RUILON
ELECTRONICS

Gas Discharge Tubes

SMD5050-xxxNA Series

361° Circuit Protection System

Specifications are subject to change without notice.

Please refer to http://www.ruilon.com.cn for current information.

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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 and Ruilon offers products that function at 20KA,40KA,50KA,60KA,100KA&150KA.The breakdown voltages of the devices have a wide range (up to 20% tolerance).Major applications are high frequency telecommunication lines,stations, security systems,HID and high quality Surge Protection Devices (SPD).

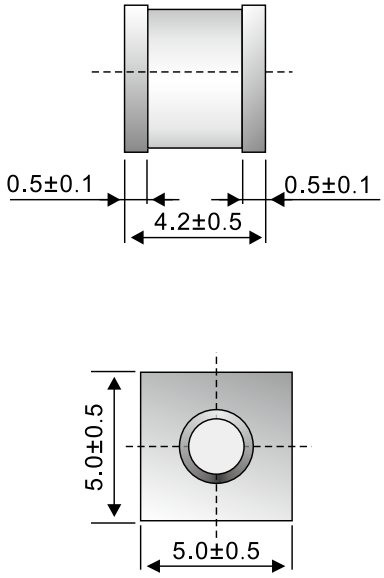
Features

- RoHS & HF compliant
- Size:5.0mm*5.0mm
- DC Spark-over voltage: 75~1000V
- Stable breakdown voltage
- High insulation resistance
- High holdover voltage
- Low Capacitance
- Large absorbing transient current capability
- Storage and operational temperature: -40℃ ~ +85℃

Recommended Applications

- Communication equipment
- CATV equipment
- Test equipment
- Data lines
- Power supplies
- Telecom SLIC protection
- Telecommunications

Dimension **unit:(mm)**



Product Name

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

- Lead Type
- Dimensions: 5.0*5.0mm
- DC Spark-over Voltage
- Error range:30%
- A=5KA

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Electriacl Characteristics

Part Number	DC Spark-over Voltage	Maximum Impulse Breakdown Voltage		Max. Impulse Discharge Current (8/20μs)		Impulse Life (10/1000μs)	Normal Alternating Discharge Current		DC Holdover Voltage	Minimum Insulation Resistance	Maximum Capacitance (1MHz)
	100V/S	100V/μs	1KV/μs	1 time	10 times	100A	50Hz 1Sec	Single 9 Cycles	<150ms		
	(V)	(V)	(V)	(KA)		(Times)	(A)		(V)	(GΩ)	(pF)
SMD5050-075NA	75±30%	600	700	8	5	300	5	15	52	1	0.8
SMD5050-090NA	90±30%	600	700	8	5	300	5	15	52	1	0.8
SMD5050-150NA	150±30%	500	700	8	5	300	5	15	52	1	0.8
SMD5050-230NA	230±30%	500	650	8	5	300	5	15	80	1	0.8
SMD5050-250NA	250±30%	500	650	8	5	300	5	15	135	1	0.8
SMD5050-300NA	300±30%	550	700	8	5	300	5	15	135	1	0.8
SMD5050-350NA	350±30%	600	750	8	5	300	5	15	135	1	0.8
SMD5050-400NA	400±30%	650	800	8	5	300	5	15	135	1	0.8
SMD5050-420NA	420±30%	650	850	8	5	300	5	15	135	1	0.8
SMD5050-470NA	470±30%	750	900	8	5	300	5	15	135	1	0.8
SMD5050-600NA	600±30%	900	1000	8	5	300	5	15	135	1	0.8
SMD5050-800NA	800±30%	1000	1100	8	5	300	5	15	135	1	0.8
SMD5050-1000NA	1000±30%	1500	1600	8	5	300	5	15	135	1	0.8

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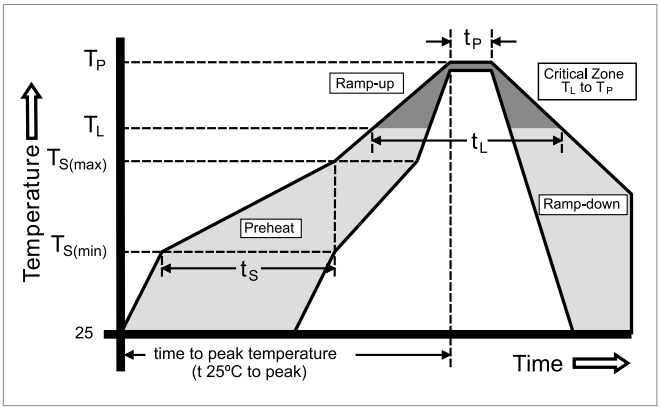
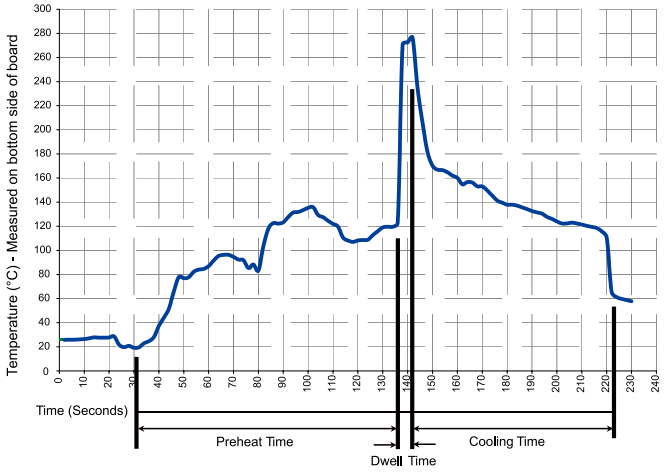
Soldering parameters reflow soldering(surface mount devices)

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 secs
Average ramp up rate (Liquidus 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) (Liquidus)	217°C
	-Temperature (t_L)	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)		8minutes Max.
Do not exceed		260°C



Soldering parameters -wave soldering



Recommended process parameters

Wave Parameter	Lead-Free Recommendation
Preheat: (Depends on Flux Activation Temperature)	(Typical Industry Recommendation)
Temperature Minimum:	100° C
Temperature Maximum:	150° C
Preheat Time:	60-180 seconds
Solder Pot Temperature:	280° C Maximum
Solder Dwell Time:	2-5 seconds

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Warehouse Storage Condition

<table>
<tr><th>Item</th><th>Test Condition / Description</th><th>Requirement</th></tr>
<tr><td>DC Breakdown Voltage</td><td>The voltage measured at a rise time of 100v/s.</td><td rowspan="8">To meet the specified value</td></tr>
<tr><td>Maximum Impulse Breakdown Voltage</td><td>The maximum breakdown voltage at rise times of 100v/us and 1000v/us.</td></tr>
<tr><td>Maximum Impulse Discharge Current</td><td>The maximum current applying a waveform of 8/20us that can be applied across the terminals of the gas tube without causing the gas tube to change more than ±25% from its initial measured DC breakdown voltage. Dwell time between pulses is 3 minutes.</td></tr>
<tr><td>Alternating Discharge Current</td><td>Rated RMS value of AC current at 50Hz, 1 sec. 10 times. Intervals: 3min. DC breakdown voltage may not change more than ±25% from its initial measured DC breakdown voltage. IR > 10^8 ohms (-20%, +30% for 70 – 90V).</td></tr>
<tr><td>Impulse Life</td><td>The minimum number of impulses of a specified waveform and peak current which a gas tube will conduct without causing the gas tube to change more than ±25% from its initial measured DC breakdown voltage. Dwell time between pulses is 1-2 minutes.</td></tr>
<tr><td>DC Holdover Voltage</td><td>The maximum DC voltage across the two terminals of the gas tube under which it may be expected to return to the high impedance state after the gas tube breakdown.</td></tr>
<tr><td>Insulation Resistance</td><td>The resistance of the gas tube shall be measured each terminal to each other terminal.
<table>
<tr><th>DC Breakdown Voltage (V)</th><th>DC Measuring Voltage (V)</th></tr>
<tr><td>70</td><td>25</td></tr>
<tr><td>90-150</td><td>50</td></tr>
<tr><td>230-350</td><td>100</td></tr>
<tr><td>470-600</td><td>250</td></tr>
<tr><td>800</td><td>500</td></tr>
<tr><td>1000-1600</td><td>1000</td></tr>
</table></td></tr>
<tr><td>Capacitance</td><td>The capacitance of a gas tube shall be measured each terminal to each other terminal. Test frequency: 1MHz In measurements involving 3-electrode gas tubes, the terminal not being tested shall be connected to a ground plane.</td></tr>
</table>

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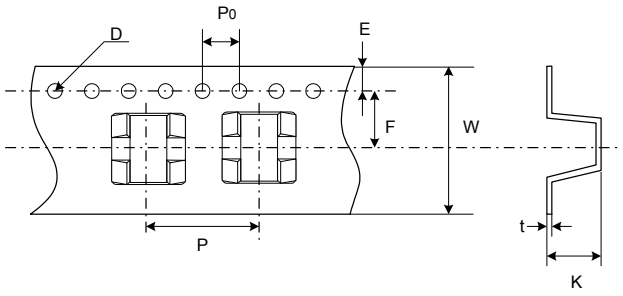
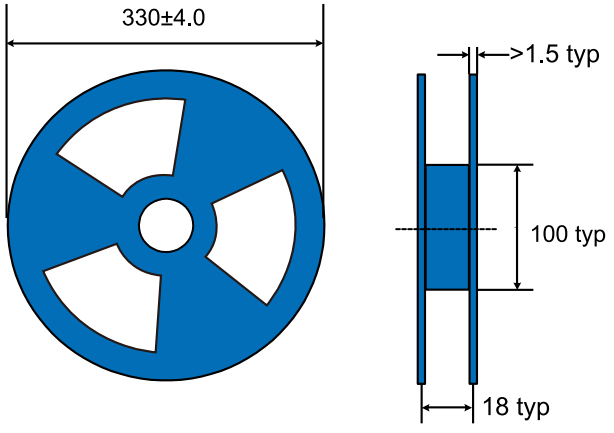
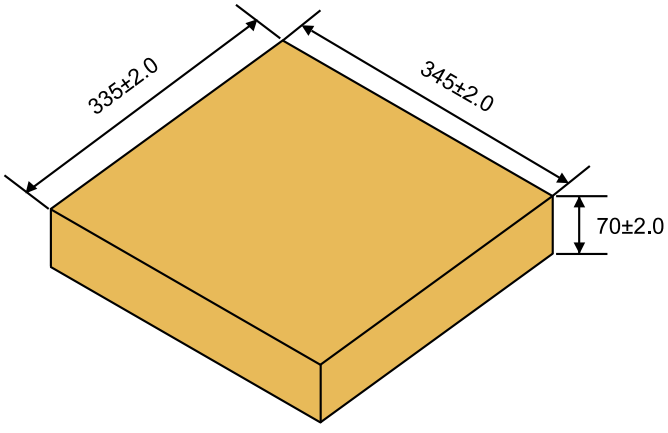
Packaging Taping (Unit:mm)



Item	P	PO	W	F	E	D	K	t
Spec.	8.0	4.0	12.0	5.45	1.75	Φ1.55	5.2	0.4
Tolerance	±0.1	±0.1	±0.13	±0.1	±0.1	±0.05	±0.1	±0.05

SMD Packing (Tape & Reel)

Reel packing (330×330×18mm)	Inner Box (335×345×70mm)
	
900 PCS/ Reel	2700 PCS/ Box

RuiLongYuan Electronics Co., Ltd.

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