

SURGiNG

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SurgeArresters

陶瓷气体放电管

SE93 Series

Gas Discharge Tubes - SE93 Series

Features	Applications
<ul style="list-style-type: none"> ● Extremely small size ● Extremely fast response time ● Excellent SMD handing ● Stable performance over life ● Very low capacitance ● High insulation resistance ● RoHS-compatible ● UL-identification, 	<ul style="list-style-type: none"> ● Splitter ● PCI Cards ● Modem ● Line cards

Electrical specifications

Part Number	DC spark-over Voltage	Max. Impulse Breakdown Voltage	Discharge Current (8/20us)	AC discharge Current	Impulse Life (10/1000us)	Minimum Insulation Resistance		Max. Capacitance 1MHz
	100V/S	1KV/us	10 times	50Hz, 1S	100A	Test Voltage DC(V)	(GΩ)	(Pf)
	%	V	KA	A	Times			

DIP

SE93-75X	±30	600	5	5	100	50	1	1
SE93-90X	±30	600	5	5	100	50	1	1
SE93-150X	±20	650	5	5	100	100	1	1
SE93-230X	±20	700	5	5	100	100	1	1
SE93-350X	±20	900	5	5	100	100	1	1
SE93-420X	±20	950	5	5	100	100	1	1
SE93-470X	±20	1100	5	5	100	100	1	1
SE93-600X	±20	1300	5	5	100	100	1	1

Glow Voltage at 10mA..... ~60V

Arc Voltage at 1A..... ~10V

Glow to Arc transition Current..... ~0.3A

Weight..... ~1g

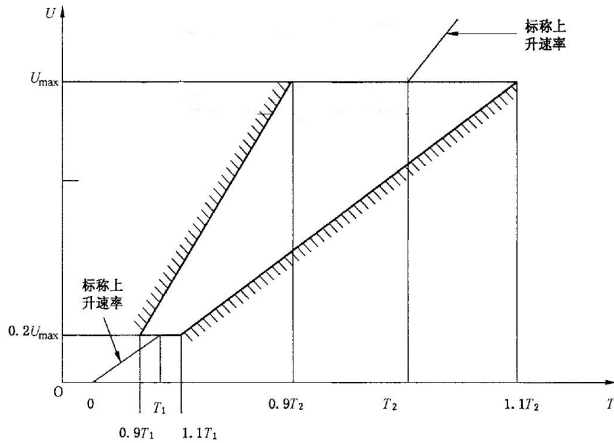
Operation and storage temperature..... -40~90°C

Climatic category (IEC 60068-1)..... 40/90/21

Surface treatment..... Matte-tin plated

Gas Discharge Tubes - SE93 Series

DC breakdown voltage



8/20us, Test wave

$$T1=1.25T=8\mu s \pm 20\%$$

$$T2=20\mu s \pm 20\%$$

10/700us, Test Wave

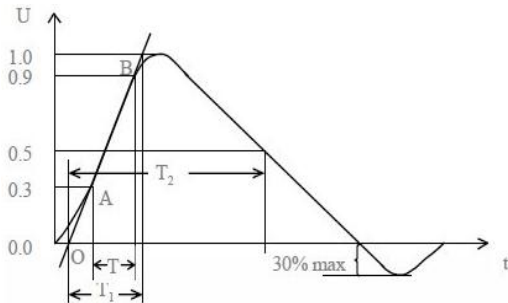
$$T1=1.67T=10\mu s \pm 20\%$$

$$T2=700\mu s \pm 20\%$$

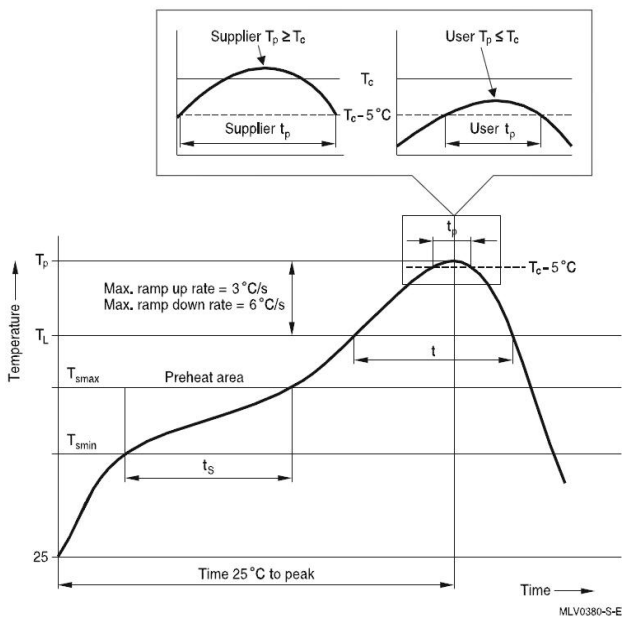
10/1000us, Test Wave

$$T1=1.67T=10\mu s \pm 20\%$$

$$T2=1000\mu s \pm 20\%$$



Recommended wave soldering profile



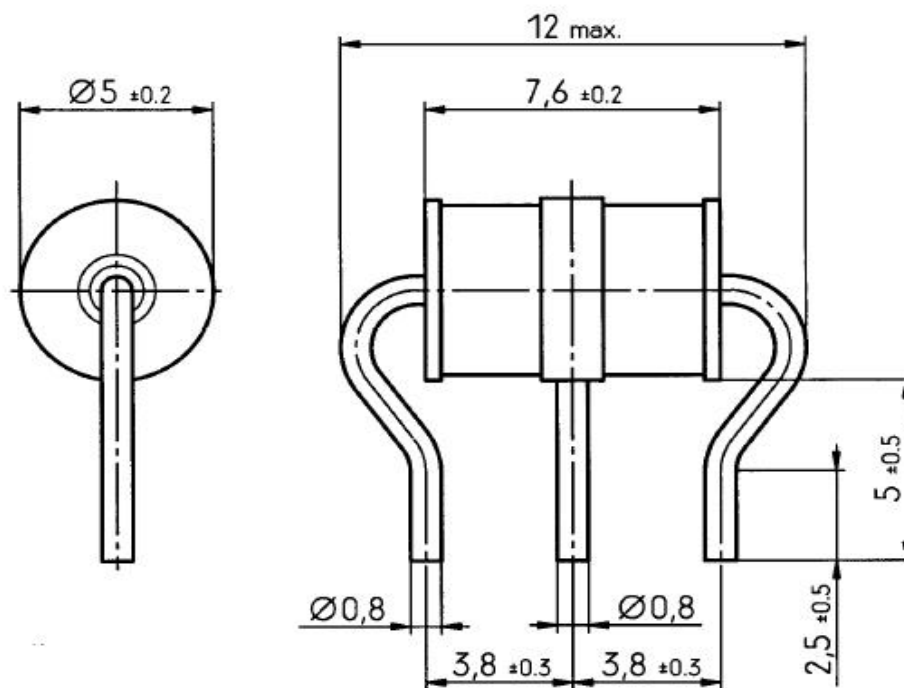
Reflow profile features		Sn-Pb eutectic assembly	Pb-free assembly
Preheat and soak - Temperature min - Temperature max - Time	T_{smin} T_{smax} t_{smin} to t_{smax}	100 °C 150 °C 60 ... 120 s	150 °C 200 °C 60 ... 180 s
Average ramp-up rate	T_{smax} to T_p	max. 3 °C/ s	max. 3 °C/ s
Liquidous temperature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

Gas Discharge Tubes - SE93 Series

- 1) Sampling size in accordance to AQL(C=0)
- 2) DC spark-over voltage $\pm 30\%$ after load
- 3) Tests according to ITU-T Rec. K. 12 and IEC61643-1

Dimensions



Wire tin-plated

Product Name

SE9 **3** - **230X** **F**

Series:

SE8系列：直径8*10
SE9系列：直径5*7.6

LeadType:

0=SMD
3=Thrust

DCLineVoltage:

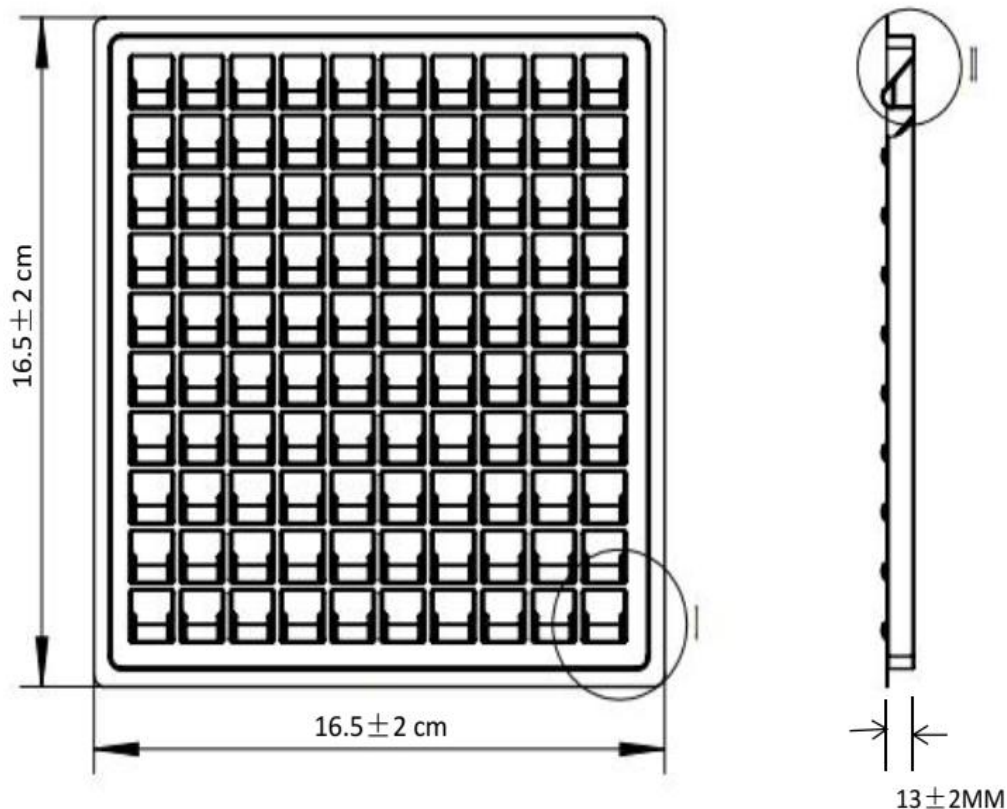
90X=90V
230X=230V

Package:

F=With Fail-Short mechanism

Gas Discharge Tubes - SE93 Series

Packaging



10x10=100

100pcs/box

Cautions and warnings

- Surge arresters must not be operated directly in power supply networks
- Surge arresters may become hot in case of longer periods of current stress (danger of burning).
- If the contacts of the surge arrester are defective, current stress can lead to the formation of sparks and loud noises.
- Surge arresters may be used only within their specified values. In case of overload, the head contacts may fail or the component may be destroyed.
- Damaged surge arresters must not be re-used.

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