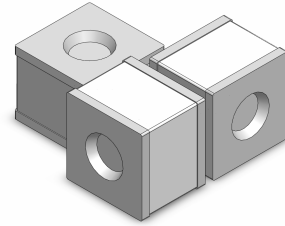


### Description

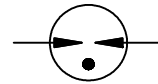
Gas discharge tubes (GDT) use noble gasses enclosed in ceramic tubes to provide an alternate circuit path for voltage spikes. The ceramic envelope and with nickel connectors allow for high loads. SMD5050 Gas Discharge Tubes (GDT) series has a surge rating of 5kA, 8/20 $\mu$ s. Offered in a Squared Surface Mount package, which helps to make pick and place on PCB process easier.



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.

SMD5050 Gas Discharge Tube (GDT) series are specifically designed for protection of electrical, multimedia, and communication equipment against over voltage transients in surface mount assembly applications.

### Electrical symbol



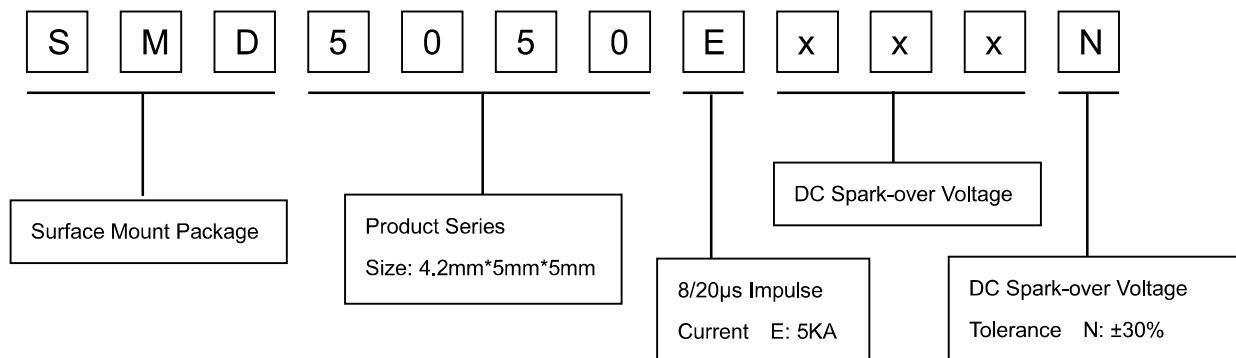
### Features

- Excellent response to fast rising transients
- Stable breakdown voltage
- GHz working frequency
- 8/20 $\mu$ s Impulse current capability:5KA
- Surface Mount package
- Non-Radioactive
- Ultra Low capacitance (<0.8pF)
- Lead-free and RoHS compliant
- UL 497B Recognized: E465335
- Size: 4.2mm\*5mm\*5mm
- Storage and operational temperature: -40~+90°C

### Applications

- CATV equipment
- Antennas
- RS 485
- Telecom Base Station
- Power Supply AC Main
- EV power Charging
- Inverter/Variable
- Frequency Drivers (VFDs)
- IEEE 802.3 compliant Ethernet interfaces
- Broad Band equipment
- xDSL, ADSL, ADSL2, VDSL, and VDSL2
- Medical Electronics
- Test Equipment
- General Telecom Equipment
- Renewable Energy

### Part Number Code



**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 @50Hz 1S	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
SMD5050E075N	75±30%	500	600	1	0.8	5	6	5	200		
SMD5050E090N	90±30%	500	600	1	0.8	5	6	5	200		
SMD5050E150N	150±30%	500	600	1	0.8	5	6	5	200		
SMD5050E200N	200±30%	600	700	1	0.8	5	6	5	200		
SMD5050E230N	230±30%	600	700	1	0.8	5	6	5	200		
SMD5050E300N	300±30%	750	850	1	0.8	5	6	5	200		
SMD5050E350N	350±30%	800	850	1	0.8	5	6	5	200		
SMD5050E400N	400±30%	850	950	1	0.8	5	6	5	200		
SMD5050E420N	420±30%	850	950	1	0.8	5	6	5	200		
SMD5050E470N	470±30%	900	1000	1	0.8	5	6	5	200		
SMD5050E600N	600±30%	1100	1200	1	0.8	5	6	5	200		
SMD5050E800N	800±30%	1100	1400	1	0.8	5	6	5	200		
Glow Voltage at 10mA.....					~60V						
Arc Voltage at 1A.....					~10V						
Glow to Arc transition Current.....					<0.8A						
Weight.....					~0.42g						
Operation and storage temperature.....					-40~90°C						
Climatic category (IEC 60068-1).....					40/090/21						
Marking.....					Without						
Surface treatment.....					Matte-tin plated						

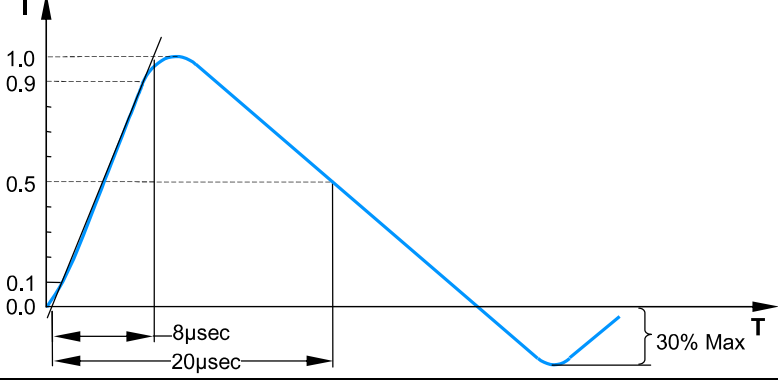
<sup>1)</sup> At delivery AQL 0.65 level II, DIN ISO 2859

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

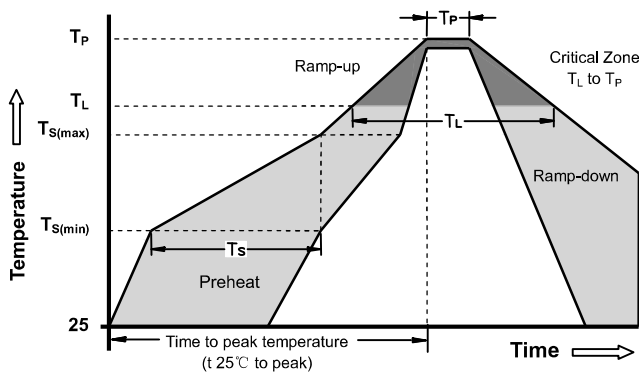
<sup>3)</sup> Insulation Resistance Measuring Voltage:

- 75V at DC 25V
- 90V~150V at DC 50V
- Other at DC 100V

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

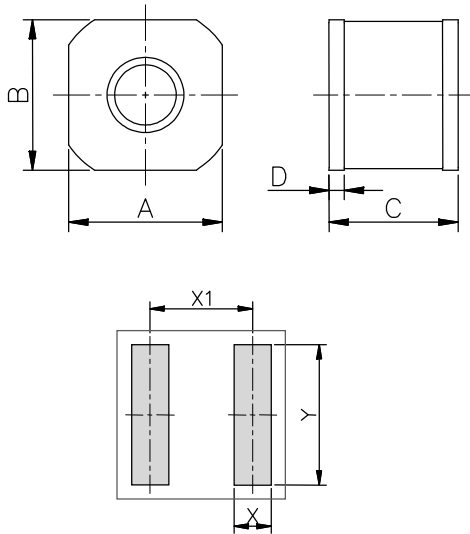
Item	Test Condition/Description	Requirement
<b>DC Spark-over Voltage</b>	The voltage is measured with a slowly rate of rise $dv / dt=100V/s$	To meet the specified value
<b>Impulse Spark-over Voltage</b>	The maximum impulse spark-over voltage is measured with a rise time of $dv / dt=100V/\mu s$ or $1KV/\mu s$	
<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. $IR > 10^8$ ohms.	

**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

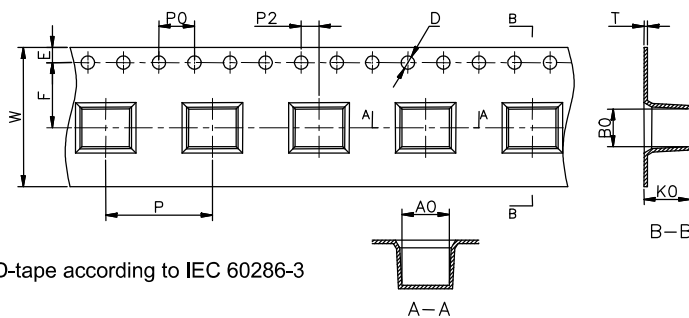
**Dimensions**



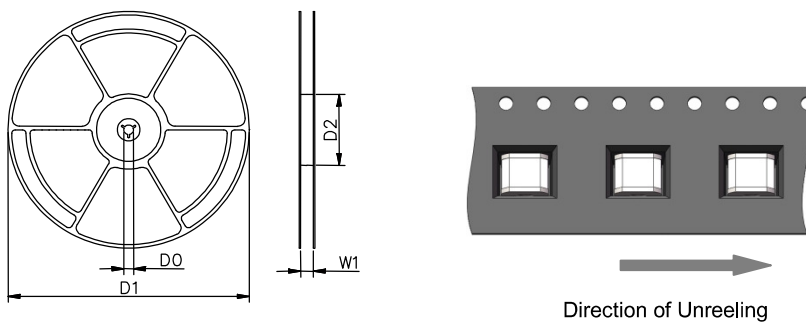
Recommended Soldering Pad Layout

Symbol	Millimeters	Inches
A	5.0±0.2	0.197±0.008
B	5.0±0.2	0.197±0.008
C	4.2±0.3	0.165±0.012
D	0.5±0.1	0.020±0.004
X	1.2	0.047
X1	4.0	0.165
Y	5.5	0.217

**Taping and Reel Specifications**



SMD-tape according to IEC 60286-3



Symbol	Millimeters	Inches
W	16±0.3	0.630±0.012
A0	5.3±0.1	0.209±0.004
B0	4.3±0.1	0.17±0.004
K0	5.2±0.1	0.205±0.004
P	12±0.1	0.472±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	0.4±0.1	0.016±0.004
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:**

- 1,000 PCS per reel (13")
- 3 reels per inner box
- 3,000 PCS per inner box