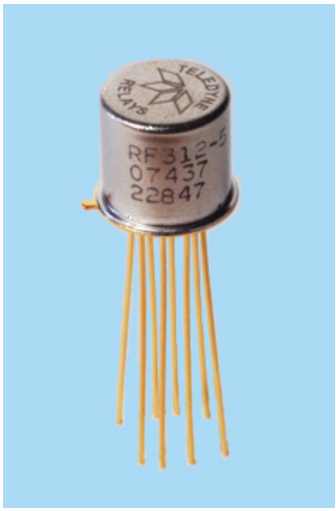


TELEDYNE RELAYS

A Teledyne Technologies Company

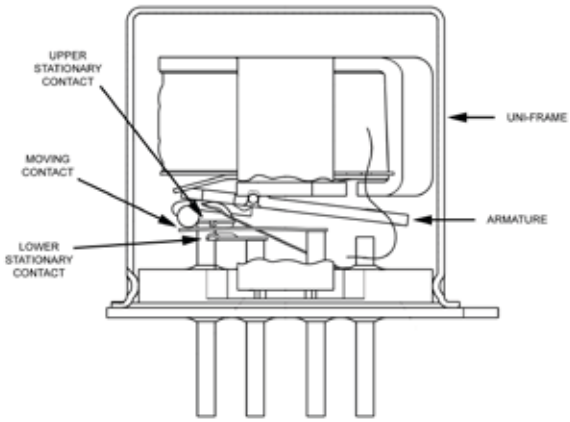
NEW

HIGH REPEATABILITY 8 GHz TO-5 RELAYS SIGNAL INTEGRITY TO 12Gbps DPDT

SERIES RF312

SERIES DESIGNATION	RELAY TYPE
RF312	Repeatable, RF TO-5 relay

INTERNAL CONSTRUCTION



ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS		
Temperature (Ambient)	**Storage**	–65°C to +125°C
	Operating	–55°C to +85°C
Vibration (General Note 1)		10 g's to 500 Hz
Shock (General Note 1)		30 g's, 6ms half sine
Enclosure		Hermetically sealed
Weight		0.09 oz. (2.55g) max.

PERFORMANCE FEATURES

The ultra miniature RF312 is designed to improve upon the RF300/RF303 relay's high frequency performance. The RF312 offers monotonic insertion loss to 8 GHz. This improvement in RF insertion loss over the frequency range, makes these relays highly suitable for use in attenuator and other RF circuits. The RF312 features:

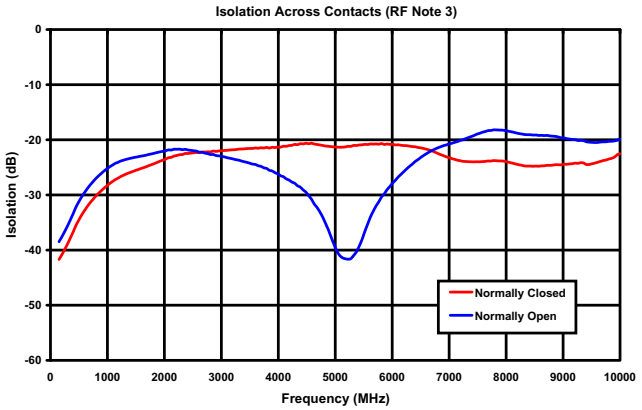
- High repeatability.
- Broader bandwidth.
- Metal enclosure for EMI shielding.
- Ground pin option to improve case grounding.
- High isolation between control and signal paths.
- Highly resistant to ESD.

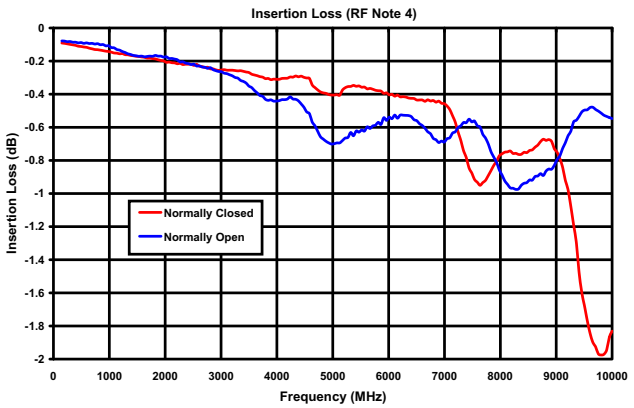
CONSTRUCTION FEATURES

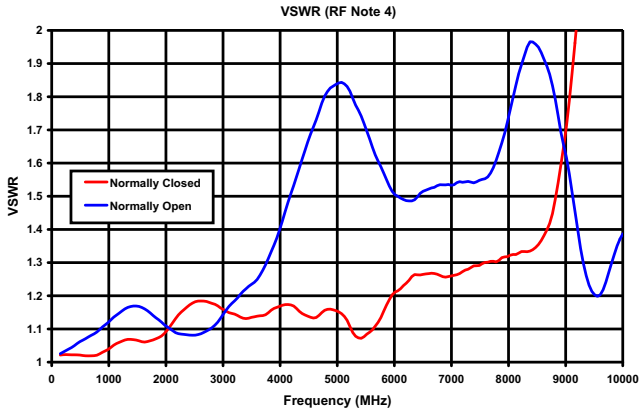
The following unique construction features and manufacturing techniques provide excellent resistance to environmental extremes and overall high reliability.

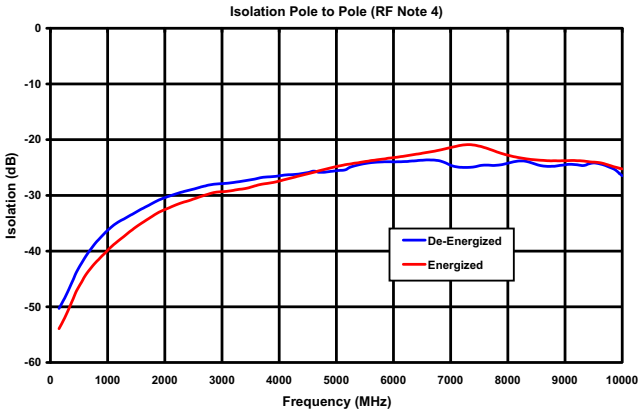
- Uni-frame motor design provides high magnetic efficiency and mechanical rigidity.
- Minimum mass components and welded construction provide maximum resistance to shock and vibration.
- Advanced cleaning techniques provide maximum assurance of internal cleanliness.
- Gold-plated precious metal alloy contacts ensure reliable switching.
- Hermetically sealed.
- Solderable leads.

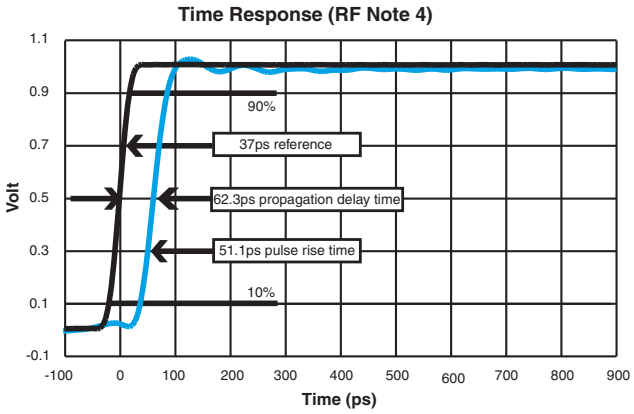
SERIES RF312
TYPICAL RF CHARACTERISTICS (See RF Notes)











RF NOTES

1. Test conditions:
   a. Fixture: .031" copper clad, reinforced PTFE, RT/duroid® 6002 with SMA connectors. (RT/duroid® is a registered trademark of Rogers Corporation.)
   b. Relay header is in contact with, but not soldered to ground plane.
   c. Room ambient temperature.
   d. Terminals not tested were terminated with 50-ohm load.
   e. Contact signal level: –10 dBm.
   f. No. of test samples: 4.
2. Data presented herein represents typical characteristics and is not intended for use as specification limits.
3. Data is the average from readings taken on all open contacts.
4. Data is the average from readings taken on all closed contacts.
5. Test fixture effect de-embedded from frequency and time response data.
6. For enhanced RF performance solder the entire perimeter of header to the ground plane. Soldering only a partial amount of the header perimeter may result in reduced RF performance.

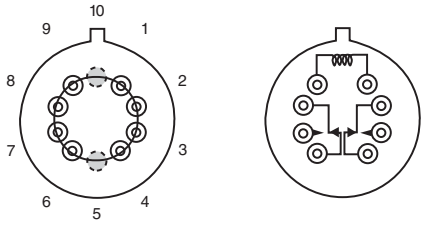
SERIES RF312
GENERAL ELECTRICAL SPECIFICATIONS (@25°C unless otherwise noted)

Contact Arrangement	2 Form C (DPDT)
Rated Duty	Continuous
Contact Resistance	0.15 Ω max. initial (measured 1/8" from the header)
Contact Load Rating	Resistive: 1Amp/28Vdc Low level: 10 to 50 μA, 10 to 50 mV
Contact Life Ratings	10,000,000 cycles (typical) at low level
Coil Operating Power	450 mW typical @ nominal rated voltage
Operate Time	4.0 mS max.
Release Time	3.0 mS max.
Intercontact Capacitance	0.4 pF typical
Insulation Resistance	1,000 MΩ min. between mutually isolated terminals
Dielectric Strength	350 Vrms (60 Hz) @ atmospheric pressure

DETAILED ELECTRICAL SPECIFICATIONS (@25°C)

BASE PART NUMBERS	RF312-5	RF312-12
Coil Voltage, Nominal (Vdc)	5.0	12.0
Coil Resistance (Ohms ±20%)	50	390
Pick-up Voltage (Vdc max.)	3.6	9.0

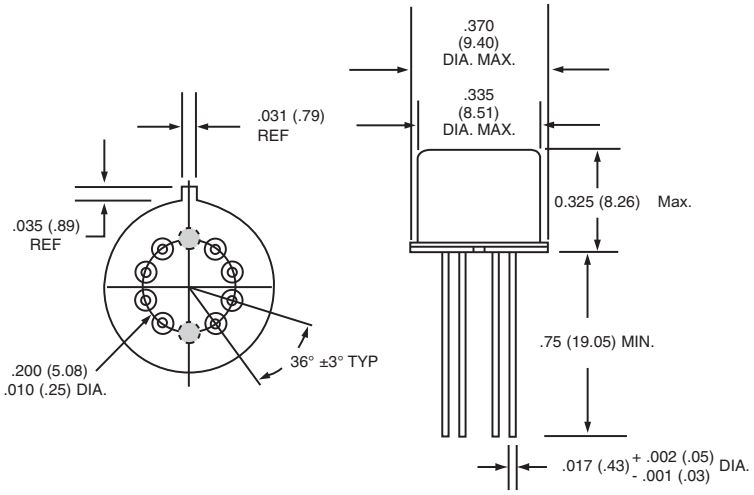
OUTLINE DIMENSIONS



TERMINAL NUMBERING **SCHEMATIC**

- HEADER DIMENSIONS, TERMINAL NUMBERING AND SCHEMATIC ARE AS VIEWED FROM THE TERMINALS.
- DIMENSIONS ARE IN INCHES (MILLIMETERS).
- POSITIONS 5 AND 10 ARE FOR UNINSULATED CASE GROUND OPTIONS.
- TO ORDER THE CASE GROUND OPTION, AFTER THE SERIES DESIGNATOR, ADD "Y" TO THE PART NUMBER FOR POSITION 5 OR "Z" TO THE PART NUMBER FOR POSITION 10.

EXAMPLE: RF312Y-COIL VOLTAGE

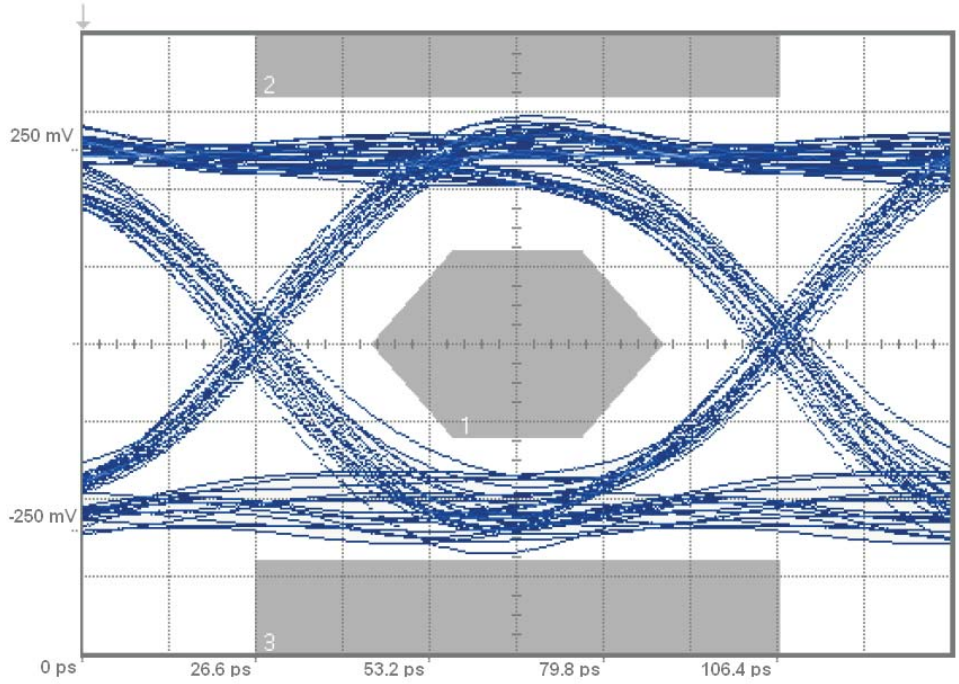


EXTERNAL DIMENSIONS
Shown in Inches (millimeters)

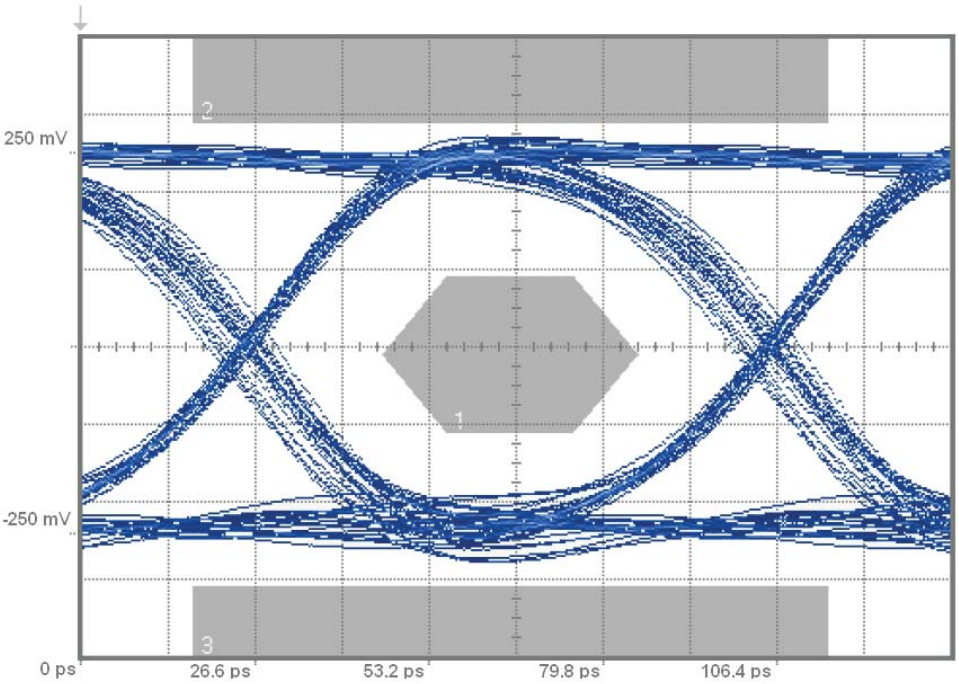
GENERAL NOTES

1. Relays will exhibit no contact chatter in excess of 10 μsec or transfer in excess of 1 μsec.

TYPICAL SIGNAL INTEGRITY CHARACTERISTICS



Normally Open



Normally Closed

PATTERN GENERATOR SETTINGS

- 12.5 Gbps Random Pulse Pattern Generator
- 2^{31} - 1 PRBS signal
- Data Amplitude of 500 mV_{pp}
- RF PCB effect (negligible) not removed from measurement.

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