

Transient Voltage Suppressor**Features**

- IEC 61000-4-2 (ESD) $\pm 30\text{KV}$ (air), $\pm 30\text{KV}$ (contact)
- IEC61000-4-5 (Lightning) 25A (8/20 μS)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- 450Watts peak pulse power (tp=8/20 μS)
- Low clamping voltage
- Moisture sensitivity level: Level 1
- Weight 5.0 mg (Approximate)
- Small package: SOD323

Exterior

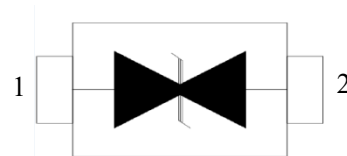
SOD323

Application Information

- DC power

Package (top view)**Agency Approvals**

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

Schematic**Part Number and Electrical Parameter**

Part Number	$I_{\text{DRM}}@V_{\text{DRM}}$		$V_{\text{BR}}^{\text{①}}@I_{\text{R}}$		$V_{\text{C}}@I_{\text{pp}}^{\text{②}}$		$V_{\text{C}}@I_{\text{pp}}^{\text{②}}$		$C_{\text{O}}^{\text{③}}$
	μA	V	V	mA	V	A	V	A	pF
	MAX		MIN		MAX		MAX		MAX
BV-D305ZCF	1	5	6	1	9.8	1	20	25	75

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

① V_{BR} is measured at $I_{\text{R}} = 1\text{mA}$

② Surge Waveform: 8/20 μS

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

Transient Voltage Suppressor

Part Numbering System

BV D3 05 Z C F
(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

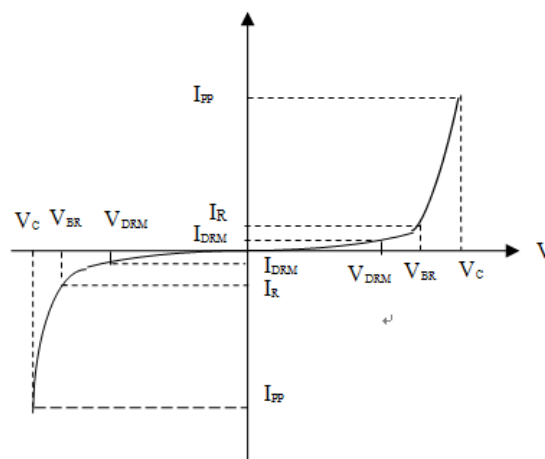
Mark



2B: Part Number

V-I Curve

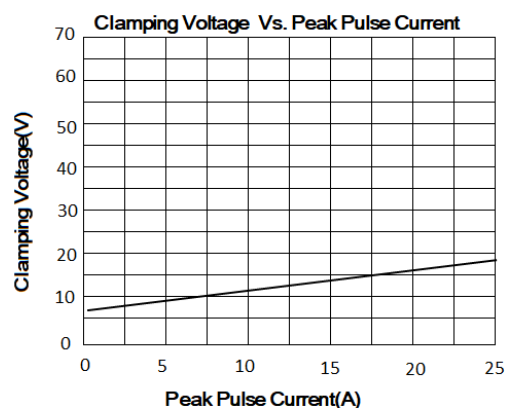
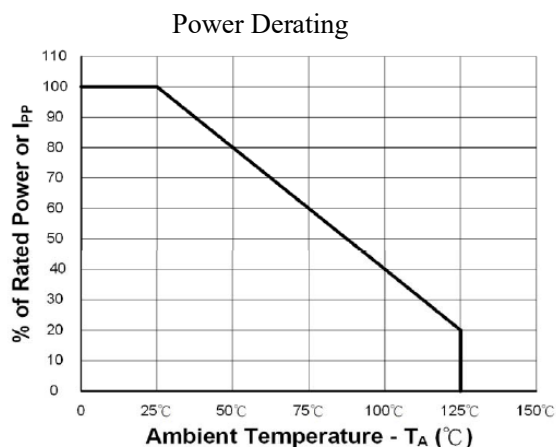
Parameters	Definition
V_C	Clamping voltage
I_{PP}	Surge waveform 8/20 μ s
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test current
P_{PP}	Peak Pulse Power Dissipation



Thermal Considerations

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

Typical Characteristics



Transient Voltage Suppressor

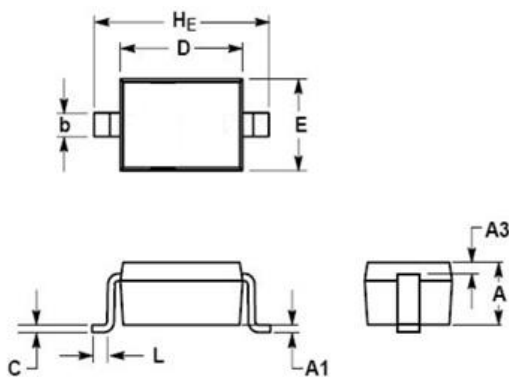
Version: A1 2023-3-24

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°C Time: 168H
High-low Temperature Cycle test	Temperature: From -55°C to 150°C Dwell time: 30min, 10cycles
High Temperature &High Humidity Test	Temperature: 85°C Humidity: 85% Time: 168H
Pressure cooker Test	Temperature: 121°C , 2atm. Humidity: 100% Time: 24H
Resistance of soldering heat	Temperature: $260\pm5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

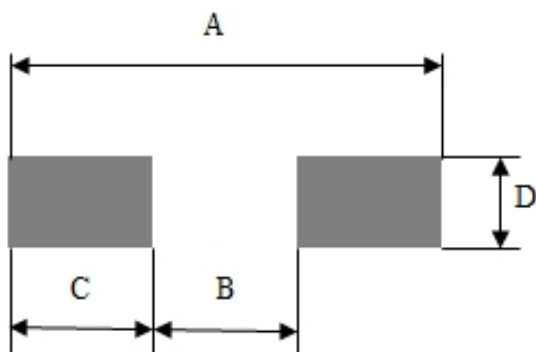
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	0.70~1.10	0.027~0.043
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

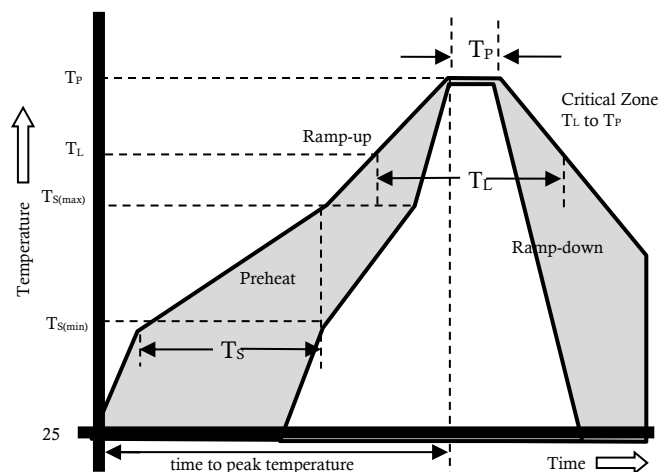
Recommended Soldering Pad



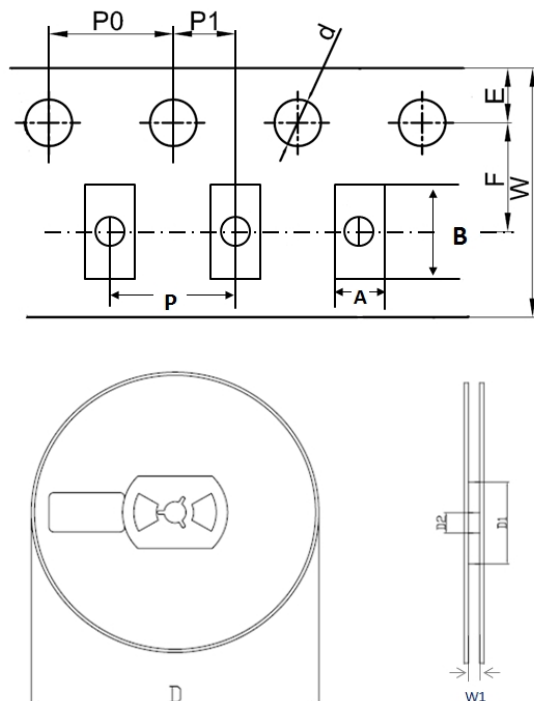
REF	mm	inch
A	3.2	0.126
B	1.08	0.043
C	1.06	0.042
D	0.54	0.021

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 _L) to peal		3°C/s max
T _s (max) to T _L - Ramp-up Rate		3°C/s max
Reflow	- Temperature (T _L) (Liquid)	217°C
	- Temperature (T _L)	60 – 150 secs
Peak Temperature (T _P)		260+0/-5 °C
Time within 5°C of actual peak Temperature (T _P)		30secs
Ramp-down Rate		6°C/s max
Time 25°C to peak Temperature (T _P)		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