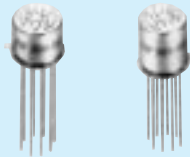


# TELEDYNE RELAYS

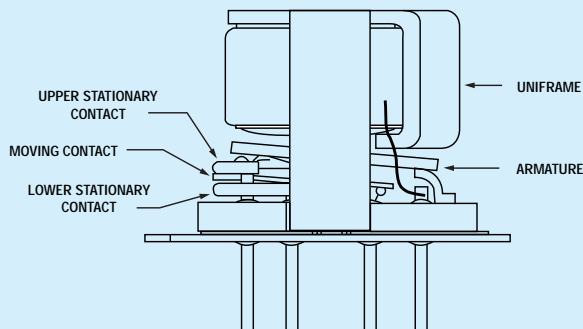
## HIGH REPEATABILITY ULTRAMINIATURE TO-5, RF RELAY DPDT DC TO 3 GHz

### SERIES RF300 RF303



SERIES DESIGNATION	RELAY TYPE
RF300	Repeatable RF relay
RF303	Sensitive repeatable RF relay

### INTERNAL CONSTRUCTION



### PERFORMANCE FEATURES

The ultraminiature RF300 and RF303 relays are designed to provide improved RF signal repeatability over the frequency range by balancing the aggregate insertion loss elements of the relays' design. Highly suitable for use in attenuator and other RF circuits, the RF 300 and RF303 feature:

- 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.

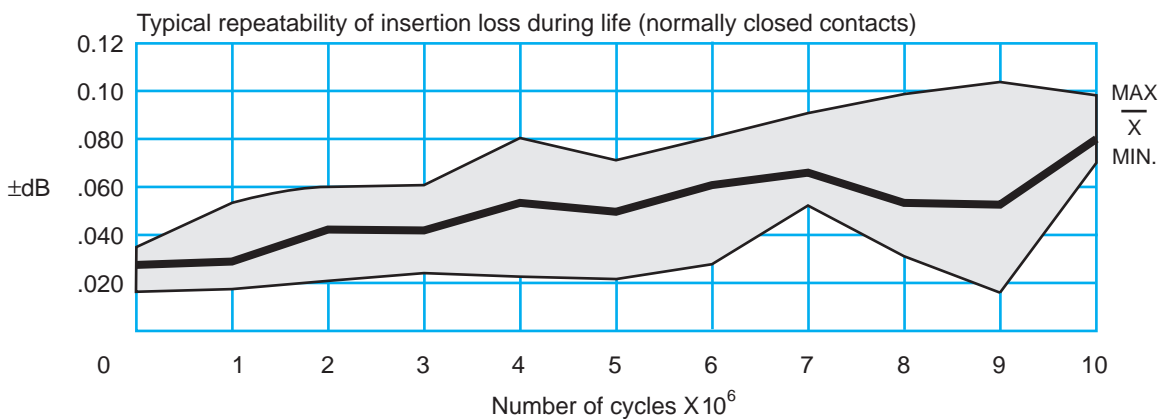
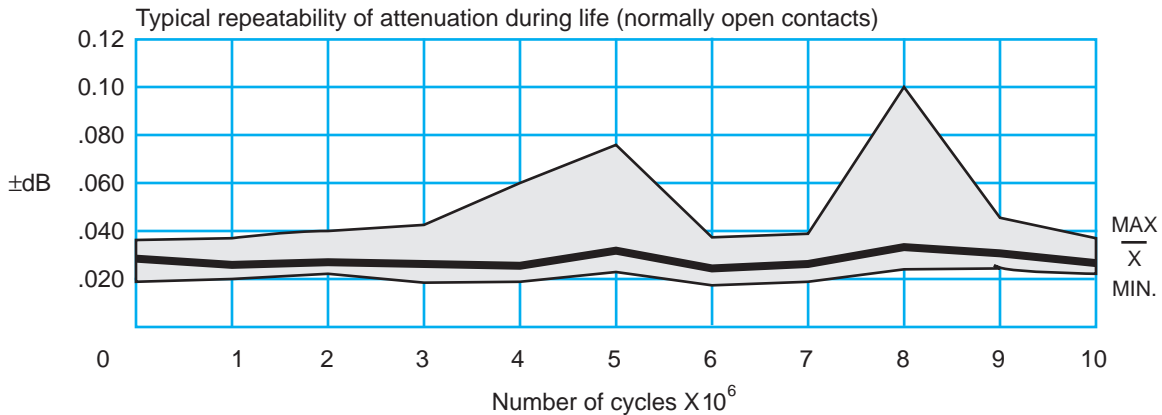
- Uni-frame motor design provides high magnetic efficiency and mechanical rigidity.
- Minimum mass components and welded construction provide maximum resistance to shock and vibration.
- Advanced cleaning techniques provide maximum assurance of internal cleanliness.
- Gold plated precious metal alloy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

ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS		
Temperature		-55°C to +85°C
Vibration (Note 1)		10 G to 500 Hz
Shock (Note 1)		30 G, 6 ms. half-sine
Enclosure		Hermetically sealed
Weight	RF300	0.09 oz. (2.55 g) max.
	RF303	0.16 oz. (4.50 g) max.

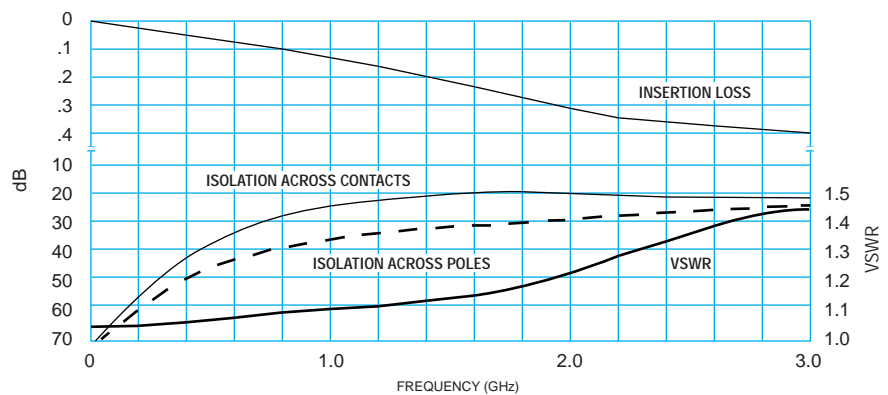
**RF REPEATABILITY PERFORMANCE (See RF notes 1, 2 and 3)**

**1 million cycle repeatability**

$\pm 0.1$  dB from DC to 3 GHz



**TYPICAL RF PERFORMANCE (See RF notes 3 and 4)**



**RF NOTES:**

1. One million cycle repeatability data is based upon 396 observations with an average repeatability  $\pm 0.033$  dB and a range of  $\pm 0.093$  dB.
2. Repeatability of attenuation values were obtained from tests conducted in a 20 dB attenuator network with a 0 dBm input signal.
3. Relay operates at frequencies higher than 3 GHz with reduced RF performance characteristics.
4. Curves were developed from tests performed on a 0.031" copper clad, reinforced PTFE circuit board at 20°C (ref). The un-utilized contacts were terminated in 50 ohms; characteristic impedance of measuring equipment is 50 ohms. The relays were mounted flush to the circuit board ground plane without the relay header soldered to the ground plane.

**SERIES RF300 and RF303**

**GENERAL ELECTRICAL SPECIFICATIONS (@ 25°C)**

Contact Arrangement		2 Form C (DPDT)
Rated Duty		Continuous
Contact Resistance		0.15 ohm max. initial (measured 1/8" from the header)
Contact Load Ratings		Resistive: 1 Amp/28VDC Low Level: 10 to 50 $\mu$ A/10 to 50 mV
Contact Life Ratings		10,000,000 cycles (typical) at low level
Coil Operating Power		RF300: 450 mW typical @ nominal rated voltage RF303: 200 mW typical @ nominal rated voltage
Operate Time	RF300	4.0 ms. max.
	RF303	6.0 ms. max.
Release Time	RF300	3.0 ms. max.
	RF303	3.0 ms. max.
Intercontact Capacitance		0.4 pF typical
Insulation Resistance		1,000 M $\Omega$ min. (between mutually isolated terminals)
Dielectric Strength		350 VRMS / 60 Hz @ atmospheric pressure

**DETAILED ELECTRICAL SPECIFICATIONS (@ 25°C)**

BASE PART NUMBERS		RF300-5 RF303-5	RF300-12 RF303-12
Coil Voltage, nominal, VDC		5.0	12.0
Coil Resistance, ohms $\pm$ 20%	RF300	50	390
	RF303	100	850
Pick-up voltage max, VDC		3.6	9.0

**OUTLINE DIMENSIONS**

**TERMINAL NUMBERING**

**SCHEMATIC**

H DIMENSION MAX.	
RF300	.275 (6.99)
RF303	.385 (9.78)

**EXTERNAL DIMENSIONS**

- HEADER DIMENSIONS, TERMINAL NUMBERING AND SCHEMATIC ARE AS VIEWED FROM THE TERMINALS.
- TERMINALS INDICATED AT POSITIONS 5 AND 10 ARE FOR CASE GROUND OPTIONS (See ground pin options on page 112)
- DIMENSIONS ARE IN INCHES (MILLIMETERS).
- SCHEMATIC AND EXTERNAL DIMENSIONS SHOWN WITHOUT GROUND PINS.

**SHOCK and VIBRATION NOTES**

Relays will exhibit no contact chatter in excess of 10  $\mu$ s or transfer in excess of 1  $\mu$ s.