

Transient Voltage Suppressor

Version: A0 2022-9-15

Features

- IEC 61000-4-2(ESD)±30KV(air), ±30KV(contact)
- IEC61000-4-5(Lightning) 80A (1.2/50-8/20μs,2Ω)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 2240Watts peak pulse power (tp=8/20μS)
- Low clamping voltage
- Moisture sensitivity level: Level 1
- Weight 5.0 mg (Approximate)
- Small package: SOD323

Exterior



SOD323

Application information

- DC power

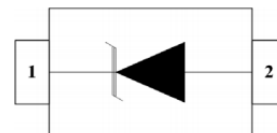
Package (top view)



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	$I_{DRM}@V_{DRM}$		$V_{BR}^{①}@I_R$			$V_c@I_{pp}^{②}$		$V_c@I_{pp}^{②}$		R_{DYN} @ TLP ^③	$V_c@I_{pp}$ TLP ^③		$Co^{④}$
	μA	V	V	V	mA	V	A	V	A	Ω	V	A	pF
	MAX		MIN	MAX		TYP		TYP		TYP	TYP		TYP
BV-D315ZE	1	15	16.5	19	1	24	40	28	80	0.2	22	16	300

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: 1.2/50-8/20μs,2Ω, pin 1 to pin 2
- ③ TLP parameter: Z0 = 50Ω, tp = 100ns, tr = 1ns, RDYN is calculated from 4A to16A
- ④ Off-state capacitance is measured in $V_{DC}=0V, V_{RMS}=0.3V, f=1MHz$

Transient Voltage Suppressor

Version: A0 2022-9-15

Part Numbering System

Mark

BV D3 15 Z E
(1) (2) (3) (4) (5)

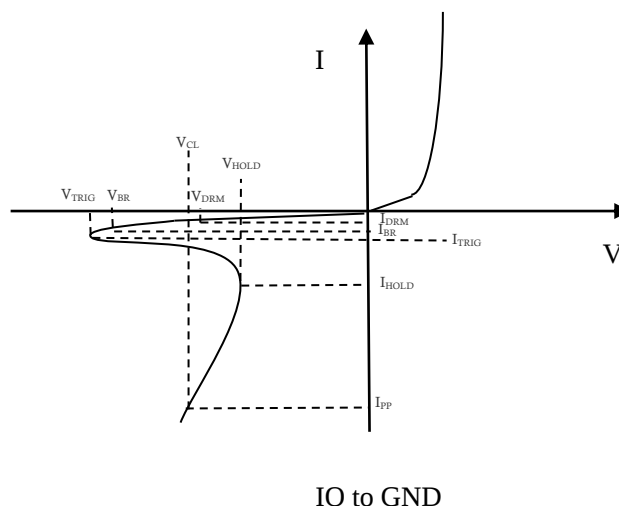
- (1) Bencent Transient Voltage Suppressor
- (2) Package:SOD323
- (3) Off-state Voltage: 15V
- (4) Normal Capacitance (Unidirectional Polarity omitted)
- (5) Bencent internal code



Z15A: Part Number

V-I Curve

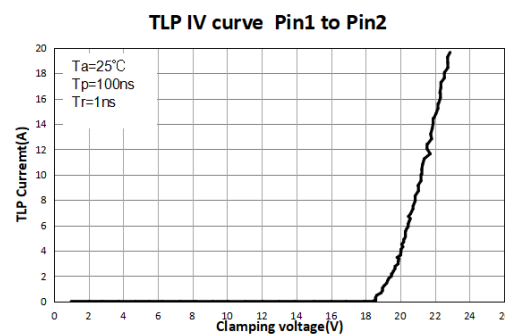
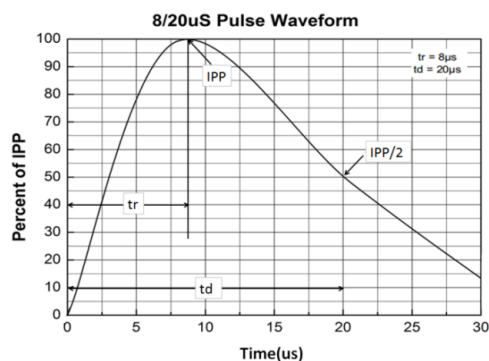
Parameters	Definition
V_{CL}	Clamping Voltage
I_{PP}	Surge waveform 8/20 μ s
V_{RWM}	Reverse stand-off Voltage
I_{DRM}	Reverse leakage Current
V_{BR}	Breakdown Voltage
I_{BR}	Reverse breakdown Current
I_{TRIG}	Reverse trigger Current
V_{TRIG}	Reverse trigger Voltage
V_{HOLD}	Reverse holding Voltage
I_{HOLD}	Reverse holding Current
P_{PP}	Peak Pulse Power Dissipation



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

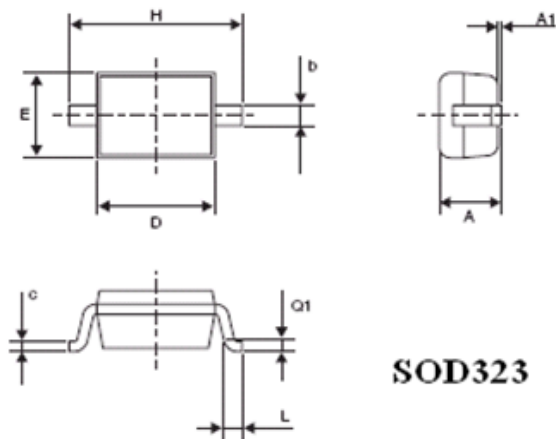


Environmental Characteristics

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,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: $260\pm 5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

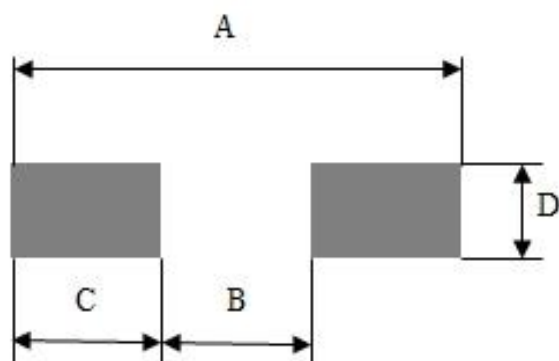
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	1.17(max)	0.046(max)
A1	0.10(max)	0.004(max)
b	0.34 ± 0.10	0.013 ± 0.0039
c	0.17 ± 0.08	0.007 ± 0.0032
D	1.66 ± 0.14	0.065 ± 0.0055
E	1.28 ± 0.17	0.050 ± 0.0067
H	2.5 ± 0.2	0.098 ± 0.0079
L	0.28 ± 0.18	0.011 ± 0.0071
Q1	0.25 ± 0.15	0.010 ± 0.0059

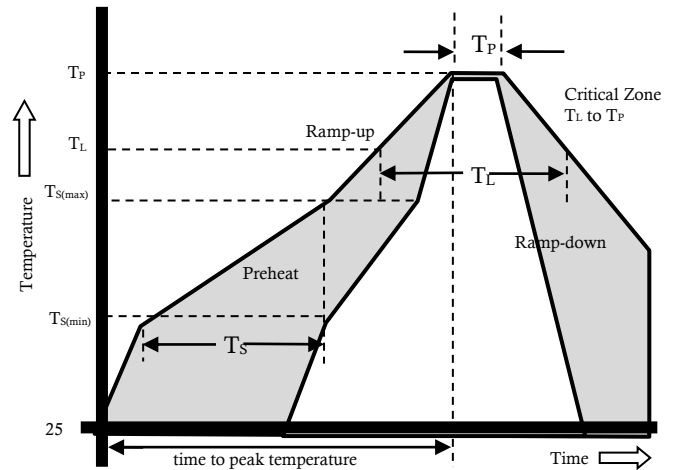
Recommended Soldering Pad



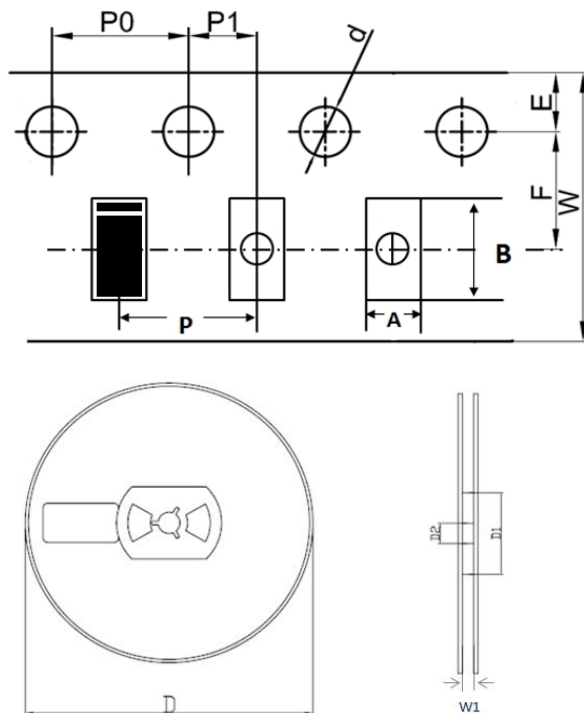
REF	mm	inch
A	3.2	0.126
B	1.08	0.043
C	1.06	0.042
D	0.54	0.021

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) T _{amp} (T _L) to peak		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	380	220	205