

## Transient Voltage Suppressor

### Features

- IEC 61000-4-2 (ESD)  $\pm 30\text{KV}$  (air),  $\pm 30\text{KV}$  (contact)
- IEC61000-4-5 (Lightning) 23A (8/20 $\mu\text{S}$ )
- IEC61000-4-4 (EFT) 40A (5/50nS)
- 500Watts peak pulse power ( $t_p=8/20\mu\text{S}$ )
- Low clamping voltage
- Moisture sensitivity level: Level 1
- Weight 5.0 mg (Approximate)
- Small package: SOD323

### Exterior



SOD323


### Application Information

- Cell phone handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants(PDA's)
- Notebooks,Desktops,and Servers
- Portable Instrumentation
- Networking and Telecom
- Serial and Parallel Ports
- Peripherals

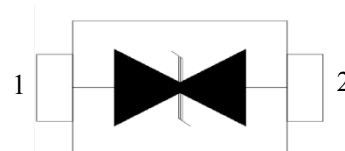
### Package (top view)



### 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	$I_{DRM}@V_{DRM}$		$V_{BR}^{①}@I_R$		$V_C@I_{pp}^{②}$		$V_C@I_{pp}^{②}$		$C_o^{③}$
	$\mu\text{A}$	V	V	mA	V	A	V	A	pF
	MAX		MIN		MAX		MAX		MAX
BV-D305ZCD	1	5	6	1	9.8	1	20	23	40

Absolute maximum ratings measured at  $T = 25^\circ\text{C}$  RH = 45%-75% (unless otherwise noted).

- ①  $V_{BR}$  is measured at  $I_R=1\text{mA}$
- ② Surge Waveform: 8/20 $\mu\text{S}$
- ③ Off-state capacitance is measured in  $V_{DC}=0\text{V}$ ,  $V_{RMS}=0.3\text{V}$ ,  $f=1\text{MHz}$

## Transient Voltage Suppressor

Part Numbering System

Mark

BV D3 05 Z C D  
(1) (2) (3) (4) (5) (6)

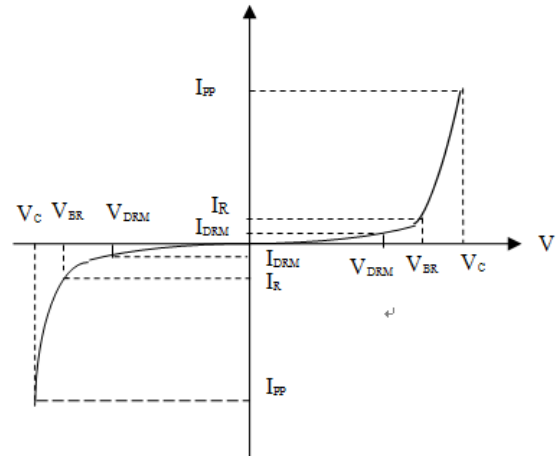
- (1) Bencent Transient Voltage Suppressor
- (2) Package:SOD323
- (3) Off-state Voltage: 5V
- (4) Normal Capacitance
- (5) Bi-directional
- (6) Bencent internal code



2B: Part Number

### V-I Curve

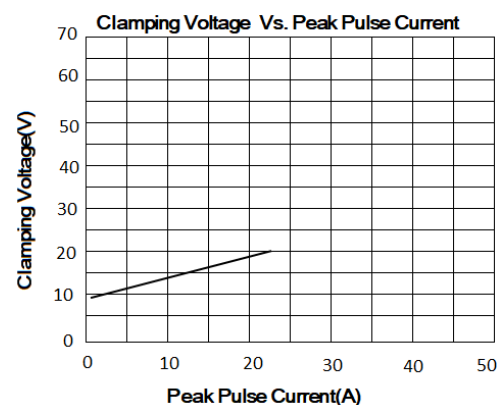
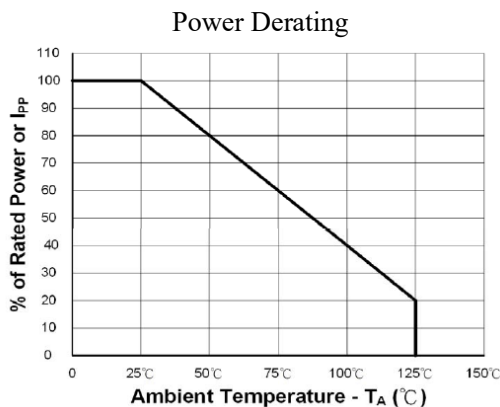
Parameters	Definition
$V_C$	Clamping voltage
$I_{PP}$	Surge waveform 8/20 $\mu$ s
$V_{DRM}$	Stand-off Voltage
$V_{BR}$	Breakdown Voltage
$I_{DRM}$	Reverse Leakage Current
$I_R$	Test current
$P_{PP}$	Peak Pulse Power Dissipation



### Thermal Considerations

symbol	Parameter	Value	Unit
$T_J$	Operating Junction Temperature Range	-55 to +150	$^{\circ}$ C
$T_S$	Storage Temperature Range	-55 to +150	$^{\circ}$ C

### Typical Characteristics



**Transient Voltage Suppressor**

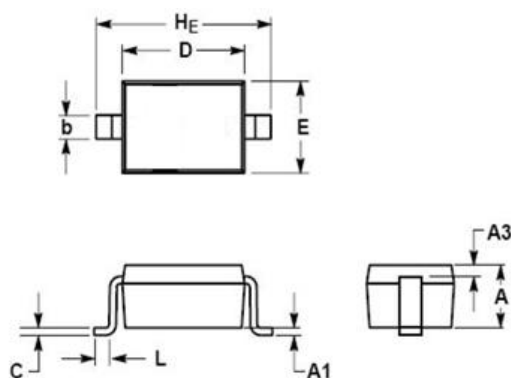
Version: A1 2020-10-14

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 $-55^{\circ}\text{C}$ to $150^{\circ}\text{C}$ 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

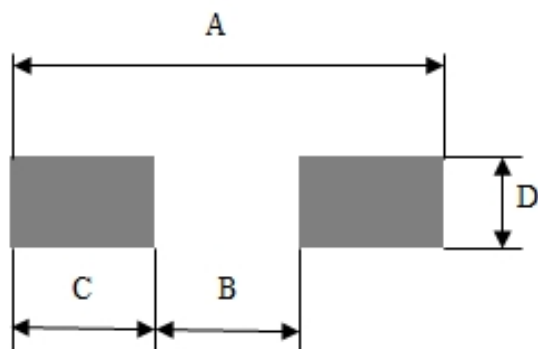
Note: The above testing items can be specified by customer's special request

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



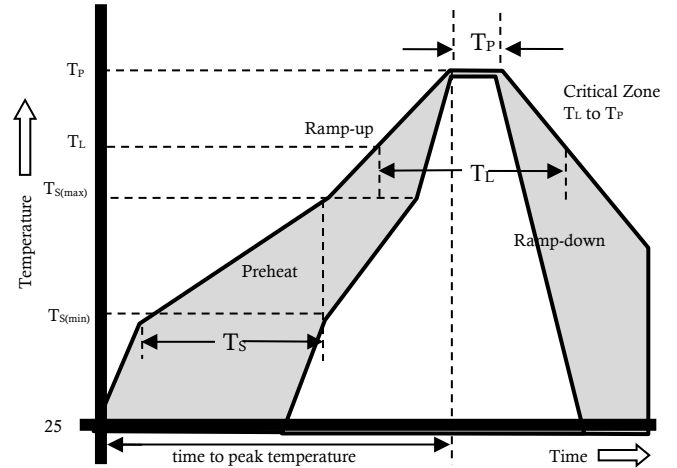
REF	mm	inch
A	3.2	0.126
B	1.08	0.043
C	1.06	0.042
D	0.54	0.021

Transient Voltage Suppressor

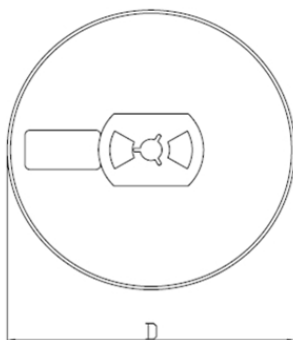
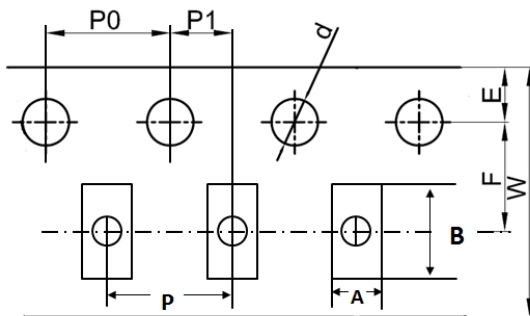
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Reflow Profile

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) Tamp (T <sub>L</sub> ) to peal		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