



Features

- Surface Mounting Design 7.8×5.0×5.0mm
- 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/μs	for 99 % of measured values	≤ 450
		Typical values of distribution	≤ 350
	At 1kV/μs	for 99 % of measured values	≤ 600
		Typical values of distribution	≤ 500
Impulse Discharge Current ⁵⁾	8/20μs ± 5 times	10,000	A
	10/350μs 1 time	1,000	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		~1.0	g
Operating And Storage Temperature		-40-90	℃
Marking		Without	

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"

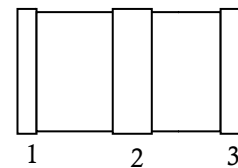
5) Total Currents through center electrode 2, half value through each Tip electrode "1" "3" ..

Exterior

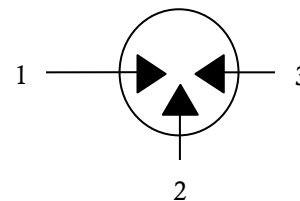


SMD

Package (Top View)



Schematic Symbol



Part Numbering System

- | | | | |
|-----|-----|-----|------|
| B3D | 090 | M | -C-2 |
| (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-2” Means it is Suitable for the round structure

Product Characteristics

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

Environmental Reliability Characteristics

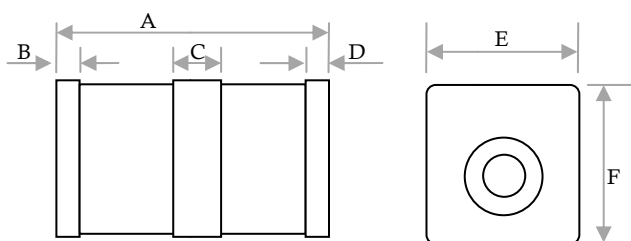
Testing items	Technical standards
High Temperature Storage Test	Temperature: 90°C Time:2H
Low Temperature Storage Test	Temperature: -40°C Time:2H
Vibration	Frequency: 10-500Hz Amplitude: 0.15mm Time: 45min
Resistance of soldering heat	Temperature: 260±5°C Time of dip soldering: 10s, 1time

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

Solderability Test

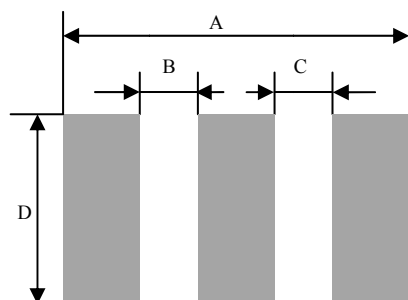
Solderability	Solder Pot Temperature:	245°C ± 5°C
	Solder Dwell Time:	4-6 seconds

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

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

