



### Features

- Surface Mounting Design 7.8×5.0×6.0mm
- High Current Handling Capability 10,000A @ 8/20 μs
- Low Capacitance and Insertion Loss
- Quick Response and Long Service Life
- Moisture sensitivity level: Level 1

### Application information

- RS485/232/422
- Ethernet

### Agency Approvals

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

### Electrical Parameter

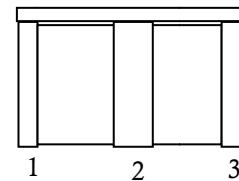
DC Breakdown Voltage <sup>1)2)4)</sup>	100V/s	72-108	V
Impulse Spark-over Voltage <sup>4)</sup>	At 100V/ μs	for 99 % of measured values ≤ 450	V
		Typical values of distribution ≤ 350	V
	At 1kV/ μs	for 99 % of measured values ≤ 600	V
		Typical values of distribution ≤ 500	V
Impulse Discharge Current <sup>5)</sup>	8/20 μs ± 5 times	10,000	A
	10/350 μs 1 time	1,000	A
	10/1000 μs ± 150 times	200	A
AC Discharge Current <sup>5)</sup>	10A, 1S	10	Times
Arc Voltage <sup>4)</sup>	At 1A	~10	V
Insulation Resistance <sup>4)</sup>	DC=50V	≥1	G Ω
Capacitance at 1MHz <sup>4)</sup>	VDC=0.5V	≤1.5	pF
Weight		~1.12	g
Operating And Storage Temperature		-40-90	°C
Marking		Bencent Logo YY MM B3D090M-C (YY: year of production, MM: month of production)	

### Exterior

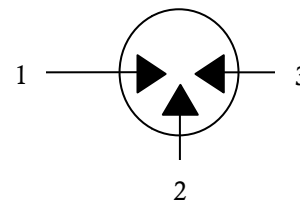


### Package (Top View)

SMD



### Schematic Symbol



Gas Discharge Tube

Version: A7 2015-08-31

- 1) At delivery AQL 0.65 level II GB/T 2828.1-2003
- 2) In ionized mode
- 3) Terms and waveforms in accordance with ITU-T Rec. K. 12 and IEC 61643-21
- 4) Tip electrode "1" or "3" to center electrode "2"
- 5) Total Currents through center electrode 2, half value through each Tip electrode "1" "3".

Part Numbering System

Product Characteristics

B3D 090 M - C  
(1) (2) (3) (4)  
(1) Bencent 3-Electrode SMD Gas Discharge Tube  
7.8×5.0×6.0mm  
(2) DC Breakdown Voltage, e.g., 090=90V  
(3) Surge Rating @8/20 μs, M=10,000A (Total Impulse  
Discharge Current 10,000A @ 8/20 μs)  
(4) "-C" Means it is Suitable for High-Speed SMT

Lead Material	Copper
Body Material	Ceramics
Terminal Finish	100% Matte-Tin Plated

Environmental Reliability Characteristics

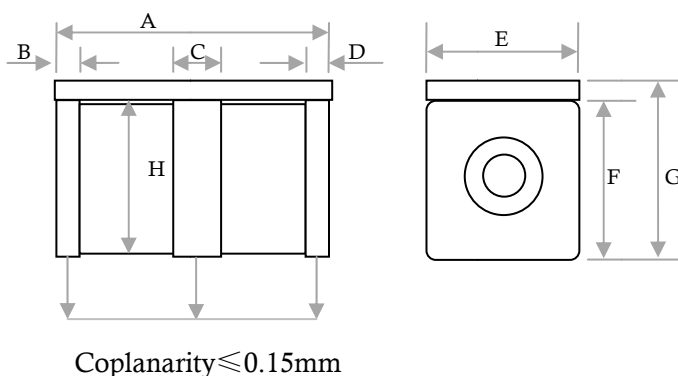
Testing items	Technical standards
High Temperature Storage Test	Temperature: 90°C Time: 2H
Low Temperature Storage Test	Temperature: -40°C Time: 2H
Vibration	Frequency: 10-500Hz Amplitude: 0.15mm Time: 45min
Resistance of soldering heat	Temperature: 260±5°C Time of dip soldering: 10s, 1time

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

Solderability Test

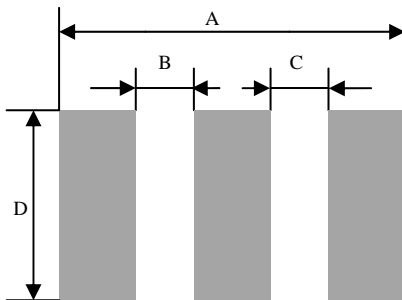
Solderability	Solder Pot Temperature:	245°C ± 5°C
	Solder Dwell Time:	4-6 seconds

Product Dimensions



REF	mm	inch
A	7.8±0.3	0.307±0.012
B	0.5±0.2	0.020±0.008
C	1.6±0.2	0.063±0.008
D	0.5±0.2	0.020±0.008
E	5.0±0.2	0.197±0.008
F	5.0±0.2	0.197±0.008
G	6.0±0.3	0.236±0.012
H	4.7±0.2	0.185±0.008

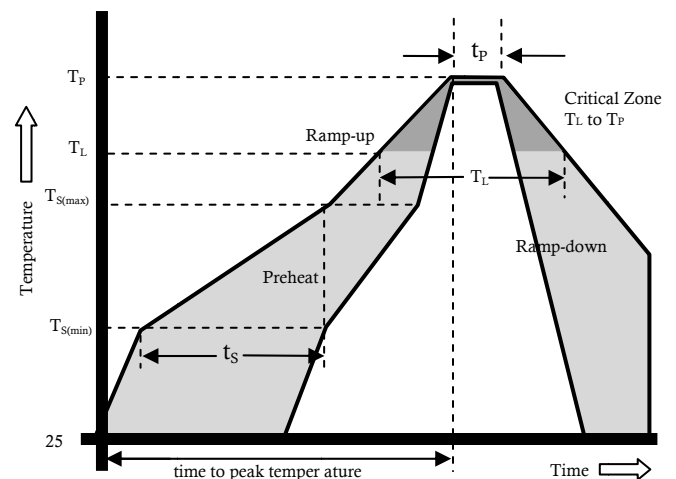
### Recommended Soldering Pad



REF	mm	inch
A	9.6	0.378
B	1.5	0.059
C	1.5	0.059
D	5.0	0.197

### 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(max)</sub> 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> )		~10 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



**Remarking:** it's only suitable for SMT manufacture, not for manual welding.



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