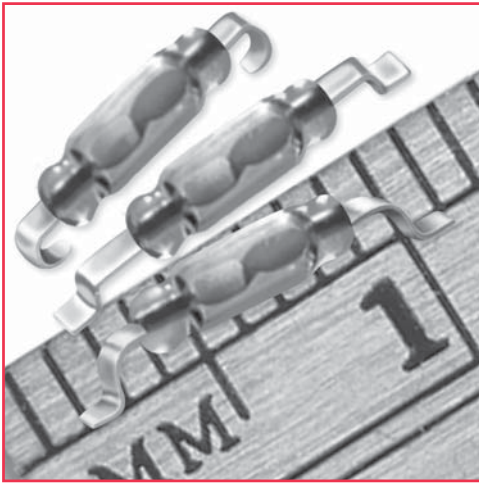


# RI-80 SMD Series Dry Reed Switch



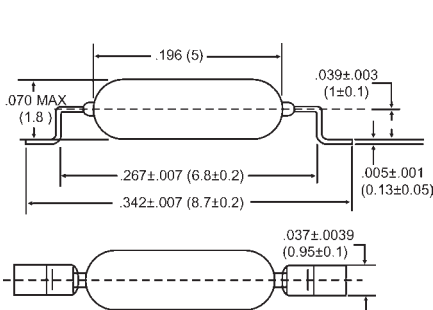
## RI-80 SMD Series

Ultra-micro dry-reed switch hermetically sealed in a gas-filled glass envelope. Single-pole, single-throw (SPST) type, having normally open contacts, and containing two magnetically actuated reeds.

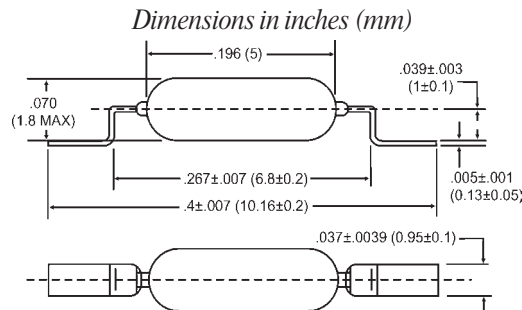
The switch is of the double-ended type and may be actuated by an electromagnet, a permanent magnet or a combination of both.

## RI-80 SMD Series Features

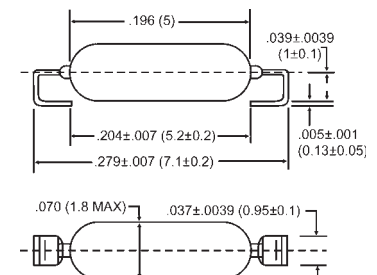
- ◆ Ideal for proximity sensors, telecom & medical applications
- ◆ World's smallest high quality reed switch
- ◆ Contact layers: Gold, sputtered ruthenium
- ◆ Superior glass-to-metal seal and blade alignment



**RI-80 SMD G1 Model**



**RI-80 SMD G2 Model**



**RI-80 SMD J-Lead Model**

## General data for RI-80 SMD

### AT-Customization

The RI-80 SMD can be supplied in operate ranges to customer specification.

### Coils

All characteristics are based on unmodified switches. The switches are defined using the Philips Standard Coil. For more information, see *Reed Switch Technical & Application Information* Section of this catalog.

### Life expectancy and reliability

The life expectancy data given below are valid for a coil energized at 1.25 times the published maximum operate value for each type in the RI-80 series.

### No-load conditions (operating frequency: 100 Hz)

Life expectancy: min.  $10^8$  operations with a failure rate of less than  $2 \times 10^{-9}$  with a confidence level of 90%.

End of life criteria:

- Contact resistance  $> 1\Omega$  after 2 ms
- Release time  $> 2$ ms (latching or contact sticking).

### Loaded conditions (Resistive load: 5V; 100 mA; operating frequency: 170 Hz)

Life expectancy: min.  $10^7$  operations with a failure rate of less than  $10^{-8}$  with a confidence level of 90%.

End of life criteria:

- Contact resistance  $> 1\Omega$  after 4 ms
- Release time  $> .7$  ms (latching or contact sticking)

Switching different loads involves different life expectancy and reliability data. Further information available upon request.

### Mechanical Data

Contact arrangement is normally open; lead finish is tinned; and can be mounted in any position.

### Shock

The switches are tested in accordance with "IEC 68-2-27", test Ea (peak acceleration 150 G, half sinewave; duration 11 ms). Such a shock will not cause an open switch (no magnetic field present) to close nor a switch kept closed by an 80 AT coil to open.

# RI-80 SMD Series Dry Reed Switch

| Model Number                           |                   |            | RI-80 SMD       |
|--|-------------------|------------|-----------------|
| Parameters                             | Test Conditions   | Units      |                 |
| <b>Operating Characteristics</b>       |                   |            |                 |
| Operate Range**                        |                   | AT         | 5-15**          |
| Release Range**                        |                   | AT         | 2-13**          |
| Operate Time - including bounce (typ.) | (energization)    | ms         | 0.35 (20 AT)    |
| Bounce Time (typ.)                     | (energization)    | ms         | 0.1 (20 AT)     |
| Release Time (max)                     | (energization)    | $\mu$ s    | 20 (20 AT)      |
| Resonant Frequency (typ.)              |                   | Hz         | 21.300          |
| <b>Electrical Characteristics</b>      |                   |            |                 |
| Switched Power (max)                   |                   | W          | 5               |
| Switched Voltage DC (max)              |                   | V          | 175*            |
| Switched Voltage AC, RMS value (max)   |                   | V          | 140             |
| Switched Current DC (max)              |                   | mA         | 350             |
| Switched Current AC, RMS value (max)   |                   | mA         | 250             |
| Carry Current DC; AC, RMS value (max)  |                   | A          | 0.5             |
| Breakdown Voltage (min)                |                   | V          | 230             |
| Contact Resistance (initial max)       | (energization)    | m $\Omega$ | 160 (20 AT)     |
| Contact Resistance (initial typ.)      | (energization)    | m $\Omega$ | 140 (20 AT)     |
| Contact Capacitance (max)              | without test coil | pF         | 0.45            |
| Insulation Resistance (min)            | RH $\leq$ 45%     | M $\Omega$ | 10 <sup>6</sup> |

\* 200V for switches with AT-on value > 10AT.

\*\* AT values of switches before SMD forming in PSC coil.

## Vibration

The switches are tested in accordance with “IEC 68-2-6”, test Fc (acceleration 10G; below cross-over frequency 57 to 62 Hz; amplitude 0.75 mm; frequency range 10 to 2000 Hz, duration 90 minutes.) Such a vibration will not cause an open switch (no magnetic field present) to close, nor a switch kept closed by an 80 AT coil to open.

## Mechanical Strength

The robustness of the terminations is tested in accordance with “IEC 68-2-21”, test Ua1 (load 10N).

## Operating and Storage Temperature

Operating ambient temperature; min: -55°C;  
max: +125°C.

Storage temperature; min: -55°C; max: +125°C.

**Note:** Temperature excursions up to 150°C may be permissible. For more information contact your nearest Coto Technology sales office.

## Soldering

The switch can withstand soldering heat in accordance with “IEC 68-2-20”, test Tb, method 1B: solder bath at 350  $\pm$  10°C for 3.5  $\pm$  0.5 s. Solderability is tested in accordance with “IEC 68-2-20” test Ta, method 3: solder globule temperature 235°C; ageing 1b: 4 hours steam.

## Welding

The leads can be welded.