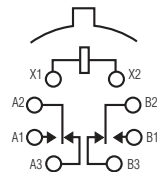


**Double Pole, Electrically Held, 1 Amp and Less** (Continued)

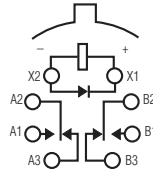
**MS, MSD, MSDD**

**MS**  
**Sensitive TO-5**  
**High Performance Relay**  
**Qualified to**  
**MIL-R-39016/11**



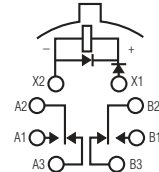
Terminal View

**MSD**  
**Sensitive TO-5**  
**Diode Suppressed**  
**High Performance Relay**  
**Qualified to**  
**MIL-R-39016/16**



Terminal View

**MSDD**  
**Sensitive TO-5 Diode**  
**Suppressed/Protected**  
**High Performance Relay**  
**Qualified to**  
**MIL-R-39016/21**



Terminal View

**Product Facts**

- Hermetically sealed
- High shock & vibration ratings
- Spreader pads
- Excellent RF switching

**Product Facts**

- Suppression diode
- Hermetically sealed
- High shock & vibration ratings
- Spreader pads
- Excellent RF switching

**Product Facts**

- Suppression & protection diodes
- Hermetically sealed
- High shock & vibration ratings
- Spreader pads
- Excellent RF switching

**Electrical Characteristics**

**Contact Arrangement** — 2 Form C (DPDT)

**Contact Material** — Stationary — Gold/platinum/palladium/silver alloy (gold plated)  
 Moveable — Gold/platinum/palladium/silver alloy (gold plated)

**Contact Resistance** — Before Life — 100 milliohms max. (measured @ 10 mA @ 6 Vdc)  
 After Life — 200 milliohms max. (measured @ 1 A @ 28 Vdc)

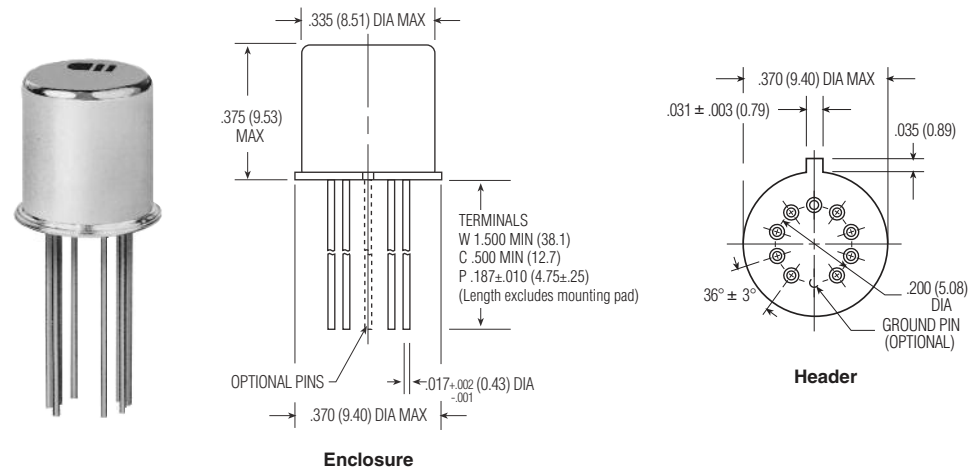
**Mechanical Life Expectancy** — 1 million operations

**Coil Voltage** — 5 to 48 Vdc  
**Coil Power** — 565 mW max. @ 25°C  
**Duty Cycle** — Continuous

**Pick-up Voltage** — Approximately 50% of nominal coil voltage  
**Pick-up Sensitivity** — 60 mW max. @ 25°C

**Contact Ratings**

Contact Load	Type	Operations Min.
1.0 A @ 28 Vdc	Resistive	100,000
250 mA @ 115 Vac, 60 Hz & 400 Hz	Resistive (case not grounded)	100,000
100 mA @ 115 Vac, 60 Hz & 400 Hz	Resistive	100,000
0.2 A @ 28 Vdc	Inductive (0.32 Henry)	100,000
0.1 A @ 28 Vdc	Lamp	100,000
30 µA @ 50 mVdc	Low Level	1,000,000
0.1 A @ 28 Vdc	Intermediate Current	50,000



**Double Pole, Electrically Held, 1 Amp and Less** (Continued)

**MS, MSD, MSDD** (Continued)

**Operating Characteristics**

**Timing** —  
 Operate Time — 4.0 ms max.  
 Release Time —  
 MS — 2.0 ms max.  
 MSD/MSDD — 7.5 ms max.  
 (suppression diode, suppression/  
 steering diodes)

**Contact Bounce** — 1.5 ms max

**Dielectric Withstanding Voltage** —

Between Open Contacts —  
 500 Vrms 60 Hz  
 Between Adjacent Contacts —  
 500 Vrms 60 Hz  
 Between Contacts & Coil —  
 500 Vrms 60 Hz

**Insulation Resistance** —  
 10,000 megohms min. @ 500 Vdc  
 1,000 megohms @ 500 Vdc  
 (coil to case @ +125°C)

**Environmental Characteristics**

**Temperature Range** —  
 -65°C to +125°C  
**Weight** —  
 0.12 oz. (3.40 grms)  
 0.13 oz. (3.45 grms) with spreader pad  
 attached

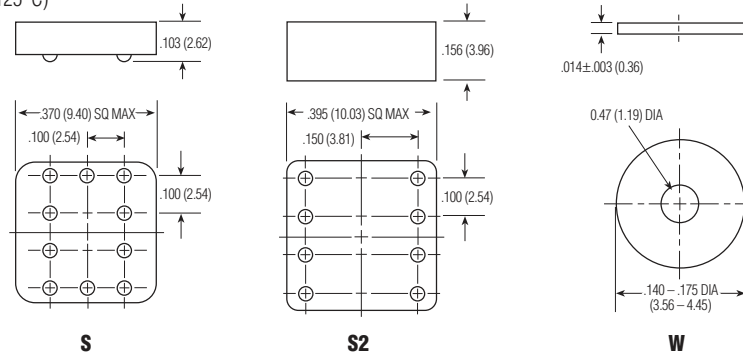
**Vibration Resistance** —  
 30 G's, 10 to 3,000 Hz

**Shock Resistance** —  
 75 G's, 6 ±1 ms max.

**QPL Approval** —  
 MIL-R-39016/11 (JMS)  
 MIL-R-39016/16 (JMSD)  
 MIL-R-39016/21 (JMSDD)

**Semiconductor Characteristics**

**Diode** —  
 100 Vdc peak inverse voltage (PIV)  
 1.0 Vdc max. transient voltage



**Coil Data**

**Spreader & Mounting Pads**

Nom. Coil Voltage (Vdc)	Coil Resistance in Ohms ±10% @ 25°C (Note 1)	Coil Circuit Current mA (Max.) (Note 1 & 2)	Coil Circuit Current mA (Min.) (Note 1 & 2)	Pickup Voltage Vdc (Max.) @ 25°C (Note 2)	Base Turn On Current mA (Max.) @ 25°C	Pickup Voltage Vdc (Max.) @ 125°C (Note 2)	Base Turn On Current mA (Max.) @ 125°C	Drop-Out Voltage Vdc (Min.) @ 25°C (Note 2)	Drop-Out Voltage Vdc (Min.) @ -65°C (Note 2)	Nom. Coil Power (mW) @ 25°C	Max. Coil Voltage	Coil Desig.
<b>MS/MSD</b>												
5.0	100	n/a	n/a	2.6	n/a	3.5	n/a	0.23	0.12	250	7.5	5
6.0	200	n/a	n/a	3.4	n/a	4.5	n/a	0.28	0.18	180	10.0	6
9.0	400	n/a	n/a	4.85	n/a	6.8	n/a	0.55	0.35	203	15.0	9
12.0	850	n/a	n/a	7.0	n/a	9.0	n/a	0.64	0.41	169	20.0	12
18.0	1,600	n/a	n/a	9.8	n/a	13.5	n/a	0.92	0.59	203	30.0	18
26.5	3,300	n/a	n/a	14.0	n/a	18.0	n/a	1.4	0.89	213	40.0	26
36.0	6,500	n/a	n/a	20.0	n/a	27.0	n/a	1.8	1.25	199	57.0	36
48.0	11,000	n/a	n/a	25.8	n/a	36.0	n/a	2.4	1.60	209	75.0	48
<b>MSDD</b>												
5.0	64	78.1	56.8	2.9	n/a	3.7	n/a	0.8	0.7	391	7.0	5
6.0	125	48.9	36.3	4.0	n/a	4.8	n/a	0.9	0.8	288	10.0	6
9.0	400	23.6	18.1	6.1	n/a	8.0	n/a	1.1	0.9	203	15.0	9
12.0	850	15.0	11.7	7.8	n/a	11.0	n/a	1.3	1.0	169	20.0	12
18.0	1,600	12.2	9.6	11.3	n/a	14.5	n/a	1.5	1.1	203	30.0	18
26.5	3,300	8.8	7.0	15.2	n/a	19.0	n/a	1.7	1.3	213	40.0	26
36.0	6,500	6.1	4.9	21.7	n/a	27.2	n/a	2.3	1.7	199	57.0	36
48.0	11,000	4.8	3.9	27.8	n/a	34.8	n/a	2.8	2.0	209	75.0	48

**Notes:** 1. Coil resistance not directly measurable. Coil current should be within limits shown when tested at nominal voltage at 25°C for 5 seconds max.  
 2. Set base current at 3 mA to 15 mA during measurements.

**Ordering Instructions**

Catalog-selected Relays: The catalog number is derived by choosing the proper CODE for each of the relay characteristics in the order in which the codes are listed.

**Specifying a Part Number Example:**

Type	Terminal	Diodes	Ground Pins	Coils	Spreader/Mounting Pads
MS	C	D	G	-26	S

\* The part number example shown on this page is for catalog items. For a list of specific QPL part numbers, please see the index in Section 15.