


**Gas Discharge Tube
Features**

- Small Size Design 5.5×4.0×4.0mm
- Current Handling Capability 5,000A @ 8/20μs
- Low Capacitance and Insertion Loss
- Fast Response and Long Service Life
- Moisture sensitivity level: Level 1

Application information

- RS485/232/422

Agency Approvals

| Icon | Description |
|---|------------------------------------|
| RoHS | Compliance with 2011/65/EU |
| HF | Compliance with IEC61249-2-21:2003 |
|  | Mean lead free |

Electrical Parameter

| | | | |
|-----------------------------------|---|--------------------------------|-------|
| DC Breakdown Voltage 1)2) | 100V/s | 72~108 | V |
| Impulse Spark-over Voltage | At 1kV/μs | for 99 % of measured values | ≤ 600 |
| | At 1kV/μs | Typical values of distribution | ≤550 |
| Impulse Discharge Current 3) | 8/20μs 10 operations [5x (+) & 5x (-)] | 5,000 | A |
| Arc Voltage | At 1A | ~15 | V |
| Insulation Resistance | DC=50V | ≥1 | GΩ |
| Capacitance at 1MHz | VDC=0.5V | ≤0.6 | pF |
| Weight | | ~0.43 | g |
| Operating And Storage Temperature | | -40-125 | °C |
| Marking | | Without | |

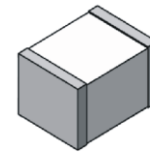
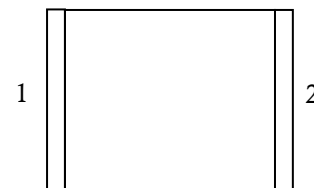
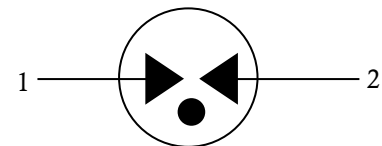
1) At delivery AQL 0.65 level II ISO 2859

2) In ionized mode

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

Exterior

Version: A0 2020-06-22


SMD
Package (Top View)

Schematic Symbol


Gas Discharge Tube

Version: A0 2020-06-22

Part Numbering System

BN 091 M

(1) (2) (3)

(1)Bencent Gas Discharge Tube

(2) Series: DC Breakdown Voltage,

 e.g.: 091=9×10¹=90V

 (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 |

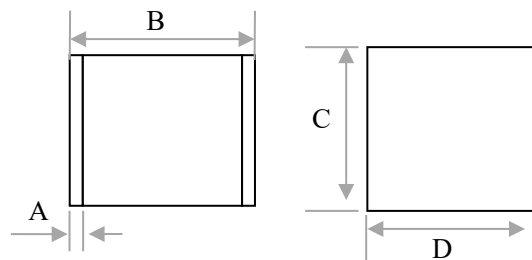
Environmental Reliability Characteristics

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

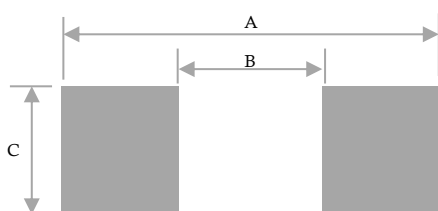
Note: Up-screen program can be specified by customer’s request via contacting Bencent service

Solderability test

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

Product Dimensions


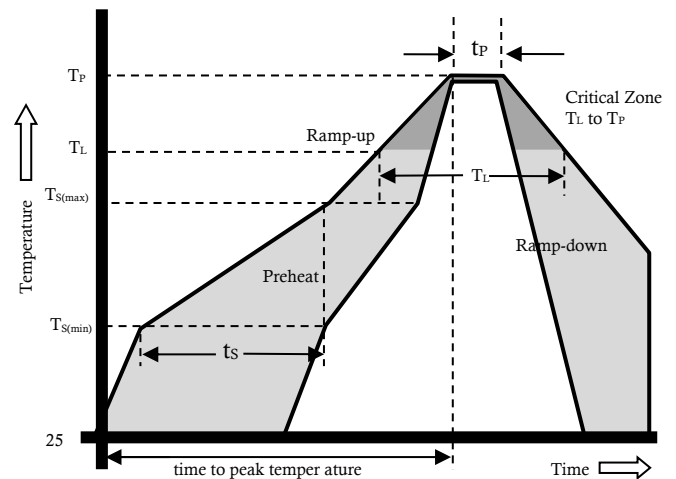
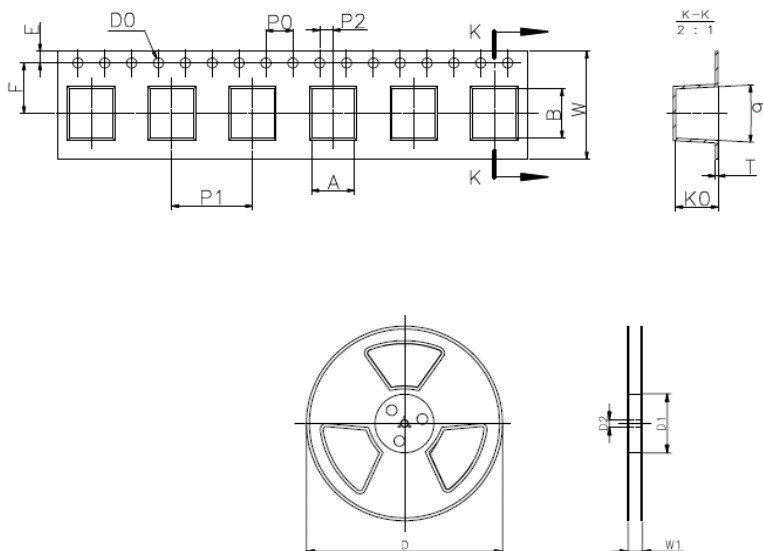
| REF | mm | inch |
|-----|----------|-------------|
| A | 0.45±0.1 | 0.018±0.004 |
| B | 5.5±0.2 | 0.216±0.008 |
| C | 4.0±0.2 | 0.157±0.008 |
| D | 4.0±0.2 | 0.157±0.008 |

Recommended Soldering Pad


| REF | mm | inch |
|-----|-----|-------|
| A | 6.1 | 0.240 |
| B | 4.4 | 0.161 |
| C | 4.2 | 0.165 |

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 _{amp} (T _L) to peak | | 3°C/second max |
| T _{S(max)} to T _L - Ramp-up Rate | | 3°C/second max |
| Reflow | - Temperature (T _L) (Liquids) | 217°C |
| | - Temperature (T _L) | 60 – 150 seconds |
| Peak Temperature (T _P) | | 260±0/-5 °C |
| Time within 5°C of actual peak Temperature (t _p) | | ~10 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature (T _P) | | 8 minutes Max. |
| Do not exceed | | 260°C |


Package Reel Information


| REF | mm | inch |
|----------------|----------------------------------|---|
| A | 4.3±0.1 | 0.169±0.004 |
| B | 5.8±0.1 | 0.228±0.004 |
| D ₀ | 1.5±0.2 | 0.059±0.008 |
| E | 1.75±0.2 | 0.069±0.008 |
| F | 7.5±0.2 | 0.295±0.008 |
| P ₀ | 4±0.2 | 0.157±0.008 |
| P ₁ | 8±0.5 | 0.472±0.020 |
| P ₂ | 2±0.2 | 0.079±0.008 |
| W | 16±0.5 | 0.630±0.020 |
| K ₀ | 4.3±0.1 | 0.169±0.004 |
| T | 0.4±0.05 | 0.016±0.002 |
| D | Φ330±2 | Φ12.99±0.079 |
| D ₁ | Φ100 ⁺¹ ₋₂ | Φ3.94 ^{+0.039} _{-0.078} |
| D ₂ | Φ13±0.15 | 0.512±0.006 |
| W ₁ | 20±1 | 0.787±0.039 |

Package Box Information

| Outline | Reel (PCS) | Per Carton (PCS) | Carton Size(mm) | | |
|---------|------------|------------------|-----------------|-----|-----|
| | | | L | W | H |
| Box | 1600 | 25600 | 360 | 360 | 380 |

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