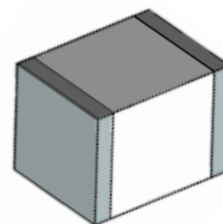


## Gas Discharge Tube Features

- Small Size Design 2.9×2.1×1.9mm
- Current Handling Capability 1,000A @ 8/20us
- Low Capacitance and Insertion Loss
- Fast Response and Long Service Life
- Reliable to Protect Electrostatic Surge
- Moisture sensitivity level: Level 1

## Exterior

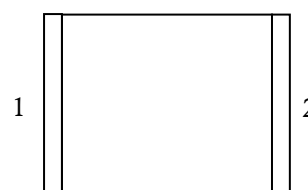


SMD

## Application information

- RS485/232/422
- Internet

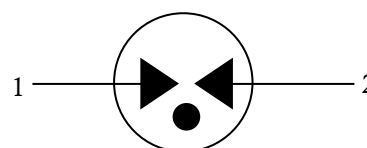
## Package (Top View)



## Agency Approvals

| Icon                                                                                | Description                                  |
|-------------------------------------------------------------------------------------|----------------------------------------------|
| <b>RoHS</b>                                                                         | Compliance with 2011/65/EU                   |
| <b>HF</b>                                                                           | Compliance with IEC61249-2-21:2003           |
|  | Mean lead free                               |
|  | Compliance with UL497B, Certificated E232249 |

## Schematic Symbol



## Electrical Parameter

|                                   |                    |                                     |    |
|-----------------------------------|--------------------|-------------------------------------|----|
| DC Breakdown Voltage 1)2)         | 100V/s             | 105-195                             | V  |
| Impulse Spark-over Voltage        | At 1kV/μs          | for 99 % of measured values ≤ 700   | V  |
|                                   | At 1kV/μs          | Typical values of distribution ≤650 | V  |
| Impulse Discharge Current 3)      | 8/20μs, ± 5Times   | 1,000                               | A  |
| Impulse Discharge Voltage 3)      | 10/700μs, ± 5Times | 6,000                               | V  |
| Arc Voltage                       | At 1A              | ~10                                 | V  |
| Insulation Resistance             | DC=100V            | ≥1                                  | GΩ |
| Capacitance at 1 MHz              | VDC=0.5V           | ≤0.5                                | pF |
| Weight                            |                    | ~0.062                              | g  |
| Operating And Storage Temperature |                    | -40-125                             | ℃  |
| Marking                           |                    | Without                             |    |

1) At delivery AQL 0.65 level II ISO 2859

2) In ionized mode

3) Terms and waveforms in accordance with ITU-T Rec. K. 12; IEC 61643-21

## Gas Discharge Tube

Version: A0 2021-02-02

## Part Numbering System

BL 151 N  
(1) (2) (3)  
(1) Bencent Gas Discharge Tube  
(2) Series: DC Breakdown Voltage, e.g.: 151=15×10<sup>1</sup>=150V  
(3) Tolerance of DC Breakdown Voltage, M=±20%, N=±30%, the Specific tolerance is decided by the table of“Electrical Parameter”

## Product Characteristics

|                 |                             |
|-----------------|-----------------------------|
| Lead Material   | Copper or iron nickel alloy |
| Body Material   | Ceramics                    |
| Terminal Finish | 100% Matte-Tin Plated       |

## Environmental Reliability Characteristics

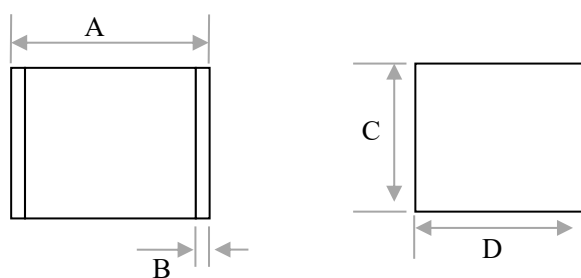
| Testing items                 | Technical standards                                       |
|-------------------------------|-----------------------------------------------------------|
| High Temperature Storage Test | Temperature: 125°C<br>Time:2H                             |
| Low Temperature Storage Test  | Temperature: -40°C<br>Time:2H                             |
| Vibration                     | Frequency: 10-500Hz<br>Amplitude: 0.15mm<br>Time: 45mins  |
| Resistance of soldering heat  | Temperature: 260±5°C<br>Time of dip soldering: 10s, 1time |

Note: Up-screen program can be specified by customer's request via contacting Bencent service

## Solderability test

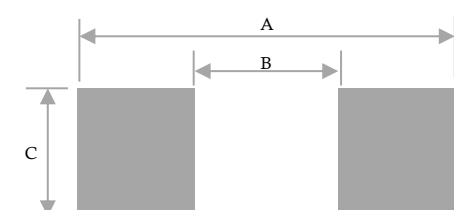
|               |                         |             |
|---------------|-------------------------|-------------|
| Solderability | Solder Pot Temperature: | 245°C ± 5°C |
|               | Solder Dwell Time:      | 4-6 seconds |

## Product Dimensions



| REF | mm      | inch        |
|-----|---------|-------------|
| A   | 2.9±0.3 | 0.114±0.012 |
| B   | 0.3±0.2 | 0.011±0.008 |
| C   | 1.9±0.2 | 0.075±0.008 |
| D   | 2.1±0.2 | 0.084±0.008 |

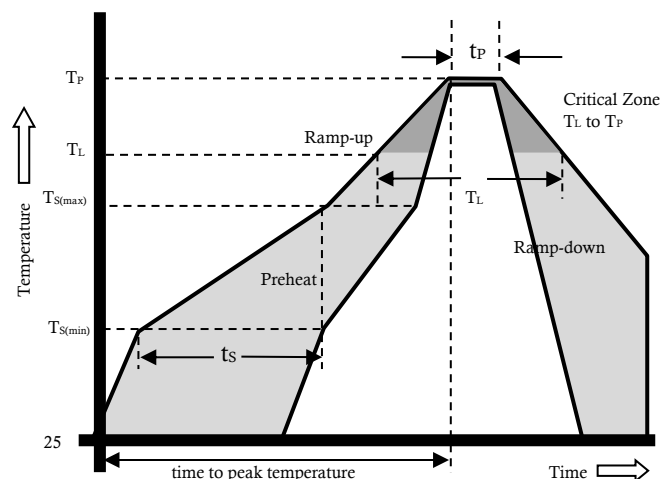
## Recommended Soldering Pad



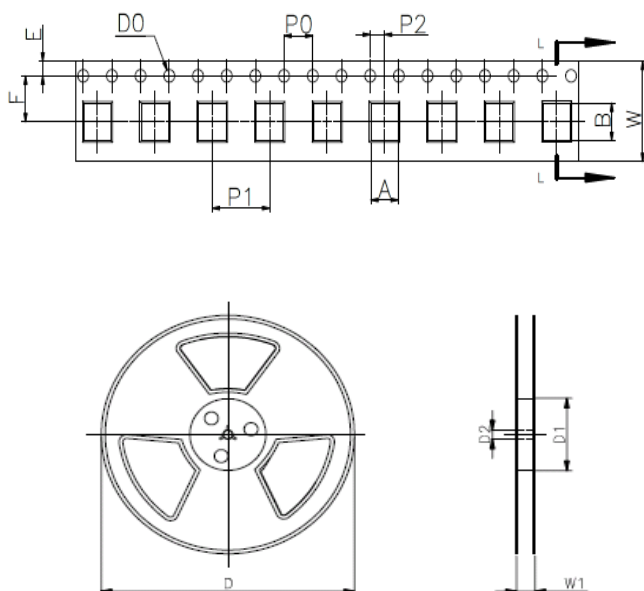
| REF | mm  | inch  |
|-----|-----|-------|
| A   | 3.5 | 0.138 |
| B   | 2.1 | 0.083 |
| C   | 2.3 | 0.091 |

## Reflow Profile

| Reflow Condition                                                          |                                           | Pb-Free assembly |
|---------------------------------------------------------------------------|-------------------------------------------|------------------|
| Pre Heat                                                                  | Temperature Min                           | 150°C            |
|                                                                           | Temperature Max                           | 200°C            |
|                                                                           | Time (min to max)                         | 60 – 180 secs    |
| Average ramp up rate (Liquids) T <sub>amp</sub> (T <sub>L</sub> ) to peak |                                           | 3°C/second max   |
| T <sub>S</sub> (max) to T <sub>L</sub> - Ramp-up Rate                     |                                           | 3°C/second max   |
| Reflow                                                                    | - Temperature (T <sub>L</sub> ) (Liquids) | 217°C            |
|                                                                           | - Temperature (T <sub>L</sub> )           | 60 – 150 seconds |
| Peak Temperature (T <sub>P</sub> )                                        |                                           | 260+0/-5 °C      |
| Time within 5°C of actual peak Temperature (t <sub>p</sub> )              |                                           | 8 – 20 seconds   |
| Ramp-down Rate                                                            |                                           | 6°C/second max   |
| Time 25°C to peak Temperature (T <sub>P</sub> )                           |                                           | 8 minutes Max.   |
| Do not exceed                                                             |                                           | 260°C            |



## Package Reel Information



| REF | mm       | inch         |
|-----|----------|--------------|
| A   | 2.4±0.1  | 0.094±0.004  |
| B   | 3.2±0.1  | 0.130±0.004  |
| D0  | Φ1.5±0.2 | Φ0.059±0.008 |
| P0  | 4.0±0.2  | 0.157±0.008  |
| P2  | 2.0±0.2  | 0.079±0.008  |
| P1  | 4.0±0.2  | 0.156±0.008  |
| E   | 1.75±0.2 | 0.069±0.008  |
| F   | 5.5±0.2  | 0.217±0.008  |
| W   | 12.0±0.2 | 0.472±0.008  |
| D   | Φ178±2   | Φ7.008±0.079 |
| D1  | Φ58Min   | Φ2.28Min     |
| D2  | Φ13±0.2  | 0.512±0.008  |
| W1  | 16.8±0.2 | 0.496±0.008  |

| Outline | Reel (PCS) | Per Carton (PCS) | Reel Diameter (mm) | Carton Size(mm) |     |     |
|---------|------------|------------------|--------------------|-----------------|-----|-----|
|         |            |                  |                    | L               | W   | H   |
| TAPING  | 2,000      | 60,000           | 178                | 390             | 370 | 220 |