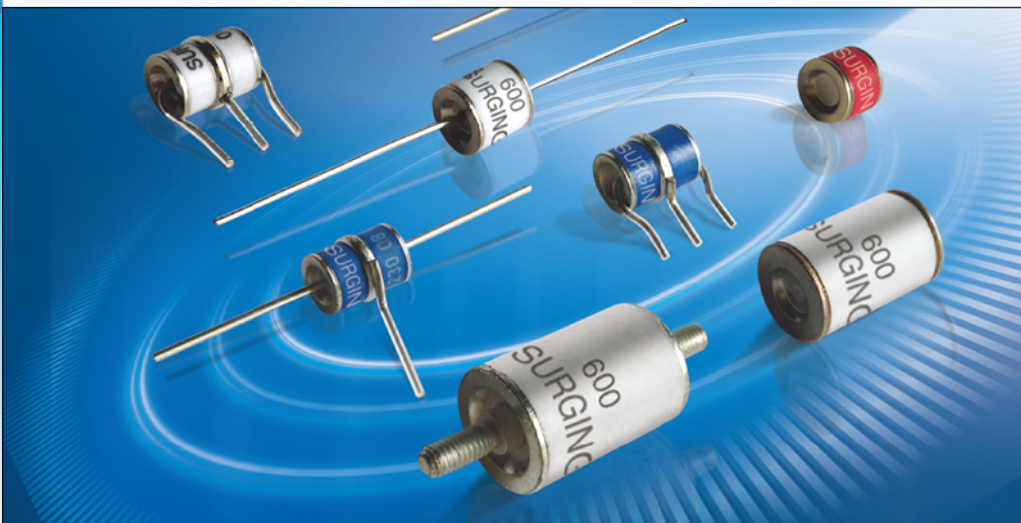


# SURGiNG

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:**

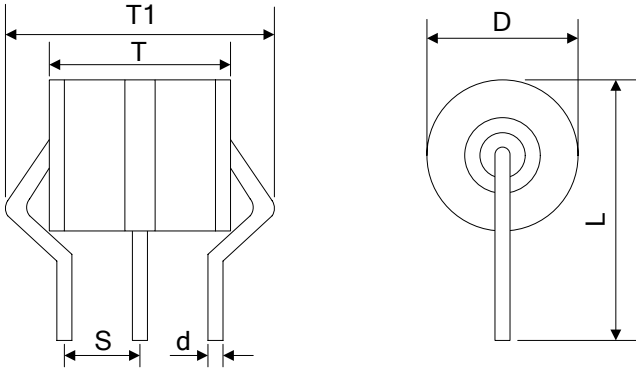
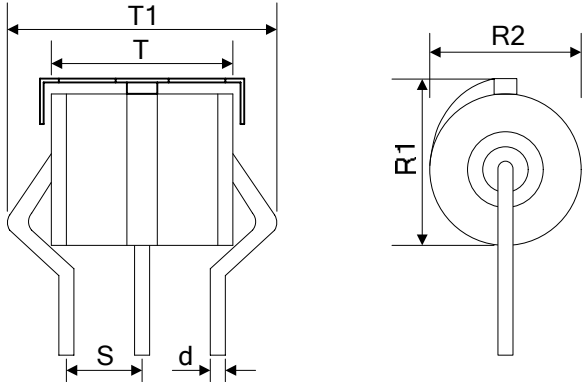
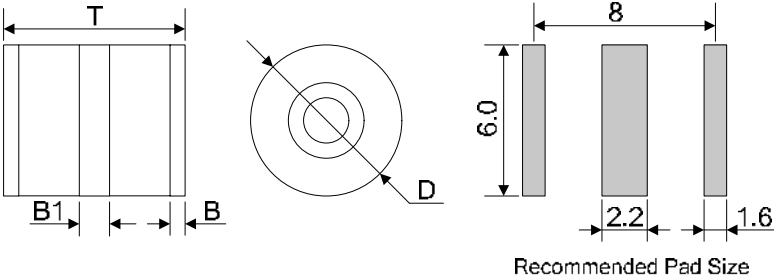
90X=90V  
230X=230V  
102X=1000V

**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		

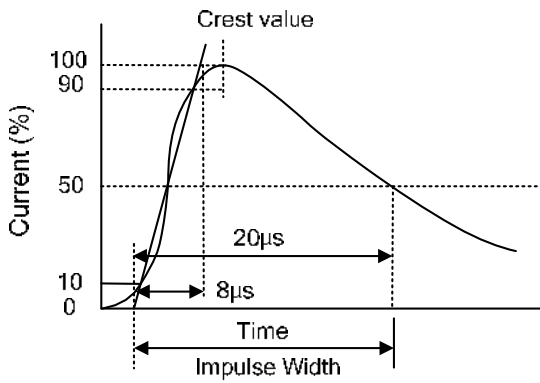
## Gas Discharge Tubes - SE3 Series

### 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	10	5.0	200	25	1.0	2.0
SE33-90X	SE30-90X	90 $\pm$ 20%	750	10	5.0	200	50	1.0	2.0
SE33-100X	SE30-100X	100 $\pm$ 20%	750	10	5.0	200	50	1.0	2.0
SE33-110X	SE30-110X	110 $\pm$ 20%	750	10	5.0	200	50	1.0	2.0
SE33-150X	SE30-150X	150 $\pm$ 20%	800	10	5.0	200	100	1.0	2.0
SE33-230X	SE30-230X	230 $\pm$ 20%	800	10	5.0	200	100	1.0	2.0
SE33-250X	SE30-250X	250 $\pm$ 20%	800	10	5.0	200	100	1.0	2.0
SE33-300X	SE30-75X	300 $\pm$ 20%	800	10	5.0	200	100	1.0	2.0
SE33-350X	SE30-350X	350 $\pm$ 20%	850	10	5.0	200	100	1.0	2.0
SE33-470X	SE30-470X	470 $\pm$ 20%	950	10	5.0	200	250	1.0	2.0
SE33-600X	SE30-600X	600 $\pm$ 20%	1300	10	5.0	200	250	1.0	2.0
SE33-800X	SE30-800X	800 $\pm$ 20%	1500	10	5.0	200	250	1.0	2.0

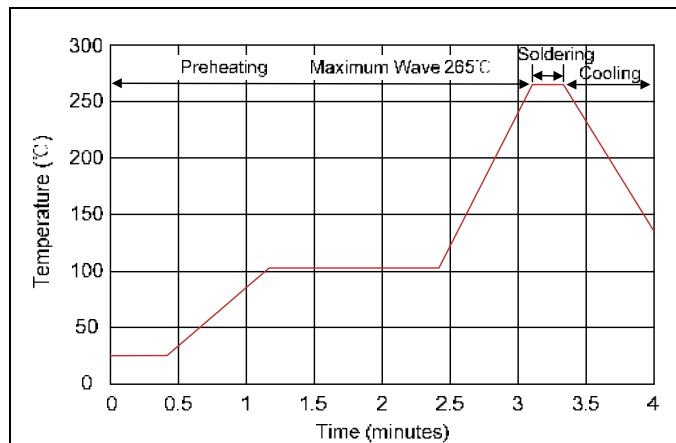
## Gas Discharge Tubes - SE3 Series

### 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>  <p>The graph shows a current waveform starting at 0% at time 0. It rises to a crest value of 100% within 8µs. The current then decays, crossing 50% at 20µs. The total duration of the impulse is labeled as 'Impulse Width'.</p>	
Alternating Discharge Current	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 $\pm 25\%$ from its initial value. Test is between each side electrode and center electrode. $IR > 10^8$ ohms (-20%, +30% for 70~90V).	
Insulation Resistance	The resistance of gas tube shall be measured between each side electrodes and center electrode.	
Capacitance	The capacitance of gas tube shall be measured between each side electrodes and center electrode. Test frequency: 1MHz	

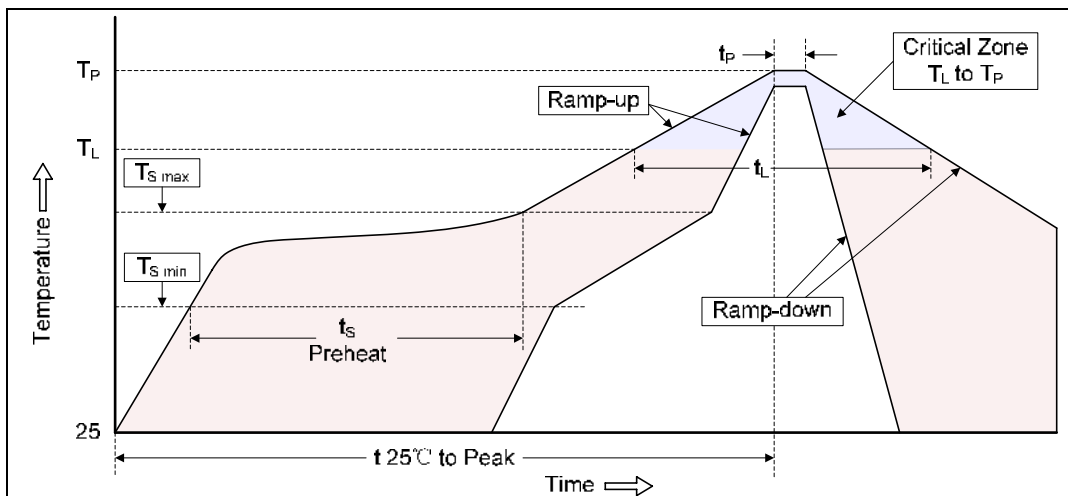
**Recommended Soldering Conditions**

**Wave Soldering**



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

**Reflow Soldering**

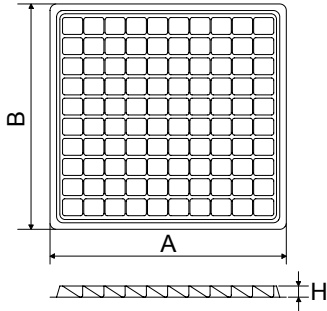
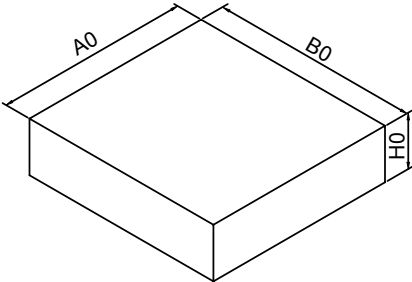


Profile Feature	Pb-Free Assembly
Average ramp-up rate (TL to TP)	3°C/second max.
Preheat	
-Temperature Min (TSmin)	150°C
-Temperature Max (TSmax)	200°C
-Time (min to max) (ts)	60-180 seconds
TSmax to TL	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (TL)	217°C
-Time (tL)	60-150 seconds
Peak Temperature (TP)	260°C
Time within 5°C of actual Peak Temperature (tp)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

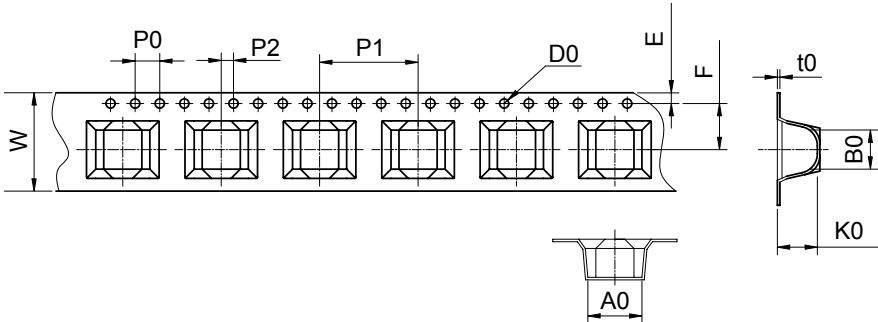
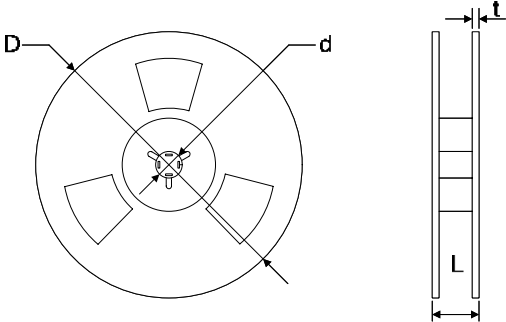
## Gas Discharge Tubes - SE3 Series

### 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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