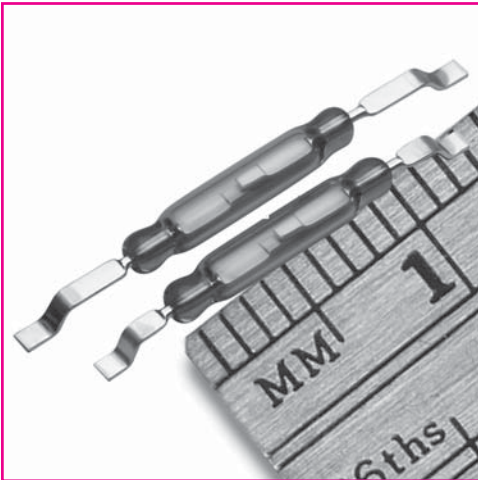


RI-02 SMD Series Dry Reed Switch



RI-02 SMD Series

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

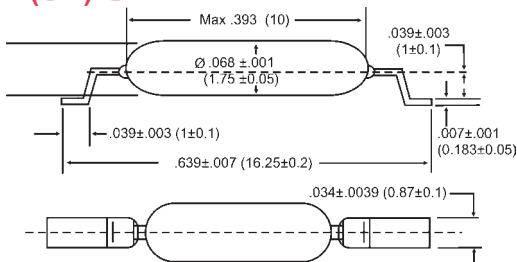
The switch is of the double-ended type and may be actuated by an electromagnet, a permanent magnet or a combination of both.

The device is intended for use in sensors, pulse counters or similar devices and has the advantage that it can be manipulated by automated pick and place machines.

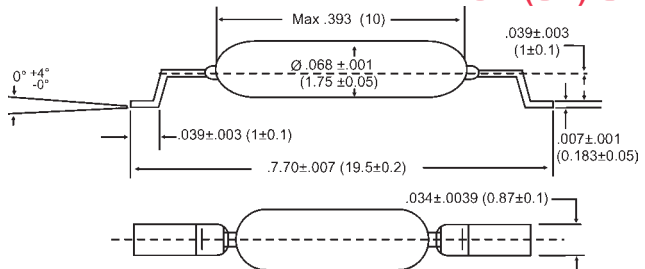
RI-02 SMD Series Features

- ◆ Ideal for General Purpose reed relays and sensors
- ◆ Contact layers: ruthenium on gold
- ◆ Superior glass-to-metal seal and blade alignment

RI-02 (G1) SMD



RI-02 (G2) SMD



Dimensions in inches (mm)

General data for all models RI-02 SMD

AT-Customization / Preformed Leads

Besides the standard models, customized products can also be supplied offering the following options:

- Operate and release ranges to customer specification
- Cropped and/or preformed leads

Coils

All characteristics are measured using the Philips standard coil. For definitions of the Philips Standard Coil, refer to the *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-02 series.

No-load conditions (operating frequency: 100 Hz)

Life expectancy: min. 10^8 operations with a failure rate of less than 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: 125 Hz)

Life expectancy: min. 2×10^6 operations with a failure rate of less than 10^{-7} with a confidence level of 90%.

End of life criteria:

- Contact resistance $> 1\Omega$ after 2.5 ms
- Release time > 1 ms (latching or contact sticking).

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

Mechanical Data

Contact arrangement is normally open; lead finish is tinned; net mass is approximately 90mg; and can be mounted in any position.

RI-02 SMD Series Dry Reed Switch

Model Number	RI-02 SMD		
Parameters	Test Conditions	Units	
Operating Characteristics			
Operate Range		AT	5-19*
Release Range		AT	2-17*
Operate Time - including bounce (typ.)	(energization)	ms	0.30 (25 AT)
Bounce Time (typ.)	(energization)	ms	0.10 (25 AT)
Release Time (max)	(energization)	μ s	70 (25 AT)
Resonant Frequency (typ.)		Hz	10800
Electrical Characteristics			
Switched Power (max)		W	10
Switched Voltage DC (max)		V	200
Switched Voltage AC, RMS value (max)		V	140
Switched Current DC (max)		mA	500
Switched Current AC, RMS value (max)		mA	500
Carry Current DC (max)		A	0.5
Breakdown Voltage (min)		V	200-230
Contact Resistance (initial max)	(energization)	m Ω	150 (25 AT)
Contact Resistance (initial typ.)	(energization)	m Ω	120 (25 AT)
Contact Capacitance (max)	without test coil	pF	0.30
Insulation Resistance (min)	RH \leq 45%	M Ω	10 ⁶

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

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.

Vibration

The switches are tested in accordance with “IEC 68-2-26”, 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 10 N).

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.

Mounting

The leads should not be bent closer than 1 mm to the glass-to-metal seals. Stress on the seals should be avoided. Care must be taken to prevent stray magnetic fields from influencing the operating and measuring conditions.

ORDERING INFORMATION

RI02SMD-XXXX-YY

Lead Configuration Subset:

G1 for Gull Wing version 1

G2 for Gull Wing version 2

AT Ranges*

Series

* Customer specific AT ranges and modifications are also possible. Please contact your local sales representative