



# Surge Arresters

**Series/Type: S80-A90X**

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B88069X1673T602		2019-11-15	2020-02-21	2020-05-21

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## Product description

The S80-series has been especially designed to meet data transmission protection requirements. The optimized design features a high level of protection against fast rising transients usually caused by lightning disturbances. For use in high frequency data lines, the series offers low capacitances. The devices are extremely reliable and are able to withstand high surge currents without destruction.

### Features

- Small size
- Short response time
- High current capability
- Stable performance over service life
- Low capacitance and insertion loss
- High insulation resistance
- Excellent SMD handling
- RoHS-compatible

### Applications


#### Telecommunication:

- Ethernet, PoE, xDSL
- Cable modem, splitters, line cards
- Wireless antenna protection

#### Others:

- CCTV
- Switching power supply

## Product characteristics

Physical dimensions (length × width × height)	0.24 × 0.33 × 0.33	in
	6.0 × 8.3 × 8.3	mm
Weight	~ 0.4	g
Operating temperature	-40 ... +125	°C
Recommended storage <sup>1)</sup>		
- temperature	+5 ... +35	°C
- humidity	45 ... 80	%
- period	≤ 2	years
Climatic category (IEC 60068-1)	40/125/21	
Moisture sensitivity level <sup>2)</sup>	1	
Marking, blue positive	 YY 90 YY - Year of production 90 - Nominal voltage	

#### Notes:

<sup>1)</sup> Specified in terms of corrosion against Sn-plating

<sup>2)</sup> Tests according to JEDEC J-STD-020

**Electrical specifications and stress test methods**

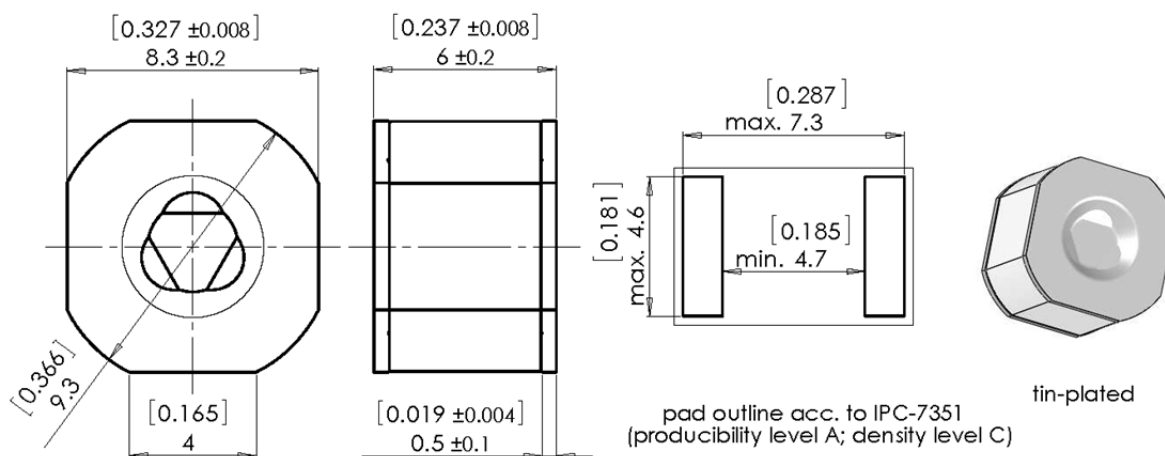
Nominal DC spark-over voltage <sup>3) 4)</sup>	90	V
Tolerance	± 20	%
Min.	72	V
Max.	108	V
Impulse spark-over voltage		
at 100 V/μs	- for 99% of measured values - typical values of distribution	< 500 < 450
at 1 kV/μs	- for 99% of measured values - typical values of distribution	< 600 < 550
Service life <sup>5)</sup>		
10 operations	50 Hz, 1 s	20
1 operation	50 Hz, 0.18 s (9 cycles)	100
20 operations [10× (+) & 10× (-)]	8/20 μs	20
1 operation	8/20 μs	25
1 operation	10/350 μs	5
300 operations	10/1000 μs	100
Insulation resistance at 50 V <sub>DC</sub>	> 10	GΩ
Capacitance at 1 MHz	< 1.5	pF
Arc voltage at 1 A	~ 15	V
Glow to arc transition current	< 0.5	A
Glow voltage	~ 60	V

<sup>3)</sup> At delivery AQL 0.65 level II, DIN ISO 2859

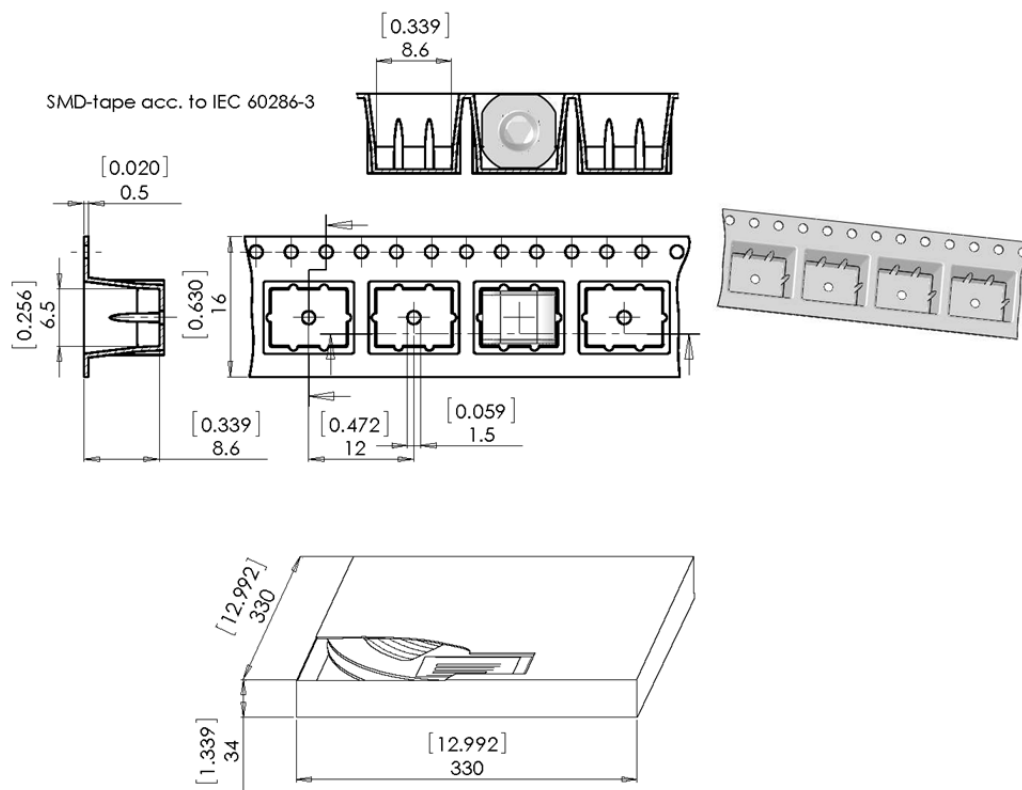
<sup>4)</sup> In ionized mode

<sup>5)</sup> Tests according to ITU-T Rec. K. 12 and UL 497B

Terms and current waveforms in accordance with ITU-T Rec. K. 12; IEC 61643-21; IEC 61643-311 and IEC 61663-2.

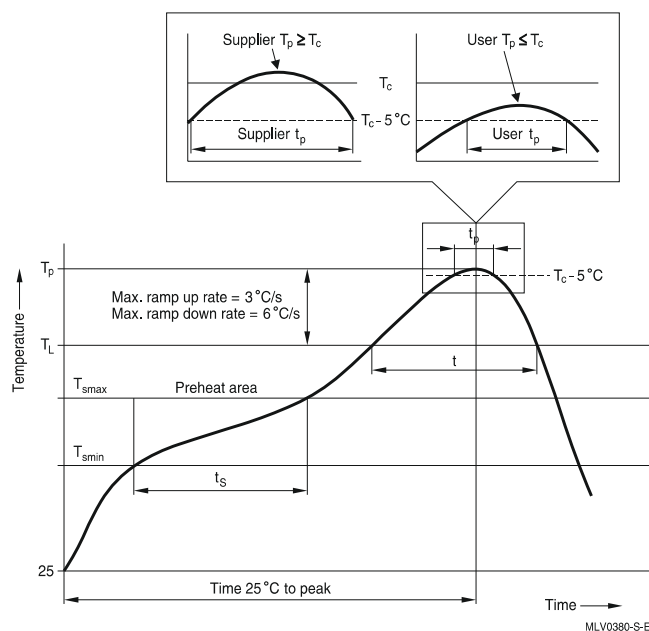
**Dimensions in mm and inch [...]**

**Ordering code and packing advice**

**B88069X1673T602** = 600 pcs. on SMD-tape



## Soldering parameter

### Reflow soldering



Reflow profile features		Sn- Pb eutectic assembly	Pb-free assembly
Preheat and soak - Temperature min - Temperature max - Time	$T_{smin}$ $T_{smax}$ $t_{smin}$ to $t_{smax}$	100 °C 150 °C 60 ... 120 s	150 °C 200 °C 60 ... 180 s
Average ramp-up rate	$T_{smax}$ to $T_p$	max. 3 °C/ s	max. 3 °C/ s
Liquidous temperature Time at liquidous	$T_L$ $t_L$	183 °C 60 ... 150 s	217 °C 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.

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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