

# SURGiNG

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# SurgeArresters

陶瓷气体放电管

SMF Series

**Gas Discharge Tubes(GDT)**

**SMF Series**

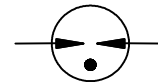
**Description**

Using the technical requirements of the leading industry, Surging has designed a super thin gas discharge tube, which is mainly used in the product's volume requirements and space constraints.

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. SMF Gas Discharge Tubes (GDT) series has a surge rating of 10kA, 8/20 $\mu$ s. This GDT series is perfectly suited for broadband equipment applications. The GDT's low off-state capacitance is compatible with high bandwidth applications and this capacitance loading value does not vary if the voltage across the GDT changes.



**Electrical symbol**



**Features**

- | Excellent response to fast rising transients
- | Stable breakdown voltage
- | GHz working frequency
- | 8/20 $\mu$ s Impulse current capability: 10KA
- | Non-Radioactive
- | Ultra Low capacitance (<3.0pF)
- | Lead-free compliant
- | RoHS and REACH compliant
- | Size:  $\phi$ 8mm\*2mm
- | Storage and operational temperature: -40~+90°C

**Applications**

- | Telecom CPE
- | Communication equipment
- | Surge Protective Devices
- | High density PCB assemblies

**Part Number Code**

**SMF 90X**

**Series:**

- SMF 8\*2
- SMD 4.5\*3.2\*3.2

**DCLineVoltage:**

- 90X=90V
- 230X=230V

## Gas Discharge Tubes(GDT)

## SMF Series

### Electrical Characteristics

Part Number	DC Spark-over Voltage <sup>1)2)</sup> @100V/S	Impulse Spark-over Voltage		Insulation Resistance <sup>3)</sup>	Capacitance @1MHz	Life Ratings					
		100V/μS	1KV/μS			Impulse Discharge Current @8/20μS		AC Discharge Current	Impulse Life @10/1000μS 100A		
		Max	Max			Min	Max	Nominal ±5 times	Max 1 time	Nominal 5 times	Min
		V	V			V	GΩ	pF	KA	KA	A
SMF90X	90±20%	500	600	1	3.0	10	15	10	300		
SMF150X	150±20%	500	600	1	3.0	10	15	10	300		
SMF230X	230±20%	600	700	1	3.0	10	15	10	300		
SMF350X	350±20%	800	900	1	3.0	10	15	10	300		
SMF470X	470±20%	900	1000	1	3.0	10	15	10	300		
SMF600X	600±20%	1000	1200	1	3.0	10	15	10	300		

Glow Voltage at 10mA..... ~60V

Arc Voltage at 1A..... ~10V

Glow to Arc transition Current..... ~1A

Weight..... ~0.42g

Operation and storage temperature..... -40~+90°C

Climatic category (IEC 60068-1)..... 40/90/21

Marking..... without

Surface treatment..... Matte-tin plated

<sup>1)</sup> At delivery AQL 0.65 level II, DIN ISO 2859

<sup>2)</sup> In ionized mode

<sup>3)</sup> Insulation Resistance Measuring Voltage:

90V~150V at DC 50V

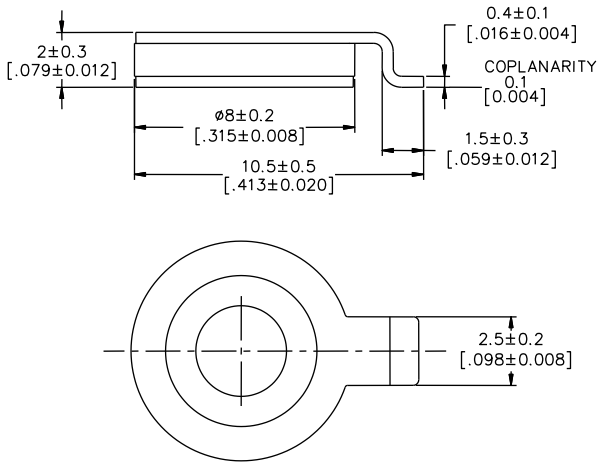
Other at DC 100V

Terms in accordance with ITU-T Rec. K.12, IEC 61643-311, GB/T 9043.

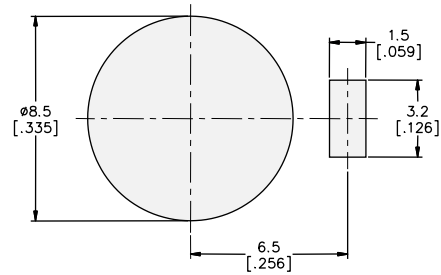
**Gas Discharge Tubes(GDT)**

**SMF Series**

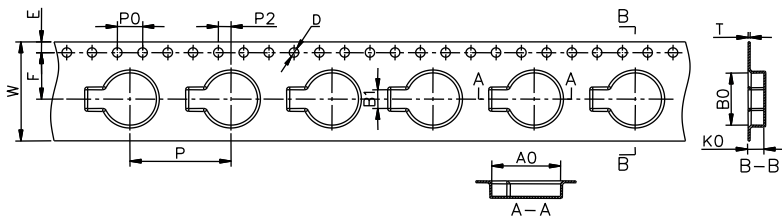
**Dimensions (Unit: mm/inch)**



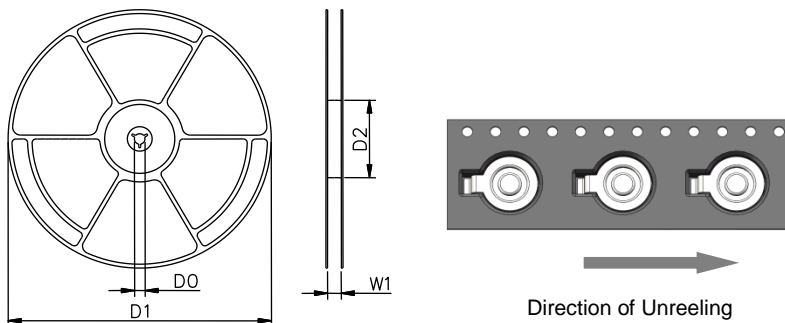
**Recommended Soldering Pad Layout**



**Taping and Reel Specifications**



SMD-tape according to IEC 60286-3

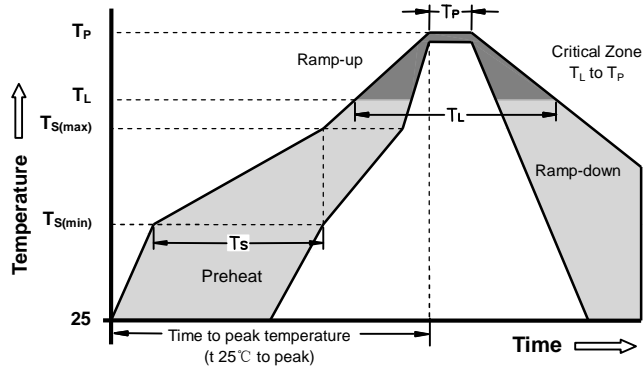


Symbol	Millimeters	Inches
W	16±0.3	0.630±0.012
A0	10.9±0.1	0.429±0.004
B0	8.4±0.1	0.331±0.004
B1	3.0±0.1	0.118±0.004
K0	2.5±0.1	0.098±0.004
P	16±0.1	0.630±0.004
F	7.5±0.1	0.295±0.004
E	1.75±0.1	0.069±0.004
D	1.5+0.1/-0.0	0.059+0.004/-0.0
P0	4±0.1	0.157±0.004
P2	2±0.1	0.079±0.004
T	0.3±0.05	0.012±0.002
D0	13.3±0.15	0.524±0.006
D1	330±2	12.992±0.079
D2	100+1/-2	3.937+0.039/-0.079
W1	16.5±0.4	0.65±0.016

**Packaging Quantity:**

- 1500 PCS per reel (13")
- 3 reels per inner box
- 4500 PCS per inner box

**Soldering Parameters - Reflow Soldering (Surface Mount Devices)**



Reflow Condition		Pb - Free assembly
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	150°C
	-Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 -180 Seconds
Average ramp up rate ( Liquids Temp $T_L$ to peak		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		5°C/second max
Reflow	- Temperature ( $T_L$ ) (Liquids)	217°C
	- Time (min to max) ( $t_s$ )	60 -150 Seconds
Peak Temperature ( $T_P$ )		260 +0/-5°C
Time within 5°C of actual peak Temperature ( $t_p$ )		10 - 30 Seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_P$ )		8 minutes Max
Do not exceed		260°C