

Micro Machined Sensors

DESCRIPTION

The MMS is a ultra-small magnetically actuated reed sensor (SPST) that requires no power. It is manufactured by using semiconductor wafer technology. Its biggest advantages are the small dimensions with 4.8 mm x 2.05 mm (0.189" x 0.081").



APPLICATIONS

- Medical pacemakers and insulin pumps
- Telecommunications
- CMOS gates and other low power signals switching

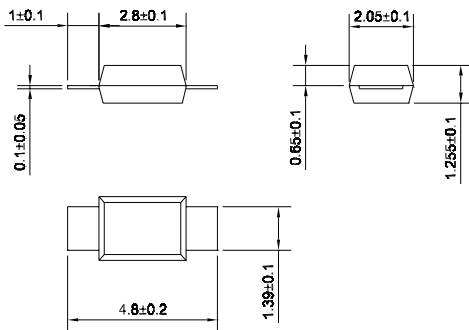
FEATURES

- SMT reed sensors (SPST) in miniature size
- requires no power
- ultra-small dimensions
- designed for switching low power devices (max. 3 VDC)
- 10^9 Ohm insulation resistance across the contacts
- magnetic sensitivity ranges from 1.8 to 4.0 milliTesla
- preferably packaged in tape & reel according to IEC 286/part 3, waffle package possible
- electrostatic sensitive device!!

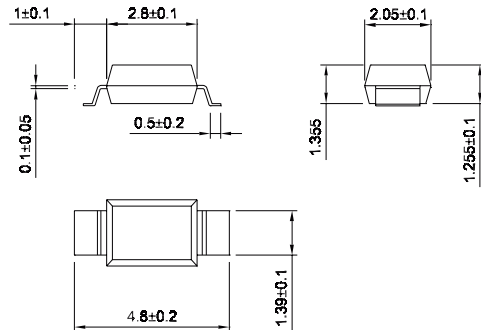
DIMENSIONS

All dimensions in mm [inches] unspecified tolerances +/- 0.1 mm

Lead design 1

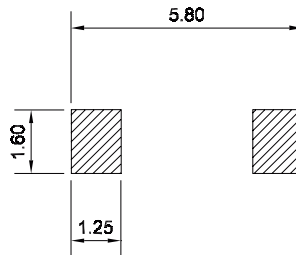


Lead design 2

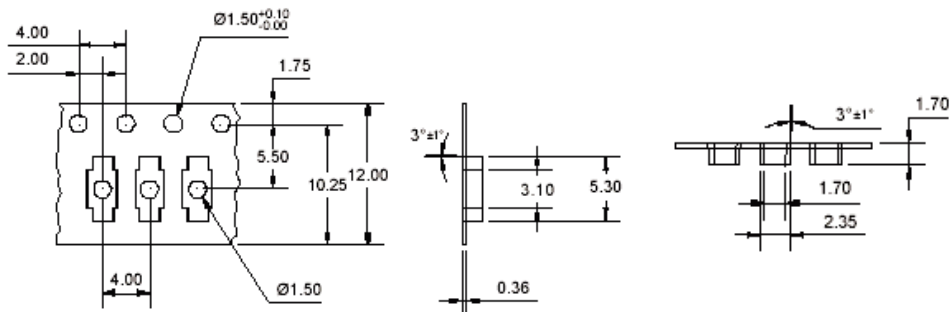


PAD LAYOUT

Lead design 1+2



PACKAGING



ORDER INFORMATION

| Series | Sensitivity Class | Lead Design |
|--------|-------------------|-------------|
| MMS | B - | 1,2 |

Part Number Example

MMS - B - 1

B is the magnetic sensitivity
1 defines the lead design

**Micro Machined
Sensors**
CONTACT DATA

| All Data at 20° C | Contact Form --> | Form A / <small>DRY</small> | | | |
|---------------------------------------|---|--|------|------|--------|
| Contact Ratings | Conditions | Min. | Typ. | Max. | Units |
| Switching Power | Any DC combination of V & A not to exceed their individual max.'s | | | 0.3 | W |
| Switching Voltage | DC or peak AC | | | 3.0 | V |
| Switching Current | DC or peak AC | | | 100 | µA |
| Carry Current | DC or peak AC | | | 100 | µA |
| Static Contact Resistance | Measured w/ 0.5 V & 50 µA | | 50 | 1000 | Ω |
| Insulation Resistance across Contacts | 25 Volt applied | 10 ⁹ | | | Ω |
| Breakdown Voltage across Contacts | | 50 | | | VDC |
| Operation Time incl. Bounce | Measured w/ 40 % overdrive | | 0.1 | 0.1 | ms |
| Release Time | Measured w/ no coil suppression | | 0.05 | 0.5 | ms |
| Capacitance | at 10 kHz across contact | | 0.2 | 0.5 | pF |
| Life Expectancies | | | | | |
| | Switching Voltage 1.5 V & 15 µA | 10 ⁷ | | | Cycles |
| Magnetic Characteristics | | | | | |
| Pull-In | Ramped in 0.1 mT/ms steps | 1.8 | | 4.0 | mT |
| Drop-Out | Ramped in 0.1 mT/ms steps | 0.5 | | 28 | mT |
| Environmental Data | | | | | |
| Shock Resistance | Any direction | 5000 | | | g |
| Vibration Resistance | From 10 - 2000 Hz | 30 | | | g |
| Ambient Temperature | 10°C/ minute max. allowable | -20 | | 100 | °C |
| Stock Temperature | 10°C/ minute max. allowable | -55 | | 150 | °C |
| Soldering Temperature | 3.5 sec. at | | | 260 | °C |
| Cleaning | | fully sealed | | | |
| Packaging | Tape & Reel | 17.78 mm Reel (7 inch), 12 mm width, 4 mm pitch | | | |
| Marking | On Tape & Reel Packaging | A: Supplier Part Number B: Supplier Lot Number / Date Code C: Quantity | | | |

ATTENTION



These devices are especially designed for low voltage and low power switching! The following points must be respected when the device is connected in a circuit:

- Voltage spikes (electrostatic or otherwise) across the terminals in the open mode are limited to 10 dv/dt
- Switched voltages and current are limited to the maximum ratings
- The parallel capacitance added across the switch is less than 100 pF
- Minimize stray capacitance to less than 100 pF in any lead circuit
- The mounting and test equipment are properly grounded, as they may induce voltage spikes across the terminals
- All handling is performed on a conductive mat, and the operator is also grounded through a wrist contact bracelet
- Permanent sticking or damage of the contacts may result whenever any of the above warnings is not respected.