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PRODUCT DATASHEET

Gas Discharge Tubes

JTS5050 Series Gas Discharge Tubes



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. 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.

Applications

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

Features

- RoHS & HF compliant
- Low Capacitance
- Micro-Gap Design
- Stable breakdown voltage
- High insulation resistance
- High holdover voltage
- Large absorbing transient current capability

Electrical Characteristics

Part No.	DC Spark-over Voltage 100V/S(V)	Max. Impulse Spark-over Voltage 1KV/ μ s(V)	Nominal Discharge Current(I) 1s, 50Hz(A)	Nominal Impulse Discharge Current 8x20 μ s(kA)	Insulation Resistance min. (G Ω)/ (Vdc)	Max. Capacitance C 1MHz(pF)
JTS5050-075	75 $\pm$ 30%	650	5	5	1G Ω /50Vdc	1
JTS5050-090	90 $\pm$ 30%	600	5	5	1G Ω /50Vdc	1
JTS5050-150	150 $\pm$ 20%	600	5	5	1G Ω /50Vdc	1
JTS5050-230	230 $\pm$ 20%	700	5	5	1G Ω /100Vdc	1
JTS5050-400	400 $\pm$ 20%	1000	5	5	1G Ω /100Vdc	1
JTS5050-470	470 $\pm$ 20%	1200	5	5	1G Ω /100Vdc	1
JTS5050-600	600 $\pm$ 20%	1200	5	5	1G Ω /250Vdc	1
JTS5050-800	800 $\pm$ 20%	1400	5	5	1G Ω /250Vdc	1
JTS5050-1000	1000 $\pm$ 20%	1800	5	5	1G Ω /250Vdc	1
JTS5050-1200	1200 $\pm$ 20%	2000	5	5	1G Ω /500Vdc	1
JTS5050-2000	2000 $\pm$ 20%	3800	5	5	1G Ω /500Vdc	1

Electrical Performance

Item	Testing condition and method	Performance
DC Spark-over Voltage(Vs)	Measure starting discharge voltage (Vs) by gradually increasing applied DC voltage. Test current is 1mA max. and test period is 1 second max. and the DC voltage ascend up within 100v/second.	Meet specified value
Insulation	Measure the insulation resistance across the terminal at regulated voltage But The test voltage doesn't over the DC spark-over voltage with 50Vdc/100Vdc/250Vdc/500Vdc.	1GΩ or over
Resistance(IR) Capacitance	Measure the electrostatic capacitance by applying a voltage of less than 6V(at 1MHz) between terminals.	1pF or less

The testing condition shall be subject to the following items:

- 1、 Ambient Temp.: -40°C~125°C; Relative Humidity: <95%(40°C) ;
- 2、 Atmospheric Pressure $8.6 \times 10^4 \text{Pa} \sim 1.06 \times 10^5 \text{Pa}$.

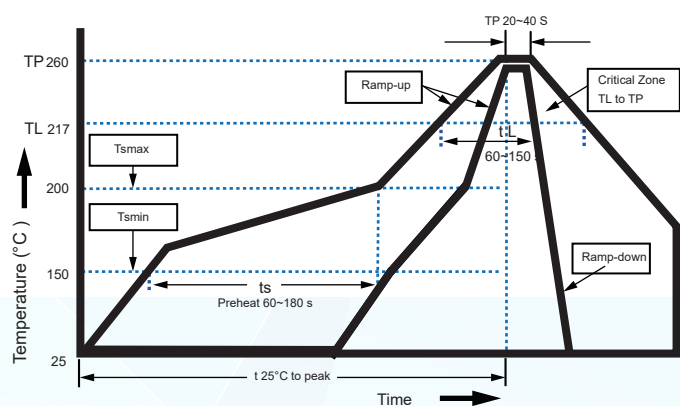
Physical and Solderability Characteristics

Item	Testing condition and method	Performance
Bending strength	Specimens shall be soldered to testing board. The substrate shall be supported at two points 45 mm from its center with mounting surface, and the middle part of its board shall be pressed at rate of 1.0 mm per second until the deflection becomes 3 mm and then the pressure shall be maintained for 30 seconds.	No evidence of mechanical damage , Meet specified value.
Terminal Strength	Specimens shall be soldered to testing board. Then apply force in parallel - 2 kg 30 second hanging.	No evidence of mechanical damage , Meet specified value.
Solderability	After dipping the lead wire to a depth of 2mm from the body in a soldering bath of $260 \pm 5^\circ\text{C}$ for 10 ± 1 sec.	Over 95% of the lead wire should be covered with new solder.
Resistance to soldering heat	After dipping the lead wire to a depth of 2mm from the body in a soldering bath of $260 \pm 5^\circ\text{C}$ for 10 ± 1 sec.	Meet DC spark-over voltage tolerance.

Environmental Characteristics

Item	Testing condition and method	Performance															
Resistance to cold	The specimen shall be subjected to - 55±3°C for 1000 hours without load and then stored at room temperature and humidity for 4 hours.	Meet specified value.															
Resistance to heat	The specimen shall be subjected to 125±2°C for 1000 hours without load and then stored at room temperature and humidity for 4 hours.	Meet specified value.															
Resistance to humidity	The specimen shall be subjected to 85±2°C 85%R.H.for 1000 hours without load and then stored at room temperature and humidity for 4 hours.	Meet specified value.															
Surge life	Apply a impulse current (8/20µs of 3KA/5KA) (a+b-E)for 10 times at 60 seconds intervals,Thereafter, the characteristics of times Vs,IR and C shall be measured(EN61000-4-5).	No cracks or failures after applying current															
Heat cycle	Repeat the temperature cycle shown below 200 times then store parts at room temperature and humidity for 4 hours: <table><tr><td>Step</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Temperature</td><td>-55±3°C</td><td>Room Temp</td><td>125±2°C</td><td>Room Temp</td></tr><tr><td>Perild</td><td>30min</td><td>30min</td><td>30min</td><td>30min</td></tr></table>	Step	1	2	3	4	Temperature	-55±3°C	Room Temp	125±2°C	Room Temp	Perild	30min	30min	30min	30min	Meet specified value
Step	1	2	3	4													
Temperature	-55±3°C	Room Temp	125±2°C	Room Temp													
Perild	30min	30min	30min	30min													
Temperature range	Operating temp range :-55°C to +125°C Storage temp range :-40°C to +85°C																

Soldering Parameters



- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
- Recommended maximum paste thickness is 0.25mm
Devices can be cleaned using standard industry methods and solvents.
- Note 1: All temperature refer to topside of the package, measured on the package body surface.
- Note 2: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Profile Feature

Pb-Free Assembly

Average Ramp-Up Rate
(Ts max to T p) $3^{\circ}\text{C}/\text{second max.}$

Preheat

-Temperature Min(Ts min)	150°C
-Temperature Max(Ts max)	200°C
-Time(Ts min to Ts max)	60~180 seconds

Time maintained above:

-Temperature(TL)	217°C
-Time(tL)	60~150 seconds

Peak Temperature(Tp) 260°C

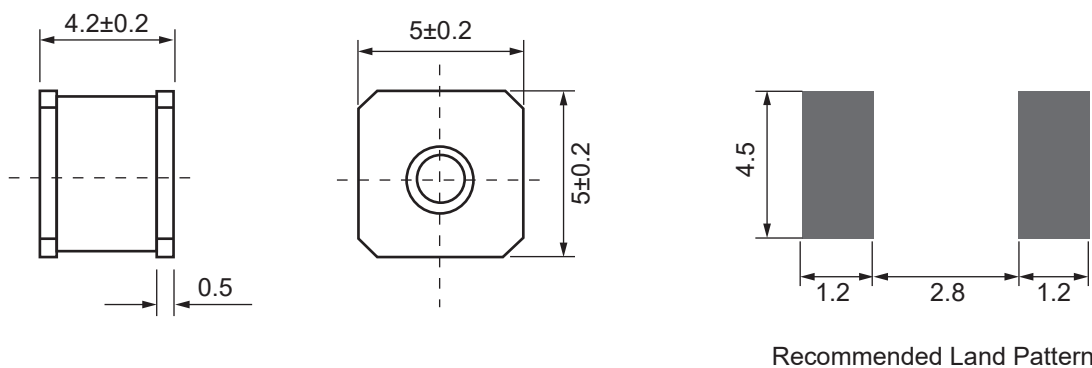
Ramp-Down Rate $6^{\circ}\text{C}/\text{second max.}$

Time 25°C to Peak Temperature 8 minutes max

Storage And Handling:

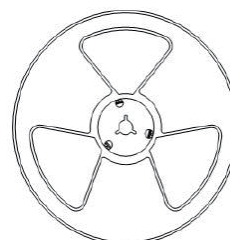
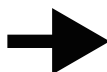
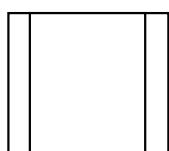
Storage conditions $0^{\circ}\text{C} \sim 35^{\circ}\text{C}, 30\% \sim 60\% \text{R.H.}$
 Devices may not meet specified performance if storage conditions are exceeded.

Dimensions and Structure (mm)

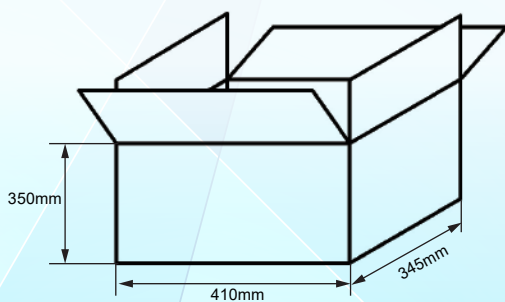


Packaging

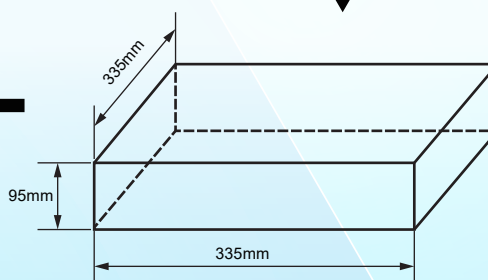
No.	Quantity & Packaging Code
JTS5050	1000 pcs/reel



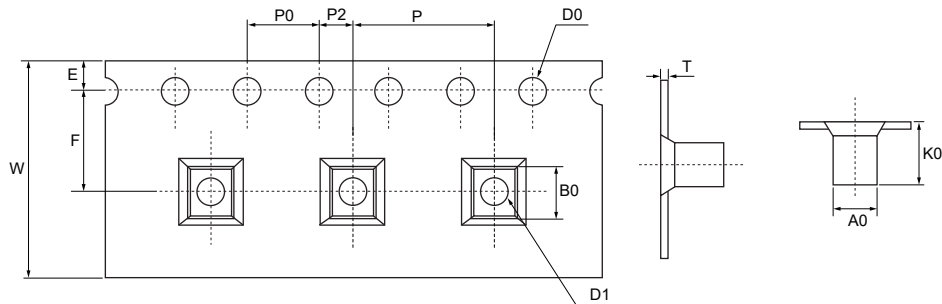
1000pcs/reel



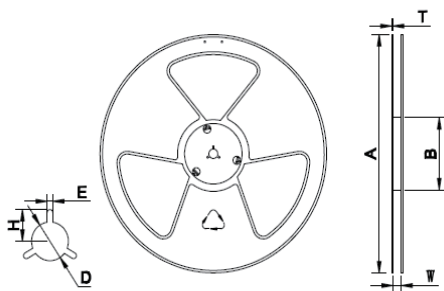
16000pcs/carton



4000pcs/box

Tape And Reel Specifications (mm)


Item	W	A0	B0	K0	E	F
Spec.(mm)	16.00 ^{+0.30} _{-0.10}	5.40±0.10	4.60±0.1	5.30±0.1	1.75±0.1	7.5±0.1
Item	P	P0	P2	D0	D1	T
Spec.(mm)	12.00±0.1	4.00±0.1	2.00±0.1	1.50 ^{+0.1} ₋₀	1.50 ^{+0.1} ₋₀	0.40±0.05



Item	A	B	D	
Spec.(mm)	330±1	99.5±2	13±0.5	
Item	E	H	W	T
Spec.(mm)	2.2±0.5	11±1	16.5±0.4	2.2±0.2

Part Number System
JT S 5050 - 075

D = Surge Rating
Blank=0.5kA, B=2kA, D=3kA, G=5kA, H=10kA, K=20kA, M=40kA, P=60kA

075 = DC Spark-over Voltage 75V

5050=Device Dimensions:
Length/width(Unit: 1/100 inch) Size 5050 mm/2016&2018 inch

S = Lead Configuration
A=Axial Leads, N=No Leads, S=Surface Mount, T=T-shaped Leads

JT = JDT Gas Discharge Tube