

## Gas Discharge Tube (GDT) Data Sheet

### Features

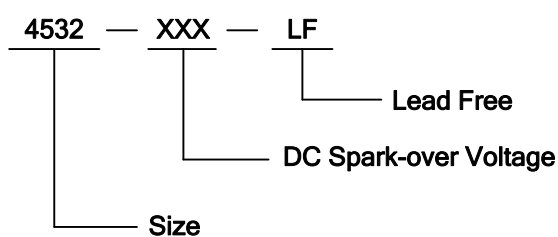
- High insulation resistance.
- Low capacitance ( $\leq 0.5\text{pF}$ ).
- 2000A 8/20 $\mu\text{s}$  maximum surge current capacity in accordance with IEC61000-4-5.
- 4KV 10/700 $\mu\text{s}$  maximum surge rating in accordance with ITU-TK.21
- Surface mounted gas arrester
- Micro-Gap Design
- Size 4532(1812)
- Storage and operating temperature:  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Meets MSL level 1, per J-STD-020
- Safety certification: E244458



### Applications

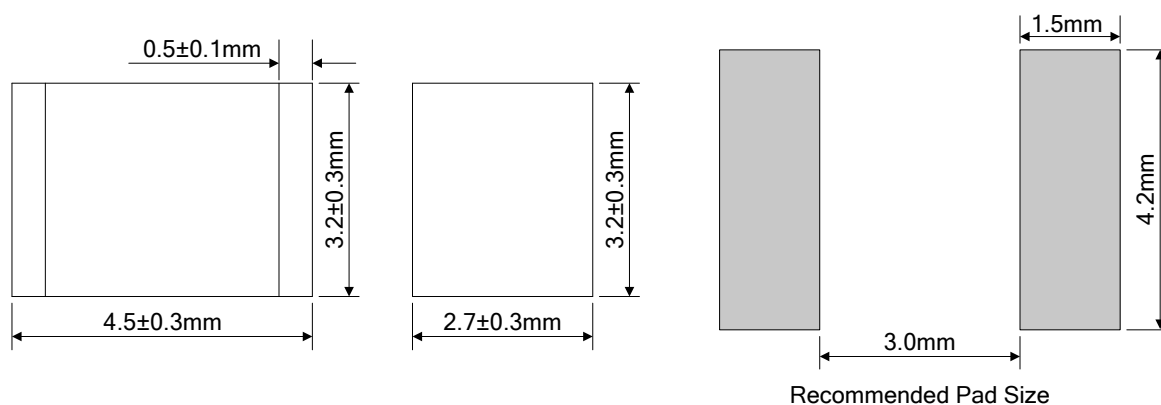
- Repeaters, Modems.
- Telephone Interface, Line cards.
- Data communication equipment.
- Line test equipment

### Part Number Code and Marking



090: Device Marking Code

### Dimensions



## Electrical Characteristics

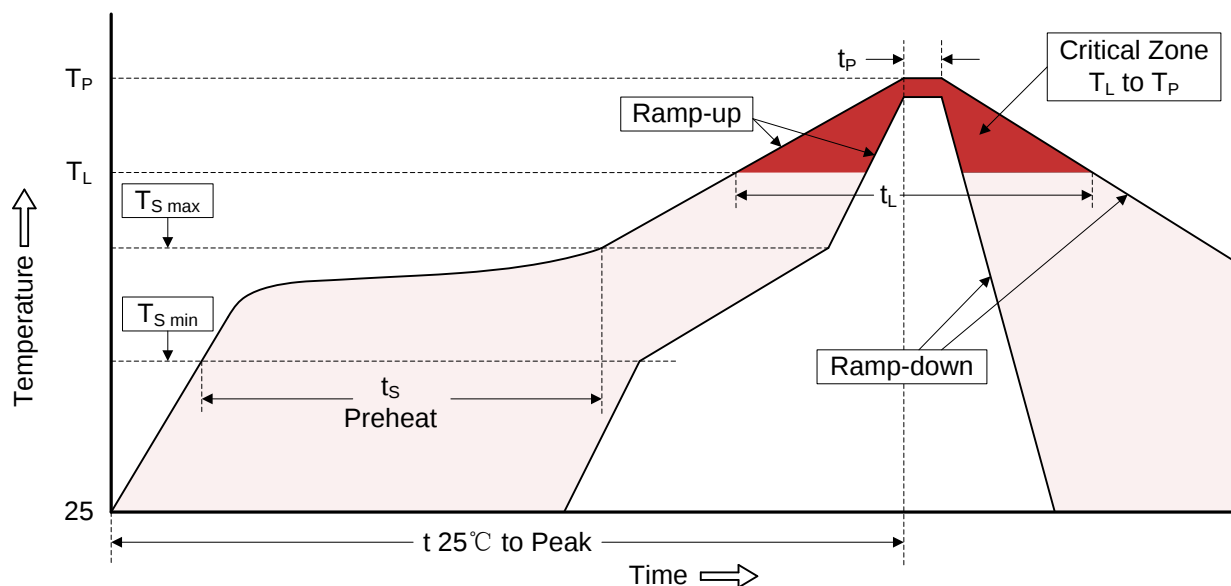
| Part Number   | DC Spark-over Voltage | Maximum Impulse Spark-over Voltage | Impulse Life Test | Minimum Insulation Resistance |               | Maximum Capacitance | Nominal Impulse Discharge Current | Impulse Withstanding Voltage Capacity  | Device Marking Code |
|---------------|-----------------------|------------------------------------|-------------------|-------------------------------|---------------|---------------------|-----------------------------------|----------------------------------------|---------------------|
|               | 100V/s                | 1KV/ $\mu$ s                       | 8/20 $\mu$ s 100A | Test Voltage                  | (G $\Omega$ ) | (1MHz 1V)           | 8/20 $\mu$ s                      |                                        |                     |
|               | (V)                   | (V)                                | (Times)           | DC(V)                         |               | (pF)                | (A)                               |                                        |                     |
| 4532-075-LF   | 55~95                 | 600                                | 300               | 25                            | 1             | 0.5                 | 2000                              | 10/700 $\mu$ s<br>4kV<br>$\pm$ 5 Times | 075                 |
| 4532-091-LF   | 63~117                | 700                                | 300               | 50                            | 1             | 0.5                 | 2000                              |                                        | 090                 |
| 4532-121-LF   | 84~156                | 700                                | 300               | 50                            | 1             | 0.5                 | 2000                              |                                        | 120                 |
| 4532-151-LF   | 105~195               | 700                                | 300               | 50                            | 1             | 0.5                 | 2000                              |                                        | 150                 |
| 4532-201-LF   | 140~260               | 750                                | 300               | 100                           | 1             | 0.5                 | 2000                              |                                        | 200                 |
| 4532-231-LF   | 161~299               | 750                                | 300               | 100                           | 1             | 0.5                 | 2000                              |                                        | 230                 |
| 4532-301-LF   | 210~390               | 900                                | 300               | 100                           | 1             | 0.5                 | 2000                              |                                        | 300                 |
| 4532-351-LF   | 245~455               | 900                                | 300               | 100                           | 1             | 0.5                 | 2000                              |                                        | 350                 |
| 4532-401-LF-  | 280~520               | 1000                               | 300               | 100                           | 1             | 0.5                 | 2000                              |                                        | 400                 |
| 4532-401-LF-M | 320~480               | 1000                               | 300               | 100                           | 1             | 0.5                 | 2000                              |                                        | 400                 |
| 4532-421-LF   | 294~546               | 1000                               | 300               | 100                           | 1             | 0.5                 | 2000                              |                                        | 420                 |
| 4532-471-LF   | 329~611               | 1000                               | 300               | 100                           | 1             | 0.5                 | 2000                              |                                        | 470                 |
| 4532-501-LF   | 350~650               | 1100                               | 300               | 100                           | 1             | 0.5                 | 2000                              |                                        | 500                 |
| 4532-601-LF   | 420~780               | 1200                               | 300               | 100                           | 1             | 0.5                 | 2000                              |                                        | 600                 |

## Electrical Ratings

| Items                              | Test Condition/Description                                                                                                                                                                                                     | Requirement                 |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| DC Spark-over Voltage              | The voltage is measured with voltage ramp $dv/dt=100V/s$ .                                                                                                                                                                     | To meet the specified value |
| Maximum Impulse Spark-over Voltage | The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$ .                                                                                                                                     |                             |
| Insulation Resistance              | The resistance of gas tube shall be measured between two electrodes.                                                                                                                                                           |                             |
| Capacitance                        | The capacitance of gas tube shall be measured between two electrodes.<br>Test frequency: 1MHz                                                                                                                                  |                             |
| Impulse Discharge Current          | Maximum 8/20 $\mu s$ surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval tim.                                                                                  |                             |
| Impulse Withstanding Voltage       | The maximum 10/700 $\mu s$ surge that can be applied to the Gas Tube, 5 positive and 5 negative surges, with 1 minute interval time, without causing the DC spark-over voltage to change more than 25% from its initial value. |                             |

## Recommended Soldering Conditions

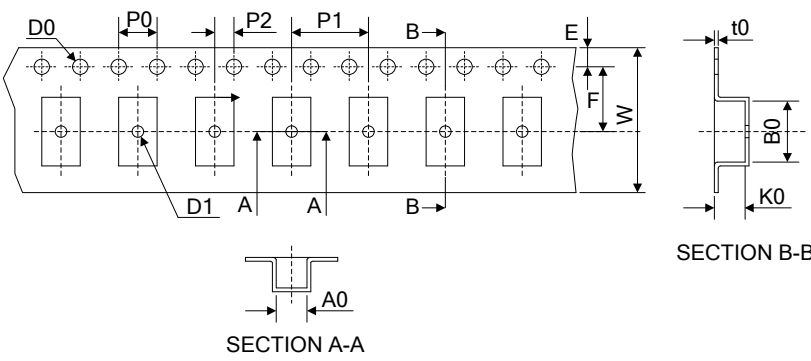
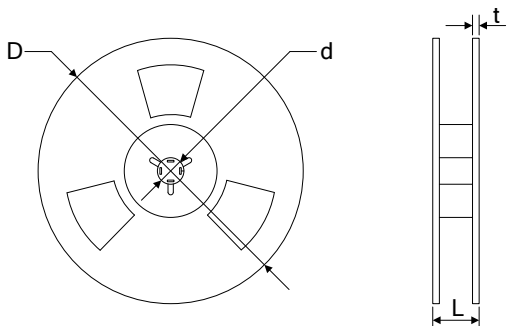
### Reflow Soldering



### Recommended Conditions

| Profile Feature                                                                                                                                                                                         | Pb-Free Assembly                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Average ramp-up rate ( $T_L$ to $T_P$ )                                                                                                                                                                 | 3°C/second max.                  |
| Preheat <ul style="list-style-type: none"> <li>-Temperature Min (<math>T_{S\ min}</math>)</li> <li>-Temperature Max (<math>T_{S\ max}</math>)</li> <li>-Time (min to max) (<math>t_s</math>)</li> </ul> | 150°C<br>200°C<br>60-180 seconds |
| $T_{S\ max}$ to $T_L$ <ul style="list-style-type: none"> <li>-Ramp-up Rate</li> </ul>                                                                                                                   | 3°C/second max.                  |
| Time maintained above: <ul style="list-style-type: none"> <li>-Temperature (<math>T_L</math>)</li> <li>-Time (<math>t_L</math>)</li> </ul>                                                              | 217°C<br>60-150 seconds          |
| Peak Temperature ( $T_P$ )                                                                                                                                                                              | 260°C                            |
| Time within 5°C of actual Peak Temperature ( $t_P$ )                                                                                                                                                    | 20-40 seconds                    |
| Ramp-down Rate                                                                                                                                                                                          | 6°C/second max.                  |
| Time 25°C to Peak Temperature                                                                                                                                                                           | 8 minutes max.                   |

Packaging

| Tape                                                                                | Items             | Dimension (mm) |           |
|-------------------------------------------------------------------------------------|-------------------|----------------|-----------|
|                                                                                     |                   | Spec.          | Tolerance |
|    | W                 | 12.00          | ±0.20     |
|                                                                                     | P0                | 4.00           | ±0.10     |
|                                                                                     | P1                | 8.00           | ±0.20     |
|                                                                                     | P2                | 2.00           | ±0.10     |
|                                                                                     | D0                | 1.45           | ±0.10     |
|                                                                                     | D1                | 1.00           | ±0.10     |
|                                                                                     | E                 | 1.75           | ±0.10     |
|                                                                                     | F                 | 5.50           | ±0.10     |
|                                                                                     | A0                | 3.80           | ±0.10     |
|                                                                                     | K0                | 3.20           | ±0.10     |
|                                                                                     | B0                | 4.90           | ±0.10     |
|                                                                                     | t0                | 0.40           | ±0.10     |
|  | D                 | 330.00         | ±1.00     |
|                                                                                     | d                 | 13.00          | ±0.50     |
|                                                                                     | L                 | 16.00          | ±0.50     |
|                                                                                     | t                 | 2.00           | ±0.20     |
|                                                                                     | Quantity: 2500pcs |                |           |