications				
Insulation Resistance	Across Open Contacts at 100V, 25°C, 40% RH	Ω	10 ¹² (Typ.) 10 ¹¹ (Min.)	
	Contact to Coil at 100V, 25°C, 40% RH	Ω	10 ¹³ (Typ.) 10 ¹² (Min.)	
Capacitance - Typical	Across open contacts Contacts to Coil	pF pF	0.5 1.2	
Dielectric Strength (Min.)	Across open contacts Contacts to Coil	VDC/peak AC	4250 7000	
Operate Time - Including Bounce (Max.)	At Nominal Coil Voltage 30 Hz Square Wave	msec.	1.1	
Release Time (Max.)		msec.	0.2	

General Notes:

1. Consult factory for life expectancy at other switching loads.
2. Optional diode is connected to pin #3 (cathode) and pin #5 (anode).
Correct coil polarity must be observed by connecting the positive terminal of the applied voltage to the cathode pin.
3. Switch current limited to 1.0mA @ 1000V.
4. RoHS Compliance by exemption 7(a) from Directive 2011/64/EU.

Environmental Ratings:

Storage Temp:-35°C to + 100°C; Operating Temp: -20°C to +85°C

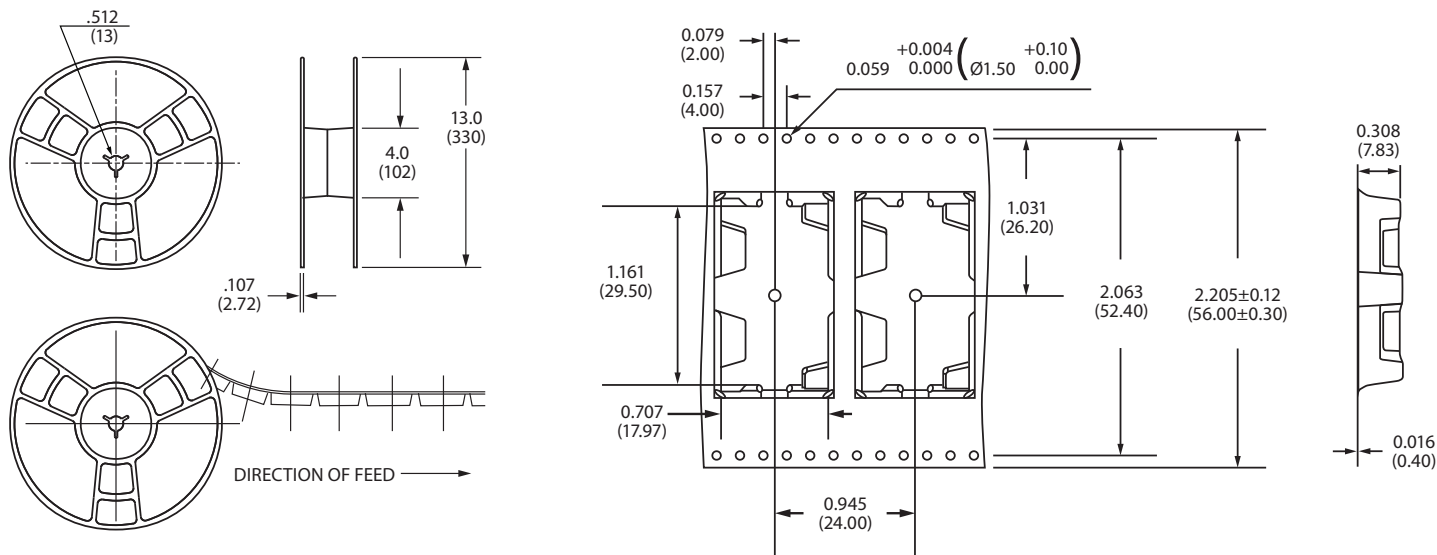
Vibration: 20G to 2000 Hz; Shock: 50G

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

7 Package Information Inches (Millimeters)

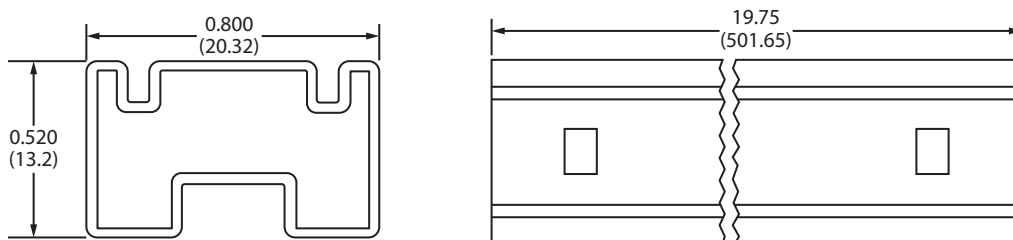
Tape & Reel Dimensions

- 250 Pieces per TR when ordered as part number 9105-XX-TR



Plastic Tube Dimensions

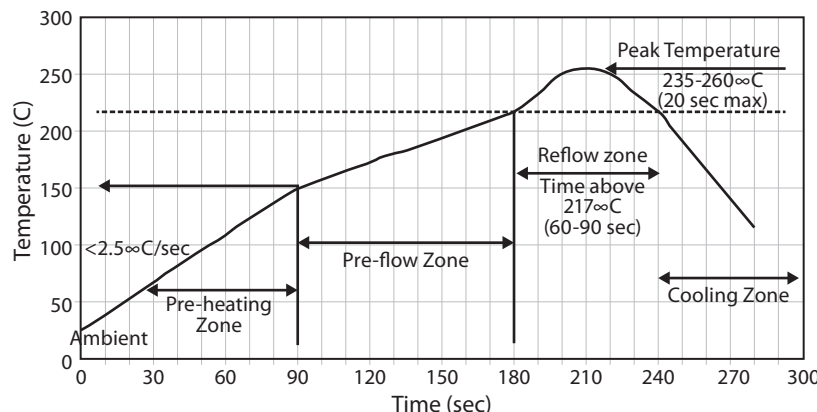
- 15pcs per tube



8 Relay Processing Notes

8.1 SMD Soldering

Coto Technology uses a higher temperature solder for all internal connections. We recommend that the max relay temperature during the solder reflow process does not exceed 260°C. Temperature and time more than the recommended levels may result in damage to the relay. Recommended solder profile for SAC alloys as below.



8.2 DIP Soldering

Relays can be soldered by hand or by wave solder processing. Coto Technology recommends the maximum wave solder temperature (measured at the relay leads) as 270°C for 10 seconds. Temperature and time in excess of the recommended levels may result in damage to the relay. All our through-hole relays are compatible with either SAC alloy or eutectic soldering process.

8.3 Cleaning

9105 is designed and manufactured to provide an adequate seal from external conditions. However, caution must be taken during the cleaning process not to expose the relays to conditions that will allow moisture to permeate into the package. Caution should be taken with dwell time between reflow and cleaning, high pressure spraying, and time in cleaning solvent/aqueous solutions, as these cleaning process parameters can contribute to moisture permeation. Board level bake out may be required after wash to remove moisture that has been introduced during cleaning operations.

8.4 Relay Storage

9105 relay parametric specifications are specified at 25°C and 40% RH. Reduced relay performance may result if storage or use environments significantly exceed these conditions. If high insulation resistance is required, Coto Technology recommends that relay storage, processing, and use environments are adequate to achieve the desired results. Relays should be stored in similar environmental conditions as other high-reliability active and passive electronic components. Proper storage of relays is also important to maintain solderability over an extended period of time.

8.5 Handling

9105 relays should be handled with care. Dropping or mishandling relays may result in damage that can contribute to a direct failure or, even worse, a latent field failure. If relays are dropped, Coto Technology recommends that they should be discarded.

Coto Technology does not recommend use of ultrasonic activated equipment with relays. The use of ultrasonic equipment may change the characteristics of the relay and can contribute to failure.



For more
technical and application information,
please refer to the QR code above.



Download App Note:
**Understanding Reed Relay Power Ratings &
How to Extend Switching Capabilities**

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