



**HIGH REPEATABILITY,
SMT DPDT, BROADBAND 6 GHz,
CENTIGRID® RELAYS**



SERIES	RELAY TYPE
SGRF100	Repeatable, Surface Mount, DPDT, RF (DC-6GHz) Relay with Ground Shield and J-Leads
SGRF103	Sensitive Coil, Repeatable, Surface Mount, DPDT, RF (DC-6GHz) Relay, with Ground Shield and J-Leads

DESCRIPTION

The ultraminiature SGRF100 and SGRF103 relays are designed to provide a practical surface-mount solution with improved RF signal repeatability over the frequency range. SGRF100 and SGRF103 relays feature 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 SGRF100 and SGRF103 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.

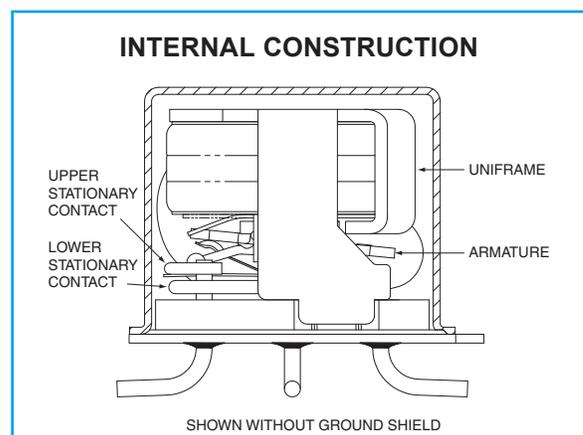
SGRF100 & SGRF103 feature:

- 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
- RoHS Compliant options available

ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS		
Temperature (Ambient)	Storage	-55°C to +125°C
	Operating	-55°C to +85°C
Vibration (Note 1)		10 g's, 10 to 500 Hz
Shock (Note 1)		30 g's, 6ms half sine
Enclosure		Hermetically sealed
Weight	SGRF100	0.09 oz. (2.55g) max.
	SGRF103	0.16 oz. (4.5g) max.



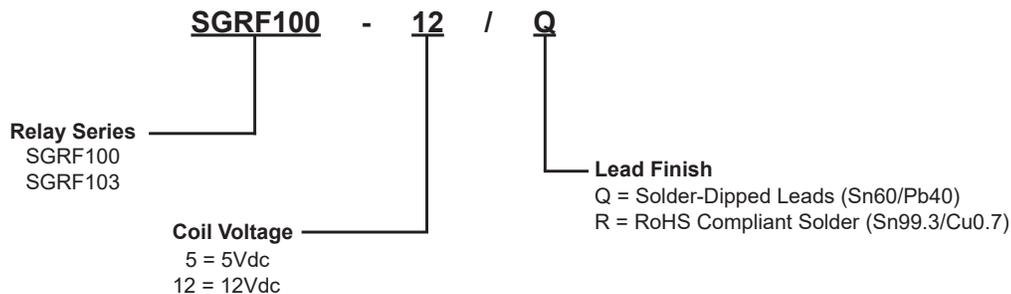
GENERAL ELECTRICAL SPECIFICATIONS (-55 °C to 85 °C unless otherwise noted.)(Notes 2 & 3.)

Contact Arrangement	DPDT	
Rated Duty	Continuous	
Contact Resistance	0.100 Ω max. initial	
Contact Load Rating	Low level: 10 to 50 μA @ 10 to 50 mV	
Contact Life Ratings	10,000,000 cycles (typical) at low level	
Coil Operating Power	SGRF100-5: 500 mW @ nominal coil	SGRF100-12: 369 mW @ nominal coil
	SGRF103-5: 250 mW @ nominal coil	SGRF103-12: 180 mW @ nominal coil
Operate Time	SGRF100: 4.0 ms max.	
	SGRF103: 6.0 ms max.	
Release Time	SGRF100: 3.0 ms max.	
	SGRF103: 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 (-55 °C to 85 °C unless otherwise noted.) (Note 3)

BASE PART NUMBERS		SGRF100-5 / SGRF103-5	SGRF100-12 / SGRF103-12
Coil Voltage, Nominal (Vdc)		5.0	12.0
Coil Resistance (Ohms ±20%)	SGRF100	50	390
	SGRF103	100	800
Pick-up Voltage (Vdc max.)		3.6	9.0

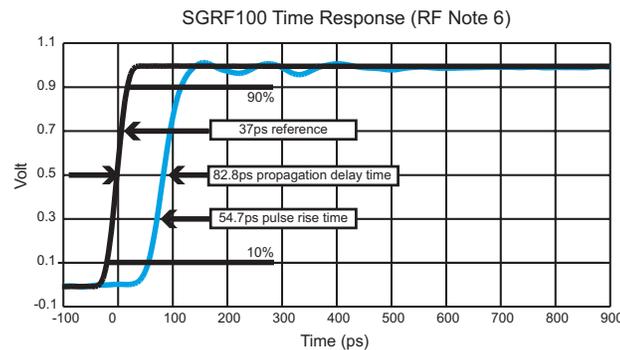
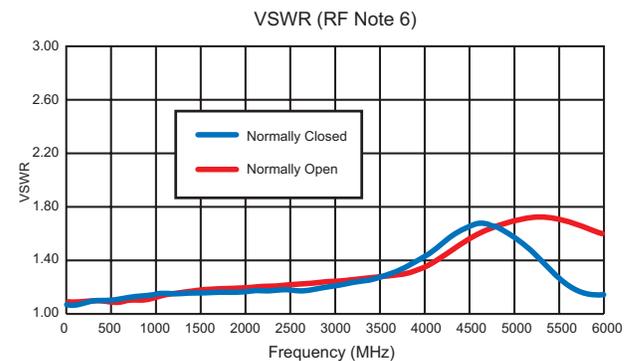
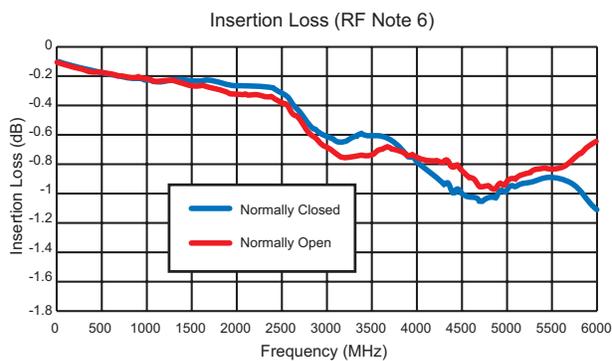
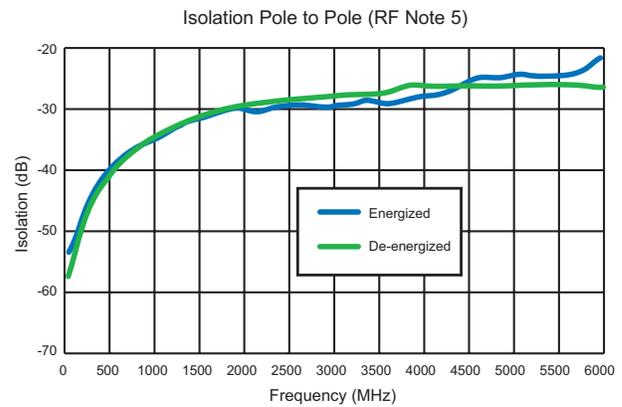
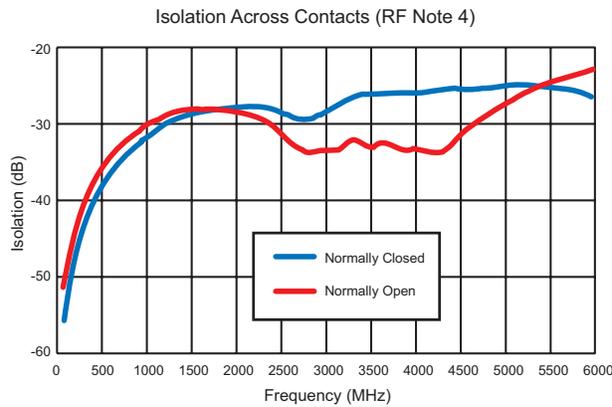
Part Numbering System (Notes 4 & 5)



NOTES

- Relay contacts will exhibit no chatter in excess of 10 μs or transfer in excess of 1 μs.
- “Typical” characteristics are based on available data and are best estimates. No on-going verification tests are performed.
- Unless otherwise specified, parameters are initial values.
- The slash and characters appearing after the slash are not marked on the relay.
- Unless otherwise specified, relays will be supplied with solder-coated leads.
- Using an operate voltage less than the specified minimum may result in unreliable operation.
- Relay temperature during soldering shall not exceed 250°C, and reflow temperature shall not exceed 250°C, 3 passes, 1 minute each.

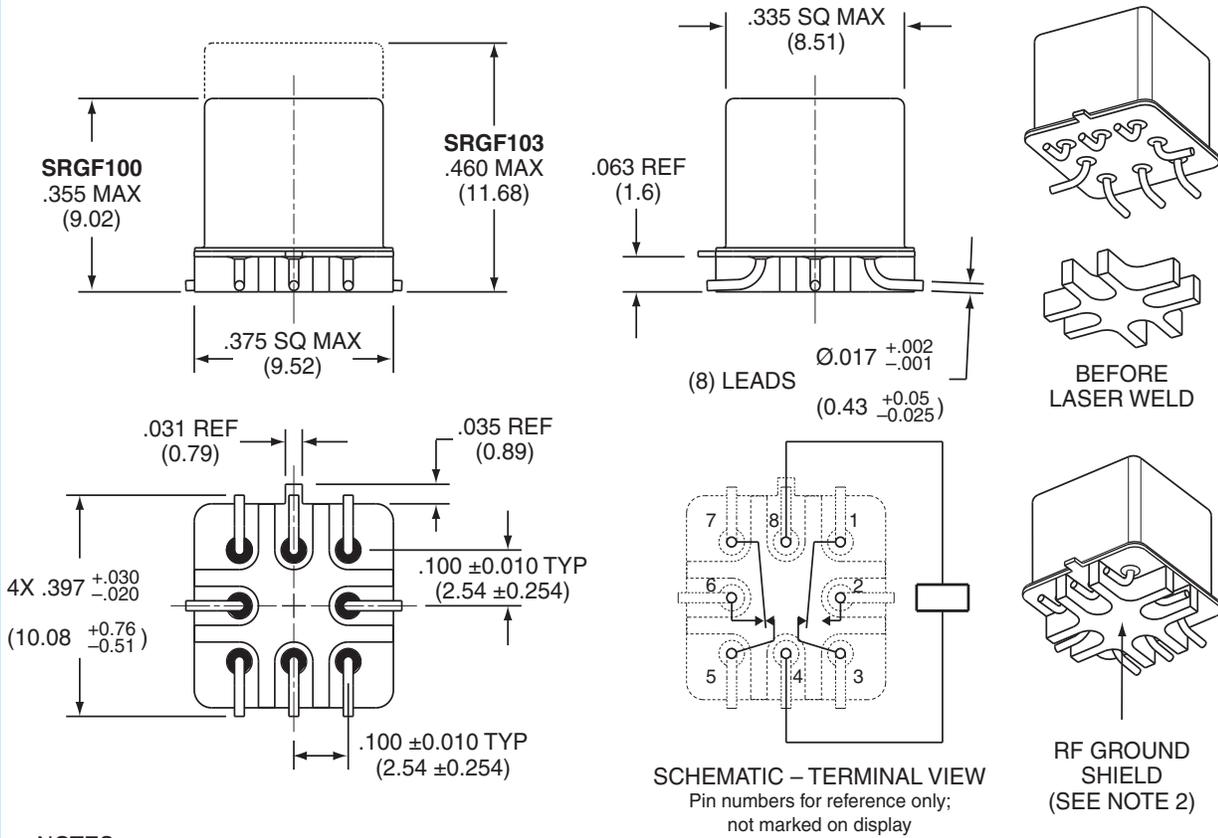
TYPICAL RF CHARACTERISTICS (See RF Notes)



RF NOTES

- Test conditions:
 - Fixture: .031" copper clad, reinforced PTFE, RT/duroid® 6002 with SMA connectors. (RT/duroid® is a registered trademark of Rogers Corporation.)
 - RF ground shield is soldered to PCB RF ground plane.
 - Room ambient temperature.
 - Terminals not tested were terminated with 50-ohm load.
 - Contact signal level: -10 dBm.
 - No. of test samples: 2.
- Data presented herein represents typical characteristics and is not intended for use as specification limits.
- Data is per pole, except for pole-to-pole data.
- Data is the average from readings taken on all open contacts.
- Data is the average from readings taken on poles with coil energized and de-energized.
- Data is the average from readings taken on all closed contacts.
- Test fixture effect de-embedded from frequency and time response data.

OUTLINE DIMENSIONS



NOTES

1. Dimensions are in inches. Metric equivalents shown in parentheses.
2. For best RF performance, solder bottom of RF ground shield to PCB RF ground plane.