

**TELEDYNE  
RELAYS**

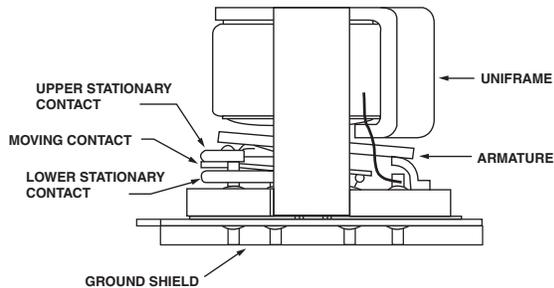
A Teledyne Technologies Company

**SURFACE MOUNT,  
HIGH REPEATABILITY,  
SIGNAL INTEGRITY TO 10Gpbs  
BROADBAND TO-5 RELAYS  
DPDT**

**SERIES  
GRF300  
GRF303**

SERIES DESIGNATION	RELAY TYPE
GRF300	Repeatable, Signal Integrity, RF TO-5 relay
GRF303	Sensitive, Repeatable, Signal Integrity, RF TO-5 relay

### INTERNAL CONSTRUCTION



### DESCRIPTION

The ultraminiature GRF300 and GRF303 relays are designed to provide a practical surface-mount solution with improved RF signal repeatability over the frequency range. GRF300 and GRF303 relays feature a unique ground shield that isolates and shields each lead to ensure excellent contact-to-contact and pole-to-pole isolation. **The GRF300/GRF303 version with the improved ground connections can push the performance up into the 10Gbps data rates for digital signal integrity applications.** This ground shield provides a ground interface that results in improved high-frequency performance as well as parametric repeatability. The GRF300 and GRF303 extend performance advantages over similar RF devices that simply offer formed leads for surface mounting. These relays are engineered for use in RF attenuator, RF switch matrices, ATE and other applications that require dependable high frequency signal fidelity and performance.

The GRF300 and GRF303 feature:

- High repeatability
- Broader bandwidth
- Metal enclosure for EMI shielding
- High isolation between control and signal paths
- High resistance to ESD

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

- Uniframe 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

### ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS

<b>Temperature</b> (Ambient)	<b>Storage</b>	-65°C to +125°C
	<b>Operating</b>	-55°C to +85°C
<b>Vibration</b> (General Note 1)		10 g's to 500 Hz
<b>Shock</b> (General Note 1)		30 g's, 6ms half sine
<b>Enclosure</b>		Hermetically sealed
<b>Weight</b>	<b>GRF300</b>	0.09 oz. (2.55g) max.
	<b>GRF303</b>	0.16 oz. (4.5g) max.

**SERIES GRF300 AND GRF303**  
**GENERAL ELECTRICAL SPECIFICATIONS (@25°C unless otherwise noted) (Notes 2 & 3)**

<b>Contact Arrangement</b>		2 Form C (DPDT)
<b>Rated Duty</b>		Continuous
<b>Contact Resistance</b>		0.15 Ω max.
<b>Contact Load Rating</b>		Resistive: 1Amp/28Vdc Low level: 10 to 50 μA @ 10 to 50mV
<b>Contact Life Ratings</b>		10,000,000 cycles (typical) at low level
<b>Coil Operating Power</b>	<b>GRF300-5</b>	500 mW typical @ nominal rated voltage
	<b>GRF300-12</b>	370 mW typical @ nominal rated voltage
	<b>GRF303-5</b>	250 mW typical @ nominal rated voltage
	<b>GRF303-12</b>	169 mW typical @ nominal rated voltage
<b>Operate Time</b>	<b>GRF300</b>	4.0 msec max.
	<b>GRF303</b>	6.0 msec max.
<b>Release Time</b>	<b>GRF300</b>	3.0 msec max.
	<b>GRF303</b>	3.0 msec max.
<b>Intercontact Capacitance</b>		0.4 pf typical
<b>Insulation Resistance</b>		1,000 MΩ min. between mutually isolated terminals
<b>Dielectric Strength</b>		350 Vrms/60Hz @ atmospheric pressure

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

BASE PART NUMBERS		GRF300-5 GRF303-5	GRF300-12 GRF303-12
<b>Coil Voltage, Nominal (Vdc)</b>		5.0	12.0
<b>Coil Resistance (Ohms ±20%)</b>	<b>GRF300</b>	50	390
	<b>GRF303</b>	100	850
<b>Pick-up Voltage (Vdc, Max.)</b>		3.6	9.0

**GENERAL NOTES**

- Relays will exhibit no contact chatter in excess of 10 μsec or transfer in excess of 1 μsec.
- Unless otherwise specified, parameters are initial values.
- Relays may be subjected to 260°C, peak solder reflow temperature, 1 minute, 3 passes.
- Butt-lead ends are coplanar within .003" (0.08mm).
- Application notes available for PCB layout and mounting information.

**OUTLINE DIMENSIONS**

