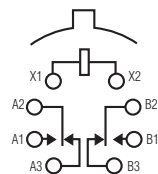


Double Pole, Electrically Held, 1 Amp and Less (Continued)

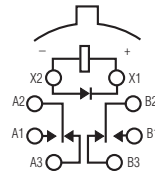
MS, MSD, MSDD

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



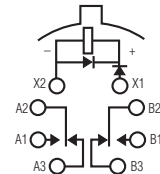
Terminal View

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)

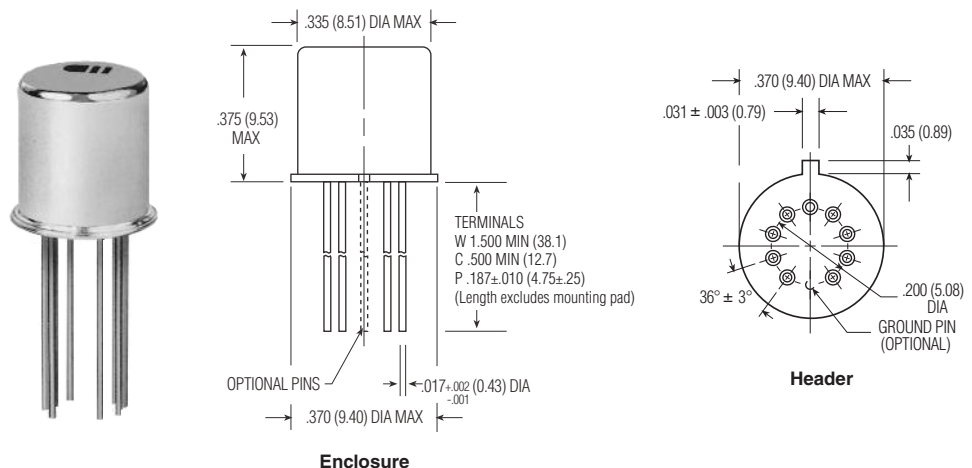
Mechanical Life Expectancy — 1 million operations

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

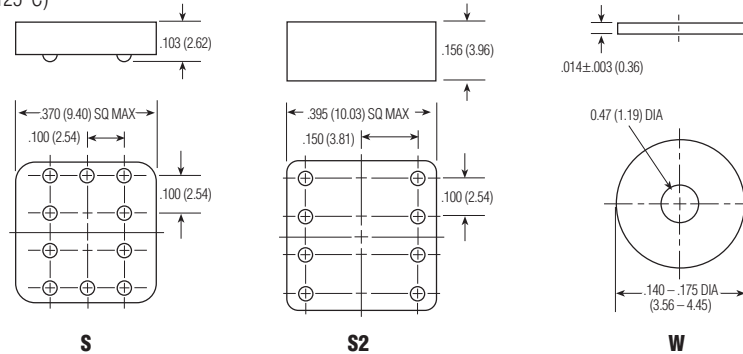
Vibration Resistance —
 30 G's, 10 to 3,000 Hz

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.
MS/MSD												
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
MSDD												
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.

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[R10-E1L8-S200](#) [R10-E2468-1](#) [R10-E4Z2-V700](#)