Description

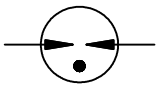
Gas discharge tubes (GDT) use noble gasses enclosed in ceramic tubes to provide an alternate circuit path for voltage spikes. The ceramic envelope and with nickel connectors allow for high loads. SMD5050 Gas Discharge Tubes (GDT) series has a surge rating of 5kA, 8/20μs.Offered in a Squared Surface Mount 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

- Excellent response to fast rising transients
- Stable breakdown voltage
- GHz working frequency
- 8/20μs 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

S	M	D	5	0	5	0	-	x	x	x	N	A

- SMD: Surface Mount Package
- 5050: Product Series; Size: 4.2mm*5mm*5mm
- xxx: DC Spark-over Voltage
- N: DC Spark-over Voltage Tolerance N: ±30%
- A: 8/20μs Impulse Current A: 5KA

Electrical Characteristics

Part Number	DC Spark-over Voltage [1) 2)] @100V/S	Impulse Spark-over Voltage		Insulation Resistance [3)]	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	Times
SMD5050-075NA	75±30%	500	600	1	0.8	5	6	5	200
SMD5050-090NA	90±30%	500	600	1	0.8	5	6	5	200
SMD5050-150NA	150±30%	500	600	1	0.8	5	6	5	200
SMD5050-200NA	200±30%	600	700	1	0.8	5	6	5	200
SMD5050-230NA	230±30%	600	700	1	0.8	5	6	5	200
SMD5050-300NA	300±30%	750	850	1	0.8	5	6	5	200
SMD5050-350NA	350±30%	800	850	1	0.8	5	6	5	200
SMD5050-400NA	400±30%	850	950	1	0.8	5	6	5	200
SMD5050-420NA	420±30%	850	950	1	0.8	5	6	5	200
SMD5050-470NA	470±30%	900	1000	1	0.8	5	6	5	200
SMD5050-600NA	600±30%	1100	1200	1	0.8	5	6	5	200
SMD5050-800NA	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)……..	40/90/21
Marking……	Without
Surface treatment……..	Matte-tin plated

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

[2)] In ionized mode

[3)] Insulation Resistance Measuring Voltage:

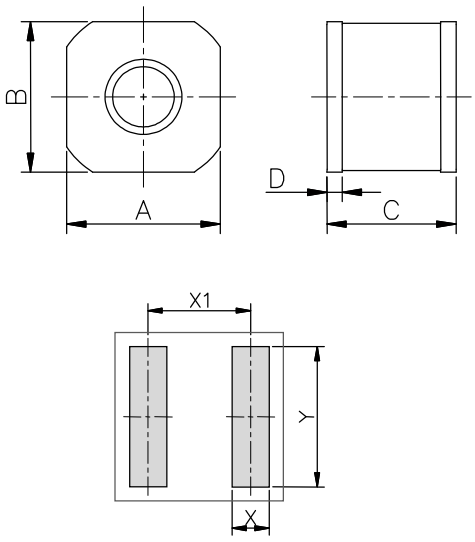
75V at DC 25V

90V~150V at DC 50V

Other at DC 100V

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

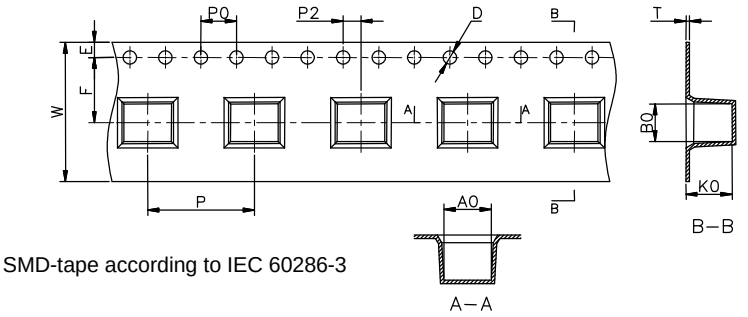
Dimensions



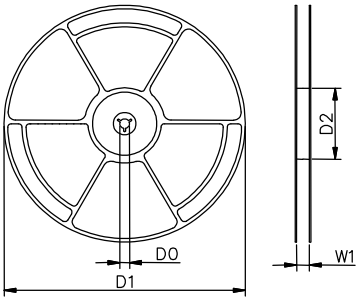
Recommended Soldering Pad Layout

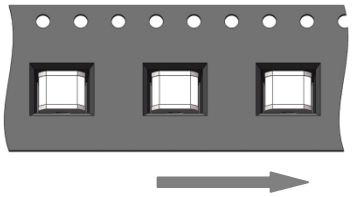
Symbol	Millimeters	Inches
A	5.0±0.2	0.197±0.008
B	5.0±0.2	0.197±0.008
C	4.2±0.3	0.165±0.012
D	0.5±0.1	0.020±0.004
X	1.2	0.047
X1	4.0	0.165
Y	5.5	0.217

Taping and Reel Specifications



SMD-tape according to IEC 60286-3





Direction of Unreeling

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

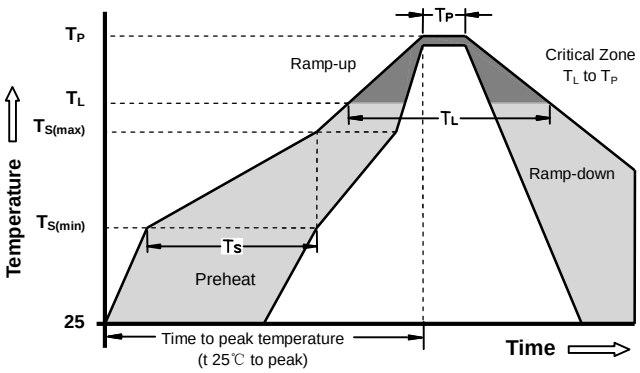
Packaging Quantity:

1,000 PCS per reel (13”)

3 reels per inner box

3,000 PCS per inner box

Soldering Parameters - Reflow Soldering (Surface Mount Devices)



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 TL - 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