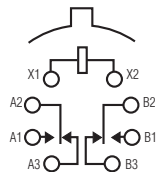


Double Pole, Electrically Held, 1 Amp and Less (Continued)

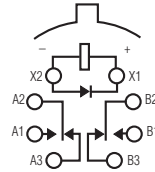
MS, MSD, MSDD

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



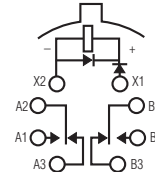
Terminal View

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

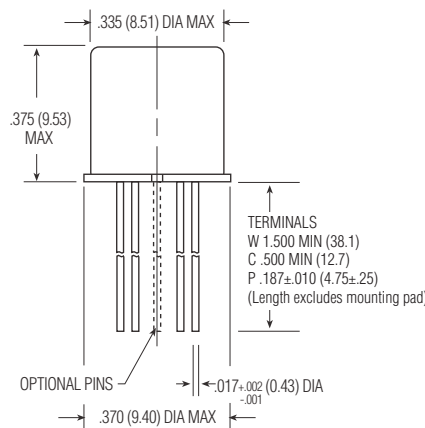
Duty Cycle — Continuous

Pick-up Voltage — Approximately
50% of nominal coil voltage

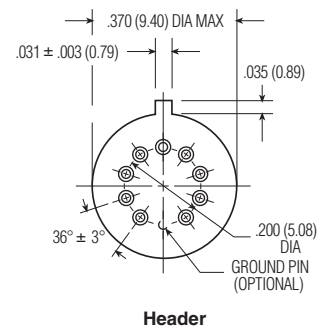
Pick-up Sensitivity —
60 mW max. @ 25°C

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 |



Enclosure



Header

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)

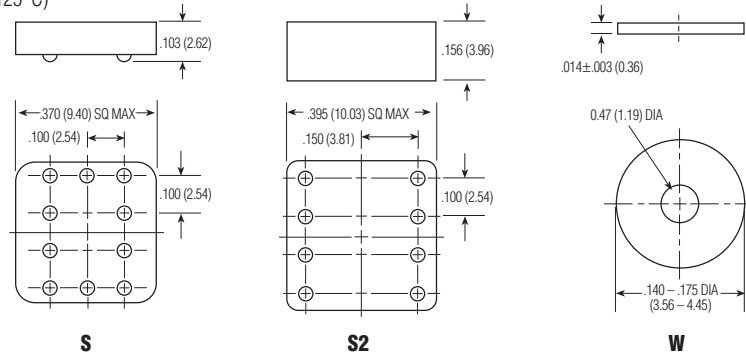
MIL-R-39016/21 (JMSDD)

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.

Mouser Electronics

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