Surge arrester

2-electrode arrester

Series/Type: M50-A600XSMD
Ordering code: B88069X3351T902
Date: 2016-04-14
Version: 03
Surge arrester  B88069X3351T902
2-electrode arrester  M50-A600XSMD

Features
- Fast response time
- High current rating
- Stable performance over life
- Very low capacitance
- High insulation resistance
- Excellent SMD handling
- RoHS-compatible

Applications
- Branch exchange
- Line protection
- Subscriber protection
- Alarm system
- Consumer electronics

Electrical specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>DC spark-over voltage  (^{1,2})</th>
<th>Impulse spark-over voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC spark-over voltage</td>
<td>600 V ±20%</td>
<td>&lt; 1350 V ≤ 1350 V</td>
</tr>
<tr>
<td>Tolerance</td>
<td>Min. 480 V</td>
<td>- for 99% of measured values</td>
</tr>
<tr>
<td>Max. 720 V</td>
<td>- typical values of distribution</td>
<td></td>
</tr>
</tbody>
</table>

Service life

- 10 operations 50 Hz, 1 s 5 A
- 1 operation 50 Hz, 0.18 s (9 cycles) 10 A
- 10 operations [5× (+) & 5× (−)] 8/20 µs 5 kA
- 1 operation 8/20 µs 10 kA
- 1 operation 10/350 µs 1 kA
- 300 operations 10/1000 µs 100 A

Insulation resistance at 100 V\(_{DC}\) > 10 GΩ

Capacitance at 1 MHz < 1.5 pF

Arc voltage at 1 A ~ 15 V
Glow to arc transition current ~ 0.8 A
Glow voltage ~ 65 V

Weight ~ 1.5 g

Operation and storage temperature –40 ... +125 °C

Climatic category (IEC 60068-1) 40/125/21

Marking, blue negative

Certification UL 497B (E163070)

1) At delivery AQL 0.65 level II, DIN ISO 2859
2) In ionized mode

Terms in accordance with ITU-T Rec. K.12, IEC 61663-2 and IEC 61643-311
Dimensional drawing in mm

Ordering code and packing advice
B88069X3351T902 = 900 pcs. on SMD-tape & reel

SMD-tape according to IEC 60286-3

Square electrode adjacent to sprocket holes
Soldering parameter

Reflow soldering

<table>
<thead>
<tr>
<th>Reflow profile features</th>
<th>Sn-Pb eutectic assembly</th>
<th>Pb-free assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preheat and soak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Temperature min</td>
<td>(T_{\text{min}})</td>
<td>100 °C</td>
</tr>
<tr>
<td>- Temperature max</td>
<td>(T_{\text{max}})</td>
<td>150 °C</td>
</tr>
<tr>
<td>- Time</td>
<td>(t_{\text{total}})</td>
<td>60 ... 120 s</td>
</tr>
<tr>
<td></td>
<td>(t_{\text{total}})</td>
<td>60 ... 180 s</td>
</tr>
<tr>
<td>Average ramp-up rate</td>
<td>(T_{\text{max}}) to (T_p)</td>
<td>max. 3 °C/ s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>max. 3 °C/ s</td>
</tr>
<tr>
<td>Liquidous temperature</td>
<td>(T_l)</td>
<td>183 °C</td>
</tr>
<tr>
<td>Time at liquidous</td>
<td>(t_c)</td>
<td>180 ... 150 s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>217 °C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60 ... 150 s</td>
</tr>
<tr>
<td>Peak package body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>temperature *</td>
<td>(T_{p}, T_{c})</td>
<td>220 ... 235 °C</td>
</tr>
<tr>
<td>Classification</td>
<td></td>
<td>245 ... 260 °C</td>
</tr>
<tr>
<td>temperature **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time ((t_p)) **</td>
<td>within</td>
<td>20 s ***</td>
</tr>
<tr>
<td></td>
<td>5 °C of the specified</td>
<td></td>
</tr>
<tr>
<td></td>
<td>classification</td>
<td>30 s ***</td>
</tr>
<tr>
<td>temperature ((T_c))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average ramp-down</td>
<td>(T_p) to (T_{\text{max}})</td>
<td>max. 6 °C/ s</td>
</tr>
<tr>
<td>rate</td>
<td></td>
<td>max. 6 °C/ s</td>
</tr>
<tr>
<td>Time 25 °C to peak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>temperature</td>
<td>max. min</td>
<td>max. 8 min</td>
</tr>
</tbody>
</table>

* = Tolerance for peak profile temperature (\(T_p\)) is defined as a supplier minimum and a user maximum.
** = For details please refer to JEDEC J-STD-020D.
*** = Tolerance for time at peak profile temperature (\(t_p\)) is defined as a supplier minimum and a user maximum.

Surface mounted components (SMD) may exhibit a temporary increase in the DC spark-over voltage after the solder reflow process. The components will recover within 24 hours. There is no quality defect nor change in protection levels during the temporary change in DC spark-over voltage.

Cautions and warnings

- Do not operate surge arresters in power supply networks, whose maximum operating voltage exceeds the minimum spark-over voltage of the surge arresters.
- Surge arresters may become hot in the event of longer periods of current stress (burn risk). In the event of overload the connectors may fail or the component may be destroyed.
- Surge arresters must be handled with care and must not be dropped.
- Do not continue to use damaged surge arresters.
- The shown SMD pad dimensions represent a safe way to mount the arrester and are a recommendation of the manufacturer. During the reflow process it must be assured that no solder material reduces the insulation distance between the pads below the arrester.
- SMD surge arresters should be soldered within 24 month after shipment.

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