



Surge arrester

Stacked surge arresters

Series/Type:	LN8A-A450DC-2
Ordering code:	B88069X1883T302
Date:	2016-12-19
Version:	06

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Features

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

Applications

- DC power supply protection 24 V

Electrical specifications	Arrester only	w. capacitors ²⁾	Unit
DC spark-over voltage ¹⁾	450 ±30	< 500	V %
Front of wave spark-over voltage at 6 kV, 1.2/50 µs			
- initial	< 1100	< 780	V
- after service life	< 1500	< 1200	V
DC operating voltage ³⁾	24 ±25		V _{DC} %
Service life			
5 operations	50 Hz, 1 s	1	A
10 operations [5x (+) & 5x (-)]	5/320 µs	25	A
10 operations [5x (+) & 5x (-)]	8/20 µs	10	kA
2 operations	10/350 µs	3	kA
300 operations (+/- alternating polarity)	10/1000 µs	100	A
Insulation resistance at 100 V _{DC}	> 10		GΩ
Capacitance at 1 MHz	< 1		pF
Weight	~ 2.2		g
Operation and storage temperature	-40 ... +125		°C
Climatic category (IEC 60068-1)	40/125/21		
Marking, red positive	 YY 24DC YY - Year of production 24DC - DC operating voltage		

¹⁾ At delivery AQL 0.65 level II, DIN ISO 2859

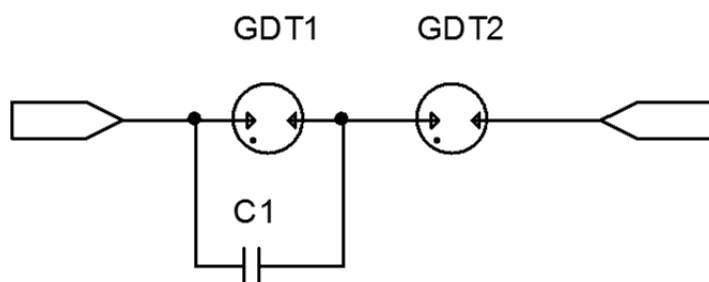
²⁾ Refer to circuit diagram on page 3

³⁾ DC current source 30 A

⁴⁾ Test generator 1 kV, 10/700 µs, 40 Ω

Terms in accordance with IEC 61643-11.

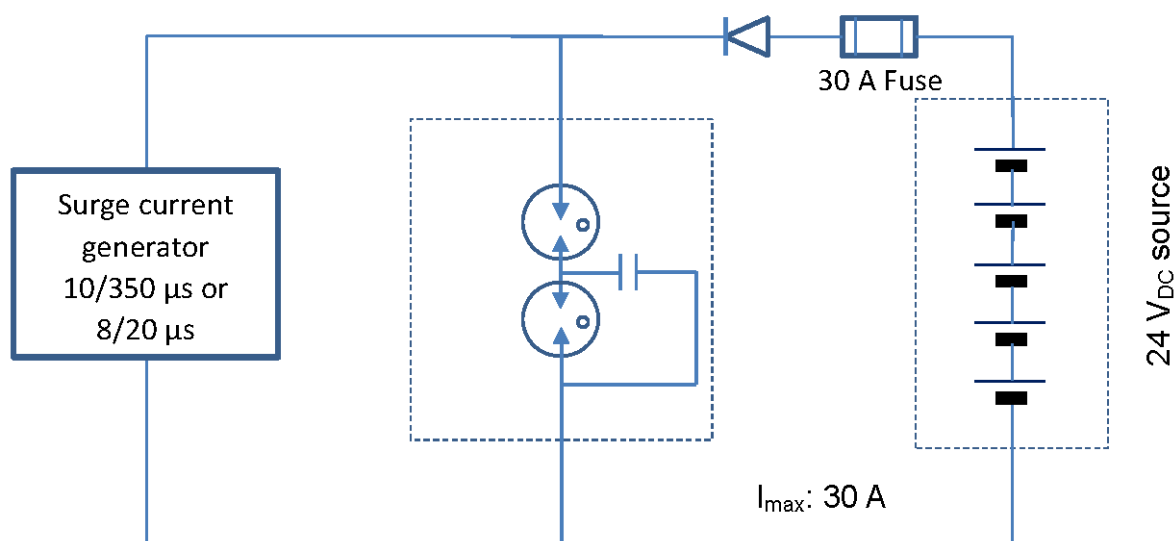
Circuit diagram (C1 = 100 pF to 470 pF)



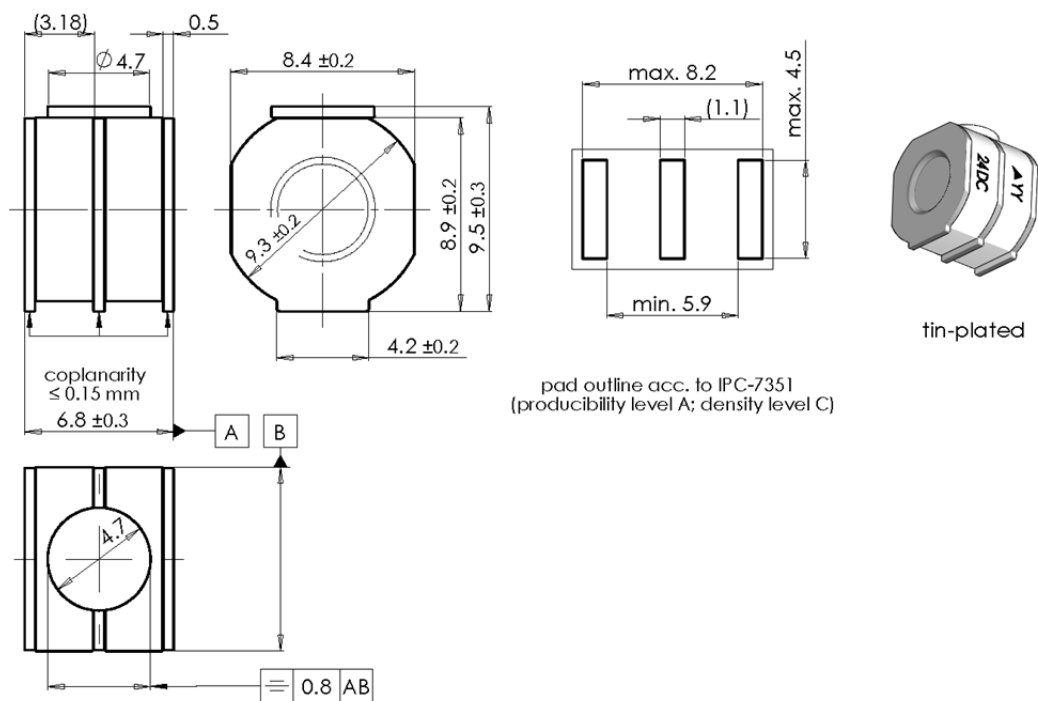
Recommended capacitor: TDK C4520X7R3D471K130KA

Test circuit

10/350 μ s or 8/20 μ s circuit



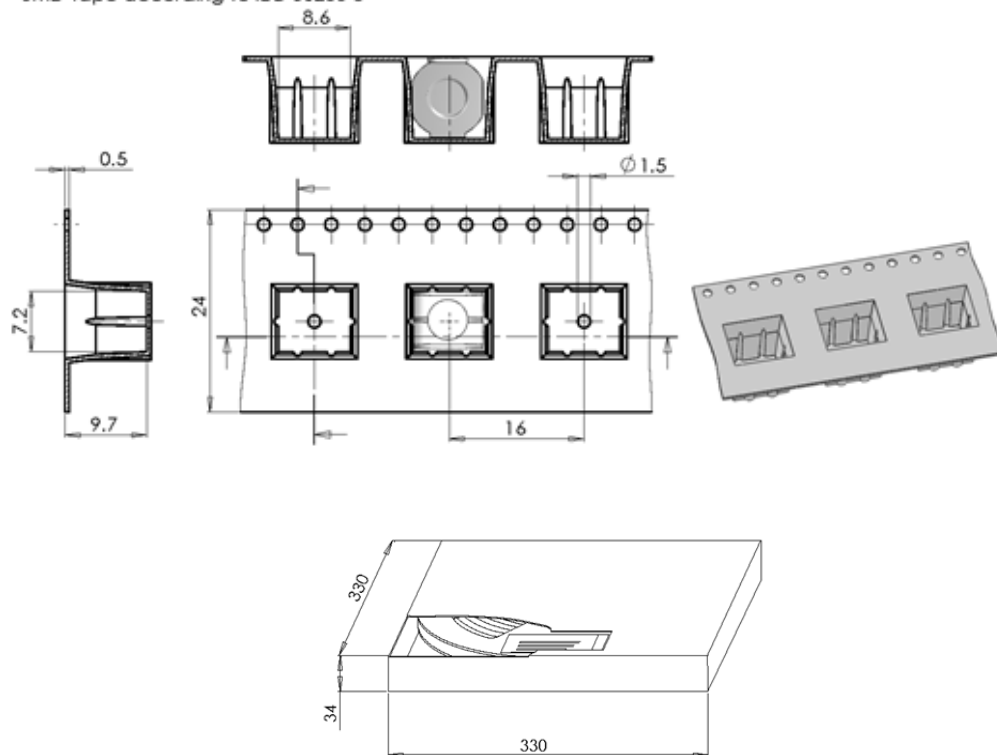
Dimensional drawing in mm



Ordering code and packing advice

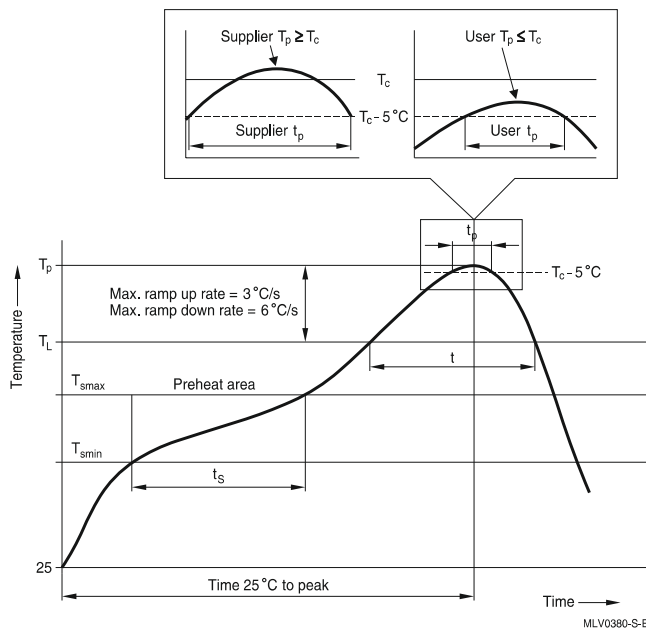
B88069X1883T302 = 300 pcs. on SMD-tape & reel

SMD-tape according to IEC 60286-3



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

- The follow current must be limited (see test circuit) so that the arrester can be properly extinguished when the surge has decayed. The arrester might otherwise heat up and ignite adjacent components.
- If the contacts of the surge arresters are defective, current load can cause sparks and loud noises.
- 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.
- 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 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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