



Features

- Surface Mounting Design 7.8×5.0×6.0mm
- High Current Handling Capability 10,000A @ 8/20 μ 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

Electrical Parameter

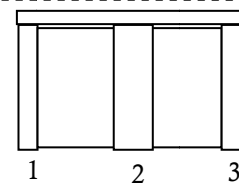
DC Breakdown Voltage ¹⁾²⁾⁴⁾	100V/s	72-108	V
Impulse Spark-over Voltage ⁴⁾	At 100V/ μ s	for 99 % of measured values ≤ 450	V
		Typical values of distribution ≤ 350	V
	At 1kV/ μ s	for 99 % of measured values ≤ 600	V
		Typical values of distribution ≤ 500	V
Impulse Discharge Current ⁵⁾	8/20 μ s ± 5 times	10,000	A
	10/350 μ 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	G Ω
Capacitance at 1MHz ⁴⁾	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

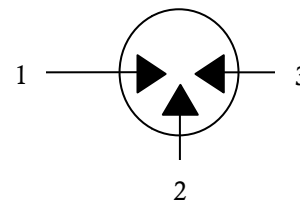


Package (Top View)

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

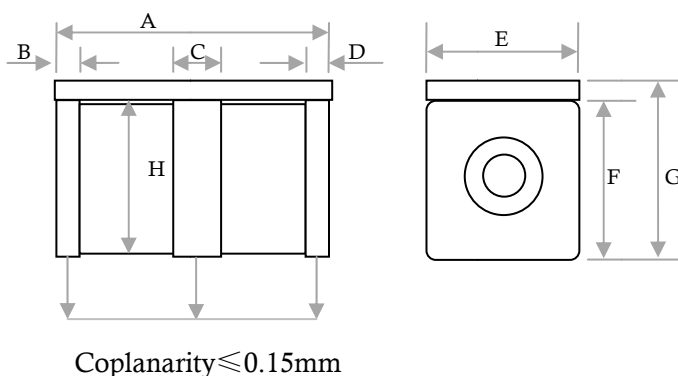
Testing items	Technical standards
High Temperature Storage Test	Temperature: 90°C Time: 2H
Low Temperature Storage Test	Temperature: -40°C Time: 2H
Vibration	Frequency: 10-500Hz Amplitude: 0.15mm Time: 45min
Resistance of soldering heat	Temperature: 260±5°C Time of dip soldering: 10s, 1time

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

Solderability Test

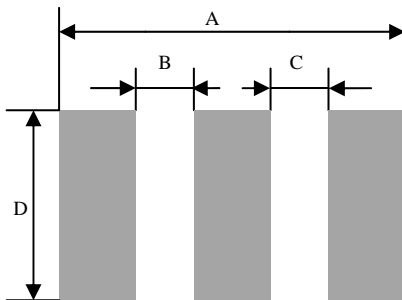
Solderability	Solder Pot Temperature:	245°C ± 5°C
	Solder Dwell Time:	4-6 seconds

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

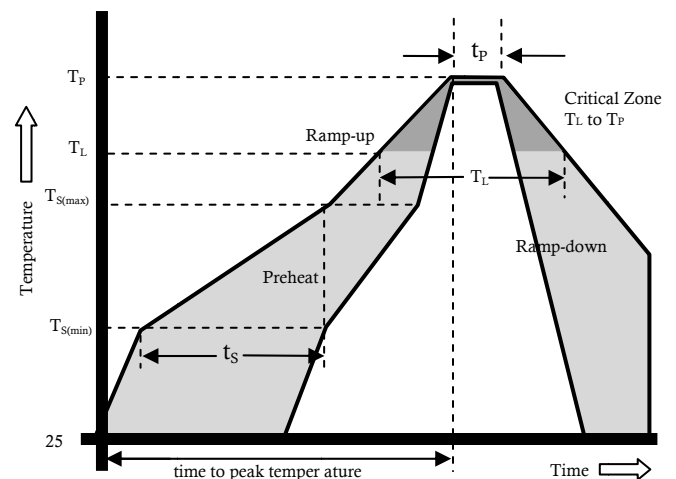
Recommended Soldering Pad



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

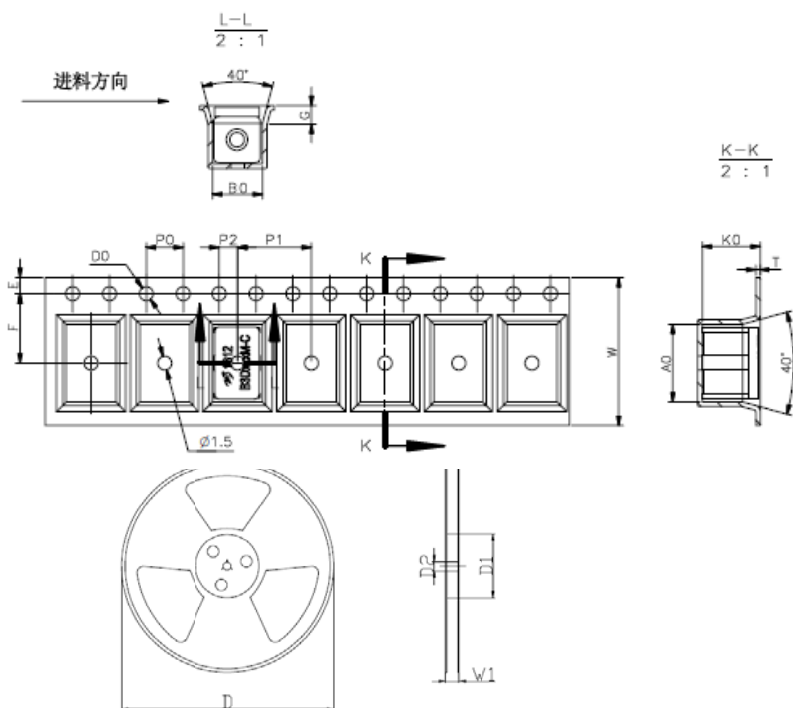
Reflow Profile

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 _{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	$\phi 1.5 \pm 0.2$	$\phi 0.059 \pm 0.008$
W	16.0±0.3	0.630± 0.012
D	$\phi 330.0$	$\phi 13.0$
D1	$\phi 50\text{Min}$	$\phi 1.97\text{Min}$
D2	$\phi 13 \pm 0.5$	$\phi 0.512 \pm 0.020$
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