Bourns® Sparctube® Switching Spark Gap Series is a range of switching spark gaps designed specifically for voltage controlled switching of capacitive discharge circuits where a high energy, low loss, fast rate of switching is required. This series is ideally suited for applications where a capacitive discharge is utilized with a transformer to obtain pulses of very high voltage levels in the order of several thousand volts.

**Characteristics**

**Initial Values:**
- Static Breakdown Voltage @ 800 V/s
  - First Ignition Values: < 950 V
  - Following Ignition Values: 740 V to 940 V

**Electrical Life:**
- Minimum Number of Switching Cycles: $2 \times 10^5$
- Peak Current: Approx. 450 A
- Maximum Switching Frequency: 500 Hz

**Breakdown Characteristics @ 1000 V Limit**
- First Ignition Values: ≤ 1000 V
- Delay Time: < 60 ms
- Following Ignition Values: 720 V to 960 V

**General Data:**
- Breakdown Time: < 50 ns
- Insulation Resistance @ 100 Vdc: > 100 megohms
- Maximum Static Breakdown Voltage @ 100 V/ms: 1300 V
- Share of Early Ignition Values (< 720 V): < 1%
- Residual Voltage @ 50 ns: < 300 V
- Capacitance: < 1 pF
- Operating Temperature Range: -40 °C to +170 °C
- Storage Temperature Range: -65 °C to +125 °C
- Weight: Approx. 2.3 g
- Testing: 100%
- Robustness of Terminations: IEC 60068-2-21

**Notes:**
1. At delivery AQL 0.65 Level II, DIN ISO 2859.
2. Distribution of switchings: maximum 20% above +125 °C and 20% below +20°C.
3. Test Ua1 (tensile), Ua2 (thrust), Ub (bending) and Uc (torsion).

**Basic Application Circuit**

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Specifications are subject to change without notice. Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.
Sparctube® Switching Spark Gap ST-0840 Series

Product Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>ST-0840-BLx</th>
<th>ST-0840-BCx</th>
<th>ST-0840-BBx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>8.0 ±0.1/-0.3</td>
<td>8.0 ±0.1/-0.3</td>
<td>5.8 ± 0.3</td>
</tr>
<tr>
<td>(mm)</td>
<td>(0.315 ±0.004/-0.012)</td>
<td>(0.315 ±0.004/-0.012)</td>
<td>(0.228 ± 0.012)</td>
</tr>
<tr>
<td>Tolerance</td>
<td>8.0 ±0.1/-0.3</td>
<td>8.0 ±0.1/-0.3</td>
<td>5.8 ± 0.3</td>
</tr>
<tr>
<td>(mm)</td>
<td>(0.315 ±0.004/-0.012)</td>
<td>(0.315 ±0.004/-0.012)</td>
<td>(0.228 ± 0.012)</td>
</tr>
<tr>
<td>Height</td>
<td>1.00 (0.039)</td>
<td>1.00 (0.039)</td>
<td>0.20 (0.008)</td>
</tr>
<tr>
<td>(mm)</td>
<td>(inch)</td>
<td>(inch)</td>
<td>(inch)</td>
</tr>
<tr>
<td>Lead Spacing</td>
<td>60.0 - 62.0</td>
<td>60.0 - 62.0</td>
<td>5.8 ± 0.3</td>
</tr>
<tr>
<td>(mm)</td>
<td>(2.362 - 2.449)</td>
<td>(2.362 - 2.449)</td>
<td>(0.228 ± 0.012)</td>
</tr>
</tbody>
</table>

How to Order

ST - 0840 - B x x - STD

Typical Part Marking

ST 0840 wwy ...... “wwy” = Week and year of production

Recommended Pad Layout

Test Circuit

Uo........1000-1500 V
R...........See Note
C.........100 nF
L.........0.5 μH
DUT ......Device Under Test
Us ........Breakdown Voltages

NOTE: Uo and R are set to provide suitable conditions for different measurements.

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Sparctube® Switching Spark Gap ST-0840 Series

Packaging Specifications

Models ST-0840-BBB, ST-0840-BLB and ST-0840-BCB* ship standard bulk pack, 1,000 pcs./bag. The optional tape and reel packaging contains 1,000 pcs./reel for Model ST-0840-BLT; 500 pcs./reel for Model ST-0840-BBT.

* Available in bulk packaging only.

ST-0840-BLT

ST-0840-BBT

DIMENSIONS: MM (INCHES)

REV. 05/19

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