

Multi-gap Gas Discharge Tubes (MGDT)

5G800-20E

Description

The Gas Discharge Tube (GDT) is a protective device which is filled with certain proportion of noble gas, or mixed gas or other discharge media in the space between metal electrodes and metalized ceramics, and then sealed at high temperature to form a single gap or multi-gap switch type protective device. When the protected circuit or equipment suffers to surge, GDT will change from high impedance state to low impedance state and release the surge energy to reduce the residual voltage of the circuit, and then protect the equipment or human body from the hazard of transient overvoltage.

The 5G800-20E series discharge tube has a total of 5 discharge gaps, so this product has a higher arc voltage and can be directly used for AC power supply.



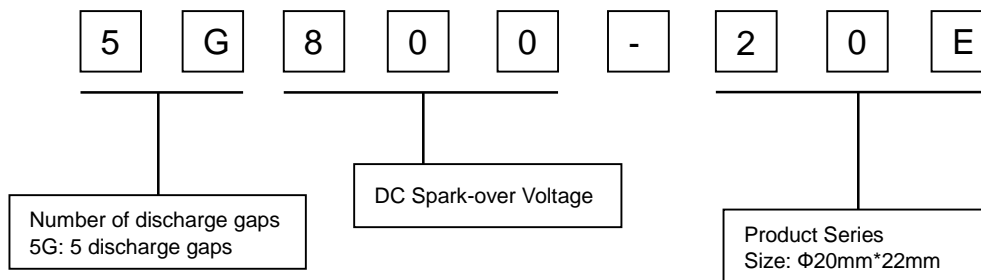
Features

- I Multi gap discharge
- I High self-extinguishing capability
- I High follow current limitation capability
- I Stable performance over life
- I High insulation resistance
- I RoHS-compatible

Applications

- I AC power line L-N / L-PE application
- I Class I and class II - surge protection

Part Number Code



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Electrical Characteristics

Model	5G800-20E		Units
	5G800-20E-LM6		
DC Spark-over Voltage ^{1) 2) 3)} at 100V/S	V_{a-b}	>600	V
	$V_{a-e1}, V_{e1-e2}, V_{e2-e3}, V_{e3-e4}, V_{e4-b}$	200~300	V
Impulse Spark-over Voltage ³⁾ at 1KV/ μ S	V_{a-b}	<2000	V
	$V_{a-e1}, V_{e1-e2}, V_{e2-e3}, V_{e3-e4}, V_{e4-b}$	<600	V
Front of wave spark-over voltage ³⁾ at 1.2/50 μ s, 6 kV	V_{a-b}	<2500	V
	$V_{a-e1}, V_{e1-e2}, V_{e2-e3}, V_{e3-e4}, V_{e4-b}$	<800	V
Class I (according to IEC 61643-11) ⁴⁾			
Nominal operating voltage at 50/60Hz	U_n	220	Vrms
Maximum continuous operating voltage at 50/60Hz	U_C	320	Vrms
Nominal impulse discharge current 8/20 μ s 15 times	I_n	25	KA
Impulse discharge current 10/350 μ s 5 times	I_{imp}	25	KA
Follow current at 50/60Hz	I_f	500	A
Class II (according to IEC 61643-11) ⁴⁾			
Nominal operating voltage at 50/60Hz	U_n	220	Vrms
Maximum continuous operating voltage at 50/60Hz	U_C	320	Vrms
Nominal impulse discharge current 8/20 μ s 15 times	I_n	40	KA
Maximum discharge current 8/20 μ s 2 times	I_{max}	80	KA
Follow current at 50/60Hz	I_f	500	A
AC discharge current (TOV ⁵⁾ at 1200V 1 time 50 Hz, 0.2 s		300	A
Insulation Resistance at DC 100V		>1	G Ω
Capacitance at 1MHz		<5	pF
Weight	5G800-20E	~32.0	g
	5G800-20E-LM6	~39.3	g
Operation and storage temperature		-40~+125	$^{\circ}$ C
Climatic category (IEC60068-1)		40/125/21	
Marking, red positive		RUILON 800	
Surface treatment	Matte-tin plated		

¹⁾ At delivery AQL 0.65 level II, DIN ISO 2859.

²⁾ In ionized mode.

³⁾ Arrester only.

⁴⁾ Terminal electrode (a) to terminal electrode (b).

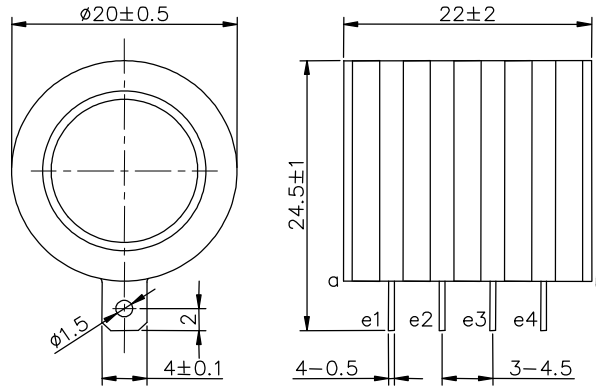
⁵⁾ TOV - Temporary over voltage.

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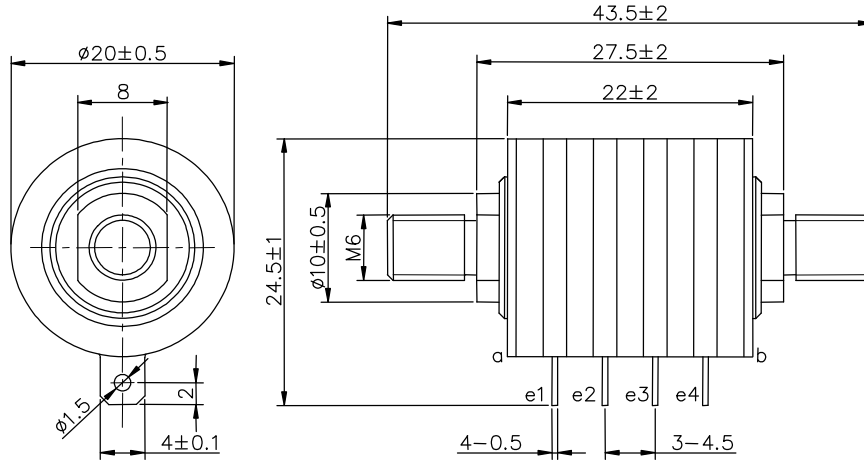
5G800-20E

Dimensions (Unit: mm)

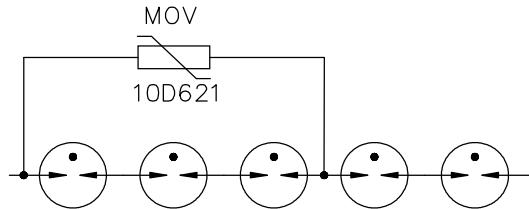
5G800-20E



5G800-20E-LM6



Recommended application circuit



Voltage protection level (U_p)	
at 1.2/50 μ s, 6 kV	<2000V
at 8/20 μ s, 25 kA	<2000V

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Packaging Information

5G800-20E

	PVC tray	Inner Box	Carton
Size	265×148×17mm	275×150×50mm	315×290×272mm
Quantity	MPQ: 1 tray=12pcs	MOQ: 1 Inner Box=1 trays=12pcs	1 Carton=10 Inner boxes=120pcs
Photos			

5G800-20E-LM6

	PVC tray	Inner Box	Carton
Size	265×148×17mm	275×150×50mm	315×290×272mm
Quantity	MPQ: 1 tray=12pcs	MOQ: 1 Inner Box=1 trays=12pcs	1 Carton=10 Inner boxes=120pcs
Photos			

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Terms and definitions

NO.	Item	Definitions
1	Gas discharge tube(GDT)	Gap, or several gaps, in an enclosed discharge medium, other than air at atmospheric pressure, designed to protect apparatus or personnel, or both, from high transient voltages. Also referred to as "gas tube surge arrester".
2	DC Spark-over Voltage	The voltage at which the gas discharge tube sparks over with slowly increasing d.c. voltage.
3	Impulse Spark-over Voltage	The highest voltage which appears across the terminals of a gas discharge tube in the period between the applications of an impulse of given waveform and the time when current begins to flow.
4	Impulse discharge current 8/20μs	Current impulse with a nominal virtual front time of 8 μ s and a nominal time to half-value of 20 μ s.
5	Impulse discharge current 10/350μs	Current impulse with a nominal virtual front time of 10 μ s and a nominal time to half-value of 350 μ s.
6	1,2/50 voltage impulse	Voltage impulse with a nominal virtual front time of 1,2 μ s and a nominal time to half-value of 50 μ s.
7	Maximum continuous operating voltage U_c	Maximum rms. voltage, which may be continuously applied to the GDT's mode of protection.
8	Nominal discharge current I_n	Crest value of the current through the GDT having a current waveform of 8/20.
9	Maximum discharge current I_{max}	Crest value of a current through the Surge arrester having an 8/20 waveform and magnitude according to the manufacturers specification. I_{max} is equal to or greater than I_n .
10	Impulse discharge current for class I test I_{imp}	Crest value of the current through the Surge arrester having a current waveform of 10/350 with specified charge transfer Q and specified energy W/R in the specified time.
11	Follow current I_f	Current supplied by the electrical power system and flowing through the surge arrester after an I_n discharge current impulse.
12	Insulation Resistance	Insulation resistance shall be measured from each terminal to every other terminal of the GDT. The test is performed with DC50V when normal spark-over Voltage 70~150V, others with DC100V.
13	Capacitance	The capacitance shall be measured once at 1 MHz between all terminals unless otherwise specified.
14	Class I	Surge arrester protects against direct lightning strike. Direct lightning strike is defined as current impulse I_{imp} with waveform 10/350 μ s. Withstand capability acc. to IEC 61643-11 standard.
15	Class II	Surge arrester protects against induced surge current. Induced surge current is defined as current impulse I_n and I_{max} with waveform of shorter duration than I_{imp} , 8/20 μ s. Withstand capability acc. to IEC 61643-11 standard.