

## Transient Voltage Suppressor

### Features

- IEC 61000-4-2(ESD)±15KV(air), ±8KV(contact)
- IEC61000-4-5(Lightning) 17A (8/20uS)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 306Watts peak pulse power (tp=8/20μ S)
- Low clamping voltage
- Moisture sensitivity level: Level 1
- Weight 5.0 mg (Approximate)
- Small package: SOD323

### Exterior



SOD323


### Application information

- DC power

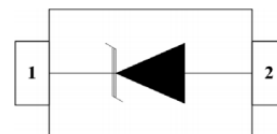
### Package (top view)



### Agency Approvals

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

### Schematic



### Part Number and Electrical Parameter

Part Number	$I_{DRM}@V_{DRM}$		$V_{BR}^{①}@I_R$		$V_C@I_{pp}^{②}$		$V_C@I_{pp}^{②}$		$C_o^{③}$
	$\mu A$	V	V	mA	V	A	V	A	pF
	MAX		MIN		MAX		MAX		MAX
BV-D305ZB	10	5	6	1	9.8	1	18	17	400

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

①  $V_{BR}$  is measured at  $I_R=1mA$  , pin 1 to pin 2.

② Surge Waveform: 8/20μ S, pin 1 to pin 2

③ Off-state capacitance is measured in  $V_{DC}=0V, V_{RMS}=0.3V, f=1MHz$

## Transient Voltage Suppressor

Version: A2 2019-12-02

Part Numbering System

Mark

BV D3 05 Z B  
(1) (2) (3) (4) (5)

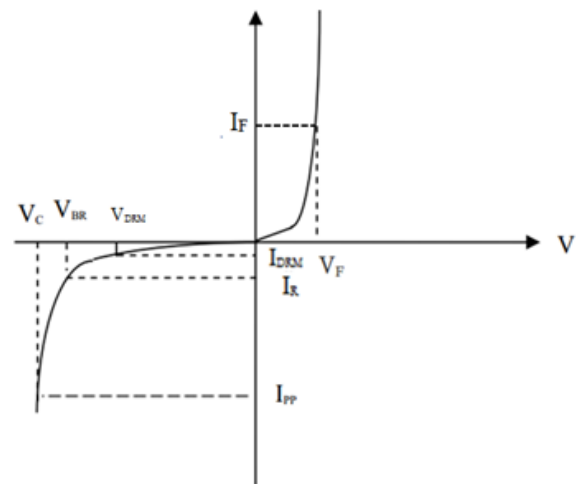
- (1) Bencent Transient Voltage Suppressor
- (2) Package: SOD323
- (3) Off-state Voltage: 5V
- (4) Normal Capacitance (Unidirectional Polarity omitted)
- (5) Bencent internal code



05W: Part Number

### V-I Curve

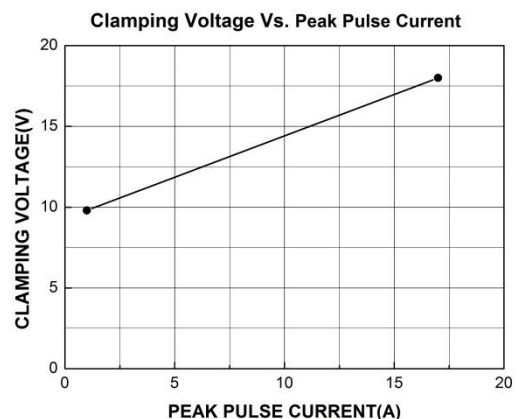
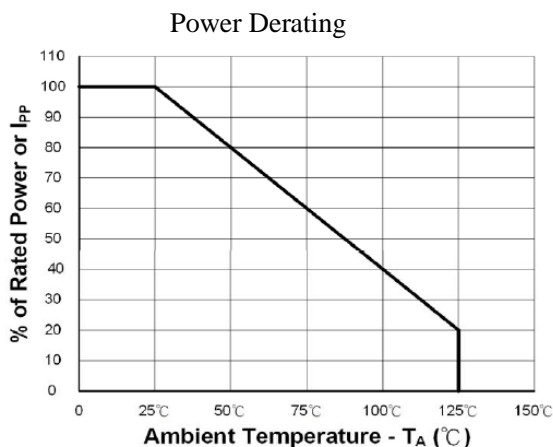
Parameters	Definition
$V_C$	Clamping voltage
$I_{PP}$	Surge waveform 8/20 $\mu$ s
$V_{DRM}$	Stand-off Voltage
$V_{BR}$	Breakdown Voltage
$I_{DRM}$	Reverse Leakage Current
$I_R$	Test current
$P_{PP}$	Peak Pulse Power Dissipation
$V_F$	Forward on-state voltage
$I_F$	Forward current



### Thermal Considerations

symbol	Parameter	Value	Unit
$T_J$	Operating Junction Temperature Range	-55 to +150	°C
$T_S$	Storage Temperature Range	-55 to +150	°C

### Typical Characteristics



**Transient Voltage Suppressor**

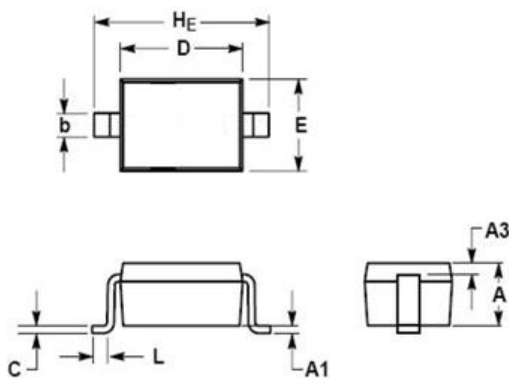
Version: A2 2019-12-02

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: $150^{\circ}\text{C}$ 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% Time:168H
Pressure cooker Test	Temperature: $121^{\circ}\text{C}$ , 2atm. Humidity:100% Time:24H
Resistance of soldering heat	Temperature: $260\pm 5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

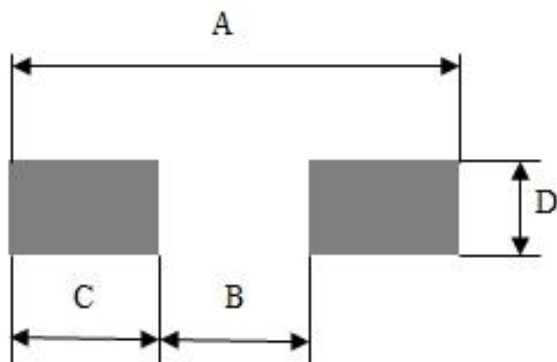
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	1.10(max)	0.043(max)
A1	0.00~0.10	0.000~0.004
A3	0.15REF	0.006REF
b	0.25~0.45	0.01~0.018
C	0.08~0.15	0.003~0.006
D	1.60~1.80	0.063~0.071
E	1.15~1.45	0.045~0.057
L	0.10~0.40	0.004~0.016
HE	2.30~2.70	0.091~0.106

Recommended Soldering Pad



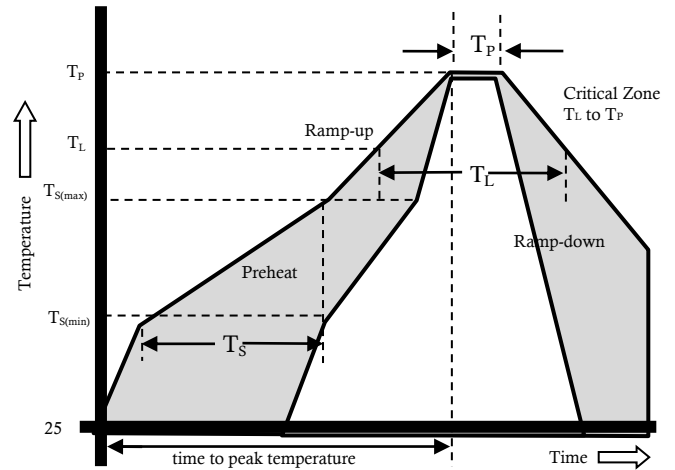
REF	mm	inch
A	3.2	0.126
B	1.08	0.043
C	1.06	0.042
D	0.54	0.021

**Transient Voltage Suppressor**

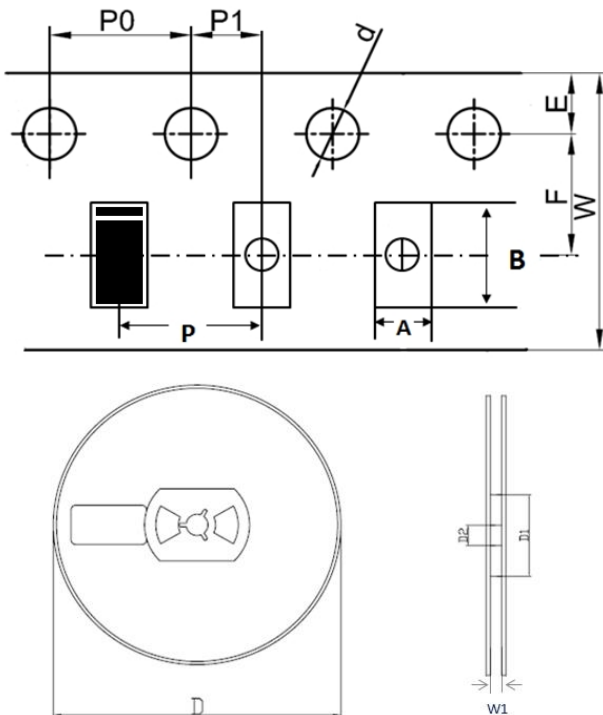
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**Reflow Profile**

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 <sub>amp</sub> (T <sub>L</sub> ) to peak		3°C/s max
T <sub>S</sub> (max) to T <sub>L</sub> - Ramp-up Rate		3°C/s max
Reflow	- Temperature (T <sub>L</sub> ) (Liquid)	217°C
	- Temperature (T <sub>L</sub> )	60 – 150 secs
Peak Temperature (T <sub>P</sub> )		260±0/-5 °C
Time within 5°C of actual peak Temperature (T <sub>P</sub> )		30secs
Ramp-down Rate		6°C/s max
Time 25°C to peak Temperature (T <sub>P</sub> )		8 mins max.
Do not exceed		260°C



**Package Reel Information**



REF	mm	inch
A	1.46+/-0.20	0.057+/-0.008
B	3.10+/-0.30	0.122+/-0.012
d	1.50+0.1/-0	0.059+0.004/-0
D	178.00+/-2.00	7.008+/-0.079
D1	55.00+/-3.00	2.165+/-0.118
D2	13.00+/-0.50	0.512+/-0.020
E	1.75+/-0.10	0.069+/-0.004
F	3.50+/-0.20	0.138+/-0.008
P	4.00+/-0.20	0.157+/-0.008
P0	4.00+/-0.20	0.157+/-0.008
P1	2.00+/-0.20	0.079+/-0.008
W	8.00+/-0.20	0.315+/-0.008
W1	9.50+/-1.00	0.374+/-0.039

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	3,000	90,000	177	390	370	220