

# SURGiNG

紹 鑫 實 業



# Surge Arresters

陶瓷气体放电管

SE3 Series

## Gas Discharge Tubes - SE3 Series

### Features



- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/μs.
- Stable breakdown voltage.
- High insulation resistance.
- Low capacitance ( $\leq 2\text{pF}$ )
- High holdover voltage
- Large absorbing transient current capability.
- Micro-Gap Design
- Size: 6.0mm\*8mm
- Storage and operational temperature:  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Meets MSL level 1, per J-STD-020
- Safety certification: UL: E244458

### Applications

- Repeaters, Modems.
- Telephone Interface, Line cards.
- Data communication equipment.
- Line test equipment

### Part Number Code

**SE3 3 - 230X F**

**Series:**

SE3系列:  $\phi 6*8$   
SE8系列:  $\phi 8*10$

**LeadType:**

0=SMD  
3=Thrust

**DCLineVoltage:**

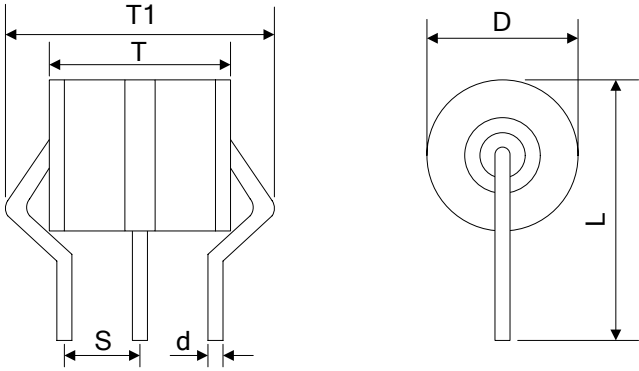
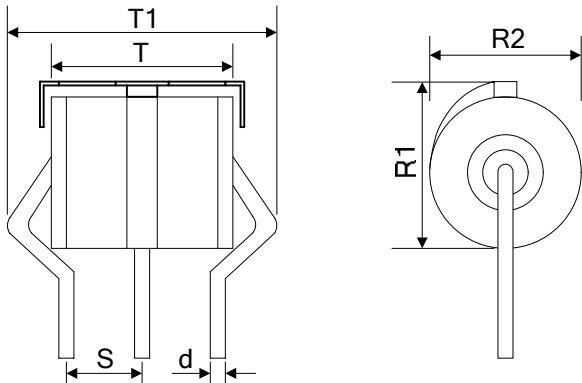
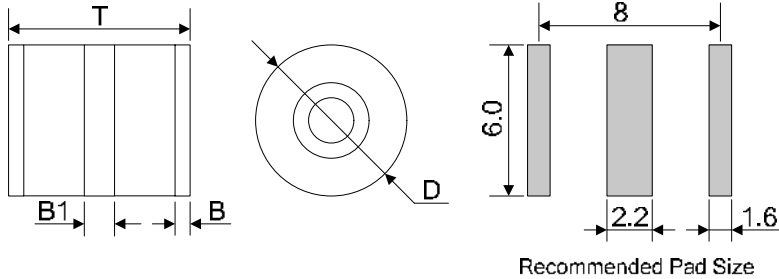
90X=90V  
230X=230V  
102X=1000V

**Package:**

F=With Fail-Short mechanism

## Gas Discharge Tubes - SE3 Series

### Dimensions

33 Type		Dimension (mm)		
		Symbol	Spec.	Tolerance
		D	6.0	+0.2, -0.5
		T	8	±0.5
		T1	15.0	Max.
		L	16.0	Max.
33-F Type		S	3.8	±0.3
		d	0.8	±0.1
		R1	7.8	±0.4
		R2	6.3	±0.3
30 Type		D	6.0	±0.2
		T	8	±0.5
		B	1.0	±0.1
		B1	1.5	±0.2
		Recommended Pad Size	6.0, 8, 2.2, 1.6	

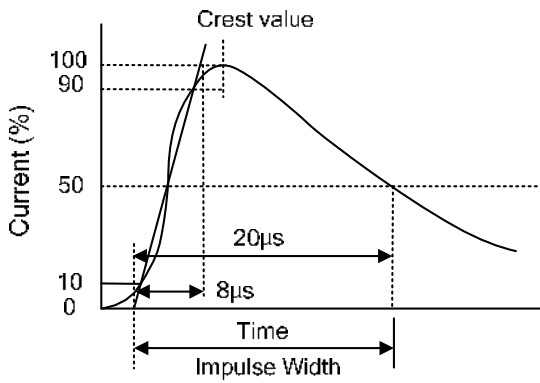
## Gas Discharge Tubes - SE3 Series

### Electrical Characteristics

Part Number		DC Spark-over Voltage	Maximum Impulse Spark-over Voltage	Nominal Impulse Discharge Current	Alternating Discharge Current	Impulse Life	Minimum Insulation Resistance		Maximum Capacitance
		100V/s	1000V/ $\mu$ s	8/20 $\mu$ s 10times	50Hz, 1sec	10/1000 $\mu$ s 100A	Test Voltage	(G $\Omega$ )	1MHz
		(V)	(V)	(KA)	(A)	(times)	DC(V)		(pF)
SE33-75X	SE30-75X	75 $\pm$ 20%	750	5.0	5.0	200	25	1.0	2.0
SE33-90X	SE30-90X	90 $\pm$ 20%	750	5.0	5.0	200	50	1.0	2.0
SE33-100X	SE30-100X	100 $\pm$ 20%	750	5.0	5.0	200	50	1.0	2.0
SE33-110X	SE30-110X	110 $\pm$ 20%	750	5.0	5.0	200	50	1.0	2.0
SE33-150X	SE30-150X	150 $\pm$ 20%	800	5.0	5.0	200	100	1.0	2.0
SE33-230X	SE30-230X	230 $\pm$ 20%	800	5.0	5.0	200	100	1.0	2.0
SE33-250X	SE30-250X	250 $\pm$ 20%	800	5.0	5.0	200	100	1.0	2.0
SE33-300X	SE30-75X	300 $\pm$ 20%	800	5.0	5.0	200	100	1.0	2.0
SE33-350X	SE30-350X	350 $\pm$ 20%	850	5.0	5.0	200	100	1.0	2.0
SE33-470X	SE30-470X	470 $\pm$ 20%	950	5.0	5.0	200	250	1.0	2.0
SE33-600X	SE30-600X	600 $\pm$ 20%	1300	5.0	5.0	200	250	1.0	2.0
SE33-800X	SE30-800X	800 $\pm$ 20%	1500	5.0	5.0	200	250	1.0	2.0

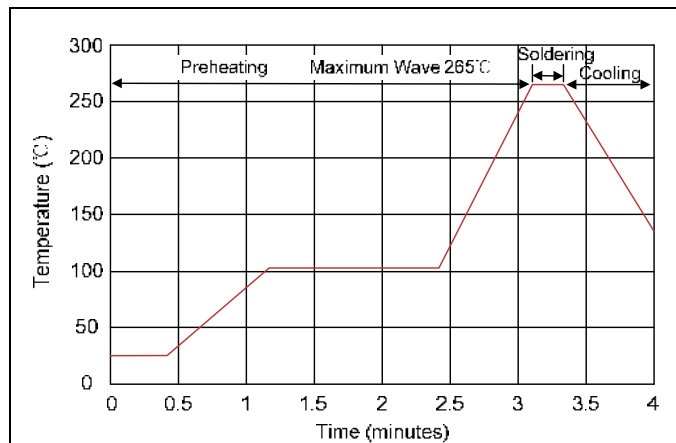
## Gas Discharge Tubes - SE3 Series

### Electrical Ratings

Items	Test Condition/Description	Requirement
DC Spark-over Voltage	The voltage is measured with voltage ramp $dv/dt=100V/s$ . Test is between each side electrode and center electrode.	To meet the specified value
Maximum Impulse Spark-over Voltage	The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$ . Test is between each side electrode and center electrode.	
Impulse Discharge Current	<p>Maximum surge current that can be applied through center electrode with <math>8/20\mu s</math> waveform, for 10 times with 3min interval time, which will be equally divided between each side electrode to center electrode, without causing the DC breakdown voltage to change more than 25% from its initial measured value.</p> 	
Alternating Discharge Current	<p>Rated RMS value of AC current at 50Hz, 1 sec. for 10 times with interval time 3 min. DC spark-over voltage shall not change more than <math>\pm 25\%</math> from its initial value. Test is between each side electrode and center electrode.</p> <p><math>IR &gt; 10^8</math> ohms (-20%, +30% for 70~90V).</p>	
Insulation Resistance	The resistance of gas tube shall be measured between each side electrodes and center electrode.	
Capacitance	<p>The capacitance of gas tube shall be measured between each side electrodes and center electrode.</p> <p>Test frequency: 1MHz</p>	

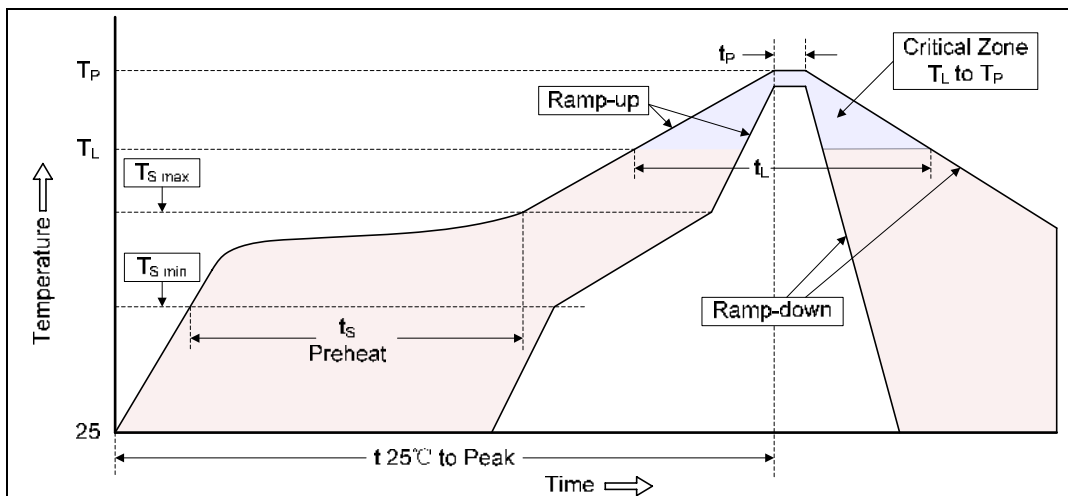
**Recommended Soldering Conditions**

**Wave Soldering**



Item	Conditions
Peak Temperature	265°C
Dipping Time	10 seconds
Soldering	1 time

**Reflow Soldering**

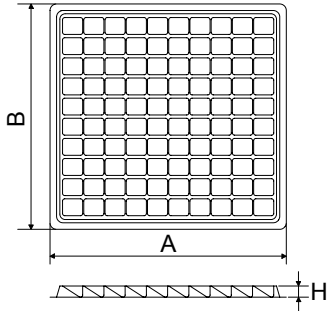
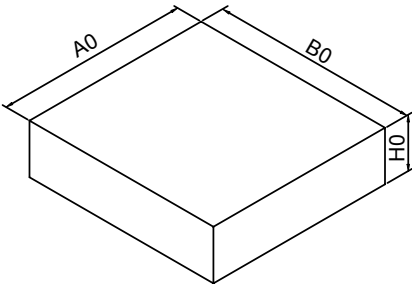


Profile Feature	Pb-Free Assembly
Average ramp-up rate (T <sub>L</sub> to T <sub>P</sub> )	3°C/second max.
Preheat	
-Temperature Min (T <sub>S min</sub> )	150°C
-Temperature Max (T <sub>S max</sub> )	200°C
-Time (min to max) (t <sub>s</sub> )	60-180 seconds
T <sub>S max</sub> to T <sub>L</sub>	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T <sub>L</sub> )	217°C
-Time (t <sub>L</sub> )	60-150 seconds
Peak Temperature (T <sub>P</sub> )	260°C
Time within 5°C of actual Peak Temperature (t <sub>P</sub> )	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

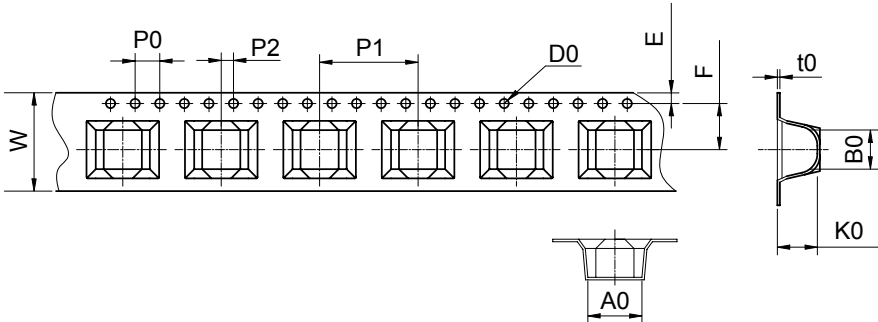
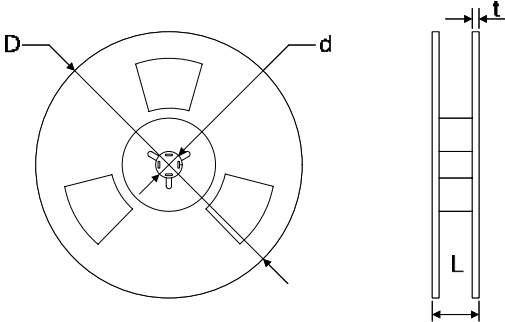
## Gas Discharge Tubes - SE3 Series

### Packaging

#### Axial Packing (Bulk)

Skin packing		Symbol	Dimension (mm)	
			Spec.	Tolerance
		A	217.0	±1.0
		B	207.0	±1.0
		H	10.3	±0.2
Quantity: 100pcs				
Inner box		A0	338.0	±1.0
		B0	336.0	±1.0
		H0	58.0	±1.0
Quantity: 500pcs				

#### SMD Packing (Tape & Reel)

Tape		Symbol	Dimension (mm)	
			Spec.	Tolerance
		W	16.00	±0.20
		P0	4.00	±0.10
		P1	16.00	±0.10
		P2	2.00	±0.10
		D0	1.55	±0.05
		E	1.75	±0.10
		F	7.50	±0.10
		A0	8.80	±0.10
		K0	6.20	±0.10
		B0	6.35	±0.10
		t0	0.50	±0.05
Reel		D	330.00	±1.00
		d	13.00	±0.50
		L	20.00	±0.50
		t	2.00	±0.20
Quantity: 600pcs				

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