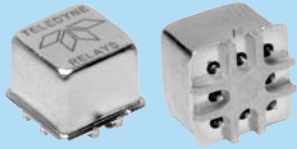




A Unit of Teledyne Electronics and Communications

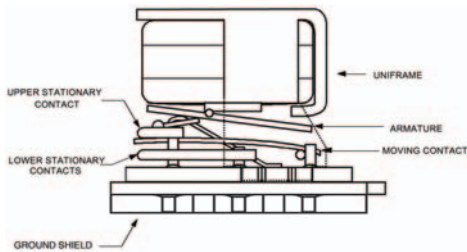


# SERIES GRF172

## SURFACE MOUNT, CENTIGRID® 2.5 GHz RF RELAYS DPDT

SERIES DESIGNATION	RELAY TYPE
GRF172	Surface mount, RF Centigrd® relay
GRF172D	Surface mount, RF Centigrd® relay with coil transient suppresson diode

### INTERNAL CONSTRUCTION



### DESCRIPTION

The GRF172 surface-mount Centigrd® relay is an ultraminiature, hermetically sealed, armature relay for 2.5 GHz RF applications. Its low profile height (.330") and .100" grid spaced terminals make it an ideal choice where extreme packaging density and/or close PC board spacing are required.

The GRF172 features a unique ground shield that isolates and shields each lead to ensure excellent contact-to-contact and pole-to-pole isolation. This ground shield provides a ground interface that results in improved high-frequency performance as well as parametric repeatability. The GRF172 extends performance advantages over similar RF devices that simply offer formed leads for surface mounting.

Unique construction features and manufacturing techniques provide overall high reliability and excellent resistance to environmental extremes:

- All welded construction.
- Unique uni-frame design providing high magnetic efficiency and mechanical rigidity.
- High force/mass ratios for resistance to shock and vibration.
- Advanced cleaning techniques provide maximum assurance of internal cleanliness.
- Precious metal alloy contact material with gold plating assures excellent high current and dry circuit switching capabilities.

The Series GRF172D has an internal discrete silicon diode for coil transient suppression.

Applications include telecommunications, test instruments, mobile communications, attenuators, and automatic test equipment.

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, 6 msec, half-sine
Enclosure		Hermetically sealed
Weight		0.09 oz. (2.55g) max.

**SERIES GRF172**  
**GENERAL ELECTRICAL SPECIFICATIONS (@25°C Notes 2 & 5)**

<b>Contact Arrangement</b>	2 Form C (DPDT)
<b>Rated Duty</b>	Continuous
<b>Contact Resistance</b>	0.15 ohm max. before life; 0.3 ohm max. after life at 1A/28Vdc (measured 1/8" from header)
<b>Contact Load Rating (DC)</b> (See Fig. 1 for other DC resistive voltage/current ratings)	Resistive: 1 Amp/28Vdc Inductive: 100 mA/28Vdc (320 mH) Lamp: 100 mA/28Vdc Low Level: 10 to 50 µA/10 to 50mV
<b>Contact Life Ratings</b>	5,000,000 cycles (typical) at low level 500,000 cycles (typical) at 0.5A/28Vdc resistive 100,000 cycles min. at all other loads specified above
<b>Contact Overload Rating</b>	2A/28Vdc Resistive (100 cycles min.)
<b>Contact Carry Rating</b>	Contact factory
<b>Operate Time</b>	6.0 msec max. at nominal rated coil voltage
<b>Release Time</b>	GRF172: 3.0 msec max. GRF172D: 6.0 msec max.
<b>Intercontact Capacitance</b>	0.4 pf typical
<b>Insulation Resistance</b>	1,000 megohms min. between mutually isolated terminals
<b>Dielectric Strength</b>	Atmospheric pressure: 350 Vrms/60Hz
<b>Negative Coil Transient GRF172</b>	2.0 Vdc Max.
<b>Diode P.I.V. GRF172D</b>	60 Vdc Min.

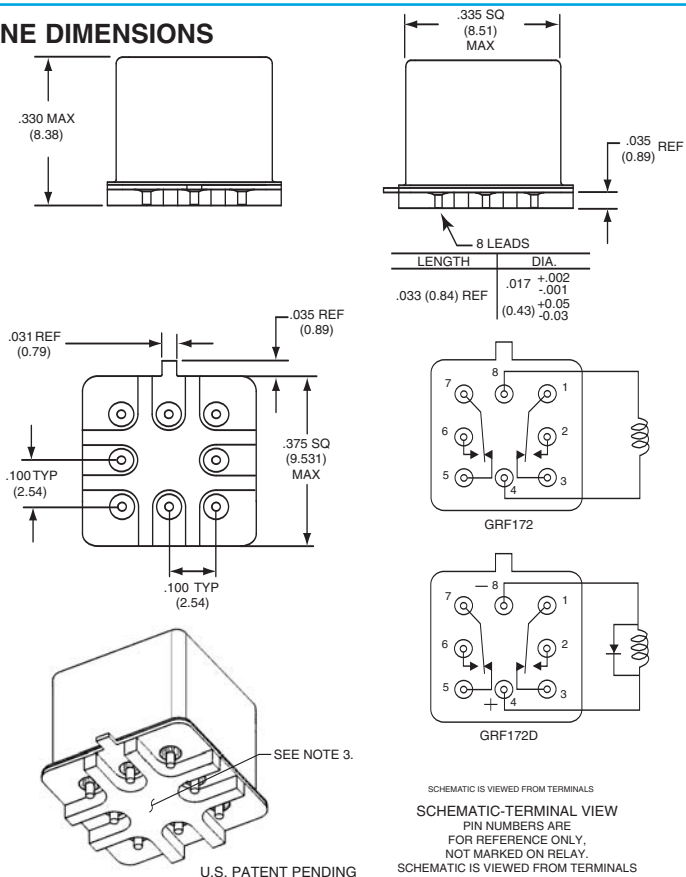
**DETAILED ELECTRICAL SPECIFICATIONS (@25°C Note 2)**

	BASE PART NUMBERS	GRF172-5 GRF172D-5	GRF172-12 GRF172D-12	GRF172-26 GRF172D-26
	<b>Coil Voltage, Nominal (Vdc)</b>	Nom.	5.0	12.0
	Max.	5.8	16.0	32.0
<b>Coil Resistance (Ohms ±20%)</b>		64	400	1600
<b>Pick-up Voltage (Vdc, Max.)</b>		3.8	9.0	18.0
<b>Coil Operating Power at Nominal Voltage (Milliwatts)</b>		405	360	440

**GENERAL NOTES**

1. Relays will exhibit no contact chatter in excess of 10 µsec or transfer in excess of 1 µsec.
2. Unless otherwise specified, parameters are initial values.
3. Relays may be subjected to 260°C, peak solder reflow temperature, 1 minute, 3 passes.
4. Butt-lead ends are coplanar within .003" (0.08).
5. "Typical" characteristics are based on available data and are best estimates. No on-going verification tests are performed.
6. Application notes available for PCB layout and mounting information.

**OUTLINE DIMENSIONS**



NOTES:  
 1. DIMENSIONS ARE IN INCHES. METRIC EQUIVALENTS IN MILLIMETERS ARE SHOWN IN ( ).  
 2. UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE ±.010 INCH (0.025 mm).  
 3. FOR OPTIMAL RF PERFORMANCE, SOLDER BOTTOM OF GROUND SHIELD TO PCB RF GROUND PLANE.