



## Surge arrester

### Stacked surge arresters

<b>Series/Type:</b>	<b>LN8-A1400DC-5</b>
<b>Ordering code:</b>	<b>B88069X1123B501</b>
Date:	2016-12-20
Version:	07

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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 60 V

<b>Electrical specifications</b>	Arrester only	w. capacitors <sup>2)</sup>	Unit
DC spark-over voltage <sup>1)</sup>	1400 ±30	< 1250	V %
Front of wave spark-over voltage at 6 kV, 1.2/50 µs - initial - after service life	< 2300 < 3000	< 900 < 1500	V V
DC operating voltage <sup>3)</sup>	60 ±20		V <sub>DC</sub> %
Service life			
10 operations [5x (+) & 5x (-)]      8/20 µs	20		kA
10 operations [5x (+) & 5x (-)]      10/350 µs	4		kA
100 operations [50x (+) & 50x (-)]    10/350 µs	500		A
300 operations (+/- alternating polarity) 10/1000 µs	100		A
Insulation resistance at 100 V <sub>DC</sub>	> 10		GΩ
Capacitance at 1 MHz	< 1		pF
Weight	~ 5.5		g
Operation and storage temperature	-40 ... +125		°C
Climatic category (IEC 60068-1)	40/125/21		
Marking, red positive	 YY - Year of production 60DC - DC operating voltage		
Certifications	UL 1449 (E319264)		

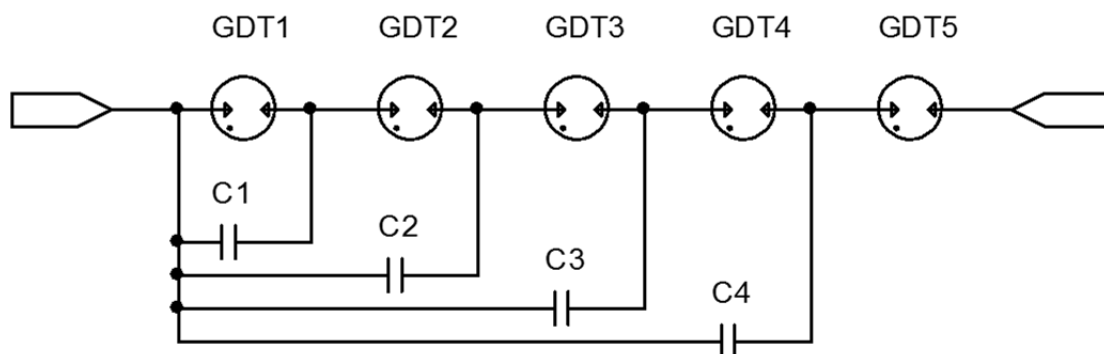
<sup>1)</sup> At delivery AQL 0.65 level II, DIN ISO 2859

<sup>2)</sup> Refer to circuit diagram on page 3

<sup>3)</sup> DC current source 30 A

Terms in accordance with IEC 61643-11.

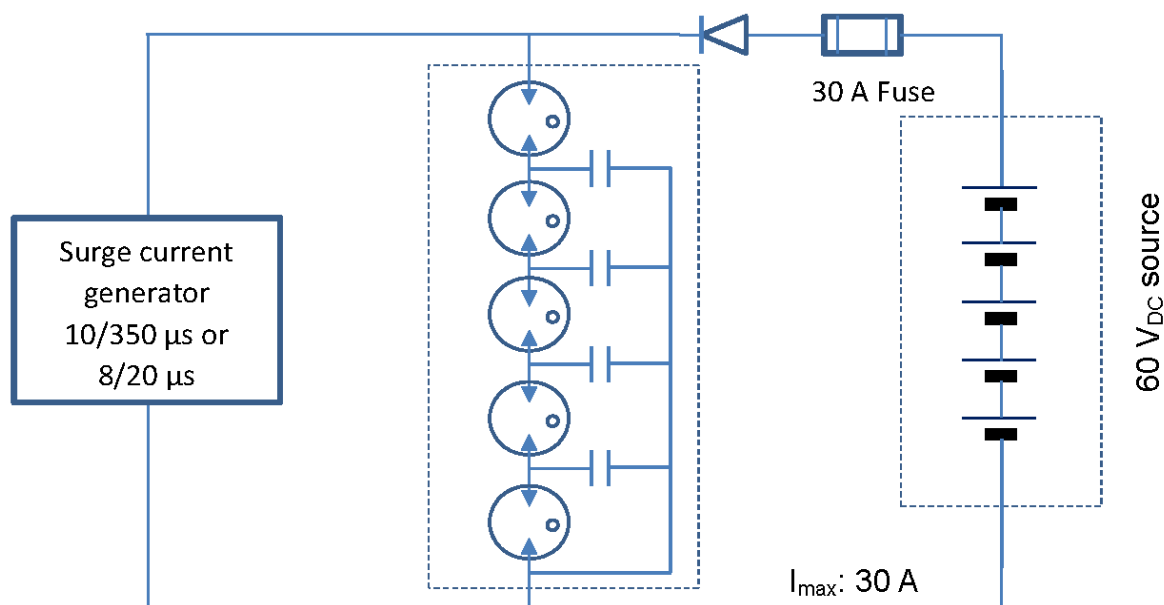
**C Circuit diagram (C1 to C4 = each capacitor 100 pF to 470 pF)**



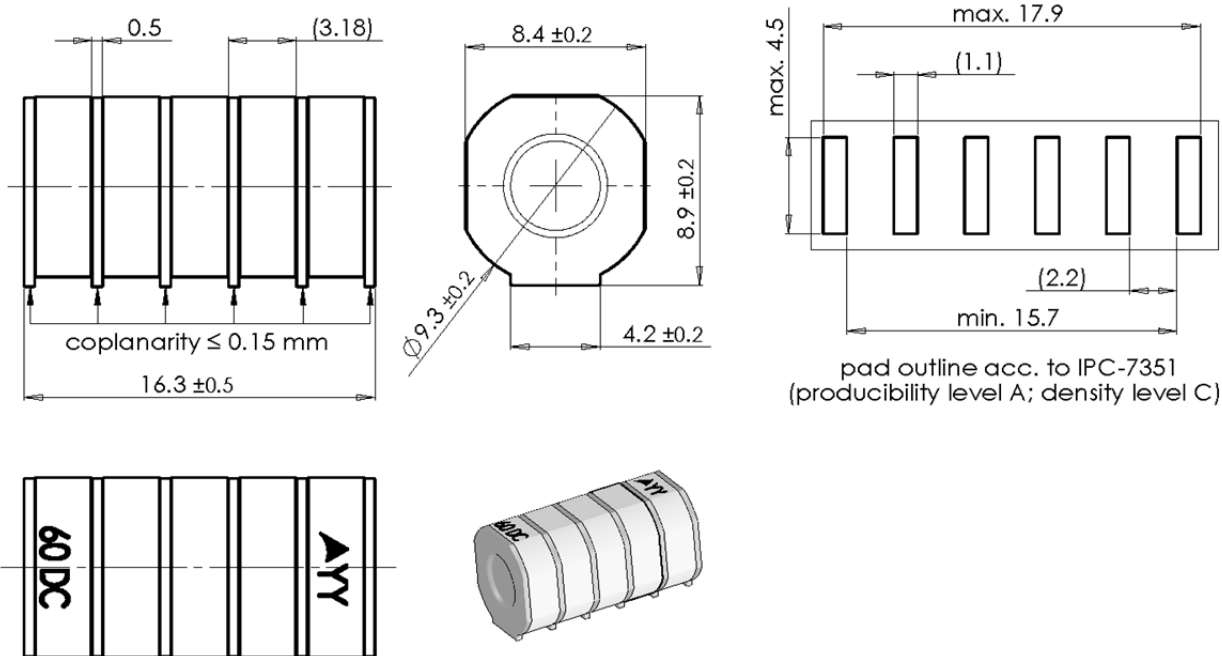
Recommended capacitor: TDK C4520X7R3D471K130KA

**Test circuit**

10/350  $\mu$ s or 8/20  $\mu$ s circuit



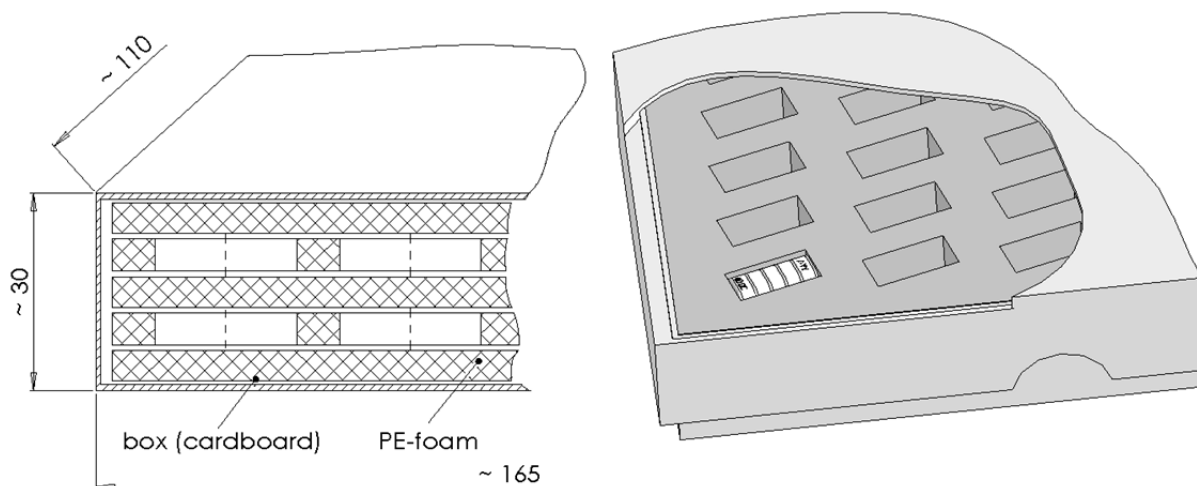
Dimensional drawing in mm



tin-plated

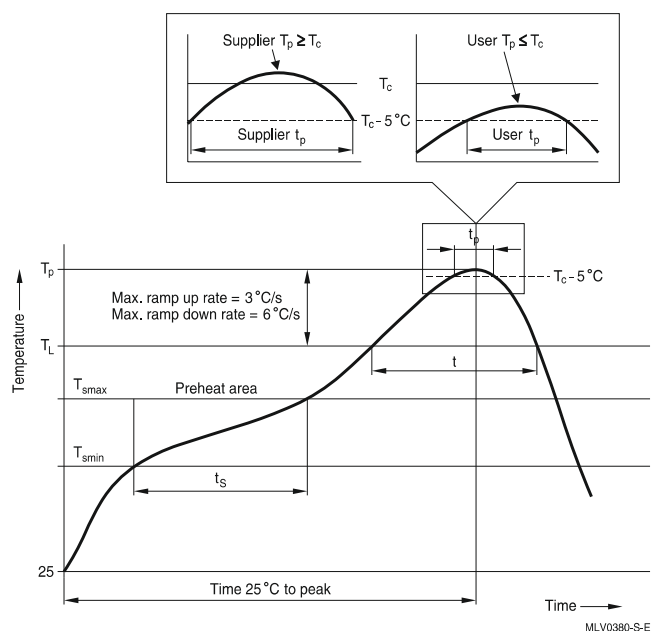
Ordering code and packing advice

B88069X1123B501 = 50 pcs. in foam trays



## 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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