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PRODUCT DATASHEET

Gas Discharge Tubes

# JTS4532 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 Impulse Discharge Current 10x700μs(kV) | Nominal Impulse Discharge Current 8x20μs(kA) | Insulation Resistance min. (MΩ)/ (Vdc) | Max. Capacitance C 1MHz(pF) |
|---|---|---|---|---|---|---|
| JTS4532-070 | 70±30% | 650 | 4.0 | 2.0 | 100MΩ/50/Vdc | 1.0 |
| JTS4532-075 | 75±30% | 650 | 4.0 | 2.0 | 100MΩ/50/Vdc | 1.0 |
| JTS4532-090 | 90±30% | 600 | 4.0 | 2.0/3.0 | 100MΩ/50/Vdc | 1.0 |
| JTS4532-150 | 150±30% | 600 | 4.0 | 2.0 | 100MΩ/50/Vdc | 1.0 |
| JTS4532-200 | 200±30% | 750 | 4.0 | 2.0 | 100MΩ/50/Vdc | 1.0 |
| JTS4532-230 | 230±30% | 750 | 4.0 | 2.0 | 100MΩ/50/Vdc | 1.0 |
| JTS4532-300 | 300±30% | 900 | 4.0 | 2.0 | 100MΩ/50/Vdc | 1.0 |
| JTS4532-350 | 350±30% | 950 | 4.0 | 2.0 | 100MΩ/50/Vdc | 1.0 |
| JTS4532-400 | 400±30% | 1000 | 3.0 | 1.5 | 100MΩ/100/Vdc | 1.0 |
| JTS4532-420 | 420±30% | 1000 | 3.0 | 1.5 | 100MΩ/100/Vdc | 1.0 |
| JTS4532-470 | 470±30% | 1100 | 3.0 | 1.5 | 100MΩ/100/Vdc | 1.0 |
| JTS4532-500 | 500±30% | 1100 | 3.0 | 1.5 | 100MΩ/100/Vdc | 1.0 |
| JTS4532-600 | 600±30% | 1200 | 3.0 | 1.5 | 100MΩ/250/Vdc | 1.0 |
| JTS4532-800 | 800±30% | 1400 | 3.0 | 1.5 | 100MΩ/250/Vdc | 1.0 |

## 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 | 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. | 100MΩ or over |
| Resistance(IR) Capacitance | Measure the electrostatic capacitance by applying a voltage of less than 6V between terminals. | 1pF or less |

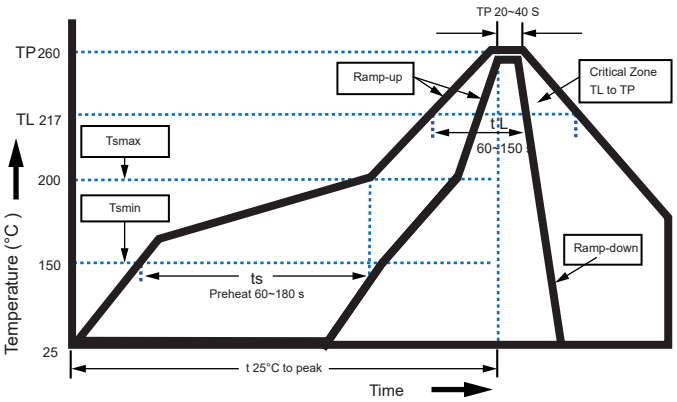
## Physical and Solderability Characteristics

| 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±5℃ 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℃ 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 t hen 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 1.5KA/2KA/3KA) for 10 times at 60 seconds intervals,Thereafter, the characteristics of times Vs,IR and C shall be measured.</td><td>No cracks or failures after applying current</td></tr>
<tr><td>Surge life</td><td>Apply a impulse withstanding voltage capacity (10/700μs of 4KV) for 10 times at 60 seconds intervals,Thereafter, the characteristics of times Vs,IR and C shall be measured .</td><td>△ Vs/Vs ≤30% other items must meet the specified value</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>Operating temp range :-55°C to +125°C<br>Storage temp range :-40°C to +85°C<br>Storage life： 2year</td><td></td></tr>
</table>

## Soldering Parameters



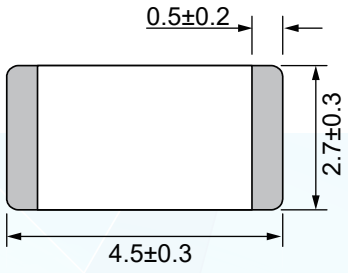

- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
- Recommended maximum paste thickness is 0.25mm Devices can be cleaned using standard industry methods and solvents.
- Note 1:All temperature refer to topside of the package, measured on the package body surface.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

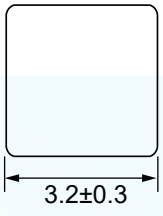
| Profile Feature | Pb-Free Assembly |
|---|---|
| Average Ramp-Up Rate (Ts max to T p) | 3°C/second mac. |
| Preheat | |
| -Temperature Min(Ts min) | 150°C |
| -Temperature Max(Ts max) | 200°C |
| -Time(Ts min to Ts max) | 60~180 seconds |
| Time maintained above: | |
| -Temperature(TL) | 217°C |
| -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. | |

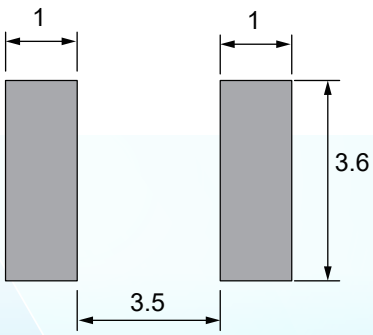
## Dimensions and Structure

Unit : mm



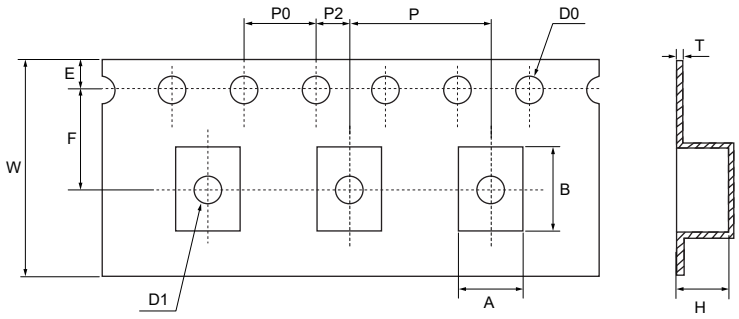

Recommended Pad layout



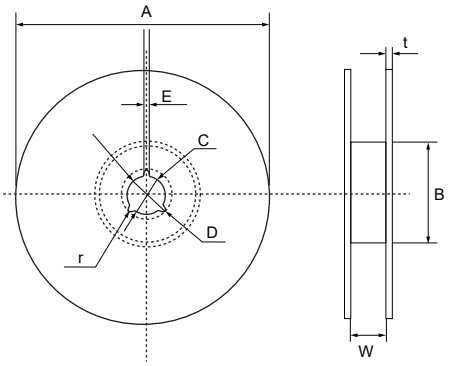

## Packaging

| No. | Quantity &Packaging Code |
|---|---|
| JTS4532 | 2500 pcs/reel |

## Tape And Reel Specifications (mm)




| Item | A | B | W | E | F | P |
|---|---|---|---|---|---|---|
| Spec.(mm) | 3.6±0.2 | 4.6±0.2 | 12±0.3 | 1.75±0.1 | 5.5±0.1 | 8.0±0.1 |
| **Item** | **P2** | **P0** | **D0** | **D1** | **T** | **H** |
| Spec.(mm) | 2.0±0.1 | 4.0±0.1 | $\phi$ 1.5±0.15 | $\phi$ 1.5±0.15 | 0.3±0.1 | 2.6±0.2 |




| Item | A | B | C | D |
|---|---|---|---|---|
| Spec.(mm) | 330±2 | 80±0.5 | 13±0.5 | 21±0.8 |
| **Item** | **E** | **W** | **t** | **r** |
| Spec.(mm) | 2.0±0.05 | $13.5^{+1.5}_{-10.5}$ | 1.6±0.5 | 1 |

## Part Number System

**JT S 4532 - 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

4532=Device Dimensions:
Length/width(Unit:1/100 inch) Size 4532 mm/1812 inch

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

JT = JDT Gas Discharge Tube