

**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

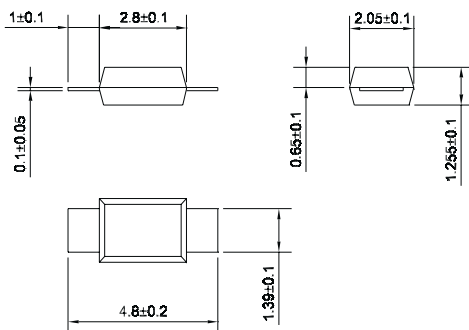
**FEATURES**

- SMT reed sensors (SPST) in miniature size
- requires no power
- ultra-small dimensions
- designed for switching low power devices (max. 3 VDC)
- 10<sup>9</sup> 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!!

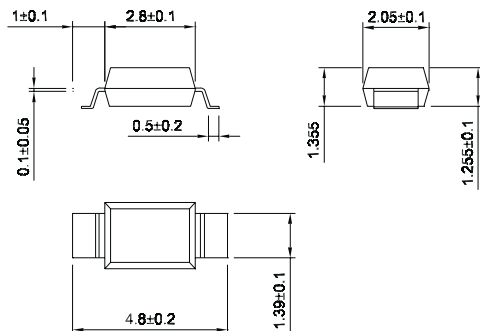
**DIMENSIONS**

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

**Lead design 1**



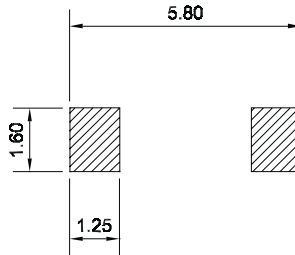
**Lead design 2**



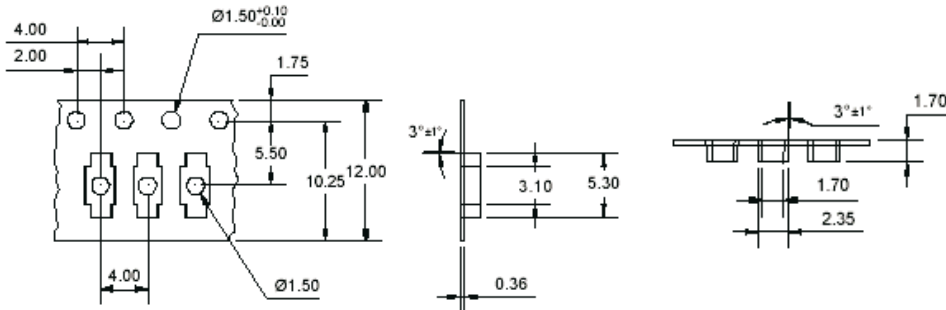
## Micro Machined Sensors

### PAD LAYOUT

Lead design 1+2



### PACKAGING



### ORDER INFORMATION

#### Part Number Example

MMS - B - 1

B is the magnetic sensitivity  
1 defines the lead design

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

CONTACT DATA

| All Data at 20° C                     | Contact Form -->  | Form A / <sub>DRY</sub>  |      |      |        |
|---------------------------------------|---|--|------|------|--------|
| Contact Ratings                       | Conditions  | Min.   | Typ. | Max. | Unit   |
| Switching Power                       | Any DC combination of V & A not to exceed their individual max.'s |  |      | 0.3  | mW     |
| 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 <sup>9</sup>  |      |      | Ω      |
| Breakdown Voltage across Contacts     |   | 50   |      |      | VDC    |
| Operate Time incl. Bounce             | Measured w/ 40 % overdrive  |  | 0.1  | 0.2  | ms     |
| Release Time                          | Measured w/ no coil suppression                                   |  | 0.05 | 0.1  | ms     |
| Capacitance                           | at 10 kHz across contact  |  | 0.2  | 0.5  | pF     |
| <b>Life Expectancies</b>              |   |  |      |      |        |
|                                       | Switching Voltage 1.5 V & 15 µA                                   | 10 <sup>7</sup>  |      |      | Cycles |
| <b>Magnetic Characteristics</b>       |   |  |      |      |        |
| 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  |      | 3.2  | mT     |
| <b>Environmental Data</b>             |   |  |      |      |        |
| 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<br>B: Supplier Lot Number / Date Code<br>C: Quantity |      |      |        |

**Micro Machined  
Sensors****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.