Features
- Size: 4 mm diameter, 4.2 mm length
- Mini-surface mount footprint
- Low capacitance
- High insulation resistance
- RoHS compliant*
- UL Recognized

2053 Series Light Duty 2-Electrode Miniature Gas Discharge Tube

Characteristics

Test Methods per ITU-T K.12 and IEC 61643-311.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>2053-07</th>
<th>2053-09</th>
<th>2053-14</th>
<th>2053-23</th>
<th>2053-25</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Sparkover ± 20 % @ 100 V/s</td>
<td>75 V</td>
<td>90 V</td>
<td>145 V</td>
<td>230 V</td>
<td>250 V</td>
</tr>
<tr>
<td>Impulse Sparkover (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100V/μs</td>
<td>&lt; 700 V</td>
<td>&lt; 700 V</td>
<td>&lt; 700 V</td>
<td>&lt; 600 V</td>
<td>&lt; 600 V</td>
</tr>
<tr>
<td>1000V/μs</td>
<td>&lt; 800 V</td>
<td>&lt; 800 V</td>
<td>&lt; 800 V</td>
<td>&lt; 700 V</td>
<td>&lt; 700 V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>2053-30</th>
<th>2053-35</th>
<th>2053-40</th>
<th>2053-47</th>
<th>2053-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Sparkover ± 20 % @ 100 V/s</td>
<td>300 V</td>
<td>350 V</td>
<td>400 V</td>
<td>470 V</td>
<td>600 V</td>
</tr>
<tr>
<td>Impulse Sparkover (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100V/μs</td>
<td>&lt; 600 V</td>
<td>&lt; 650 V</td>
<td>&lt; 700 V</td>
<td>&lt; 800 V</td>
<td>&lt; 900 V</td>
</tr>
<tr>
<td>1000V/μs</td>
<td>&lt; 700 V</td>
<td>&lt; 800 V</td>
<td>&lt; 800 V</td>
<td>&lt; 900 V</td>
<td>&lt; 1000 V</td>
</tr>
</tbody>
</table>

(1) Impulse Sparkover voltage is defined as typical values of distribution.

Insulation Resistance (IR) (2)........................... 50/100/250 V ………………………………………………………> 1 GΩ
Glow Voltage ………………………………………….. 10 mA……………………………………………….< 70 V
Arc Voltage ……………………………………………>1 A…………………………………………………………< 10 V
Glow-Arc Transition Current ……………………………………………………………………………………………….< 1 A
Capacitance………………………………………………… 1 MHz …………………………………………………………0.5 pF typical
Maximum Impulse Discharge Current ……………………. 5,000 A, 8/20 μs ………………………………………1 operation
…………………………………………………………………………………………………………………………………………3,000 A, 8/20 μs ……………………………………10 operations
Nominal Alternating Discharge Current ……………………. 3 A, 50 Hz, 1 second ……………………………………1 operation
………………………………………………………………………………………………………………………………………………6 A, 9 cycles ………………………………………1 operation
Impulse Life ……………………………………………………… 100 A, 10/1000 μs……………………………………300 operations
DC Holdover Voltage (3)………………………………………< 150 ms
Operating Temperature………………………………………-40 to +85 °C
Storage Temperature……………………………………………-40 to +115 °C
Climatic Category (IEC 60068-1)………………………………………40/90/21

Notes:
- UL Recognized component, UL File E153537.
- At delivery AQL 0.65 Level II, DIN ISO 2859.
- Bourns recommends reflowing surface mount devices per IPC/JEDEC J-STD-020 rev D.

(2) DC Sparkover Voltage DC Measuring Voltage
75–90 V 50 V
120–400 V 100 V
470–600 V 250 V

(3) Network Applied
DC Sparkover Voltage DC Holdover Voltage
75–145 V 52 V
230–250 V 80 V
300–600 V 150 V

Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.
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Applications
- Telecommunications equipment
- Industrial equipment/electronics
- Consumer electronics

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**2053 Series Light Duty 2-Electrode Miniature Gas Discharge Tube**

**Product Dimensions**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>MM (INCHES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0 ± 0.2</td>
<td>(.157 ± .008)</td>
</tr>
<tr>
<td>4.3 ± 0.2</td>
<td>(.165 ± .008)</td>
</tr>
<tr>
<td>0.5 ± 0.1</td>
<td>(.020 ± .004)</td>
</tr>
</tbody>
</table>

**Recommended Pad Layout**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>MM (INCHES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5</td>
<td>(.138)</td>
</tr>
<tr>
<td>1.3</td>
<td>(.051)</td>
</tr>
</tbody>
</table>

**Packaging Specifications**

The Model 2053-xx-SM ships standard reelpack (-RP), 900 pieces per reel, 2,700 pieces per box. Reel is 330 mm in diameter and 16 mm wide.

**How to Order**

2053 - xx - SM - RP LF

Model Number Designator

| Voltage (Divided by 10) | 07 = 75 V | 14 = 145 V | 23 = 230 V | 09 = 90 V | 15 = 150 V | 25 = 250 V | 09 = 90 V | 20 = 200 V | 14 = 145 V | 24 = 240 V | 07 = 75 V | 20 = 200 V | 09 = 90 V | 15 = 150 V | 25 = 250 V | 07 = 75 V |
|------------------------|-----------|------------|------------|-----------|------------|------------|-----------|------------|------------|------------|-----------|------------|-----------|------------|------------|-----------|-----------|
| 07 = 75 V              | 30 = 300 V| 40 = 400 V | 47 = 470 V | 35 = 350 V| 50 = 500 V | 60 = 600 V | 30 = 300 V| 40 = 400 V | 47 = 470 V | 35 = 350 V| 50 = 500 V| 60 = 600 V | 30 = 300 V| 40 = 400 V | 47 = 470 V| 35 = 350 V| 50 = 500 V| 60 = 600 V |
| 09 = 90 V              | 35 = 350 V| 40 = 400 V | 47 = 470 V | 35 = 350 V| 50 = 500 V | 60 = 600 V | 35 = 350 V| 40 = 400 V | 47 = 470 V | 35 = 350 V| 50 = 500 V| 60 = 600 V | 35 = 350 V| 40 = 400 V | 47 = 470 V| 35 = 350 V| 50 = 500 V| 60 = 600 V |
| 14 = 145 V             | 40 = 400 V | 47 = 470 V | 60 = 600 V | 40 = 400 V | 50 = 500 V | 60 = 600 V | 40 = 400 V| 47 = 470 V | 60 = 600 V | 40 = 400 V| 50 = 500 V| 60 = 600 V | 40 = 400 V| 47 = 470 V | 60 = 600 V | 40 = 400 V| 50 = 500 V| 60 = 600 V |
| 23 = 230 V             | 47 = 470 V | 60 = 600 V | 60 = 600 V | 47 = 470 V | 60 = 600 V | 60 = 600 V | 47 = 470 V| 60 = 600 V | 60 = 600 V | 47 = 470 V| 60 = 600 V| 60 = 600 V | 47 = 470 V| 60 = 600 V | 60 = 600 V | 47 = 470 V| 60 = 600 V| 60 = 600 V |
| 25 = 250 V             | 60 = 600 V | 60 = 600 V | 60 = 600 V | 60 = 600 V | 60 = 600 V | 60 = 600 V | 60 = 600 V| 60 = 600 V | 60 = 600 V | 60 = 600 V| 60 = 600 V| 60 = 600 V | 60 = 600 V| 60 = 600 V | 60 = 600 V | 60 = 600 V| 60 = 600 V| 60 = 600 V |

**Surface Mount**

Packaging
- RP = Reelpack

RoHS Compliancy
- LF = RoHS Compliant Product

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www.bourns.com

REV. C 09/19
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