# Surge arrester

## 3-electrode arrester

| | |
|---|---|
| **Series/Type:** | **T90-A90XSMD4** |
| **Ordering code:** | **B88069X3783T902** |
| Date: | 2015-08-17 |
| Version: | 03 |

## Surge arrester — B88069X3783T902

## 3-electrode arrester — T90-A90XSMD4

### Features

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

### Applications

- Branch exchange (MDF)
- Line protection
- Station protection

### Electrical specifications

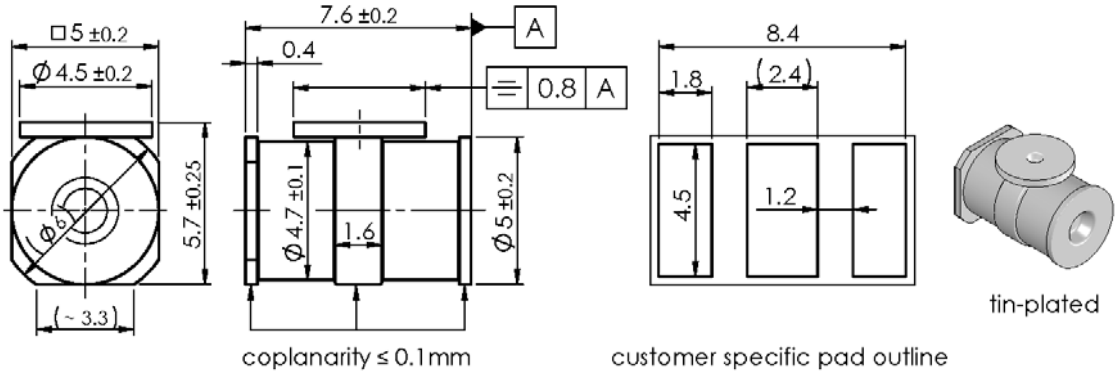
| | | | |
|---|---|---|---|
| DC spark-over voltage [1) 2) 3)] | | 90<br>± 20 | V<br>% |
| Impulse spark-over voltage [3)] | | | |
| at 100 V/µs | - for 99% of measured values | < 450 | V |
| | - typical values of distribution | < 350 | V |
| at 1 kV/µs | - for 99% of measured values | < 600 | V |
| | - typical values of distribution | < 500 | V |
| Service life | | | |
| 10 operations | 50 Hz; 1 s [4)] | 10 | A |
| 1 operation | 50 Hz; 0.18 s (9 cycl.) [4)] | 10 | A |
| 10 operations | 8/20 µs [4)] | 10 | kA |
| 1 operation | 10/350 µs [4)] | 1 | kA |
| 300 operations (+/–, alternating pol.) | 10/1000 µs [4)] | 200 | A |
| Insulation resistance at 50 $V_{DC}$ [3)] | | > 1 | GΩ |
| Capacitance at 1 MHz [3)] | | < 1.5 | pF |
| Transverse delay time [5)] | | < 0.2 | µs |
| Arc voltage at 1 A<br>Glow to arc transition current<br>Glow voltage at 0.1 A | | ~ 10<br>< 1<br>~ 65 | V<br>A<br>V |
| Weight | | ~ 0.8 | g |
| Operation and storage temperature | | –40 ... +90 | °C |
| Climatic category (IEC 60068-1) | | 40/090/21 | |
| Marking, blue negative | | **EPCOS**<br>**90 YY O**<br>90 - Nominal voltage<br>YY - Year of production<br>O - Non radioactive | |
| Certifications | | UL 497B (E163070) | |

Remarks on next page

1) At delivery AQL 0.65 level II, DIN ISO 2859
2) In ionized mode
3) Tip or ring electrode to center electrode
4) Total current through center electrode, half value through tip respectively ring electrode.
5) Test according to ITU-T Rec. K.12

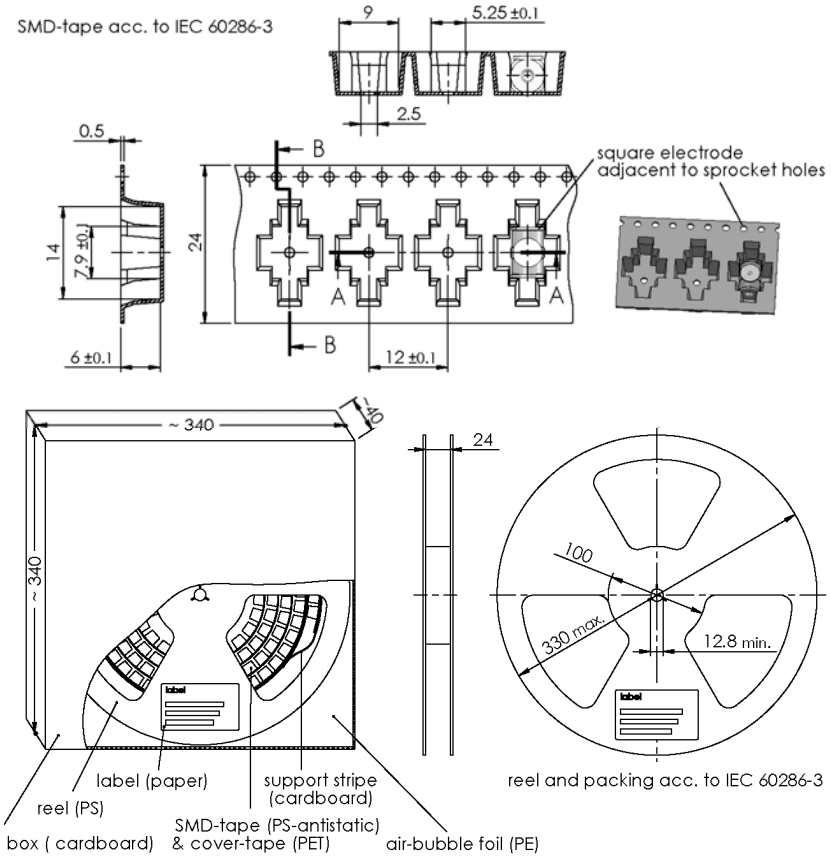
Terms in accordance with ITU-T Rec. K.12; IEC 61663 and IEC 61643-311.

## Dimensional drawing in mm



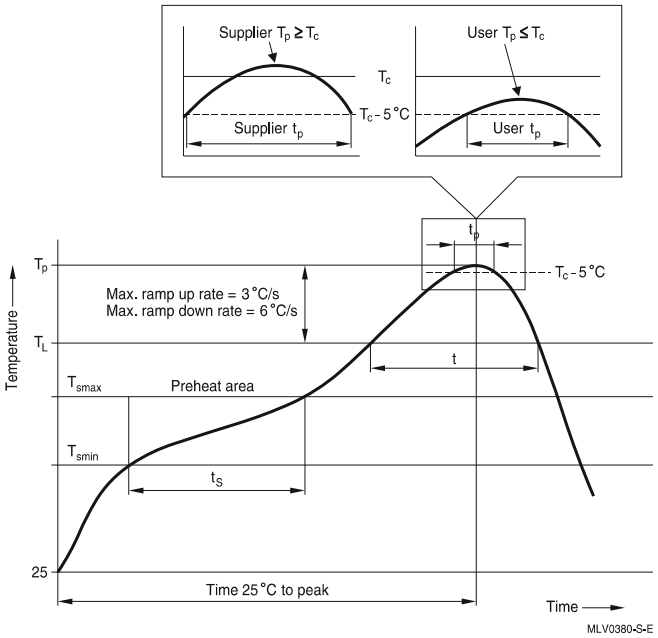

## Ordering code and packing advice

*B88069X3783**T902** = SMD-tape with 900 pcs.*



## Soldering parameter

Reflow soldering




| Reflow profile features | | Sn- Pb eutectic assembly | Pb-free assembly |
|---|---|---|---|
| Preheat and soak<br>- Temperature min<br>- Temperature max<br>- Time | <br>$T_{smin}$<br>$T_{smax}$<br>$t_{smin}$ to $t_{smax}$ | <br>100 °C<br>150 °C<br>60 ... 120 s | <br>150 °C<br>200 °C<br>60 ... 180 s |
| Average ramp-up rate | $T_{smax}$ to $T_p$ | max. 3 °C/ s | max. 3 °C/ s |
| Liquidous temperature<br>Time at liquidous | $T_L$<br>$t_L$ | 183 °C<br>60 ... 150 s | 217 °C<br>60 ... 150 s |
| Peak package body temperature *, Classification temperature ** | $T_p$, $T_C$ | 220 ... 235 °C ** | 245 ... 260 °C ** |
| Time ($t_p$) ** within 5 °C of the specified classification temperature ($T_C$) | | 20 s *** | 30 s *** |
| Average ramp-down rate | $T_p$ to $T_{smax}$ | max. 6 °C/ s | max. 6 °C/ s |
| Time 25 °C to peak temperature | | max. 6 min | max. 8 min |

* = 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.

## 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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