

# SURGiNG

紹 鑫 實 業



# Thyristor Surge Suppressors

半导体放电管

BS1601N-C Series

## Thyristor Surge Suppressors - BS1601N-C Series

### 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

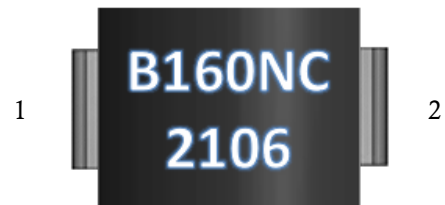


SMB

### Application Information

- Ethernet

### Package (Top View)



### Agency Approvals

Icon	Description
<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

### Schematic Symbol



### Part Number and Electrical Parameter

Part Number	IDRM@ VDRM <sup>①</sup>		Vs <sup>②</sup> @ Is		VT@ IT		IH	Co <sup>③</sup>
	μA	V	V	mA	V	A	mA	pF
	MAX		MAX		MAX		MIN	MAX
BS1601N-C	5	1500	2000	800	8	2.2	50	50

Absolute maximum ratings measured at TA= 25°C 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<sub>DC</sub>=2V, V<sub>RMS</sub>=1V, f=1MHz.

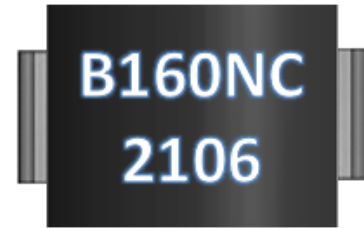
## Thyristor Surge Suppressors - BS1601N-C Series

### Part Numbering System

BS 1601 N C  
 (1) (2) (3) (4)

- (1) SURGING Semiconductor Surge Arrester
- (2) Off-state Voltage, e.g. 1601=160×10<sup>1</sup>=1600V
- (3) Package: SMB
- (4) Rating Surge Voltage: 6KV (10/700μs)

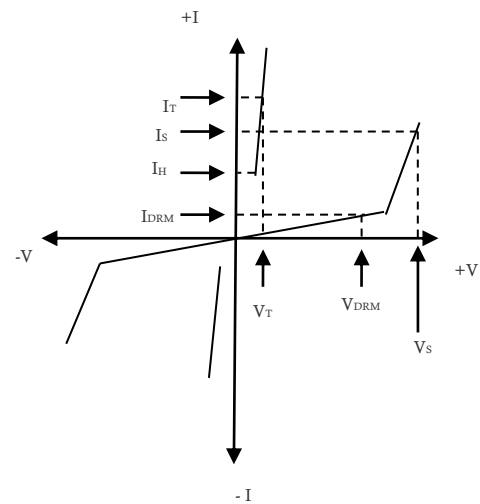
### Mark



B160NC: Part Number  
 2106: June, 2021

### V-I Curve

Parameters	Definition
V <sub>DRM</sub>	Peak off-state voltage
I <sub>DRM</sub>	Off-state Current
V <sub>S</sub>	Switching Voltage
I <sub>S</sub>	Switching Current
I <sub>H</sub>	Holding Current
V <sub>T</sub>	On-state voltage
I <sub>T</sub>	On-state current
C <sub>O</sub>	Off-state capacitance



### Surge Ratings

Current Waveform	5/320μs
Voltage Waveform	10/700μs
I <sub>pp</sub>	150

-Peak pulse current rating (I<sub>PP</sub>) is repetitive and guaranteed for the life of the product;

### Thermal Considerations

Symbol	Parameter	Value	Unit
T <sub>J</sub>	Operating Junction Temperature Range	-40 to +150	°C
T <sub>S</sub>	Storage Temperature Range	-40 to +150	°C

### Product Characteristics

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

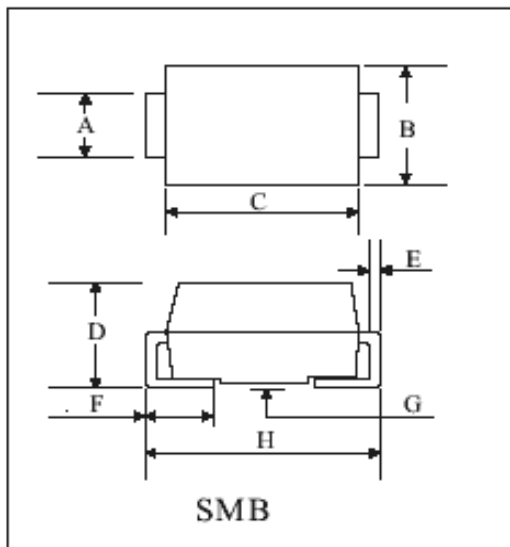
## Thyristor Surge Suppressors - BS1601N-C Series

### Environmental Characteristics

Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: $150\pm 3^{\circ}\text{C}$ , Bias= $80\%V_{\text{DRM}}$ Time: 168H
High Temperature Life Test	Temperature: $150^{\circ}\text{C}$ Time: 168H
High-low Temperature Cycle test	Temperature: From $-40^{\circ}\text{C}$ to $125^{\circ}\text{C}$ Dwell time: 30min, 10cycles
High Temperature & High Humidity Test	Temperature: $85^{\circ}\text{C}$ , Humidity: 85% Test time: 168H
Pressure cooker Test	Temperature: $121^{\circ}\text{C}$ , 2atm, Humidity: 100% Test time: 24H
Resistance of soldering heat	Temperature: $260\pm 5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

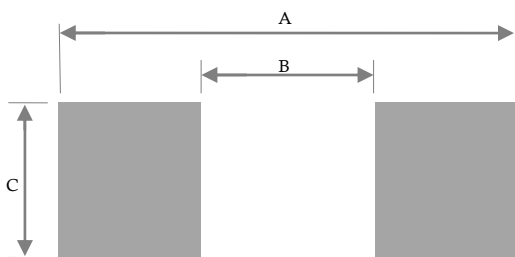
Note: The above testing items can be specified by customer's special request

### Product Dimensions



REF	mm	inch
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

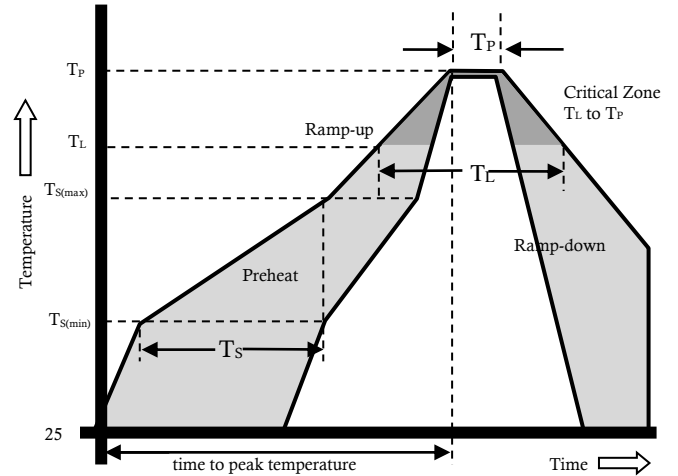


REF	mm	inch
A	5.45	0.215
B	2.45	0.097
C	2.15	0.085

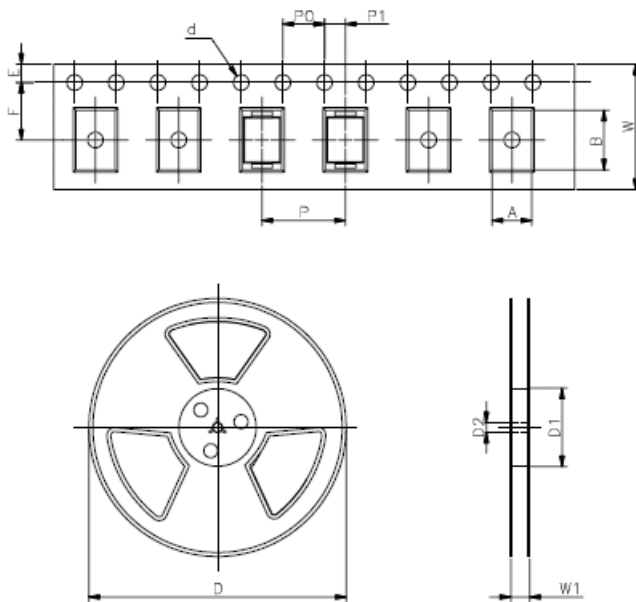
## Thyristor Surge Suppressors - BS1601N-C Series

### 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 <sub>amp</sub> (T <sub>L</sub> ) to peak		3°C/second max
T <sub>S</sub> (max) to T <sub>L</sub> - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T <sub>L</sub> ) (Liquid)	217°C
	- Temperature (T <sub>L</sub> )	60 – 150 seconds
Peak Temperature (T <sub>P</sub> )		260+0/-5 °C
Time within 5°C of actual peak Temperature (T <sub>P</sub> )		25 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T <sub>P</sub> )		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