

Thyristor Surge Suppressor

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

Exterior



SMB

Application Information

- RS485/232/422

Package (Top View)



Agency Approvals

Icon	Description
RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003
	Compliance with UL497B, Certificated E232249

Schematic Symbol



Part Number and Electrical Parameter

Part Number	IDRM@ VDRM		Vs ^① @ Is		VT@ IT		IH	Co ^②
	μA	V	V	mA	V	A	mA	pF
	MAX		MAX		MAX		MIN	MAX
BS0300N-C	5	25	40	800	4	2.2	50	100

Absolute maximum ratings measured at TA= 25°C RH = 45%-75% (unless otherwise noted).

① Vs is measured at 100KV/S

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

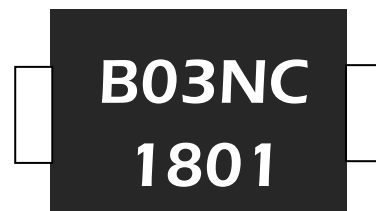
Thyristor Surge Suppressor

Part Numbering System

BS 0300 N C
(1) (2) (3) (4)

- (1) Bencent Semiconductor Surge Arrester
(2) Off-state Voltage, e.g. 0300=30×10⁰=30V
(3) Package: SMB
(4) Rating Surge Voltage: 8KV (10/700μs)

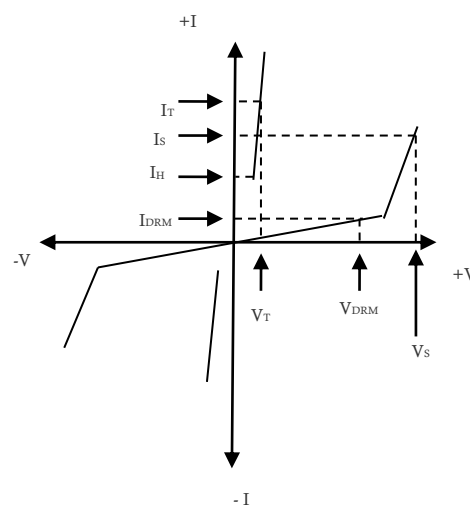
Mark



B03NC: Part Number
1801: January, 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	5/320μs
Voltage Waveform	10/700μs
I _{pp}	200

-Peak pulse current rating (I_{PP}) is repetitive and guaranteed for the life of the product;

Thermal Considerations

Symbol	Parameter	Value	Unit
T _J	Operating Junction Temperature Range	-40 to +125	°C
T _S	Storage Temperature Range	-40 to +125	°C

Product Characteristics

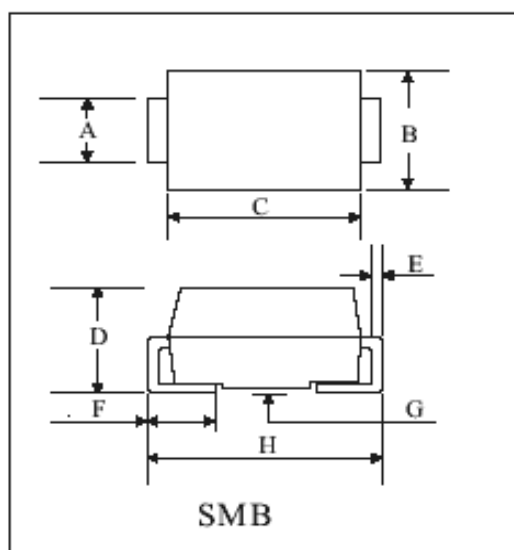
Lead Material	Copper Alloy
Body Material	UL recognized epoxy meeting flammability classification 94V-0
Terminal Finish	100% Matte-Tin Plated

Environmental Characteristics

Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: $125\pm3^{\circ}\text{C}$, Bias= $80\%V_{\text{DRM}}$ Time: 168H
High Temperature Life Test	Temperature: 125°C Time: 168H
High-low Temperature Cycle test	Temperature: From -40°C to 125°C Dwell time: 30min, 10cycles
High Temperature &High Humidity Test	Temperature: 85°C , Humidity: 85% Test time: 168H
Pressure cooker Test	Temperature: 121°C , 2atm, Humidity: 100% Test time: 24H
Resistance of soldering heat	Temperature: $260\pm5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

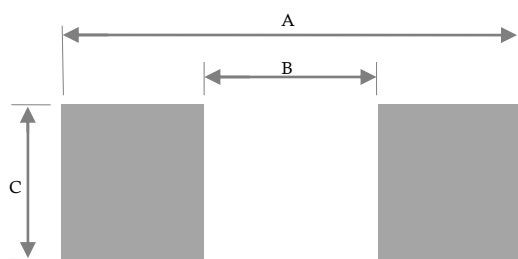
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	1.85--2.15	0.073--0.085
B	3.4--3.8	0.134--0.15
C	4.3--4.9	0.169--0.193
D	2--2.6	0.079--0.102
E	0.15--0.3	0.006--0.012
F	0.80--1.50	0.031--0.059
G	0--0.4	0--0.016
H	5--5.6	0.197--0.220

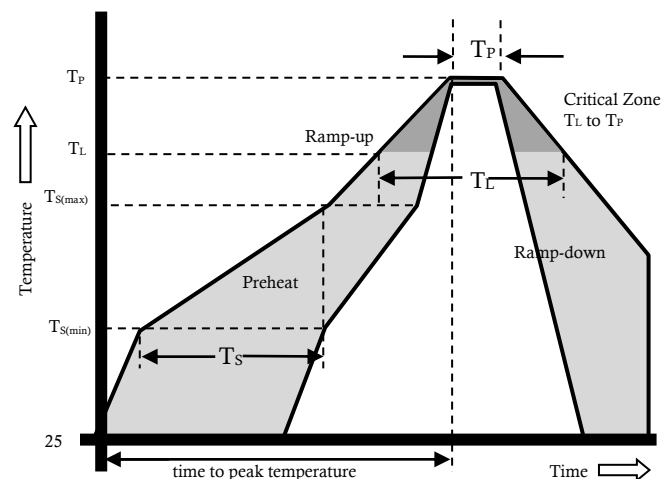
Recommended Soldering Pad



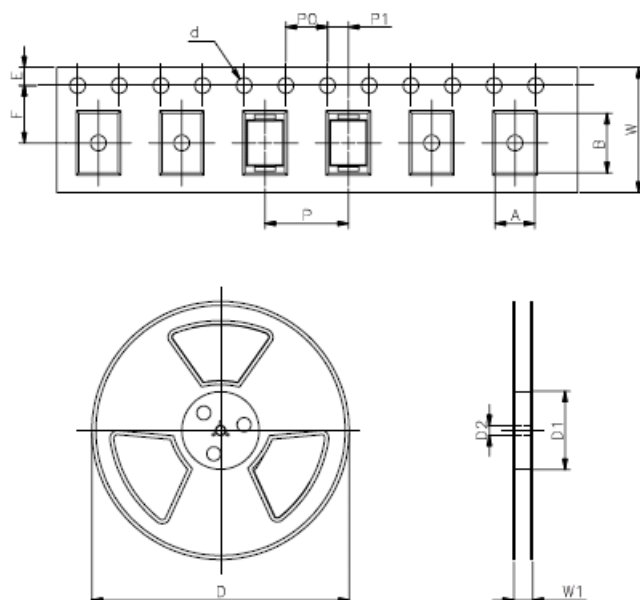
REF	mm	inch
A	5.45	0.215
B	2.45	0.097
C	2.15	0.085

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 (Liquid) 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) (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)		25 secs
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	3.75+/-0.3	0.148+/-0.012
B	5.65+/-0.3	0.222+/-0.012
d	1.5+/-0.15	0.059+/-0.006
D	type330.0	type13.0
D1	100+/-3	3.937+/-0.118
D2	13+/-2	0.512+/-0.079
E	1.75+/-0.2	0.069+/-0.008
F	5.5+/-0.5	0.217+/-0.020
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+/-0.3	0.472+/-0.012
W1	18+/-4	0.709+/-0.157

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