

## 2-Electrode Gas Discharge Tube (GDT)

### SC2E8 Series

#### Description

Gas discharge Tubes (GDT) are classical components for protecting the installations of the telecommunications. It is essential that IT and telecommunications systems -with their high-grade but sensitive electronic circuits - be protected by arresters. They are thus fitted at the input of the power supply system together with varistors and at the connection points to telecommunication lines. They have become equally indispensable for protecting base stations in mobile telephone systems as well as extensive cable television (CATV) networks with their repeaters and distribution systems.

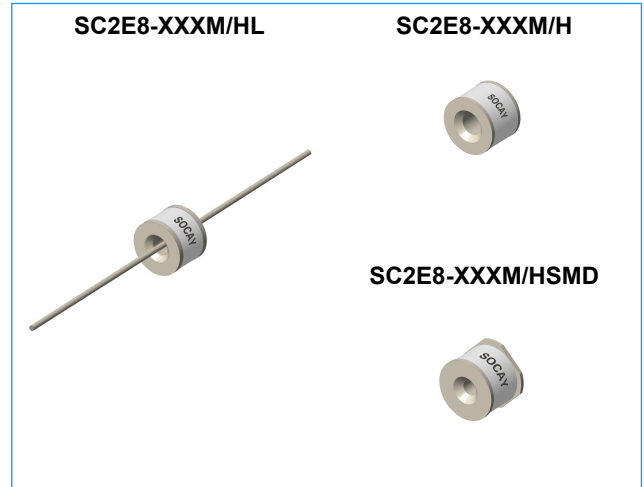
These protective components are also indispensable in other sectors, In AC power transmission systems, they are often used with current-limiting varistors, In customer premises equipment such as DSL modems, WLAN routers, TV sets and cable modems In air-conditioning equipment, the integral black-box concept offers graduated protection by combining arresters with varistors, PTC, diodes and inductor.

#### Features

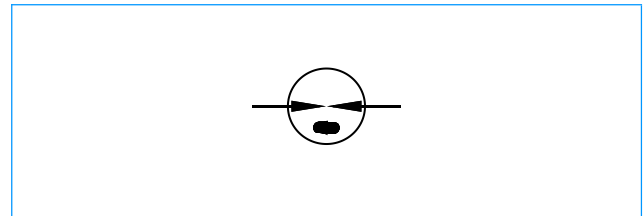
- ◆ Non-Radioactive
- ◆ RoHS compliant
- ◆ High insulation resistance
- ◆ Excellent response to fast rising transients
- ◆ Ultra low capacitance
- ◆ 10~20KA surge capability tested with 8/20µs pulse as defined by IEC 61000-4-5

#### Applications


- ◆ Communication lines and equipment
- ◆ CATV equipment
- ◆ Test equipment
- ◆ Data lines
- ◆ Power supplies
- ◆ Instrumentation circuits
- ◆ Medical electronics
- ◆ ADSL equipment
- ◆ Telecom SLIC protection



#### Schematic Symbol



#### Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E341061

#### Product Characteristics

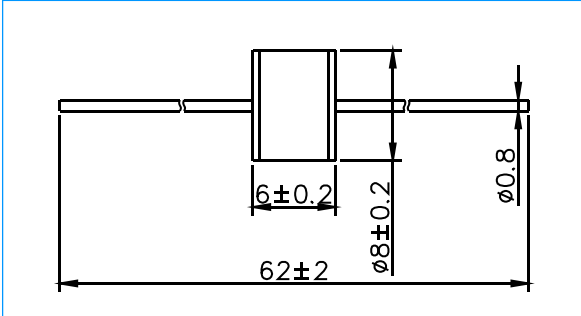
<b>Materials</b>	<b>Leaded Device:</b> Nickel-plated with Tinned wires <b>Surface Mount:</b> Dull Tin-plated	
<b>Product Marking</b>	<b>SOCAY XXXM/H</b> XXX -Nominal voltage M - 10KA H - 20KA	
<b>Glow to Arc Transition Current</b>	< 0.5 Amps	
<b>Glow Voltage</b>	~60 Volts	
<b>Storage and Operational Temperature</b>	-40 to +90°C	
<b>Weight</b>	<b>SC2E8-XXXML</b>	~1.5g
	<b>SC2E8-XXXHL</b>	~1.6g
	<b>SC2E8-XXXM/H</b>	~1.35g
	<b>SC2E8-XXXM/HSMD</b>	~1.5g
<b>Climatic category (IEC 60068-1)</b>	40/ 90/ 21	

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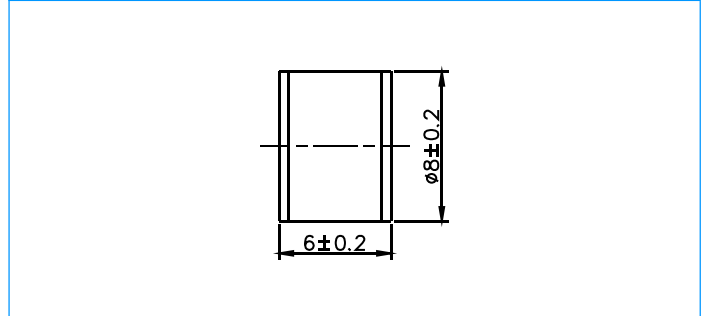
### SC2E8 Series

#### Dimensions (Unit: mm)

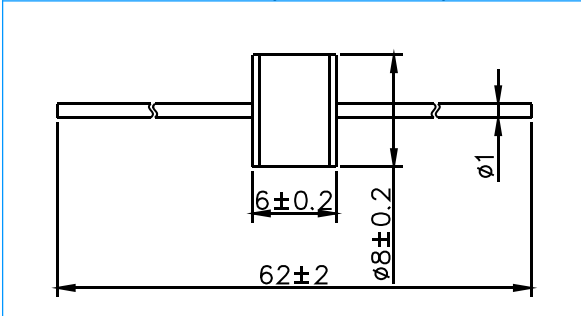
##### Axial Leaded Devices (SC2E8-XXXML)



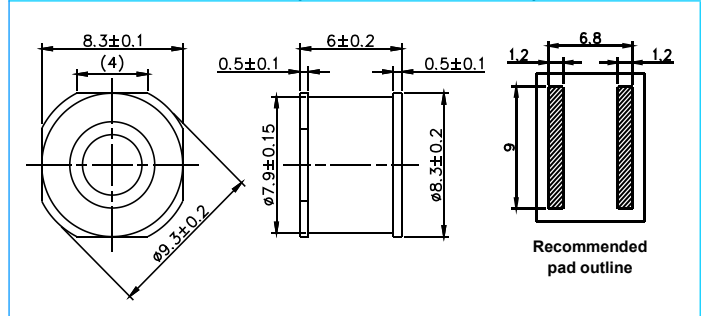
##### Without wire Devices (SC2E8-XXXM/H)



##### Axial Leaded Devices (SC2E8-XXXHL)



##### Surface Mount Devices (SC2E8-XXXM/HSMD)



#### Electrical Characteristics

Part Number	Marking	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage		Minimum Insulation Resistance	Maximum Capacitance	Arc Voltage	Service Life				
			@100V/S	@100V/µs				@1KV/µs	Nominal Impulse Discharge Current	Max Impulse Discharge Current	Nominal Impulse Discharge Current	Impulse Life
SC2E8-75M SC2E8-75ML SC2E8-75MSMD	SOCAY 75M	75V±20%	<500V	<600V	1 GΩ (at 25V)	<1.5pF	~15V	10KA	20KA	10A	100A	
SC2E8-90M SC2E8-90ML SC2E8-90MSMD	SOCAY 90M	90V±20%	<500V	<600V	1 GΩ (at 50V)	<1.5pF	~15V	10KA	20KA	10A	100A	
SC2E8-150M SC2E8-150ML SC2E8-150MSMD	SOCAY 150M	150V±20%	<500V	<600V	1 GΩ (at 50V)	<1.5pF	~20V	10KA	20KA	10A	100A	
SC2E8-230M SC2E8-230ML SC2E8-230MSMD	SOCAY 230M	230V±20%	<600V	<700V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A	
SC2E8-250M SC2E8-250ML SC2E8-250MSMD	SOCAY 250M	250V±20%	<700V	<800V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A	
SC2E8-300M SC2E8-300ML SC2E8-300MSMD	SOCAY 300M	300V±20%	<800V	<900V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A	
SC2E8-350M SC2E8-350ML SC2E8-350MSMD	SOCAY 350M	350V±20%	<800V	<900V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A	

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#### Electrical Characteristics (Continue)

Part Number	Marking	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage		Minimum Insulation Resistance	Maximum Capacitance	Arc Voltage	Service Life			
			@100V/μs	@1KV/μs				Nominal Impulse Discharge Current	Max Impulse Discharge Current	Nominal Impulse Discharge Current	Impulse Life
			@100V/S	@1KV/μs				@8/20μs ±5 times	@8/20μs 1 time	@50Hz 1 Sec 10 times	@10/1000μs 300 times
SC2E8-420M SC2E8-420ML SC2E8-420MSMD	SOCAY 420M	420V±20%	<900V	<1000V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A
SC2E8-470M SC2E8-470ML SC2E8-470MSMD	SOCAY 470M	470V±20%	<900V	<1000V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A
SC2E8-600M SC2E8-600ML SC2E8-600MSMD	SOCAY 600M	600V±20%	<1100V	<1200V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A
SC2E8-800M SC2E8-800ML SC2E8-800MSMD	SOCAY 800M	800V±20%	<1200V	<1400V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	100A
SC2E8-75H SC2E8-75HL SC2E8-75HSMD	SOCAY 75H	75V±20%	<500V	<600V	1 GΩ (at 25V)	<1.5pF	~15V	20KA	25KA	20A	200A
SC2E8-90H SC2E8-90HL SC2E8-90HSMD	SOCAY 90H	90V±20%	<500V	<600V	1 GΩ (at 50V)	<1.5pF	~15V	20KA	25KA	20A	200A
SC2E8-150H SC2E8-150HL SC2E8-150HSMD	SOCAY 150H	150V±20%	<500V	<600V	1 GΩ (at 50V)	<1.5pF	~20V	20KA	25KA	20A	200A
SC2E8-230H SC2E8-230HL SC2E8-230HSMD	SOCAY 230H	230V±20%	<600V	<700V	1 GΩ (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
SC2E8-250H SC2E8-250HL SC2E8-250HSMD	SOCAY 250H	250V±20%	<700V	<800V	1 GΩ (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
SC2E8-300H SC2E8-300HL SC2E8-300HSMD	SOCAY 300H	300V±20%	<800V	<900V	1 GΩ (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
SC2E8-350H SC2E8-350HL SC2E8-350HSMD	SOCAY 350H	350V±20%	<800V	<900V	1 GΩ (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
SC2E8-420H SC2E8-420HL SC2E8-420HSMD	SOCAY 420H	420V±20%	<900V	<1000V	1 GΩ (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
SC2E8-470H SC2E8-470HL SC2E8-470HSMD	SOCAY 470H	470V±20%	<900V	<1000V	1 GΩ (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
SC2E8-600H SC2E8-600HL SC2E8-600HSMD	SOCAY 600H	600V±20%	<1100V	<1200V	1 GΩ (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A
SC2E8-800H SC2E8-800HL SC2E8-800HSMD	SOCAY 800H	800V±20%	<1200V	<1400V	1 GΩ (at 100V)	<1.5pF	~20V	20KA	25KA	20A	200A

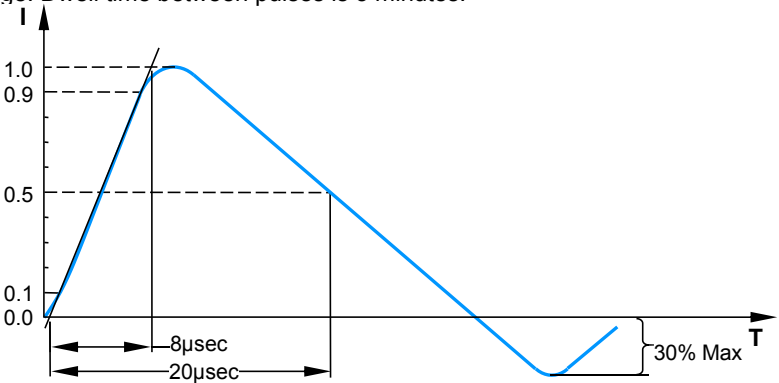
**Notes:**

- 1). Terms in accordance with ITU-T K.12 and GB/T 9043-2008
- 2). At delivery AQL 0.65 level II, DIN ISO 2859

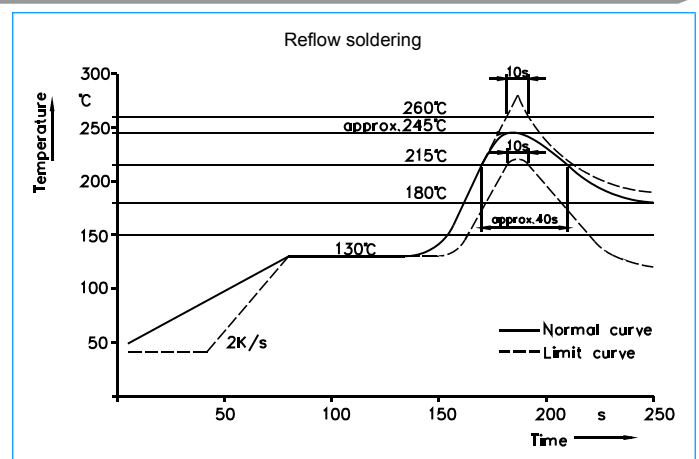
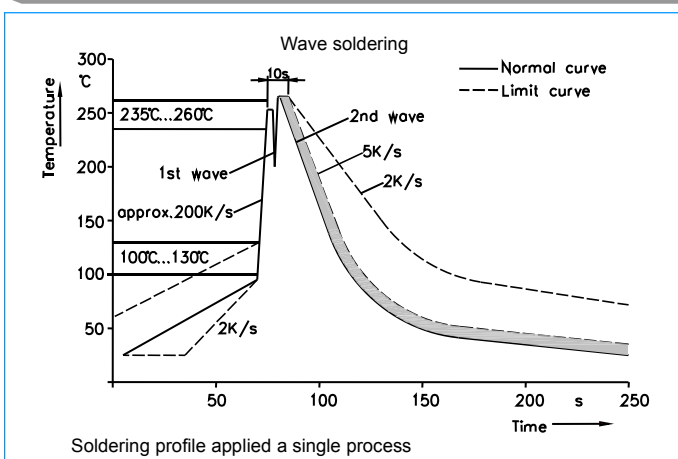
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### SC2E8 Series

#### Electrical Rating

Item	Test Condition / Description	Requirement
<b>DC Spark-over Voltage</b>	The voltage is measured with a slowly rate of rise $dv / dt=100V/s$	To meet the specified value
<b>Impulse Spark-over Voltage</b>	The maximum impulse spark-over voltage is measured with a rise time of $dv / dt=100V/\mu s$ or $1KV/\mu s$	
<b>Insulation Resistance</b>	The resistance of gas tube shall be measured each terminal each other terminal, please see above spec.	
<b>Capacitance</b>	The capacitance of gas tube shall be measured each terminal to each other terminal. Test frequency :1MHz	
<b>Nominal Impulse Discharge Current</b>	The maximum current applying a waveform of $8/20\mu s$ that can be applied across the terminals of the gas tube. One hour after the test is completed, re-testing of the DC spark-over voltage does not exceed $\pm 30\%$ of the nominal DC spark-over voltage. Dwell time between pulses is 3 minutes. 	
<b>Nominal Alternating Discharge Current</b>	Rated RMS value of AC current at 50Hz, 1 sec. 10 times. Intervals: 3min. The DC spark-over voltage does not exceed $\pm 30\%$ of the nominal DC spark-over voltage. $IR > 10^8\text{ohms}$ .	

#### Recommended Soldering Profile



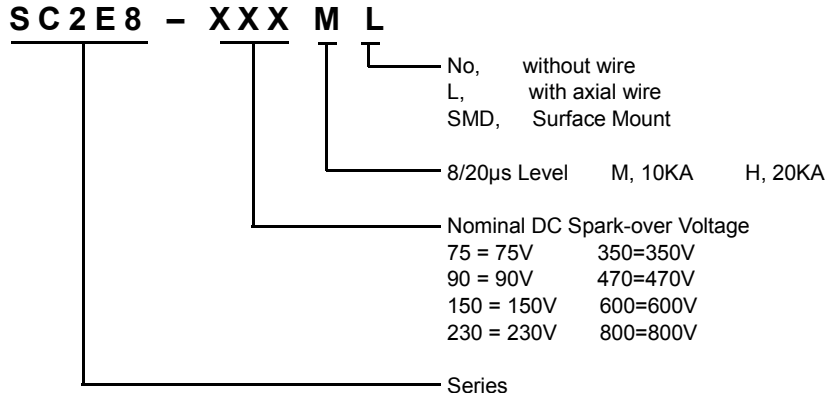
#### Soldering Parameters - Hand Soldering

Solder Iron Temperature:  $350^{\circ}C \pm 5^{\circ}C$   
Heating Time: 5 seconds max.

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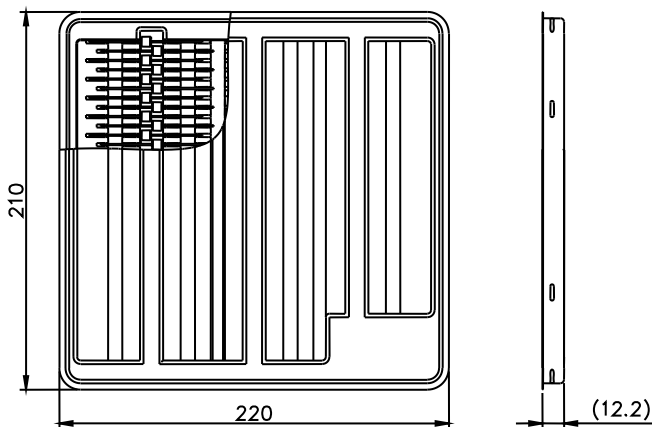
#### Part Numbering



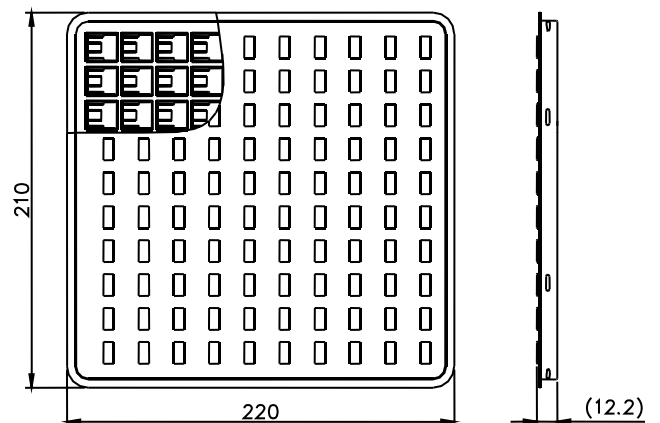
#### Packaging Information

Part Number	Description	Quantity
SC2E8-XXXM / SC2E8XXXH	100PCS per Tray, 10 Trays / Inner Carton	1000 PCS
SC2E8-XXXML / SC2E8XXXHL	100PCS per Tray, 10 Trays / Inner Carton	1000 PCS
SC2E8-XXXMSMD / SC2E8XXXHSMD	100PCS per Tray, 10 Trays / Inner Carton	1000 PCS
	Tape & Reel -16mm tape/13"Reel	500 PCS

Tray used in SC2E8-XXXML / SC2E8-XXXHL



Tray used in SC2E8-XXXM / SC2E8-XXXH / SC2E8-XXXSMD

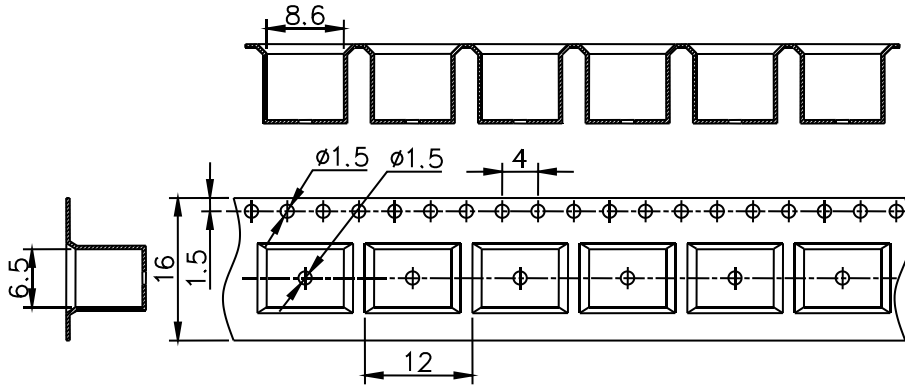


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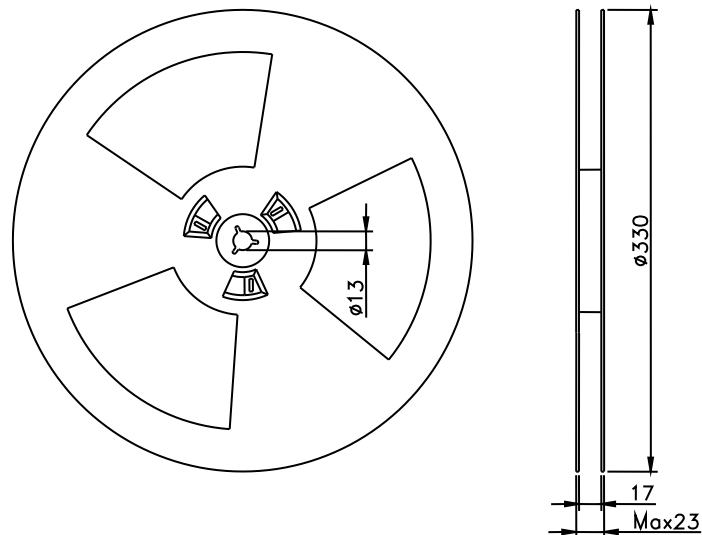
### SC2E8 Series

#### Tape and Reel Dimensions (Unit: mm)

Tape Used in SC2E8-XXXMSMD /SC2E8-XXXHSMD



Reel



#### Cautions and Warnings

- ◆ Gas discharge tubes (GDT) must not be operated directly in power supply networks.
- ◆ Gas discharge tubes (GDT) may become hot in case of longer periods of current stress (danger of burning).
- ◆ Gas discharge tubes (GDT) may be used only within their specified values. In the event of overload, the head contacts may fail or the component may be destroyed.
- ◆ Damaged Gas discharge tubes (GDT) must not be re-used.