

Gas Discharge Tube Features

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

Application information

- RS485/232/422
- Ethernet

Agency Approvals

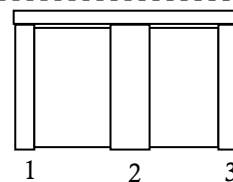
Icon	Description
RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003
	Mean lead free
	UL Certificated E232249

Exterior

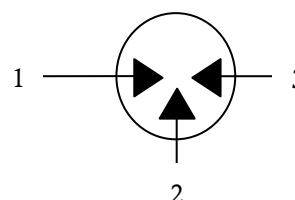


Package (Top View)

SMD



Schematic Symbol



Electrical Parameter

DC Breakdown Voltage ^{1)2) 4)}	100V/s	72-108	V
Impulse Spark-over Voltage ⁴⁾	At 100V/μ s	for 99 % of measured values ≤ 450	V
		Typical values of distribution ≤ 350	V
	At 1kV/μ s	for 99 % of measured values ≤ 600	V
		Typical values of distribution ≤ 500	V
Impulse Discharge Current ⁵⁾	8/20μ s ± 5 times	10,000	A
	10/350μ s 1 time	1,000	A
	10/1000 μ s ± 150 times	200	A
AC Discharge Current ⁵⁾	10A, 1S	10	Times
Arc Voltage ⁴⁾	At 1A	~10	V
Insulation Resistance ⁴⁾	DC=50V	≥1	GΩ
Capacitance at 1MHz ⁴⁾	VDC=0.5V	≤1.5	pF
Weight		~1.12	g
Operating And Storage Temperature		-40-125	℃
Marking		Bencent Logo YY WW B3D090M-C (YY: year of production, WW: week of production)	

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 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"..

Gas Discharge Tube

Version: A8 2019-01-18

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 @8/20μ s, M=10,000A (Total Impulse
Discharge Current 10,000A @ 8/20μ s)
- (4) “-C” Means it is Suitable for High-Speed SMT

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

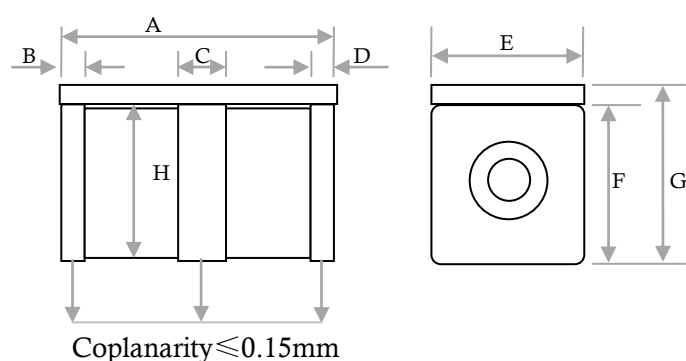
Environmental Reliability Characteristics

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

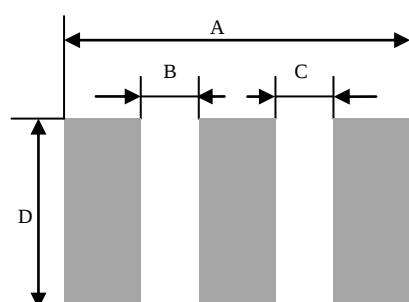
Note: Up-screen program can be specified by customer's request via contacting Bencent service

Solderability Test

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

Product Dimensions


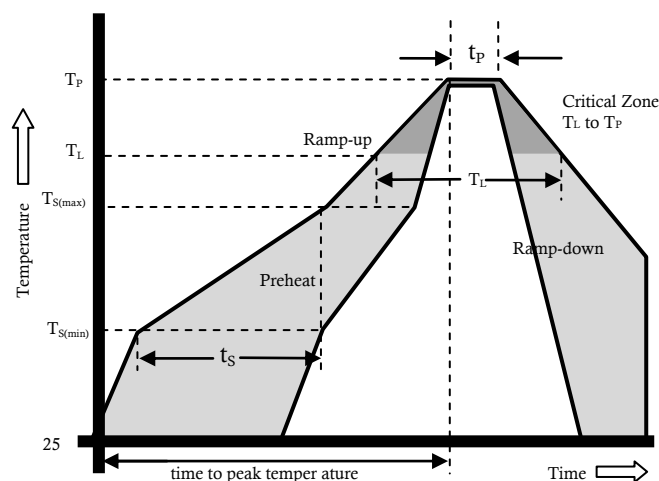
REF	mm	inch
A	7.8±0.3	0.307±0.012
B	0.5±0.2	0.020±0.008
C	1.6±0.2	0.063±0.008
D	0.5±0.2	0.020±0.008
E	5.0±0.2	0.197±0.008
F	5.0±0.2	0.197±0.008
G	6.0±0.3	0.236±0.012
H	4.7±0.2	0.185±0.008

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

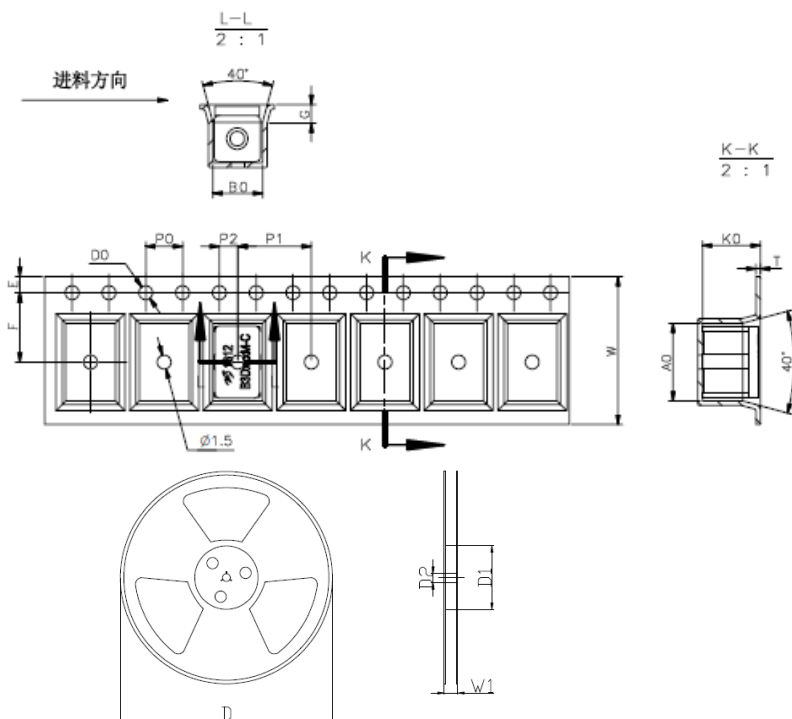
Reflow Profile

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 _{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



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

Package Reel Information



REF	mm	inch
A0	8.4±0.2	0.331±0.008
B0	5.4±0.2	0.216±0.008
P0	4.0±0.2	0.157±0.008
P1	8.0±0.2	0.315±0.008
P2	2.0±0.2	0.079±0.008
E	1.75±0.2	0.069±0.008
F	7.5±0.2	0.295±0.008
K0	6.3±0.2	0.248±0.008
T	0.5±0.2	0.020±0.008
G	2	0.079
D0	Φ 1.5±0.2	Φ 0.059±0.008
W	16.0±0.3	0.630± 0.012
D	Φ 330.0	Φ 13.0
D1	Φ 50Min	Φ 1.97Min
D2	Φ 13±0.5	Φ 0.512±0.020
W1	16.8±0.5	0.661±0.020

Outline	Reel (PCS)	Per Carton (PCS)	Reel Diameter (mm)	Carton Size(mm)		
				L	W	H
TAPING	1,000	16,000	330	360	360	385