RI-80 Series


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, relays, pulse counters or similar devices.

RI-80 Series Features

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

General data for all models RI-80

**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, see Reed 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 $2 \times 10^8$ 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 $> 2 \Omega$ after 4 ms
- Release time $> 0.7$ 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; net mass is approximately 65mg; and can be mounted in any position.
RI-80 Series Dry Reed Switch

Model Number | RI-80
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Operating Characteristics

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<tr>
<th>Parameters</th>
<th>Test Conditions</th>
<th>Units</th>
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<tr>
<td>Operate Range</td>
<td>AT</td>
<td>5-15</td>
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<tr>
<td>Release Range</td>
<td>AT</td>
<td>2-13</td>
</tr>
<tr>
<td>Operate Time - including bounce (typ.)</td>
<td>ms</td>
<td>0.35 (20 AT)</td>
</tr>
<tr>
<td>Bounce Time (typ.)</td>
<td>ms</td>
<td>0.1 (20 AT)</td>
</tr>
<tr>
<td>Release Time (max)</td>
<td>µs</td>
<td>20 (20 AT)</td>
</tr>
<tr>
<td>Resonant Frequency (typ.)</td>
<td>Hz</td>
<td>21.300</td>
</tr>
</tbody>
</table>

Electrical Characteristics

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Test Conditions</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>Switched Power (max)</td>
<td>W</td>
<td>5</td>
</tr>
<tr>
<td>Switched Voltage DC (max)</td>
<td>V</td>
<td>200*</td>
</tr>
<tr>
<td>Switched Voltage AC, RMS value (max)</td>
<td>V</td>
<td>140</td>
</tr>
<tr>
<td>Switched Current DC (max)</td>
<td>mA</td>
<td>350</td>
</tr>
<tr>
<td>Switched Current AC, RMS value (max)</td>
<td>mA</td>
<td>250</td>
</tr>
<tr>
<td>Carry Current DC; AC, RMS value (max)</td>
<td>A</td>
<td>0.5</td>
</tr>
<tr>
<td>Breakdown Voltage (min)</td>
<td>V</td>
<td>230</td>
</tr>
<tr>
<td>Contact Resistance (initial max) (energization)</td>
<td>m Ω</td>
<td>160 (20 AT)</td>
</tr>
<tr>
<td>Contact Resistance (initial typ.) (energization)</td>
<td>m Ω</td>
<td>140 (20 AT)</td>
</tr>
<tr>
<td>Contact Capacitance (max) without test coil</td>
<td>pF</td>
<td>0.45</td>
</tr>
<tr>
<td>Insulation Resistance (min) RH ≤ 45%</td>
<td>M Ω</td>
<td>10⁶</td>
</tr>
</tbody>
</table>

* Only for switches with AT operate value > 10AT

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 68-2-6”, test Fc (acceleration 10G; below crossover 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.

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.