



**HIGH REPEATABILITY,
Signal Integrity: 20Gbps
TO-5 RELAYS, DPDT**



SERIES	RELAY TYPE
SI800	Repeatable, Signal Integrity relay for high bit rate applications
SI803	Low Power Operating Coil, Repeatable, Signal Integrity relay for high bit rate applications

DESCRIPTION

The ultra miniature SI800/SI803 is designed for high-speed digital applications. They are capable of transmitting high-speed signals with data rates up to 20 Gbps. The SI800 series has a lower profile than the SI803. The SI803 has a taller profile, but has lower coil operating power.

The SI800/SI803 features:

- High repeatability.
- 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 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 and signal fidelity.
- Hermetically sealed.
- Solder-Dipped Leads, RoHS compliant solder option available

ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS		
Temperature (Ambient)	Storage	-65°C to +125°C
	Operating	-55°C to +85°C
Vibration (Note 1)		10 g's to 500 Hz
Shock (Note 1)		30 g's, 6ms half sine
Enclosure		Hermetically sealed
Weight	SI800	0.09 oz. (2.55g) max.
	SI803	0.16 oz. (4.5g) max.

NOTE:

1. Relay contacts will exhibit no chatter in excess of 10 µsec or transfer in excess of 1 µsec.

SERIES SI800
GENERAL ELECTRICAL SPECIFICATIONS (@25°C)

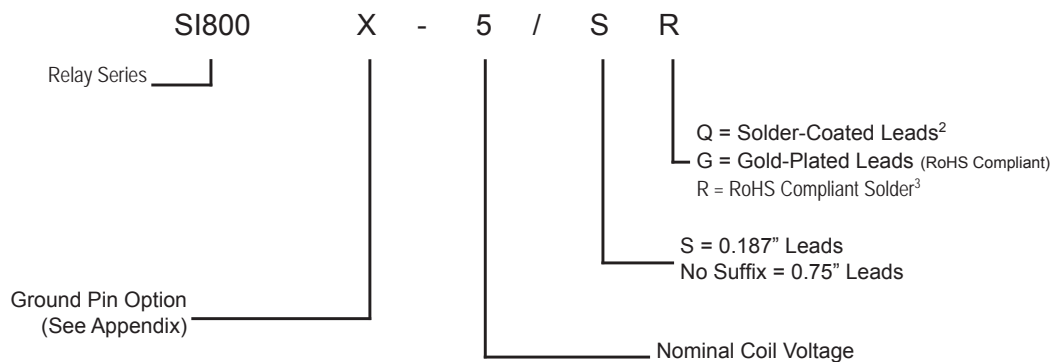
Contact Arrangement	2 Form C (DPDT)
Rated Duty	Continuous
Contact Resistance	0.15 Ω max.
Contact Load Rating	Resistive: 1Amp/28Vdc Low level: 10 to 50 μA @ 10 to 50 mV
Contact Life Ratings	5,000,000 cycles (typical) at low level contact load
Coil Operating Power	SI800: 450 mW typical at nominal rated voltage SI803: 200 mW typical at nominal rated voltage
Operate Time	SI800: 4.0 mS max. SI803: 6.0 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
Propagation Delay	62 ps typical

DETAILED ELECTRICAL SPECIFICATIONS (@25°C)

BASE PART NUMBERS (SI800)	SI800-5	SI800-12
Coil Voltage, Nominal (Vdc)	5.0	12.0
Coil Resistance (Ohms ±20%)	50	390
Pick-up Voltage (Vdc max.)	3.6	9.0

BASE PART NUMBERS (SI803)	SI803-5	SI803-12
Coil Voltage, Nominal (Vdc)	5.0	12.0
Coil Resistance (Ohms ±20%)	100	850
Pick-up Voltage (Vdc max.)	3.6	9.0

Teledyne Part Numbering System for SI800/SI803



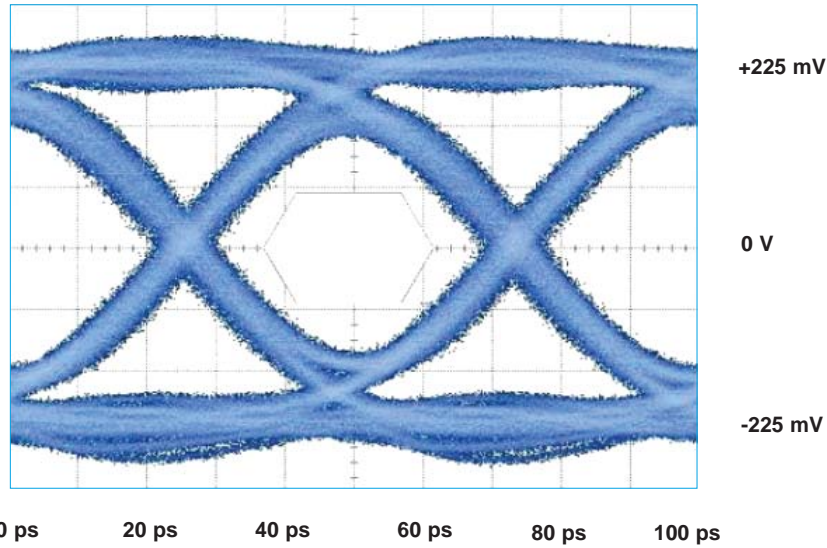
Notes:

1. Parts ordered without suffix may be supplied with Solder-Coated or Gold-Plated leads
2. Parts ordered with Solder-Coated leads will have (Sn60/Pb40)
3. Parts ordered with RoHS Solder-Coated leads will have (Sn99.3/Cu0.7)



SERIES SI800/SI803

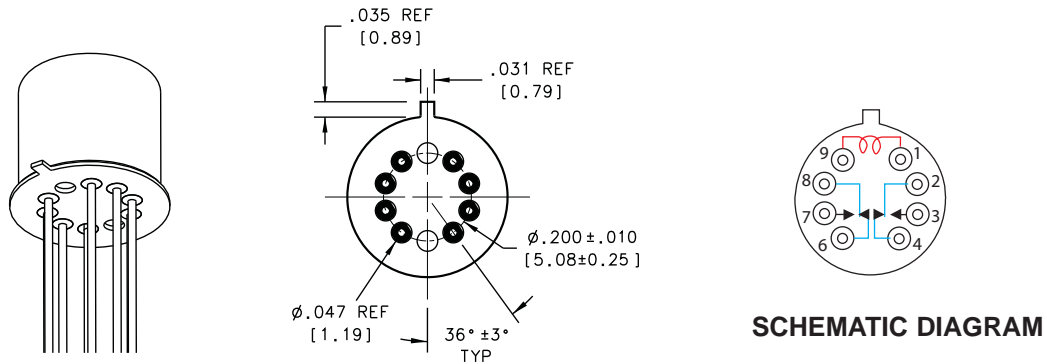
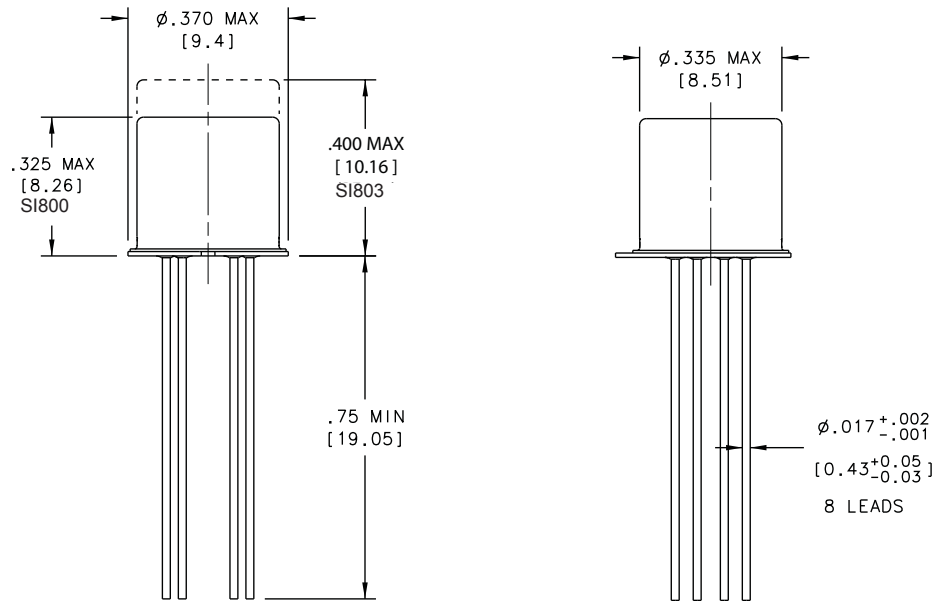
TYPICAL Single-Ended Signal Integrity Characteristics @ 20 Gbps



Bit Rate	Eye Height	Eye Width	Jitter _{p,p}
20 Gbps	191 mV	37 ps	10.22 ps

- **Pattern Generator Settings**
- 40 Gbps Random Pulse Pattern Generator
- $2^{31} - 1$ PRBS signal
- PRBS output of 500 mV_{p,p} (nominal)
- RF PCB effect (negligible) not removed from measurement
- Data shown is typical of both poles

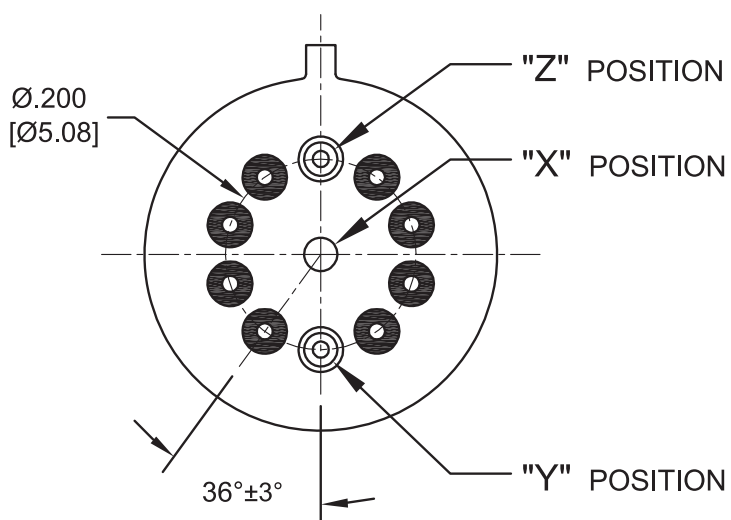
**SERIES SI800
OUTLINE DIMENSIONS**



NOTE:

1. Dimensions are in inches, metric equivalents shown in [].
2. Positions 5 and 10 are for uninsulated case ground options.
3. No Protrusion below bottom of header when ground pins are installed at positions 5 or 10.

APPENDIX: Ground Pin Positions



NOTES:

1. Terminal views shown
2. Dimensions are in inches (mm)
3. Tolerances: $\pm .010$ ($\pm .25$) unless otherwise specified
4. Ground pin positions are within $.015$ (0.38) dia. of true position
5. Ground pin head dia., 0.035 (0.89) ref: height 0.010 (0.25) ref.
6. Lead dia. 0.017 (0.43) nom.

- Indicates non-recessed ground pin position
- Indicates glass insulated lead position
- ◎ Indicates recessed ground pin position