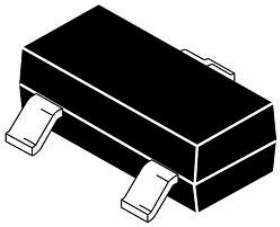
Transient Voltage Suppressor

Version: A1 2019-03-12

Features

- IEC61000-4-2(ESD)±25KV(air),±25KV(contact)
- IEC61000-4-5(Lightning) 10A (8/20uS)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 380 Watts peak pulse power per Line (tp=8/20μ S)
- Protects two Bi-directional I/O lines
- Low clamping voltage
- Weight 8 mg (Approximate)
- Moisture sensitivity level：Level 1

Exterior

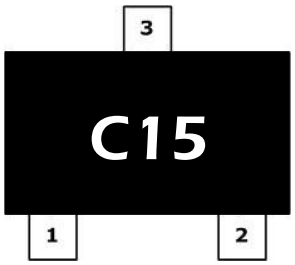


SOT-23

Application Information

- DC power

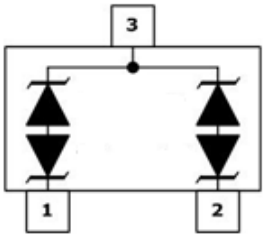
Package (top view)



Agency Approvals

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

Schematic



Part Number and Electrical Parameter

Part Number	I_{DRM}@V_{DRM}		V_{BR}①@I_R		Vc@Ipp②		Vc@Ipp②		C_O③
	μA	V	V	mA	V	A	V	A	pF
	MAX		MIN		MAX		MAX		MAX
BV-T315Z2CB	1.0	15.0	16.7	1.0	24.0	1.0	38.0	10.0	68.0

Absolute maximum ratings measured at T_A= 25ºC RH = 45%-75% (unless otherwise noted).

① V_{BR} is measured at I_R=1mA, Pin 3 to 1,2

② Surge Waveform: 8/20μ S, Pin 3 to 1,2

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

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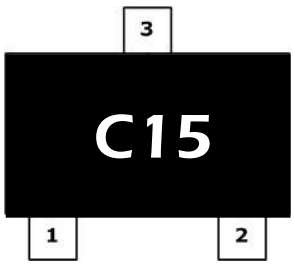
Part Numbering System

BV	T3	15	Z	2	C	B
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) Bencent Transient Voltage Suppressor
(2) Package: SOT23
(3) Stand-off Voltage: 15V
(4) Normal Capacitance
(5) 2 Lines protection
(6) Bidirectional
(7) Bencent internal code

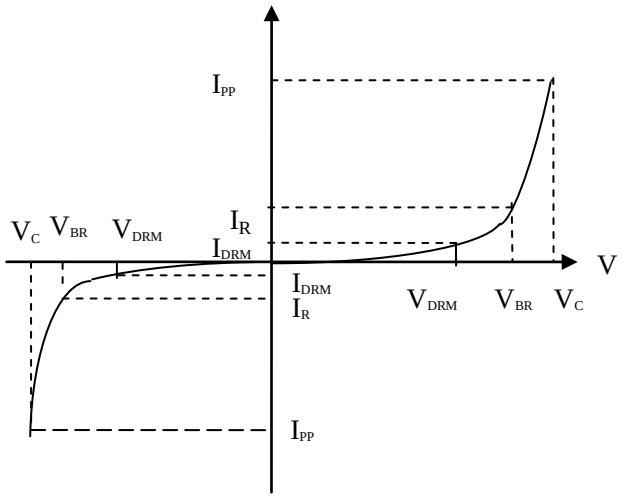
Mark



C15: Part Number

V-I Curve

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



Thermal Considerations

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

Typical Characteristics

Figure 1. Power Detating

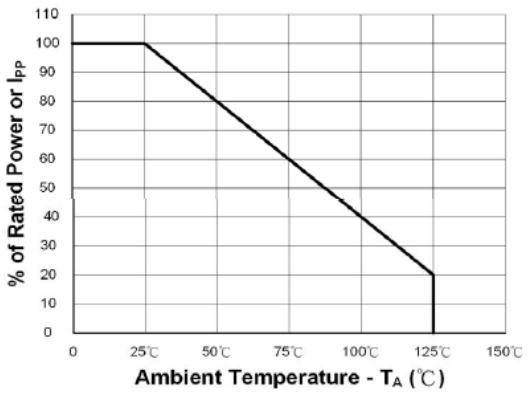
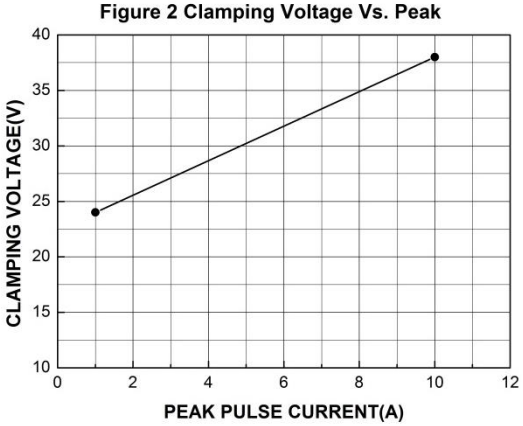


Figure 2 Clamping Voltage Vs. Peak



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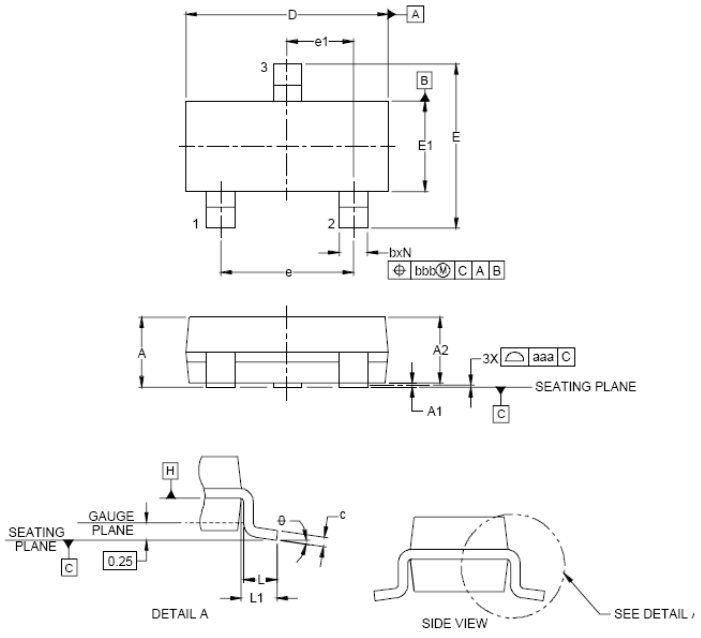
Environmental Characteristics

Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: 150±3℃ Bias=80%V_{DRM} Time:168H
High Temperature Life Test	Temperature: 150℃ Time:168H
High-low Temperature Cycle test	Temperature: From -55℃ to 150℃ Dwell time ： 30min,100cycles
High Temperature &High Humidity Test	Temperature: 85℃Humidity:85% Time:168H
Pressure cooker Test	Temperature: 121℃，2atm. Humidity:100% Time:24H
Resistance of soldering heat	Temperature: 260±5℃ Time of dip soldering：10s，3times

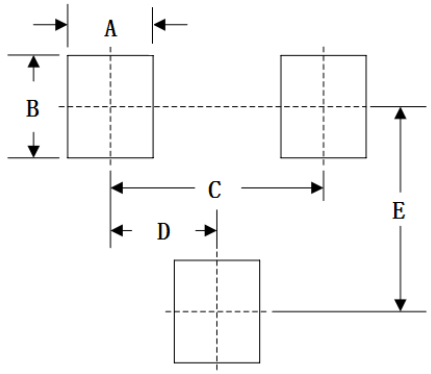
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	0.9~1.12	0.035~0.044
A1	0.1 max	0.004 max
A2	0.88~1.02	0.035~0.040
b	0.3~0.5	0.012~0.02
c	0.08~0.18	0.003~0.007
D	2.8~3.0	0.11~0.118
E	2.25~2.55	0.089~0.1
E1	1.2~1.4	0.047~0.055
L	0.3~0.5	0.012~0.02
L1	0.5~0.6	0.02~0.024
e	1.9	0.075
e1	0.95	0.037
θ	8 degree(Max)	

Recommended Soldering Pad

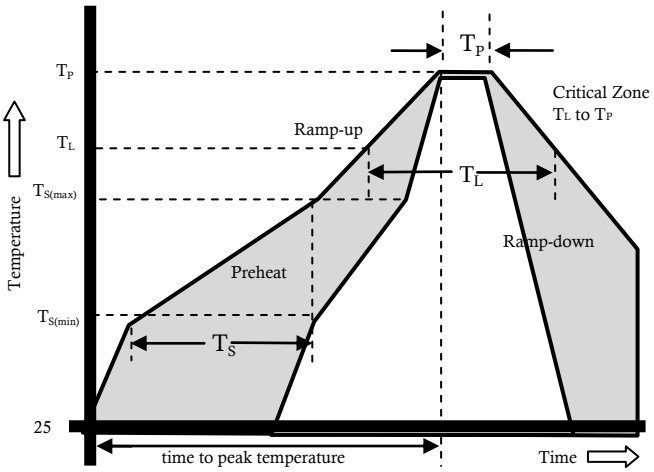


REF	mm	inch
A	0.8	0.031
B	0.9	1.535
C	1.9	0.075
D	0.95	0.037
E	1.8	0.071

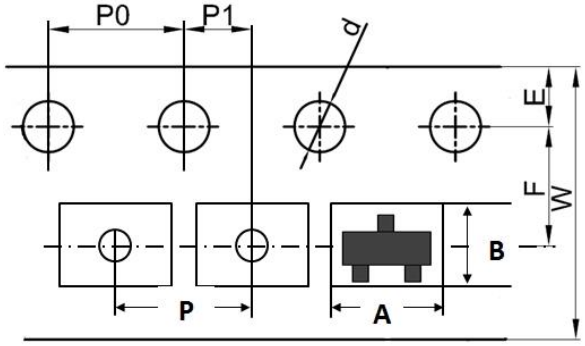
Transient Voltage Suppressor

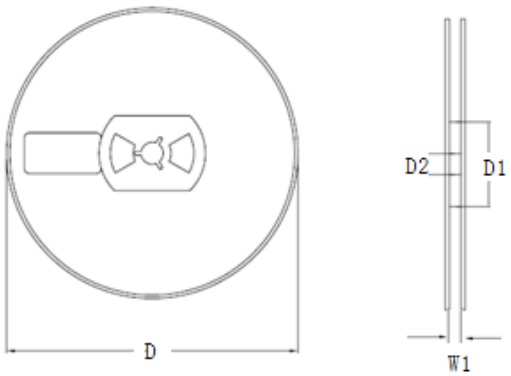
Reflow Profile

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)		25secs
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	3.10+/-0.2	0.122+/-0.008
B	2.9+/-0.2	0.114+/-0.008
d	1.5+0.1/-0	0.059+0.004/-0
D	178+/-2.0	7.008+/-0.079
D1	55+/-3	2.165+/-0.118
D2	13+/-0.5	0.512+/-0.020
E	1.75+/-0.1	0.069+/-0.004
F	3.5+/-0.2	0.138+/-0.008
P	4.0+/-0.2	0.158+/-0.008
P0	4.0+/-0.2	0.158+/-0.008
P1	2.0+/-0.2	0.079+/-0.008
W	8.0+/-0.2	0.315+/-0.008
W1	8.6+/-0.1	0.339+/-0.004

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