

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

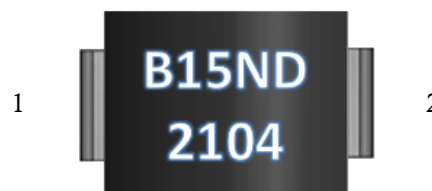


SMB


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
BS0150N-D	5	15	25	800	4	2.2	30	150

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 VDC=2V, VRMS=1V, f=1MHz

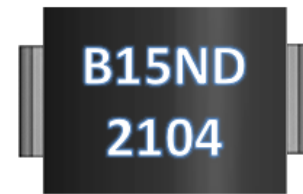
Thyristor Surge Suppressor

Part Numbering System

BS 0150 N - D
(1) (2) (3) (4)

- (1) Bencent Semiconductor Surge Arrester
(2) Off-state Voltage, e.g. 0150=15 × 10⁰=15V
(3) Package: SMB
(4) Rating Surge Voltage: 8KV (10/700μs)

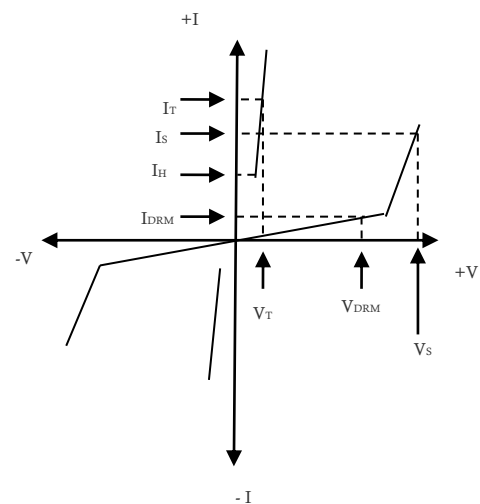
Mark



B15ND: Part Number
2104: April, 2021

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

Thyristor Surge Suppressor

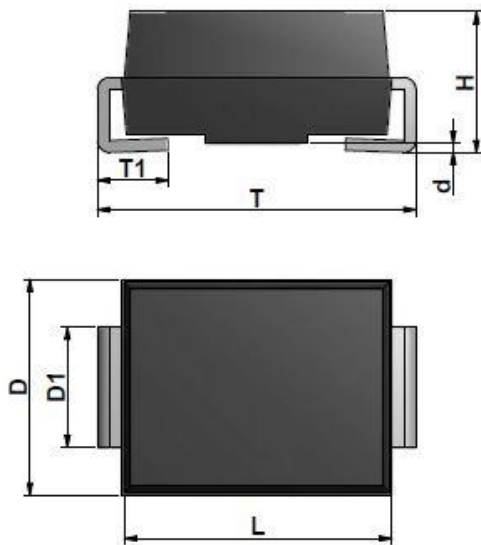
Version: A1 2021-04-28

Environmental Characteristics

Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: $125\pm 3^{\circ}\text{C}$, 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: $260\pm 5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

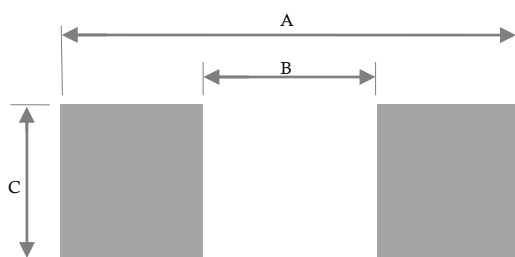
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF.	mm	inch
D	3.6 ± 0.3	0.142 ± 0.012
D1	2 ± 0.15	0.079 ± 0.006
L	4.6 ± 0.3	0.181 ± 0.012
T	5.4 ± 0.3	0.213 ± 0.012
T1	1.1 ± 0.3	0.043 ± 0.012
d	0~0.4	0~0.016
H	2.10~2.60	0.083~0.102

Recommended Soldering Pad



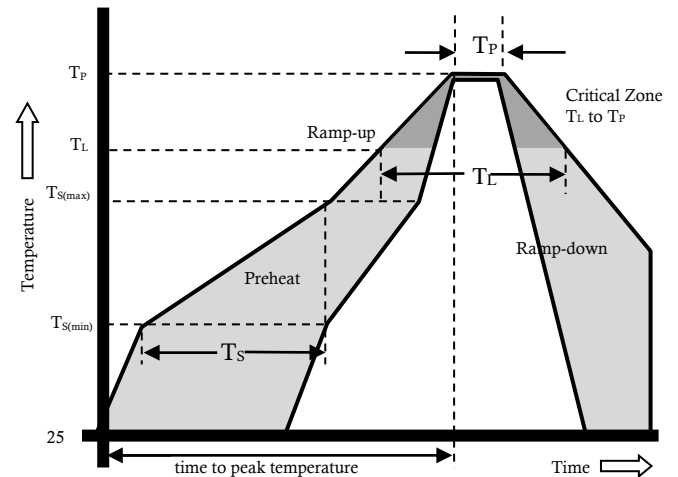
REF	mm	inch
A	5.45	0.215
B	2.45	0.097
C	2.15	0.085

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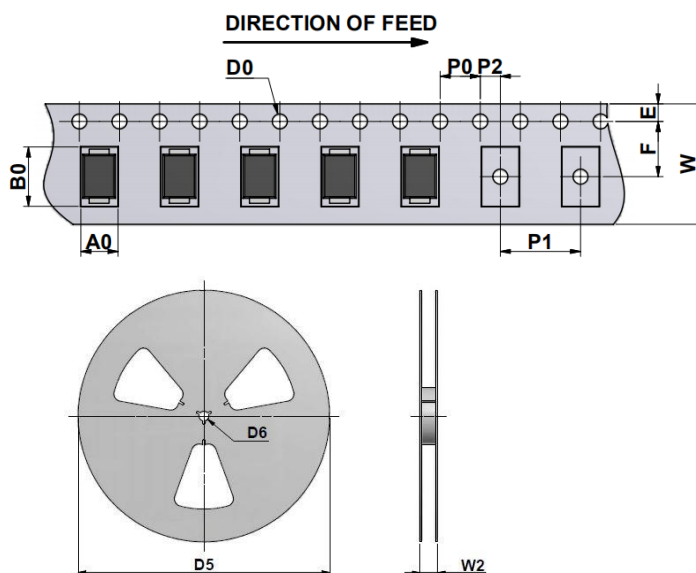
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Reflow Profile

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)		8-15secs
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
W	12±1	0.472±0.039
E	1.75±0.3	0.069±0.012
F	5.5±0.3	0.217±0.012
D0	1.55±0.15	0.061±0.006
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
A0	3.6±0.3	0.142±0.012
B0	5.7±0.3	0.224±0.012
D5	Ø330	Ø13
D6	Ø13.5±1.0	Ø0.531±0.039
W2	18±2.0	0.709±0.079

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	3000	48,000	330	360	360	385