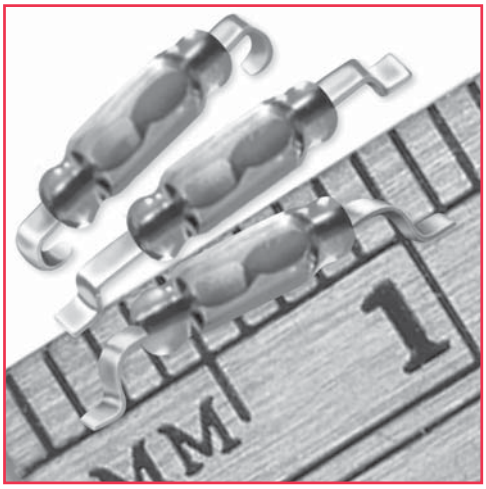
# RI-80 SMD Series Dry Reed Switch



## RI-80 SMD Series

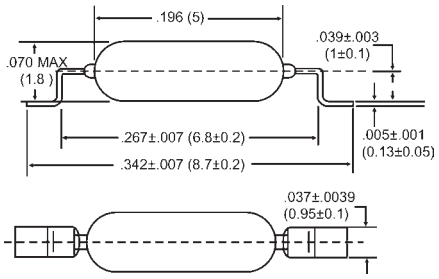
Ultra-micro dry-reed switch hermetically sealed in a gas-filled glass envelope. Single-pole, single-throw (SPST) type, having normally open contacts, and containing two magnetically actuated reeds.

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

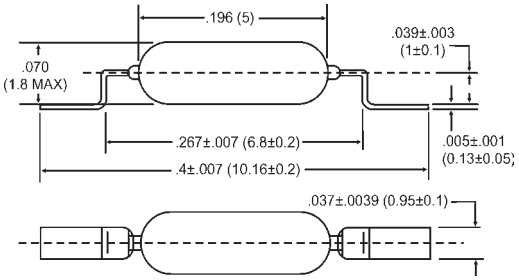
## RI-80 SMD Series Features

- 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

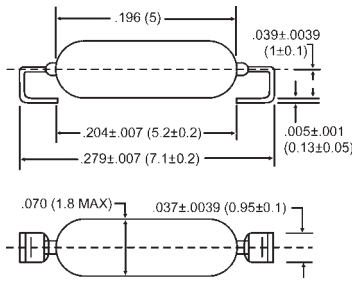
*Dimensions in inches (mm)*




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 x$10^{-9}$ with a confidence level of 90%.

End of life criteria:
Contact resistance > 1Ω after 2 ms
Release time > 2ms (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 > 1Ω 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** | |
| **Operating Characteristics** | | | |
| 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 |
| **Electrical Characteristics** | | | |
| 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 Ω | 160 (20 AT) |
| Contact Resistance (initial typ.) | (energization) | m Ω | 140 (20 AT) |
| Contact Capacitance (max) | without test coil | pF | 0.45 |
| Insulation Resistance (min) | RH ≤ 45% | M Ω | $10^6$ |

** 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 ±10°C for 3.5 ±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.