

Transient Voltage Suppressor

Version: A2 2019-12-02

Features

- IEC 61000-4-2(ESD): $\pm 30\text{KV}$ (air), $\pm 30\text{KV}$ (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Surge) 160A (8/20 μs)
- 2200Watts peak pulse power (tp=8/20 μs)
- V_{SB} min value 4.8V
- Low clamping voltage
- Moisture sensitivity level: Level 1
- Weight approx. 5.0 mg
- Small package: SOD323

Exterior

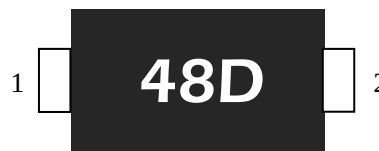


SOD323

Application information

- Cellular Phones
- I²C Bus Protections

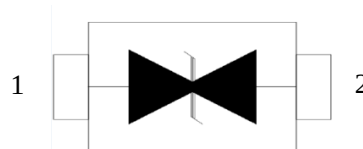
Package (top view)



Agency Approvals

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

Schematic



Part Number and Electrical Parameter

Part Number	$I_{\text{DRM}}@ V_{\text{DRM}}$		$V_{\text{BR}}^{①}@ I_{\text{R}}$		$V_{\text{c}}@I_{\text{pp}}^{②}$		$V_{\text{c}}@I_{\text{pp}}^{②}$		$C_{\text{o}}^{③}$
	μA	V	V	mA	V	A		A	pF
	MAX		MIN		MAX		MAX		MAX
BV-D34.5ZCA	1	4.5	4.8	1	13	100	16	160	1500

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

- ① V_{BR} is measured at $I_{\text{BR}}=1\text{mA}$, pin1 to pin2 and pin2 to pin1
- ② Surge Waveform: 8/20 μs , pin1 to pin2 and pin2 to pin1
- 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

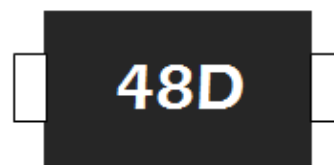
BV D3 4.5 Z C A
(1) (2) (3) (4) (5) (6)

- (1) Bencent Transient Voltage Suppressor
- (2) Package:SOD323
- (3) Off-state Voltage: 4.5V
- (4) Normal Capacitance
- (5) Bi-directional
- (6) Bencent internal code

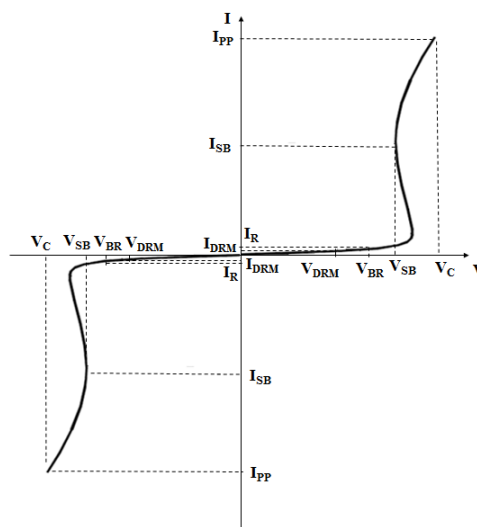
V-I Curve

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

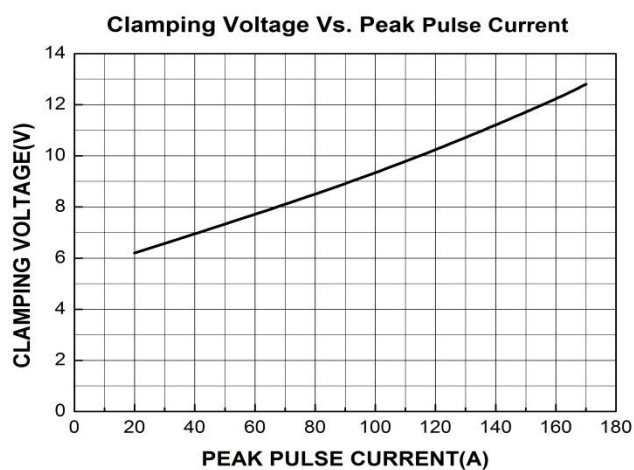
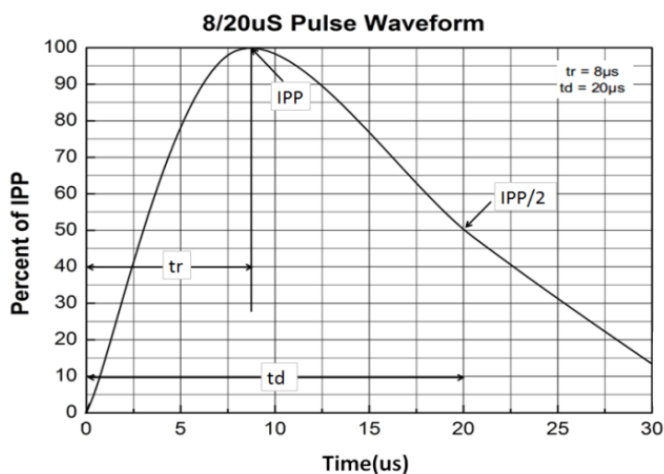
Mark



48D: Part Number



Typical Characteristics



Thermal Considerations

symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-45 to +125	°C
T_S	Storage Temperature Range	-55 to +150	°C

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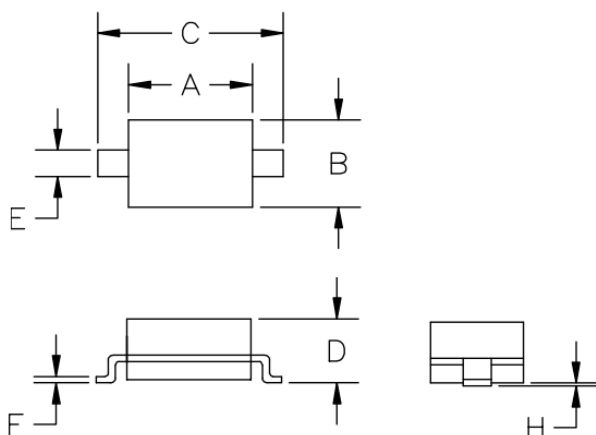
Version: A2 2019-12-02

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°C Time:168H
High-low Temperature Cycle test	Temperature: From -40°C to 125°C Dwell time : 30min,10~100cycles
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: $260\pm 5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

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

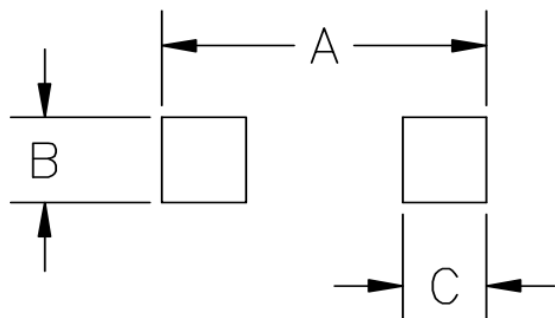
Product Dimensions



REF	mm	inch
A	1.50~1.80	0.060~0.071
B	1.15~1.45	0.045~0.057
C	2.30~2.70	0.090~0.107
D	1.10(max)	0.043(max)
E	0.30~0.40	0.012~0.016
F	0.10~0.25	0.004~0.010
H	0~0.10	0.000~0.004

SOD323

Recommended Soldering Pad

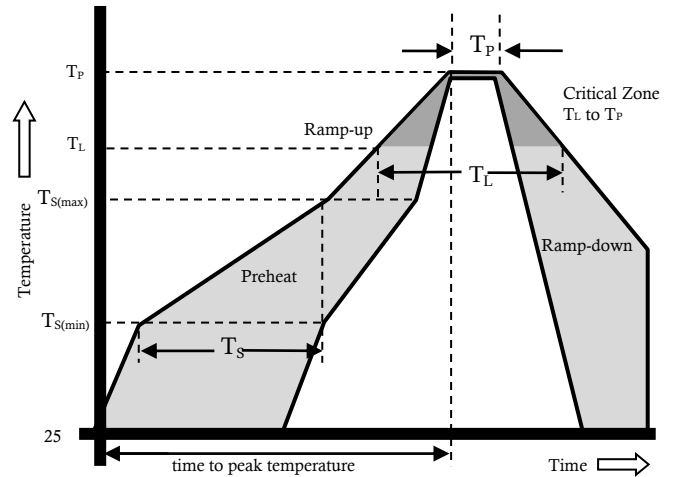


REF	mm	inch
A	3.15	0.120
B	0.8	0.031
C	0.8	0.031

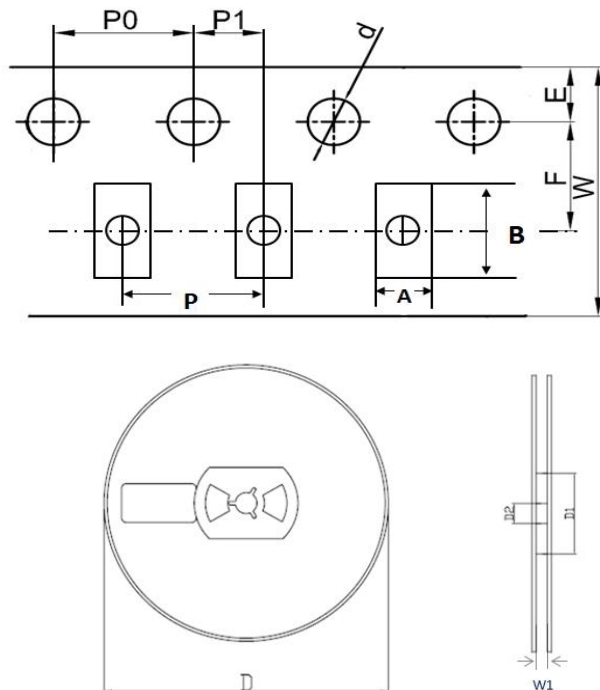
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Reflow Profile

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(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)		30 secs.
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	1.36~1.56	0.054~0.061
B	2.80~3.00	0.110~0.118
W	7.90~8.30	0.311~0.327
d	1.50~1.60	0.059~0.063
D	176.00~180.00	6.929~7.087
D1	52.00~58.00	2.047~2.283
D2	12.50~13.50	0.492~0.531
E	1.65~1.85	0.065~0.073
F	3.40~3.60	0.134~0.142
P0	3.90~4.10	0.154~0.161
P	3.90~4.10	0.154~0.161
P1	1.95~2.05	0.077~0.081
W1	9.40~9.70	0.370~0.382

Outline	Reel (pcs)	Per Carton (pcs)	Reel Diameters (mm)	Carton Size(mm)		
				L	W	H
Taping	3,000	90,000	178	390	370	220