Lightning Arrester Axial Leaded Ceramic Gas Discharge Tube 600V SC2E8-600ML GDT Electronic Component

Our Product Introduction

Basic Information

- Place of Origin: Shenzhen, Guangdong, China
- Brand Name: SOCAY
- Certification: UL,REACH,RoHS,ISO
- Model Number: SC2E8-600ML
- Minimum Order Quantity: 1000PCS
- Price: Negotiable
- Delivery Time: 5-8 work days

Product Specification

- Other Name: Arrester Tube
- Length: φ8*6mm
- DC Spark-over Voltage @100V/μs: 600V±20%
- Max. Spark-over Impulse Voltage @100V/μs: 1100V
- Max. Spark-over Impulse Voltage @1KV/μs: 1200V
- Min. Insulation Resistance: 1GΩ (@100V)
- Nom. Impulse Discharge Current: 10KA
- Max. Impulse Discharge Current: 20KA
- Storage Temperature: -40°C~+90°C
- Mounting Type: THT
- Highlight: **Gas Discharge Tube 600V**, **Axial Leaded Gas Discharge Tube**,

Product Description

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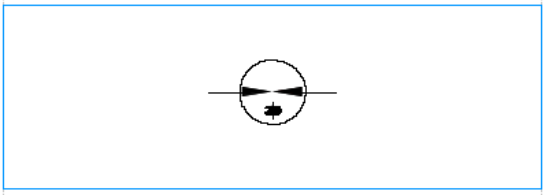
DATASHEET: SC2E8_v91.1.pdf

Working principle of ceramic gas discharge tube
Ceramic gas discharge tubes are sealed with ceramics, and are composed of two or more metal electrodes with gaps inside, filled with inert gases argon and neon. Generally, they are connected in parallel on the circuit. When the device does not operate, the resistance is very high and the equivalent capacitance is low. It can be regarded as an open circuit and has almost no impact on the circuit. When there is an abnormal pulse, the internal resistance drops instantly after reaching the operating voltage value, and the current is released. When the abnormal high voltage disappears, it will automatically return to the high resistance state and the circuit will operate normally.

Part Number	Marking	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage		Minimum Insulation Resistance	Maximum Capacitance	Arc Voltage	Service Life			
								Nominal Impulse Discharge Current	Max Impulse Discharge Current	Nominal Impulse Discharge Current	Impulse Life
		@100V/S	@100V/μs	@1KV/μs		@1MHz	@1A	@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	SOCAY600M	600V ±20%	1100V	1200V	1 GΩ (at 100V)	1.5pF	~20V	10KA	20KA	10A	100A
SC2E8-800M SC2E8-800ML SC2E8-800MSMD	SOCAY800M	800V ±20%	1200V	1400V	1 GΩ (at 100V)	1.5pF	~20V	10KA	20KA	10A	100A

Schematic Symbol

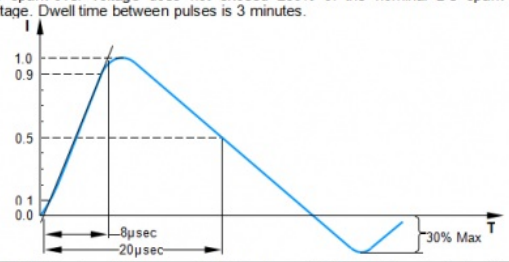


Advantages of ceramic gas discharge tubes:
1. Before breakdown (conduction), it is equivalent to an open circuit, with a large resistance and no or very small leakage current;
2. After breakdown (conduction), it is equivalent to a short circuit, which can pass a large current with a very small voltage drop;
3. The pulse current capacity (peak current) is very large; 2.5kA~100kA;
4. It has two-way symmetry characteristics.
5. The capacitance value is very small, less than 3pF.
Disadvantages of ceramic gas discharge tubes:
1. Since gas ionization requires a certain amount of time, the response speed is slow. The response time is generally 0.2~0.3μs (200~300ns), and the fastest is about 0.1μs (100ns). Before it is turned on, there will be a Sharp pulses with larger amplitudes leak through and have no protective effect;
2. The breakdown voltage has poor consistency and large dispersion, generally ±20%;
3. The breakdown voltage has only a few specific values;

Product Characteristics

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

Electrical Rating

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

Selection of ceramic gas discharge tubes:

1. Under rapid pulse impact, it takes a certain time for the gas ionization of the ceramic gas discharge tube (generally 0.2~0.3μ s, the fastest is about 0.1μ s), so a sharp pulse with a higher amplitude will leak to the back go. To suppress this sharp pulse, there are several methods: a. Connect a capacitor or varistor in parallel to the discharge tube; b. Connect an inductor in series after the discharge tube or leave a transmission line of appropriate length to attenuate the sharp pulse to a lower value. Level; c. Adopt a two-level protection circuit, with the discharge tube as the first level and the TVS tube or semiconductor overvoltage protector as the second level. The two levels are isolated by resistors, inductors or self-restoring fuses.
2. Selection of DC breakdown voltage Vsdc: The minimum value of DC breakdown voltage Vsdc should be greater than 1.2 times the highest possible power supply peak voltage or the highest signal voltage.
3. Selection of impulse discharge current: The selection should be based on the maximum surge current that may appear on the line or the maximum surge current that needs protection. The impulse discharge current of the discharge tube should be calculated according to the nominal impulse discharge current (or half of the single impulse discharge current).
4. Ceramic gas discharge tubes are generally not used in parallel due to the large error in breakdown voltage.
5. After current problem: In order to ensure that the discharge tube can normally extinguish the arc after impact breakdown, in places where after current is likely to occur (such as in active circuits), a varistor or a self-restoring fuse can be connected in series to the discharge tube. Limit the freewheeling current so that it is less than the holding current of the discharge tube

Application

Industrial power supply, communication power supply, inverter power supply, UPS uninterrupted power supply, regulated power supply, driving power supply, switching power supply, power module, isolator, inverter, medical equipment,

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