



Surge Arresters

Series/Type: S80-A230X

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B88069X1943T602		2019-11-15	2020-02-21	2020-05-21

Please contact your nearest TDK sales office if you need support in selecting a suitable substitute. The addresses of our worldwide sales network are presented at www.tdk-electronics.tdk.com/sales.

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 x width x height)	0.24 x 0.33 x 0.33	in
	6.0 x 8.3 x 8.3	mm
Weight	~ 0.4	g
Operating temperature	-40 ... +125	°C
Recommended storage ¹⁾		
- temperature	+5 ... +35	°C
- humidity	45 ... 80	%
- period	≤ 2	years
Climatic category (IEC 60068-1)	40/125/21	
Moisture sensitivity level ²⁾	1	
Marking, blue positive	 YY - Year of production 230 - Nominal voltage	

Notes:

¹⁾ Specified in terms of corrosion against Sn-plating

²⁾ Tests according to JEDEC J-STD-020

Electrical specifications and stress test methods

Nominal DC spark-over voltage ^{3) 4)}	230	V
Tolerance	± 20	%
Min.	184	V
Max.	276	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	< 650 < 600
Service life ⁵⁾		
10 operations	50 Hz, 1 s	20
1 operation	50 Hz, 0.18 s (9 cycles)	100
10 operations [5x (+) & 5x (-)]	8/20 μs	20
1 operation	8/20 μs	25
1 operation	10/350 μs	2.5
300 operations	10/1000 μs	200
Insulation resistance at 50 V _{DC}	> 10	GΩ
Capacitance at 1 MHz	< 1.5	pF
Arc voltage at 1 A	~ 10	V
Glow to arc transition current	< 0.5	A
Glow voltage	~ 60	V

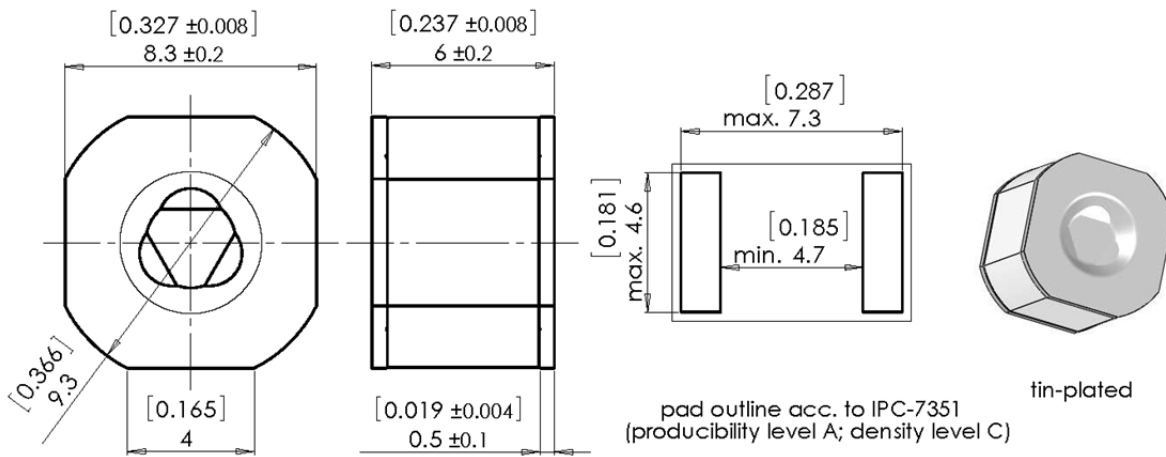
³⁾ At delivery AQL 0.65 level II, DIN ISO 2859

⁴⁾ In ionized mode

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

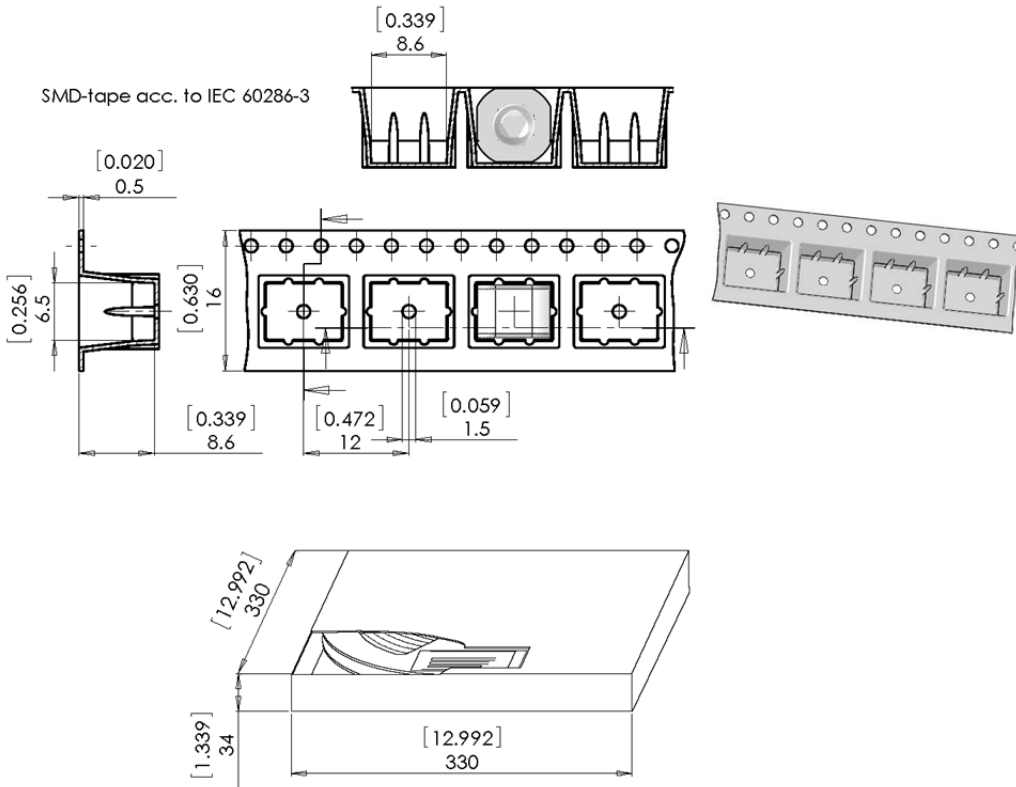
Terms and current waveforms in accordance with ITU-T Rec. K. 12; IEC 61643-21; IEC 61643-311 and IEC 61663-2.

Dimensions in mm and inch [...]



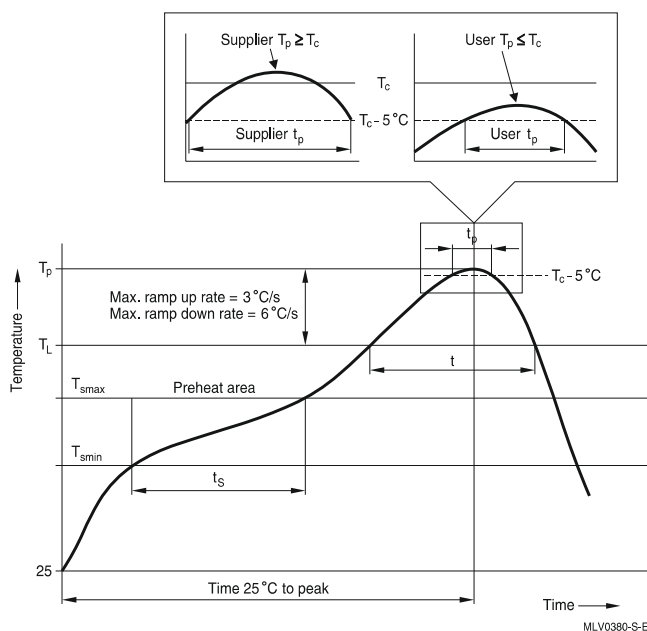
Ordering code and packing advice

B88069X1943T602 = 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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2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified**. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
3. **The warnings, cautions and product-specific notes must be observed.**
4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.tdk-electronics.tdk.com/material). Should you have any more detailed questions, please contact our sales offices.
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