

## Description

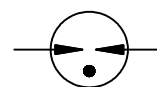
Gas discharge tubes (GDT) use noble gasses enclosed in ceramic tubes to provide an alternate circuit path for voltage spikes. The ceramic envelope and with nickel connectors allow for high loads. SMD5050 Gas Discharge Tubes (GDT) series has a surge rating of 10kA, 8/20µs. Offered in a Squared Surface 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



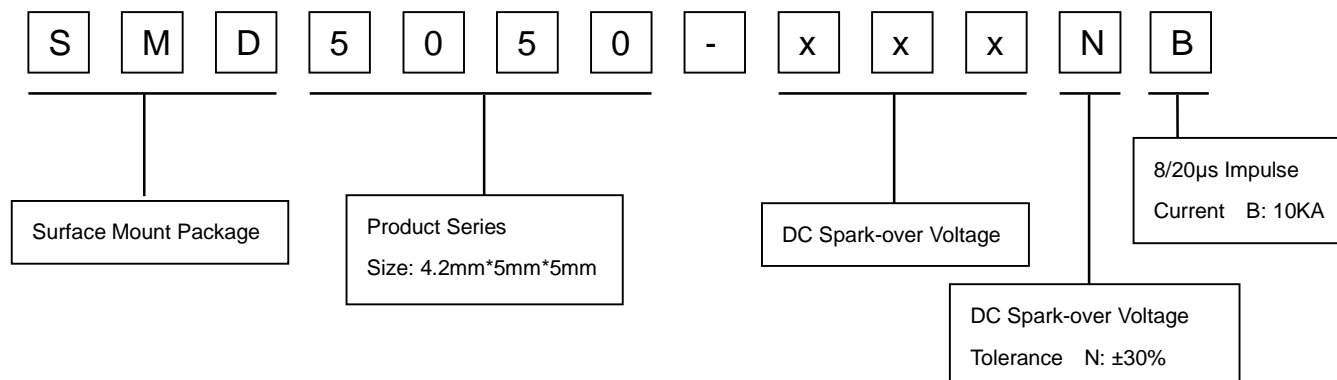
## Features

- I Excellent response to fast rising transients
- I Stable breakdown voltage
- I GHz working frequency
- I 8/20µs Impulse current capability:10KA
- I Surface Mount package
- I Non-Radioactive
- I Ultra Low capacitance (<0.8pF)
- I Lead-free compliant
- I RoHS and REACH compliant
- I Size: 4.2mm\*5mm\*5mm
- I Storage and operational temperature: -40~+90°C

## Applications

- I CATV equipment
- I Antennas
- I RS 485
- I Telecom Base Station
- I Power Supply AC Main
- I EV power Charging
- I Inverter/Variable Frequency Drivers (VFDs)
- I IEEE 802.3 compliant Ethernet interfaces
- I Broad Band equipment
- I xDSL, ADSL, ADSL2, VDSL, and VDSL2
- I Medical Electronics
- I Test Equipment
- I General Telecom Equipment
- I 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/ $\mu$ S	1KV/ $\mu$ S			Impulse Discharge Current @8/20 $\mu$ S		AC Discharge Current @50Hz 1S	Impulse Life @10/1000 $\mu$ S 100A
		Max	Max			Nominal $\pm$ 5 times	Max 1 time	Nominal 5 times	Min
		V	V			G $\Omega$	pF	KA	KA
SMD5050-075NB	75 $\pm$ 30%	500	600	1	0.8	10	12	10	300
SMD5050-090NB	90 $\pm$ 30%	500	600	1	0.8	10	12	10	300
SMD5050-150NB	150 $\pm$ 30%	500	600	1	0.8	10	12	10	300
SMD5050-200NB	200 $\pm$ 30%	600	700	1	0.8	10	12	10	300
SMD5050-230NB	230 $\pm$ 30%	600	700	1	0.8	10	12	10	300
SMD5050-300NB	300 $\pm$ 30%	750	850	1	0.8	10	12	10	300
SMD5050-350NB	350 $\pm$ 30%	800	850	1	0.8	10	12	10	300
SMD5050-400NB	400 $\pm$ 30%	850	950	1	0.8	10	12	10	300
SMD5050-420NB	420 $\pm$ 30%	850	950	1	0.8	10	12	10	300
SMD5050-470NB	470 $\pm$ 30%	900	1000	1	0.8	10	12	10	300
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).....				40/90/21					
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:

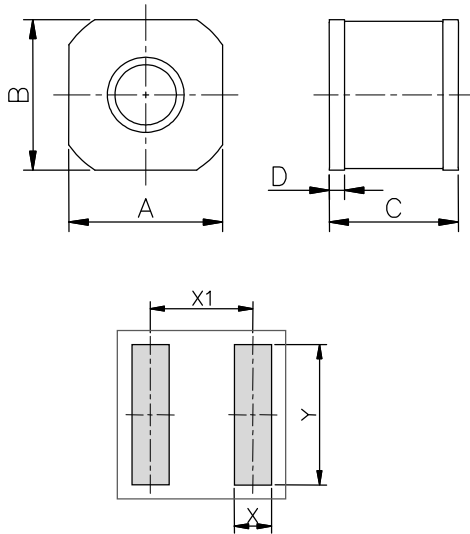
75V at DC 25V

90V~150V at DC 50V

Other at DC 100V

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

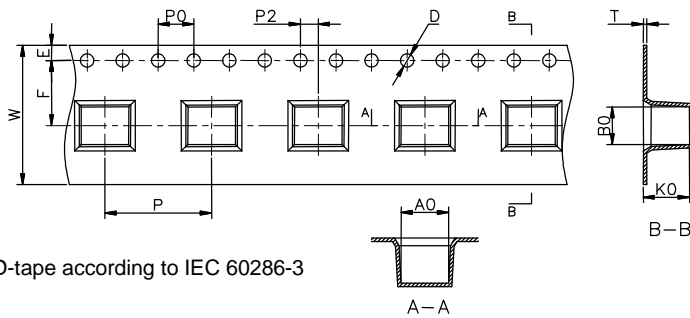
Dimensions



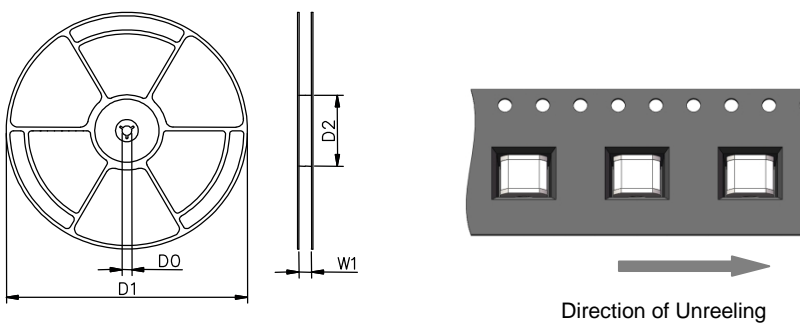
Recommended Soldering Pad Layout

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

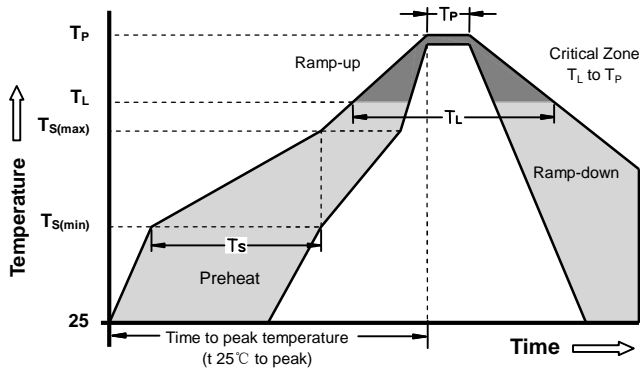


Symbol	Millimeters	Inches
W	16±0.3	0.630±0.012
A0	5.3±0.1	0.209±0.004
B0	4.3±0.1	0.17±0.004
K0	5.2±0.1	0.205±0.004
P	12±0.1	0.472±0.004
F	7.5±0.1	0.295±0.004
E	1.75±0.1	0.069±0.004
D	1.5+0.1/-0.0	0.059+0.004/-0.0
P0	4±0.1	0.157±0.004
P2	2±0.1	0.079±0.004
T	0.4±0.1	0.016±0.004
D0	13.3±0.15	0.524±0.006
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

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



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