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PRODUCT DATASHEET

Gas Discharge Tubes

# JTN28 Series Gas Discharge Tubes

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## 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% olerance). Major applications are high requency 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

## Electriacl Characteristics

| Part No. | DC Spark-over Voltage 100V/S(V) | Max.Impulse Spark-over Voltage 1KV/μs(V) | Nominal Discharge Current(L) 1s,50Hz(A) | Nominal Impulse Discharge Current 8x20μs(kA) | Insulation Resistance min. (GΩ)/ (Vdc) | Max. Capacitance C 1MHz(pF) |
|---|---|---|---|---|---|---|
| JTN28-075K | 75±30% | 600 | 20 | 20 | 1GΩ/50Vdc | 1.5 |
| JTN28-090K | 90±20% | 600 | 20 | 20 | 1GΩ/50Vdc | 1.5 |
| JTN28-150K | 150±20% | 600 | 20 | 20 | 1GΩ/50Vdc | 1.5 |
| JTN28-200K | 200±20% | 700 | 20 | 20 | 1GΩ/100Vdc | 1.5 |
| JTN28-230K | 230±20% | 700 | 20 | 20 | 1GΩ/100Vdc | 1.5 |
| JTN28-250K | 250±20% | 700 | 20 | 20 | 1GΩ/100Vdc | 1.5 |
| JTN28-350K | 350±20% | 1000 | 20 | 20 | 1GΩ/100Vdc | 1.5 |
| JTN28-420K | 420±20% | 1000 | 20 | 20 | 1GΩ/100Vdc | 1.5 |
| JTN28-470K | 470±20% | 1200 | 20 | 20 | 1GΩ/100Vdc | 1.5 |
| JTN28-500K | 500±20% | 1200 | 20 | 20 | 1GΩ/100Vdc | 1.5 |
| JTN28-600K | 600±20% | 1400 | 20 | 20 | 1GΩ/100Vdc | 1.5 |

## Electrical Performance

| Item | Testing condition and method | Performance |
|---|---|---|
| DC Spark-over Voltage(Vs) | Measure starting discharge voltage (Vs) by gradualy 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 Resistance(IR) | 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 |
| Capacitance | Measure the electrostatic capacitance by applying a voltage of less than 6V (at 1MHz)between terminals. | 1.5pF or less |

The testing condition shall be subject to the following items:
1、Ambient Temp.:-40°C~125°C; Relative Humidity:＜95%(40°CH）;
2、Atmospheric Pressure $8.6\times10^{4}$Pa~$1.06\times10^{4}$Pa.

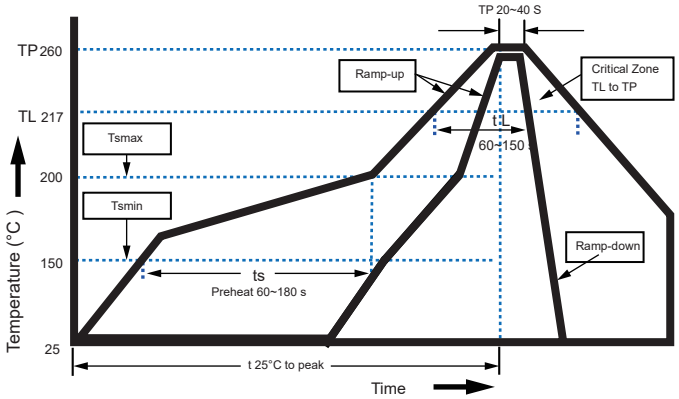
## Physical and Solderability Characteristics

| Item | Testing condition and method | Performance |
|---|---|---|
| Lead wire pull strength | Gradually applying the load 0.5Kg and keeping the unit fixed for 10±1sec. | Meet DC spark-over voltage tolerance Not pull out and break the lead wire. |
| Lead wire bending Strength | The unit shall be secured with its lead wire kept vertical and the 0.25kg weight below be applied in the axial direction.The lead wire shall gradually be bend by 90 in onedirection at the point of 3mm from the body along the radius of curvature (0.75mm~0.8mm),and again back the original position. The procedure shall be repeat 2times for 30sec. | Meet DC spark-over voltage tolerance. |
| Solderability | After dipping the lead wire to a depth of 2mm from the body in a soldering bath of 260±5°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±5°C for 10±1 sec. | Meet DC spark-over voltage tolerance. |

## Environmental Characteristics

<table>
<tr><th>Item</th><th>Testing condition and method</th><th>Performance</th></tr>
<tr><td>Resistance to cold</td><td>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.</td><td>Meet specified value.</td></tr>
<tr><td>Resistance to heat</td><td>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.</td><td>Meet specified value.</td></tr>
<tr><td>Resistance to humidity</td><td>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.</td><td>Meet specified value.</td></tr>
<tr><td>Surge life</td><td>Apply a impulse current (8/20μs of 20KA/10A/3KA) for 10 times at 60 seconds intervals,Thereafter, the characteristics of times Vs,IR and C shall be measured(EN61000-4-5).</td><td>No cracks or failures after applying current</td></tr>
<tr><td>Heat cycle</td><td>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></td><td>Meet specified value</td></tr>
<tr><td>Temperature range</td><td colspan="2">Operating temp range :-55°C to +125°C<br>Storage temp range :-40°C to +85°C</td></tr>
</table>

## Soldering Parameters

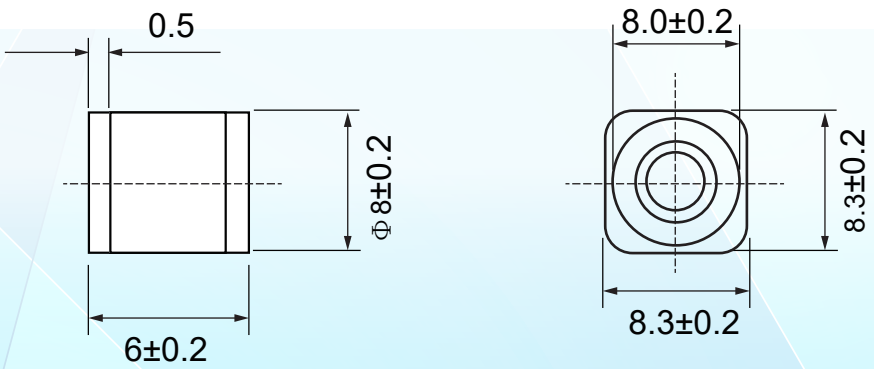



- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
- Recommended maximum paste thickness is 0.25mm Devices can be cleaned using standard industry methods and solvents.
- Note 1:All temperature refer to topside of the package, measured on the package body surface.
- 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°C/second mac. |
| 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°C/second max. |
| Time 25°C to Peak Temperature | 8 minutes max |

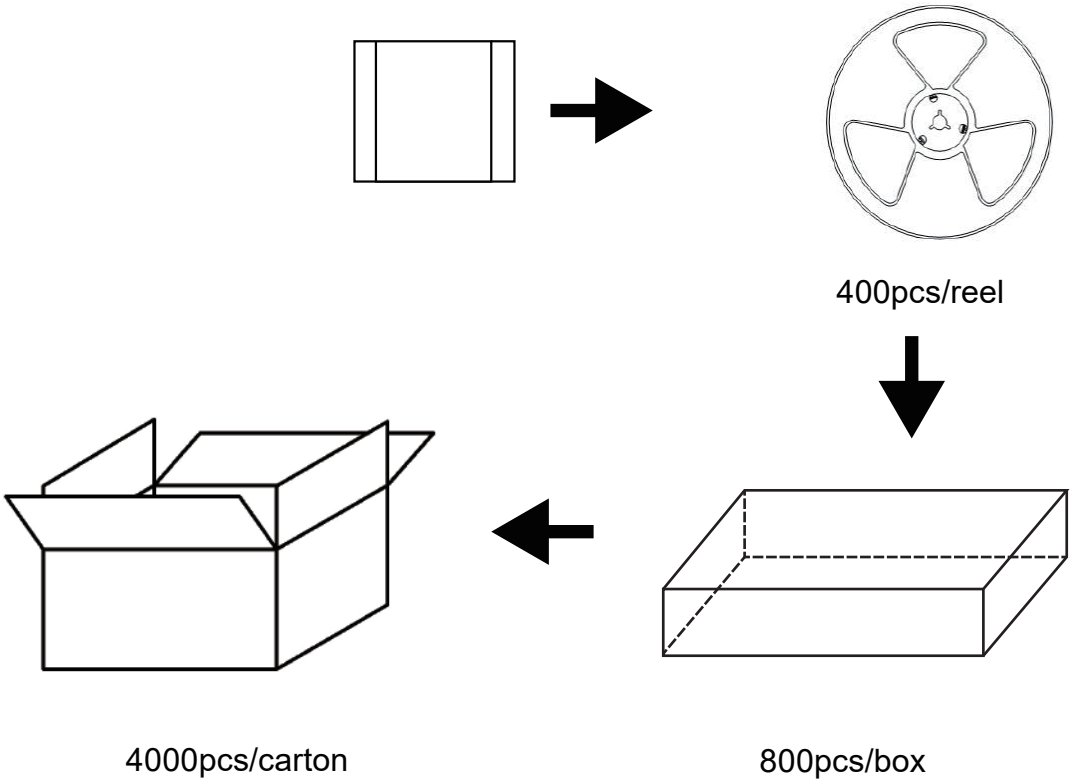
| Storage And Handling: | |
|---|---|
| Storage conditions | 0°C~ 35°C,30% ~60%R.H. |
| Devices may not meet specified performance if storage conditions are exceeded. | |

## Dimensions and Structure(mm)



## Packaging

| No. | Quantity &Packaging Code |
|---|---|
| JTN28 | 400 pcs/reel |




## Part Number System

**JT N 2 8 - 075 □**

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

2=2 electrode device

8=8mm diameter

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

JT = JDT Gas Discharge Tube