

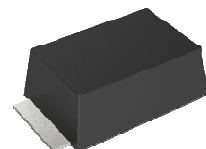
## Thyristor Surge Suppressor

Version: A0 2015-04-20

### Features

- Low capacitance ( < 10pF).
- Fails short circuit when surged in excess of ratings
- Low on-state voltage
- Quick response to surge voltage (nS Level)
- Non degenerative
- Bi-directional

### Exterior

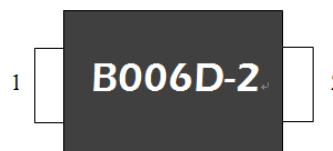


SOD123-F

### Application information

- Video

### 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		Vs <sup>①</sup> @ Is		VT@ IT		IH	Co <sup>②</sup>
	μA	V	V	mA	V	A	mA	pF
	MAX		MAX		MAX		MIN	MAX
BS0060D-2	5	6	25	800	4	2.2	10	10

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

Version: A0 2015-04-20

### Part Numbering System

BS 0060 D -2  
(1) (2) (3) (4)

(1)Bencent Semiconductor Surge Arrester

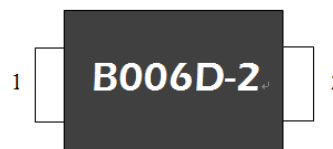
(2) Off-state Voltage, e.g 0060= $6 \times 10^0=6V$

(3) Package: SOD123-FL

(4) Low capacitance

Rating Surge Voltage:3KV (1.2/50 $\mu$ s 42 $\Omega$ ) , omitted in the Mark

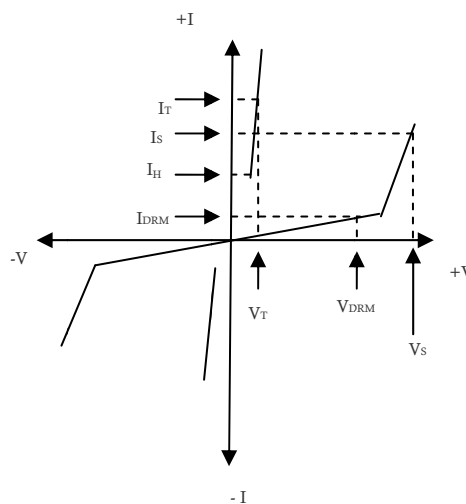
### Mark



B006D-2: Part Number

### 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	8/20 $\mu$ s	10/1000 $\mu$ s
Voltage Waveform	1.2/50 $\mu$ s 42 $\Omega$	10/1000 $\mu$ s
$I_{pp}$	72A	18A

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

-Bencent only makes the test for 8/20 $\mu$ s @72A(1.2/50 $\mu$ s 42 $\Omega$  3000V), 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	$^{\circ}C$
$T_S$	Storage Temperature Range	-60 to +150	$^{\circ}C$

### Physical Characteristics

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

## Thyristor Surge Suppressor

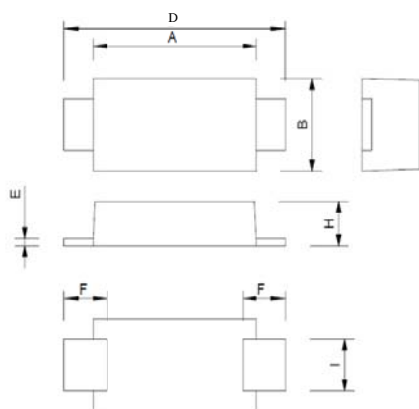
Version: A0 2015-04-20

### Environmental Characteristics

Testing Items	Technical Standards
High Temperature Reverse Bias Test	Temperature: $150\pm3^{\circ}\text{C}$ , 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, 10-100 cycles
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 to 168H
Resistance of Soldering Heat	Temperature: $260\pm5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

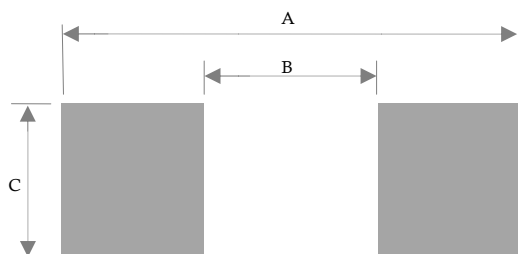
Note:The above testing items can be specified by customers by contacting Bencent service

### Product Dimensions



REF.	mm	inch
A	$2.8\pm0.1$	$0.110\pm0.004$
B	$1.9\pm0.15$	$0.075\pm0.006$
D	$3.7\pm0.20$	$0.146\pm0.008$
E	$0.2\pm0.1$	$0.008\pm0.004$
F	$0.6\pm0.2$	$0.024\pm0.008$
I	$1.0\pm0.15$	$0.039\pm0.006$
H	$1.2\pm0.15$	$0.047\pm0.006$

### Recommended Soldering Pad



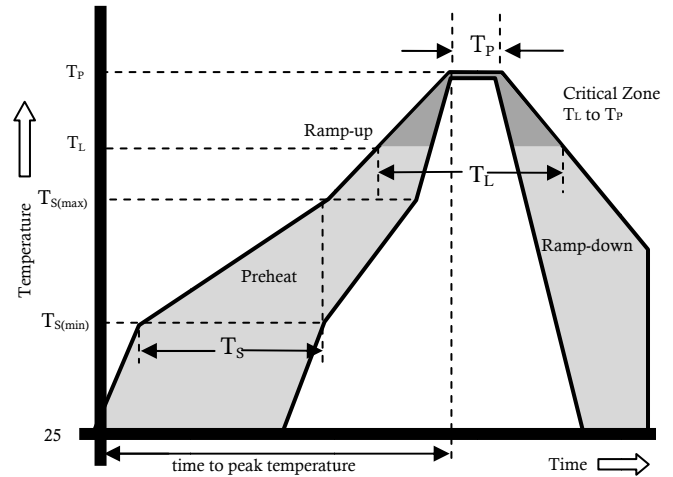
REF	mm	inch
A	4.2	0.165
B	2.2	0.087
C	1.3	0.051

## Thyristor Surge Suppressor

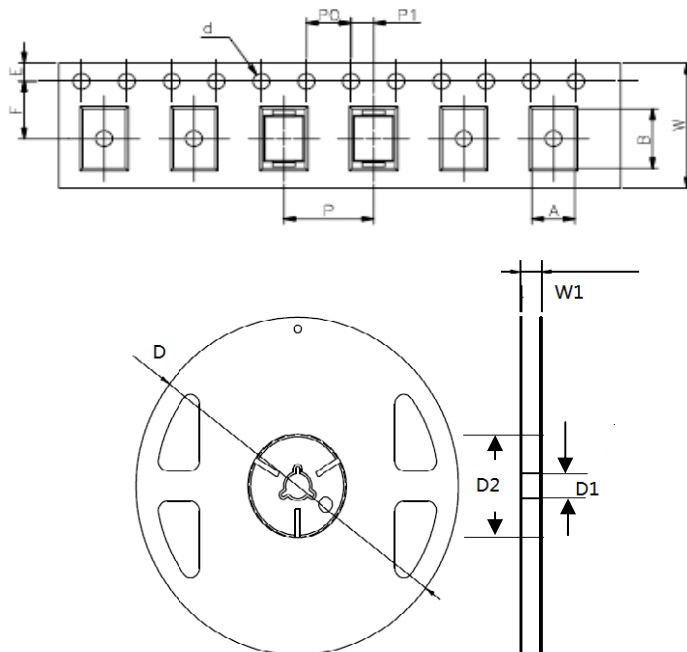
Version: A0 2015-04-20

### 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(Liquidus Temp( $T_L$ ) to peak)		3°C/sec. Max.
Ts(max) to $T_L$ - Ramp-up Rate		3°C/sec. Max.
Reflow	- Temperature ( $T_L$ ) (Liquidus)	+217°C
	- Temperature ( $T_L$ )	60 – 150 secs.
Peak Temp ( $T_P$ )		+(260+0/-5 )°C
Time within 5°C of actual Peak Temp ( $T_P$ )		30secs.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp ( $T_P$ )		8 min. Max.
Do not exceed		+260°C



### Package Reel Information



REF	mm	inch
A	1.90±0.1	0.07±0.004
B	3.93±0.1	0.15±0.004
d	1.55±0.1	0.06±0.004
D	178±1.0	7.01±0.040
D1	13±0.5	0.51±0.020
D2	55±2.0	2.17±0.800
E	1.75±0.1	0.07±0.004
F	3.50±0.05	0.14±0.002
P	4.00±0.1	0.16±0.004
P0	4.00±0.1	0.16±0.004
P1	2.00±0.05	0.08±0.002
W	8.00±0.1	0.31±0.004
W1	12±0.5	0.47±0.020

Outline	Reel (pcs)	Per Carton (pcs)	Reel Diameters (mm)	Carton Size(mm)		
				L	W	H
Taping	3000	90000	178	390	370	220