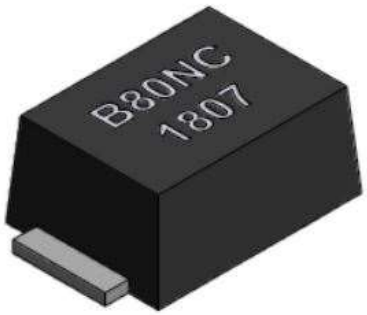
Thyristor Surge Suppresser

Version: A3 2022/04/21

Features

- Excellent capability of absorbing transient surge
- Quick response to surge voltage (nS Level)
- Eliminates overvoltage caused by fast rising transients
- Moisture sensitivity level: level 1
- Non degenerative
- Bi-directional

Exterior



SMB-F

Application Information

- Ethernet

Package (Top View)

Agency Approvals

Icon	Description
RoHS	Compliance with 2011/65/EU
HF	Compliance withIEC61249-2-21:2003
	UL Certificated E337906

Schematic Symbol

Part Number and Electrical Parameter

Part Number	I_{DRM}@V_{DRM}①		V_S②@ I_S		V_T@ I_T		I_H	C_O③
	μA	V	V	mA	V	A	mA	pF
	MAX		MAX		MAX		MAX	MAX
BS8000N-C-F	5	750	1000	800	4	2.2	50	50

Absolute maximum ratings measured at T_A= 25ºC RH = 45%-75% (unless otherwise noted).

① Hi-pot:AC500V

② Vs is measured at 100KV/S.

③ Off-state Capacitance is measured at V_{DC}=2V, V_{RMS}=1V, f=1MHz.

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Part Numbering System

BS	8000	N	C	F
(1)	(2)	(3)	(4)	(5)

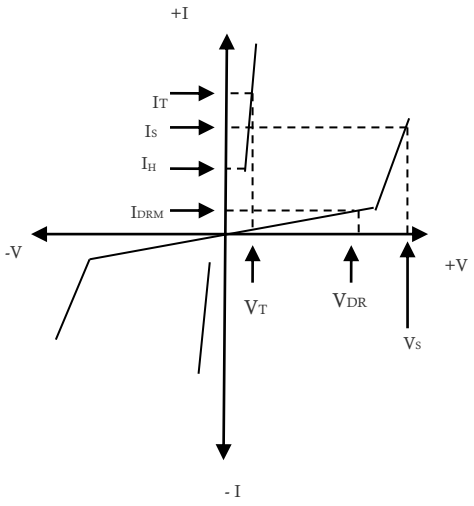
(1) Bencent Semiconductor Surge Arrester
(2) Off-state Voltage
(3) Package: SMB
(4) Rating Surge Voltage: 6KV (10/700μs)
(5) Flat feet

Mark

B80NC: Part Number
1807: July, 2018

V-I Curve

Parameters	Definition
V_{DRM}	Peak Off-state Voltage
I_{DRM}	Off-state Current
V_S	Switching Voltage
I_S	Switching Current
I_H	Holding Current
V_T	On-state Voltage
I_T	On-state Current
C_O	Off-state Capacitance



Surge Ratings

Current Waveform	8/20μs	8/20μs	5/320μs*	10/1000μs
Voltage Waveform	1.2/50μs	1.2/50μs	10/700μs*	10/1000μs
Ipp	400A	6KV@12Ω±25T	150A	100A

-Peak pulse current rating (I_{PP}) is repetitive and guaranteed for the life of the product;
-Bencent only makes the test for 5/320μs@150A* (10/700μs@6KV), but for other IPP value derived from experience is just for reference only. Bencent will not take any obligation for these parameters, so before applying our parts, please make sure to verify the parameters listed in the above table.

Thermal Considerations

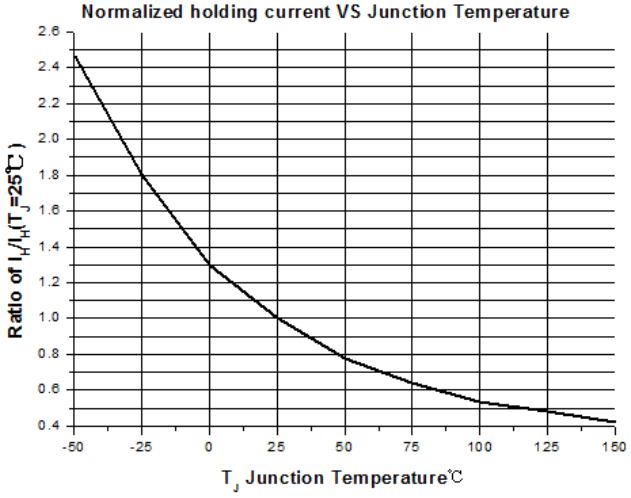
symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-40 to +150	℃
T_S	Storage Temperature Range	-60 to +150	℃

Physical Characteristics

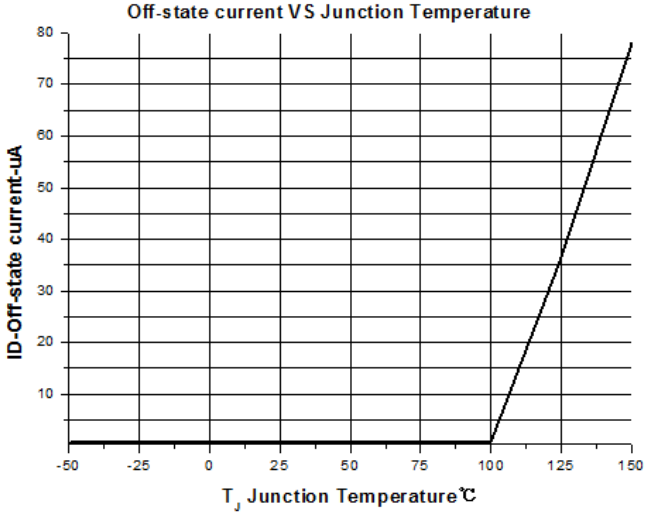
Lead Material	Copper Alloy
Body Material	UL recognized epoxy meeting flammability classification 94V-0
Terminal Finish	100% Matte-Tin Plated

Typical Characteristics

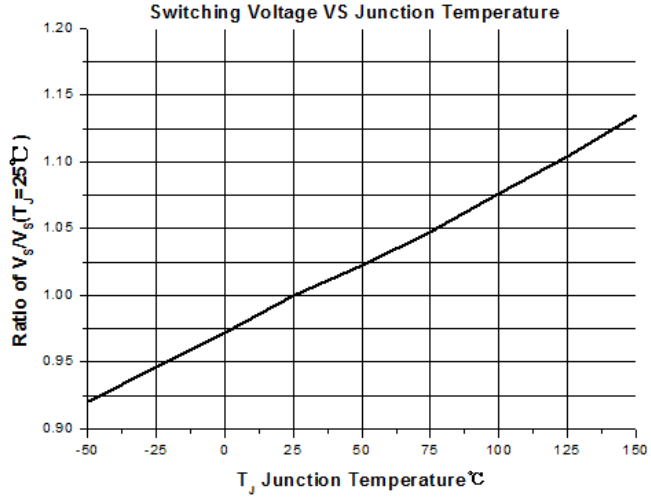
Normalized holding current VS Junction Temperature



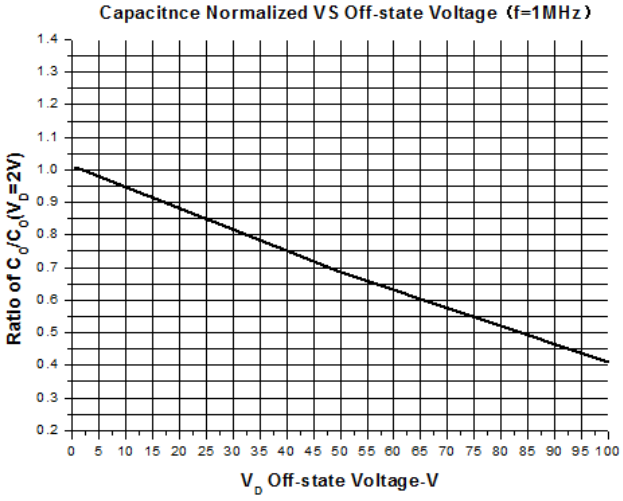
Off-state current VS Junction Temperature



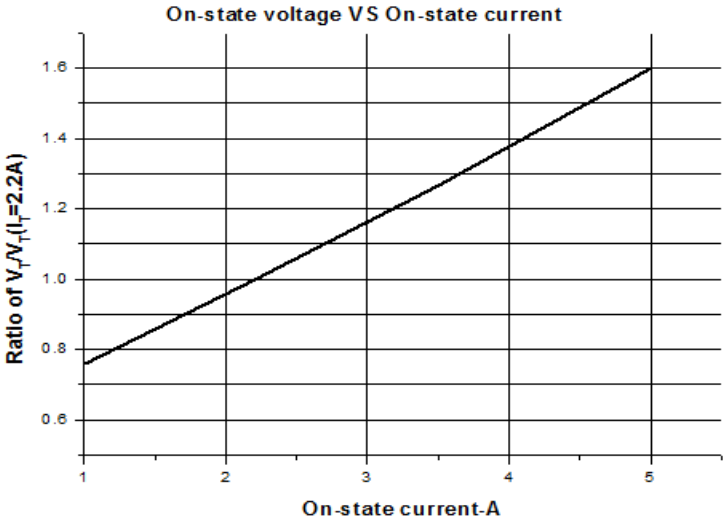
Switching Voltage VS Junction Temperature



Capacitnce Normalized VS Off-state Voltage（f=1MHz）



On-state voltage VS On-state current



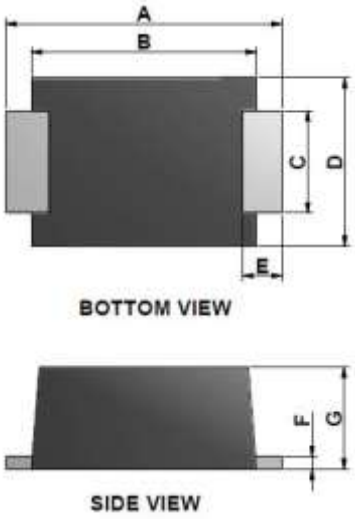
Thyristor Surge Suppresser

Environmental Characteristics

Testing Items	Technical Standards
High Temperature Reverse Bias Test	Temperature: 150±3℃, Bias=80%V_{DRM} Time: 168H
High Temperature Life Test	Temperature: 150℃ Time: 168H
High-low Temperature Cycle Test	Temperature: From -40℃ to125℃ Dwell time: 30min, 10-100 cycles
High Temperature &High Humidity Test	Temperature: 85℃, Humidity: 85% Test time: 168H
Pressure Cooker Test	Temperature: 121℃, 2atm. Humidity: 100% Test time: 24H to 168H
Resistance of Soldering Heat	Temperature: 260±5℃ Time of dip soldering: 10s, 3times

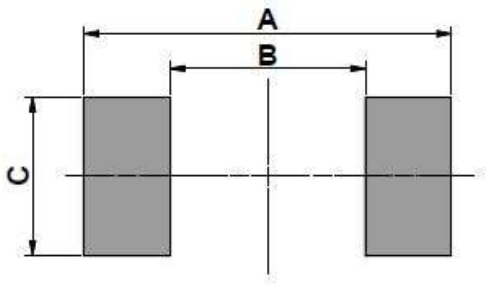
Note: The above testing items can be specified by customers by contacting Bencent service

Product Dimensions



REF	mm	inch
A	5.4±0.3	0.213±0.012
B	4.4±0.2	0.173±0.008
C	2.0±0.1	0.079±0.004
D	3.3±0.3	0.130±0.012
E	0.8±0.3	0.031±0.012
F	0.25±0.05	0.010±0.002
G	2±0.3	0.079±0.012

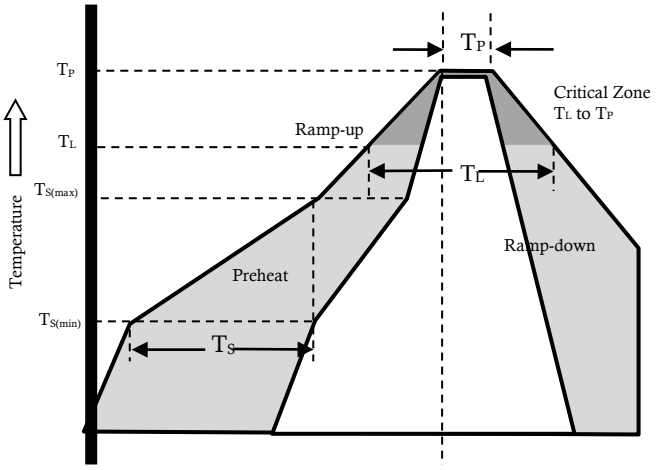
Recommended Soldering Pad



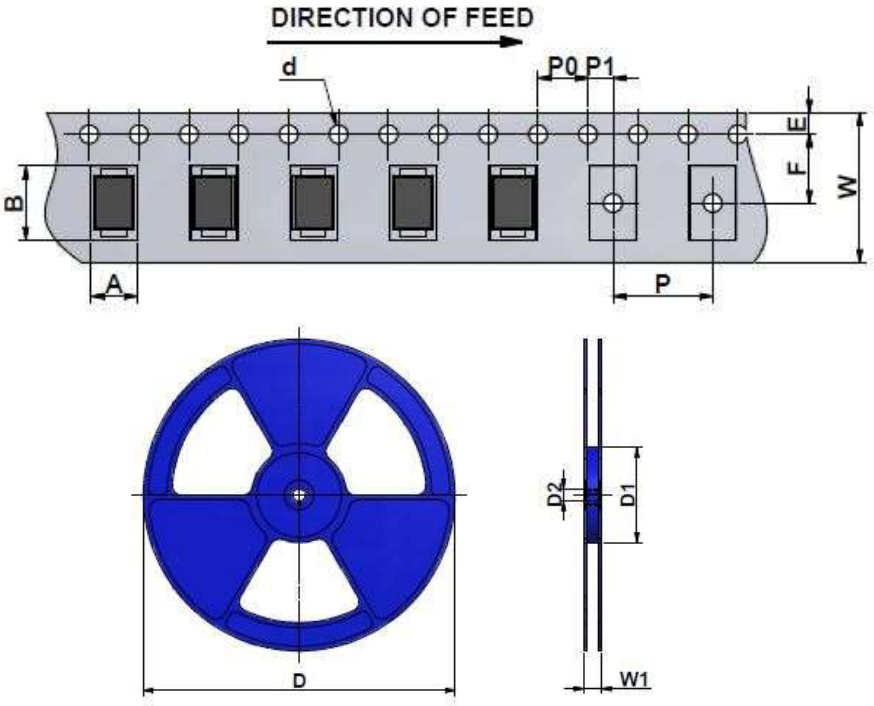
REF	mm	inch
A	5.9	0.232
B	3.4	0.134
C	2.5	0.098

Reflow Profile

Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time (min to max)	60 – 180 seconds
Average ramp up rate (Liquid)Tamp (T_L) to peal		3°C/second max
TS (max) to TL - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquid)	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)		8-15 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	3.9±0.2	0.154±0.008
B	5.8±0.2	0.228±0.008
d	1.5±0.1	0.059±0.004
D	330.0	13.0
D1	100±3	3.937±0.118
D2	13±0.3	0.512±0.012
E	1.75±0.2	0.069±0.008
F	5.5±0.25	0.217±0.010
P	8.0±0.2	0.315±0.008
P0	4.0±0.2	0.157±0.008
P1	2.0±0.2	0.079±0.008
W	12.0±0.2	0.472±0.008
W1	16.8±2.0	0.661±0.079

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	3,000	48,000	330	360	360	385