

# SURGiNG

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# SurgeArresters

陶瓷气体放电管

SMB Series

## Gas Discharge Tubes - SMB Series



Gas discharge tubes (GDT) use noble gasses enclosed in ceramic tubes to provide an alternate circuit path for voltage spikes. The ceramic envelope and with nickel connectors allow for high loads and Ruilon offers products that function at 20KA,40KA,50KA,60KA,100KA&150KA. The breakdown voltages of the devices have a wide range (up to 20% tolerance). Major applications are high frequency telecommunication lines, stations, security systems, HID and high quality Surge Protection Devices (SPD).

### Features

- RoHS & HF compliant
- Size: 3.2mm\*1.6mm
- DC Spark-over voltage: 75~600V
- Stable breakdown voltage.
- High insulation resistance.
- High holdover voltage.
- Large absorbing transient current capability.
- Low Capacitance
- Micro-Gap Design

### Recommended Applications

- Communication equipment
- CATV equipment
- Test equipment
- Data lines
- Power supplies
- Telecom SLIC protection
- Telecommunications

### Product Name

# SMB 230XM

#### Sries:

SMB系列: 3216=1206(3.2\*1.6\*1.6)  
SMD系列: 4532=1812(4.5\*3.2\*2.7)

#### DCLineVoltage:

90X=90V  
230X=230V

## Gas Discharge Tubes - SMB Series

### Electrical Characteristics

Type Number	DC Spark-over Voltage	Impulse Spark-over Voltage	Impulse Discharge Current		AC Discharge Current	DC Holdover Voltage	Minimum Insulation Resistance	Maximum Capacitance
	100V/s	1KV/ $\mu$ s	10/1000 $\mu$ s 100A	8/20 $\mu$ s 10Times	1s 5Times			@1MHz
	V	V	Times	kA	A			pF
SMB70XM	70 $\pm$ 30%	<600	50	0.5	0.5	25	0.1	0.5
SMB75XM	75 $\pm$ 30%	<600	50	0.5	0.5	25	0.1	0.5
SMB90XM	90 $\pm$ 30%	<600	50	0.5	0.5	50	0.1	0.5
SMB150XM	150 $\pm$ 30%	<700	50	0.5	0.5	50	0.1	0.5
SMB200XM	200 $\pm$ 30%	<750	50	0.5	0.5	100	0.1	0.5
SMB230XM	230 $\pm$ 30%	<750	50	0.5	0.5	100	0.1	0.5
SMB300XM	300 $\pm$ 30%	<800	50	0.5	0.5	100	0.1	0.5
SMB350XM	350 $\pm$ 30%	<850	50	0.5	0.5	100	0.1	0.5
SMB400XM	400 $\pm$ 30%	<950	50	0.5	0.5	100	0.1	0.5
SMB420XM	420 $\pm$ 30%	<950	50	0.5	0.5	100	0.1	0.5
SMB470XM	470 $\pm$ 30%	<1050	50	0.5	0.5	100	0.1	0.5

### Electrical Ratings

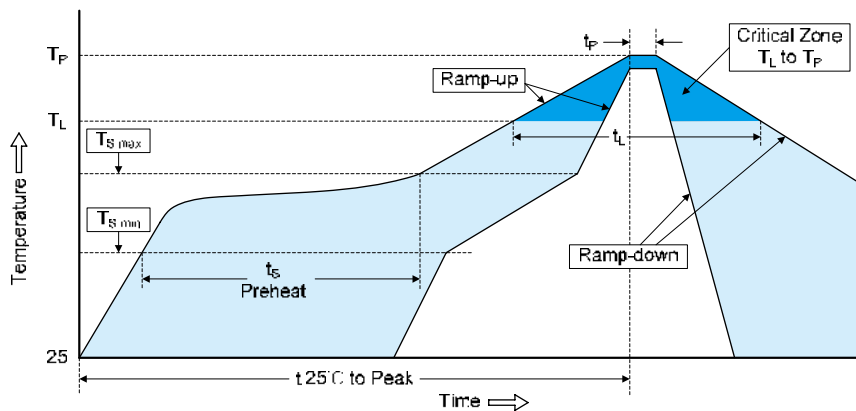
Items	Test Condition/Description	Requirement
DC Spark-over Voltage	The voltage is measured with voltage ramp $dv/dt=100V/s$ .	To meet the specified value
Maximum Impulse Spark-over Voltage	The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$ .	
Insulation Resistance	The resistance of gas tube shall be measured between two electrodes.	
Capacitance	The capacitance of gas tube shall be measured between two electrodes. Test frequency: 1MHz	
Impulse Discharge Current	Maximum 8/20 $\mu s$ surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval time, without causing the DC spark-over voltage to change more than 30% from its initial value.	
Impulse Withstanding Voltage	The maximum 10/700 $\mu s$ surge that can be applied to the Gas Tube, 5 positive and 5 negative surges, with 1 minute interval time, without causing the DC spark-over voltage to change more than 25% from its initial value.	

## Gas Discharge Tubes - SMB Series

### Electrical Ratings

Items	Test conditions / Methods	Standard
Cold Resistance	Measurement after -40 °C /1000 HRS & normal temperature/2 HRS.	Features are conformed to rated spec.
Hot Resistance	Measurement after 125°C /1000 HRS & normal temperature/2 HRS.	
Insulation Resistance	Measurement after humidity 90~95°C (45°C ) /1000 HRS & normal temperature/2 HRS.	
Capacitance	10 times repetition of cycle -40°C /30min →normal, temp/2 min →125°C /30min, measurement after normal temp/2 HRS.	
Impulse Discharge Current	Apply flux and immerse in molten solder 230±5°C for 3sec up to the point of 1.5mm from body. Check for solder adhesion.	Lead wire is evenly covered by solder.
Impulse Withstanding Voltage	Measurement after lead wire is dipped up to the point of 1.5mm from body into 260±5°C solder for 10sec.	Conformed to rated spec.

### Recommended Soldering Conditions

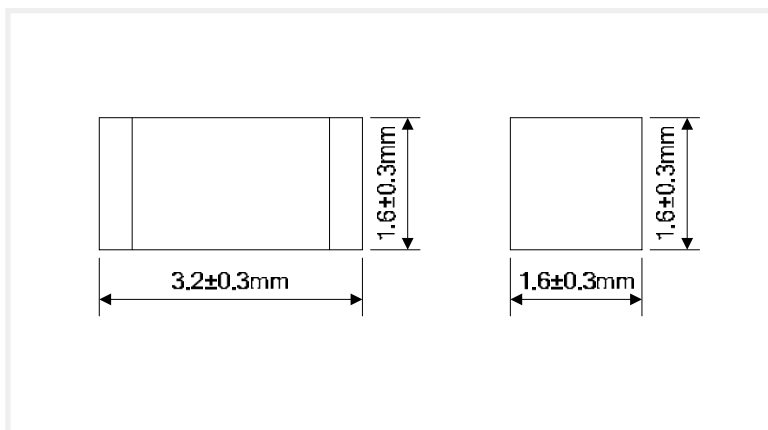


Profile Feature	Pb-Free Assembly
Average ramp-up rate (T <sub>L</sub> to T <sub>P</sub> )	3°C/second max.
Preheat	
-Temperature Min (T <sub>S min</sub> )	150°C
-Temperature Max (T <sub>S max</sub> )	200°C
-Time (min to max) (t <sub>s</sub> )	60-180 seconds
T <sub>S max</sub> to T <sub>L</sub>	
-Ramp-up 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.

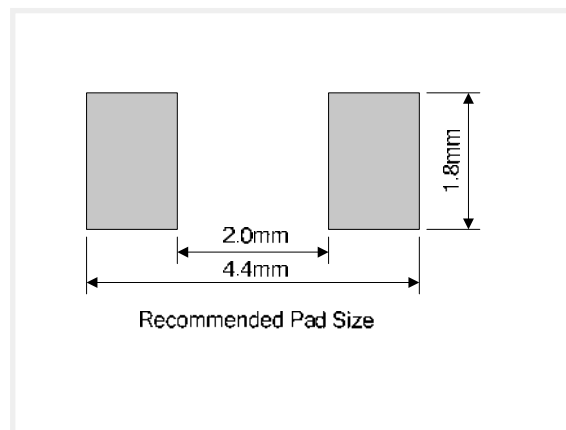
## Gas Discharge Tubes - SMB Series

### Product size (Unit:mm)

#### Dimension

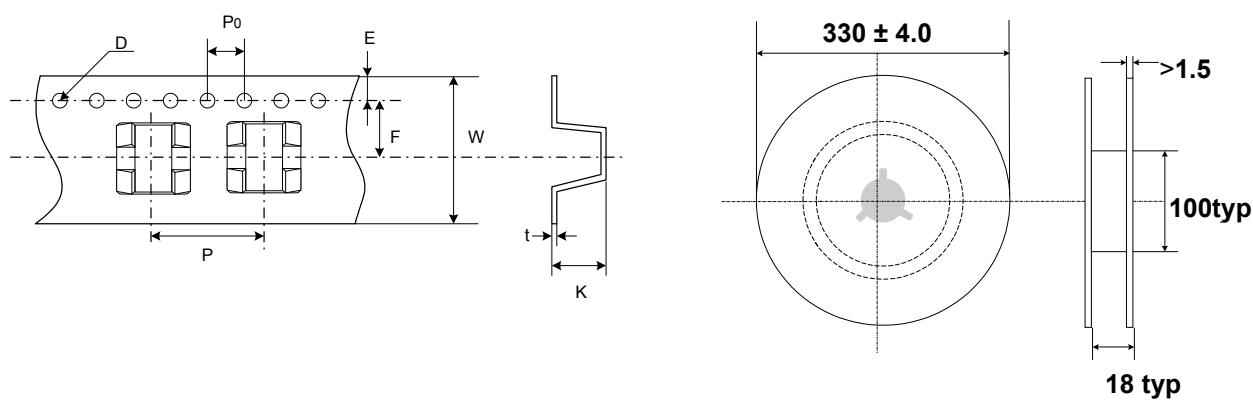


#### Recommended Pad Size



### Packaging Taping

Unit:mm



Item	P	PO	W	F	E	D	K	t
Spec.	8.0	4.0	12.0	5.45	1.75	Φ1.55	2.0	0.3
Tolerance	±0.1	±0.1	±0.3	±0.1	±0.1	±0.05	±0.1	±0.05

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