Surge arrester

2-electrode arrester

Series/Type:	**S30-A90X**
Ordering code:	**B88069X9231******
Date:	2020-07-23
Version:	11

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Product description

The S30 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 ultra low capacitances and shows only marginally signal losses up to high frequencies. The devices are extremely reliable and are able to withstand high surge currents without destruction.

Features

- Very small size (EIA 1812)
- Short response time
- High current capability
- Stable performance over service life
- Ultra 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)	0.18 × 0.12 × 0.10	in
	4.5 × 3.2 × 2.7	mm
	EIA 1812 / 4532 metric	
Weight	~ 0.2	g
Operating temperature	–40 ... +125	°C
Recommended storage [1)] - temperature - humidity - period	 +5 … +35 45 … 80 ≤ 2	 °C % years
Climatic category (IEC 60068-1)	40/125/21	
Moisture sensitivity level [2)]	1	
Marking, black positive	▲BY B - Nominal voltage (Q ≙ 90 V) Y - Year of production (last digit)	
Certifications	UL 497B (E163070)	

Notes:
1) Specified in terms of corrosion against Sn-plating
2) Tests according to JEDEC J-STD-020

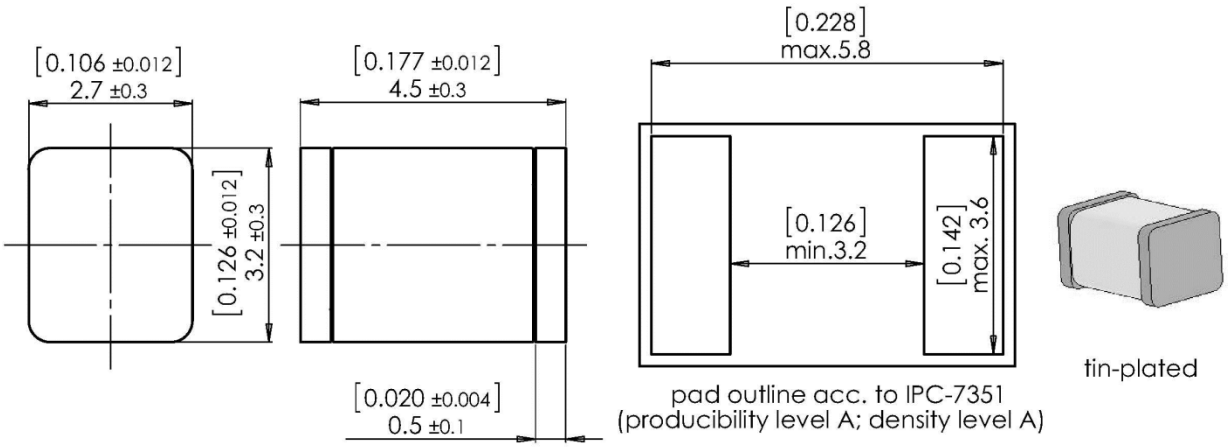
Electrical specifications and stress test methods

Nominal DC spark-over voltage [3) 4)]			90	V
Tolerance			±30	%
Min.			63	V
Max.			117	V
Impulse spark-over voltage				
at 100 V/µs	- for 99% of measured values		< 500	V
	- typical values of distribution		< 400	V
at 1 kV/µs	- for 99% of measured values		< 600	V
	- typical values of distribution		< 500	V
Service life [5)]				
10 operations		50 Hz, 1 s	2.5	A
300 operations		8/20 µs	100	A
10 operations	[5× (+) & 5× (–)]	8/20 µs	3	kA
1 operation		8/20 µs	3.5	kA
10 operations	[5× (+) & 5× (–)]	5/320 µs [6)]	150	A
100 operations	[50× (+) & 50× (–)]	10/1000 µs	10	A
Insulation resistance at 50 V_{DC}			> 1	GΩ
Capacitance at 1 MHz			< 0.4	pF
Arc voltage at 1 A			~ 8	V
Glow to arc transition current			< 0.2	A
Glow voltage			~ 50	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
[6)] Test generator 6 kV, 10/700 µs, 40 Ω

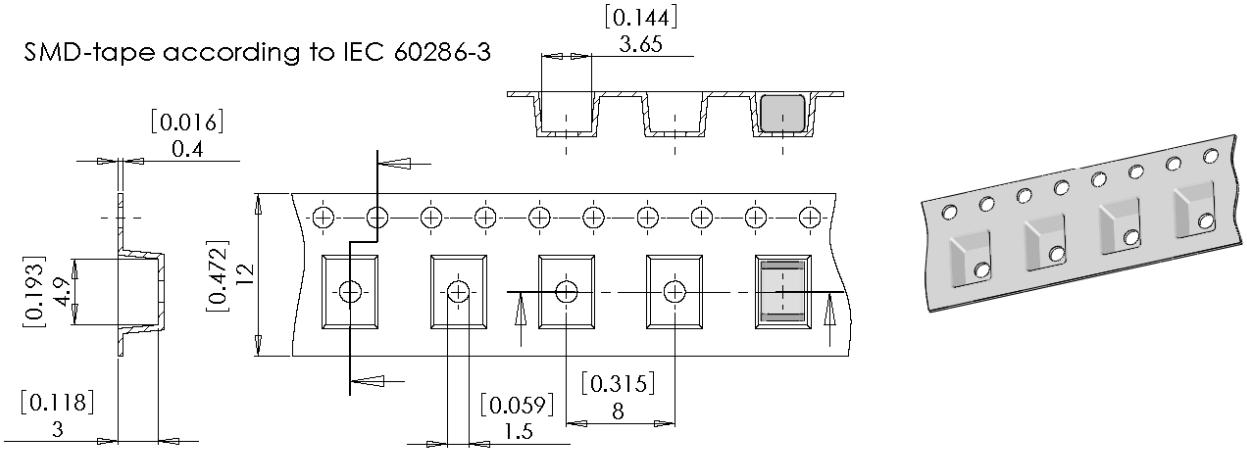
Terms and current waveforms in accordance with ITU-T Rec. K. 12; IEC 61643-21 and IEC 61643-311.

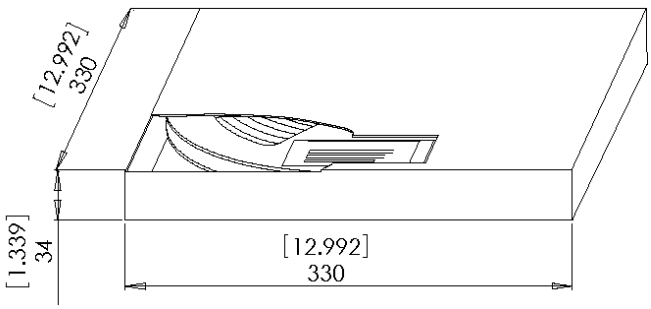
Dimensions in mm and inch [...]



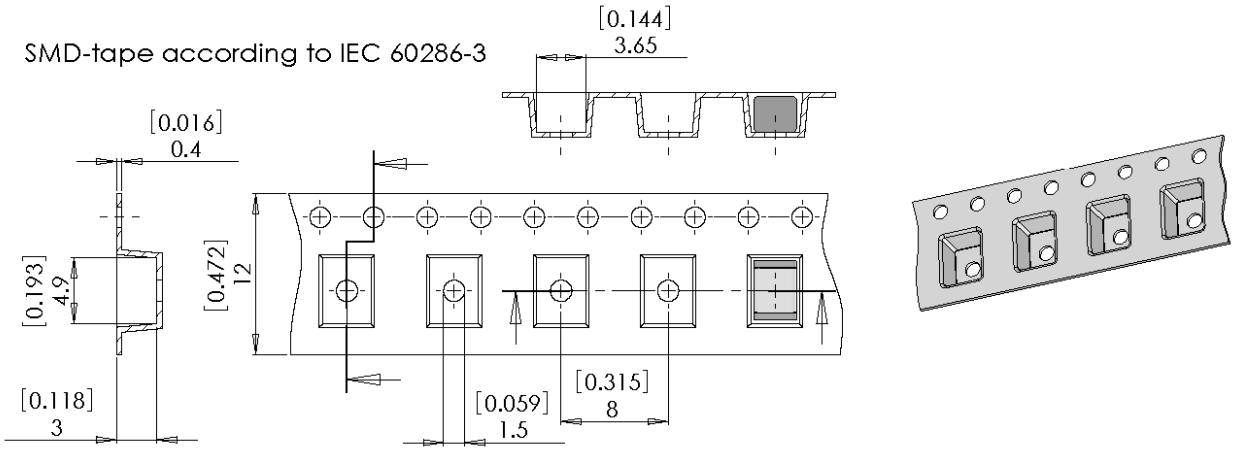
Ordering code and packing advice

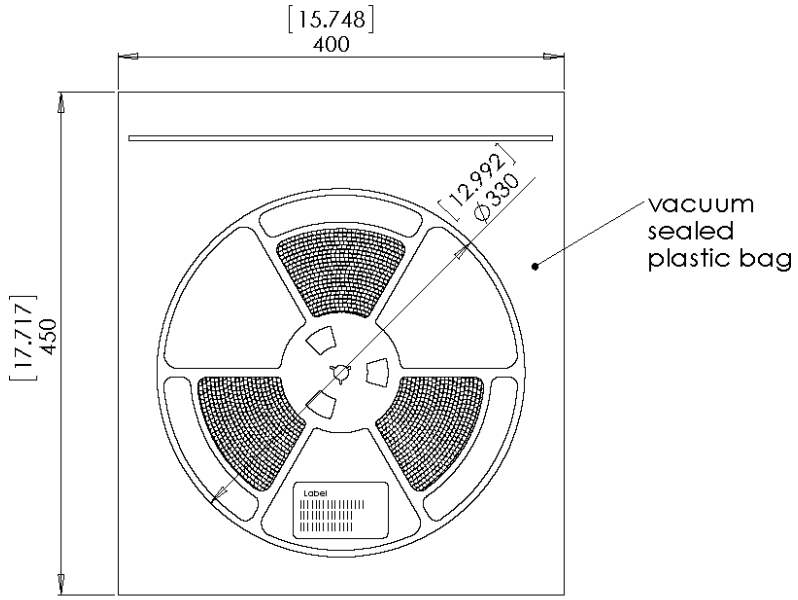
*B88069X9231**T253** = 2500 pcs. on SMD-tape & reel*





*B88069X9231**V253** = 2500 pcs. on SMD-tape & reel, vacuum sealed*



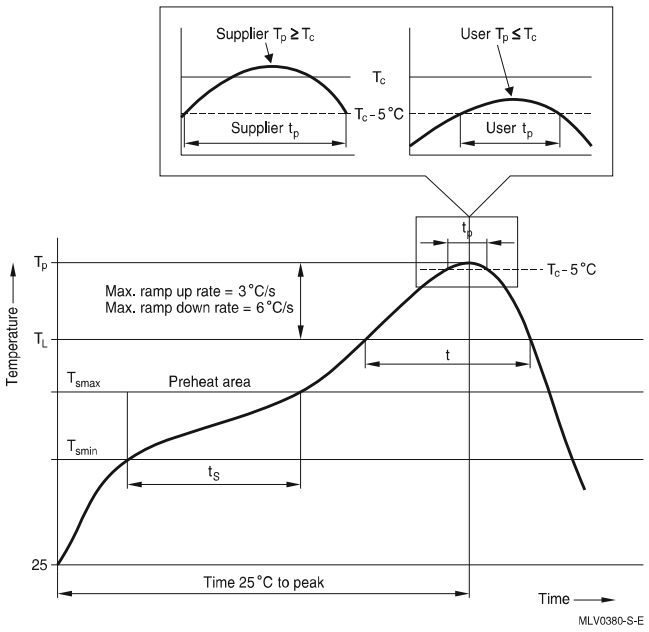


Caution

Surge arresters are not sensitive to humidity. The vacuum bag may be damaged but this has no effect on the product performance.

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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Important notes

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Release 2020-06

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FA24C0G1H333JNU00 MMZ1005S601ETD25 B32654A6335K000 B88069X5600S102 B82422A1562J100 CGA2B1X7R1C683M050BC CGA2B3X7R1H473K050BD MLG1005S7N5JTD25 B84111A0000A030 C3216X7R2A224K115AE SPM3012T-R47M-LR B82496C3220G000 B82559A7682A024 CGA2B1C0G2A681J050BC FHV-153AN MLG1005S2N4BTD25 B82477D4333M900 B82559A3292A025 FG26X7R2J103KNT00 MLF1608D68NMTA00 MMZ1608S102ATA00 B32024A3105M000 B59886C0120A070 CGA4J2X8R1H104M125AA FHV-5AN MLG1005S68NJTD25 B32683A1223J000 B65884E0012D001 MLG1005S0N8BTD25 C3225C0G2A683J230AA