Transient Voltage Suppressor

Version: A0 2021-05-19

Features

- IEC 61000-4-2 (ESD) ±30KV (air), ±30KV (contact)
- IEC61000-4-5(surge): 20A (8/20μs)
- 200Watts peak pulse power (tp=8/20μs)
- Low capacitance: 38pF (Typical)
- Low clamping voltage
- Small package: SOD523
- MSL 1

Exterior

Application Information

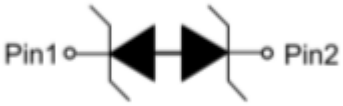
- Cellular handsets
- Tablets
- Laptops
- Other portable devices
- Network communication devices

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(top view)



Part Number and Electrical Parameter

Part Number	I_{DRM}@V_{DRM}		V_{BR}①@I_R		Vc@Ipp②			Vc@Ipp②			Co③	
	μA	V	V	mA	V	V	A	V	V	A	pF	
	MAX		MIN		TYP	MAX		TYP	MAX		TYP	MAX
BV-D505ZCG	1	5	5.3	1	7.5	10	5	10	12	20	38	45

Absolute maximum ratings measured at T= 25°C RH = 45%-75% (unless otherwise noted).

① I_{DRM} is measured at V_{DRM}=5V; V_{BR} is measured at I_R=1mA;

② Surge Waveform: 8/20μs,pin 1 to pin2 and pin2 to pin1

③ Off-state capacitance is measured in V_{DC}=0.3V, f=1MHz

Transient Voltage Suppressor

Version: A0 2021-05-19

Part Numbering System

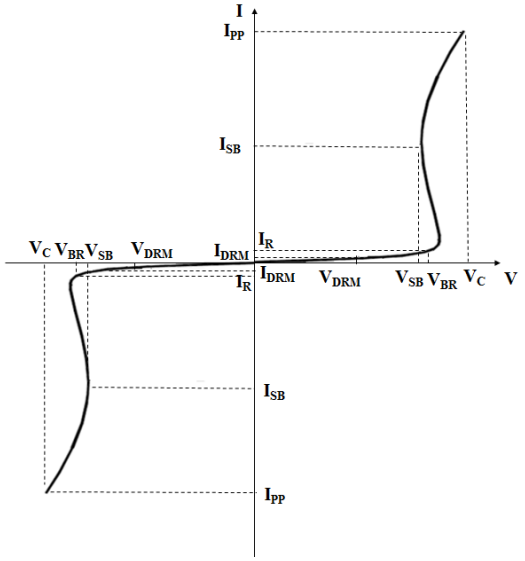
BV	D5	05	Z	C	G
(1)	(2)	(3)	(4)	(5)	(6)

(1) Bencent Transient Voltage Suppressor
(2) Package:SOD523
(3) Off-state Voltage: 5V
(4) Normal Capacitance
(5) Bi-directional
(6) Bencent internal code

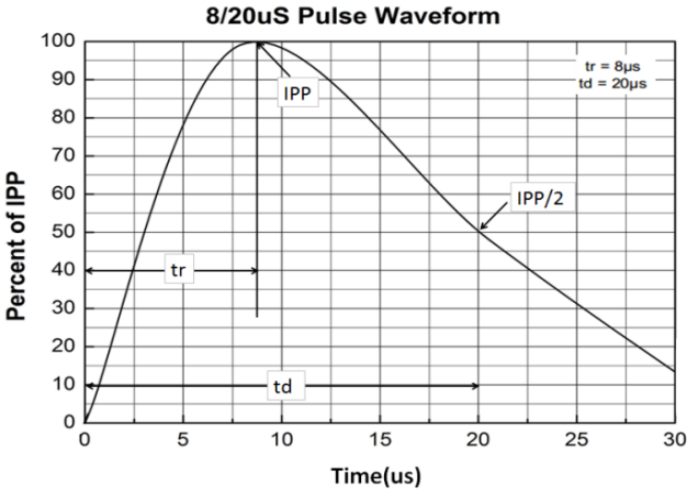
Mark

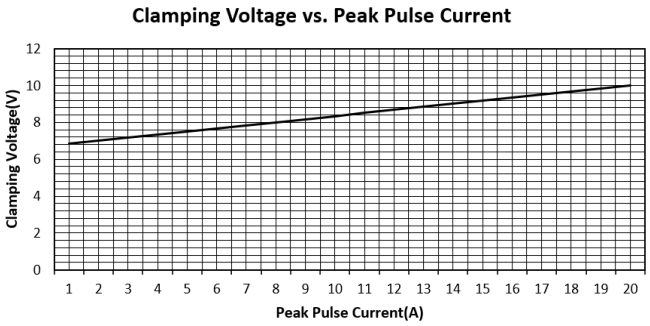
V-I Curve

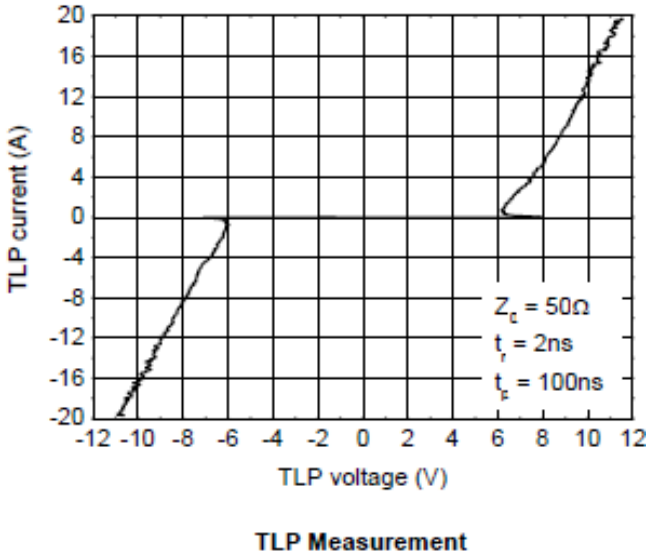
Parameters	Definition
V_C	Clamping voltage
I_{pp}	Surge waveform 8/20μs
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
V_{SB}	Snapback Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test current
I_{SB}	Test current
P_{PP}	Peak Pulse Power Dissipation



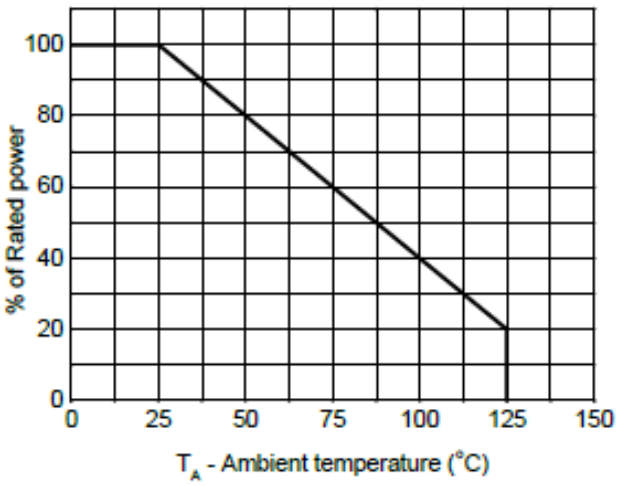
Typical Characteristics







TLP Measurement



Thermal Considerations

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

Transient Voltage Suppressor

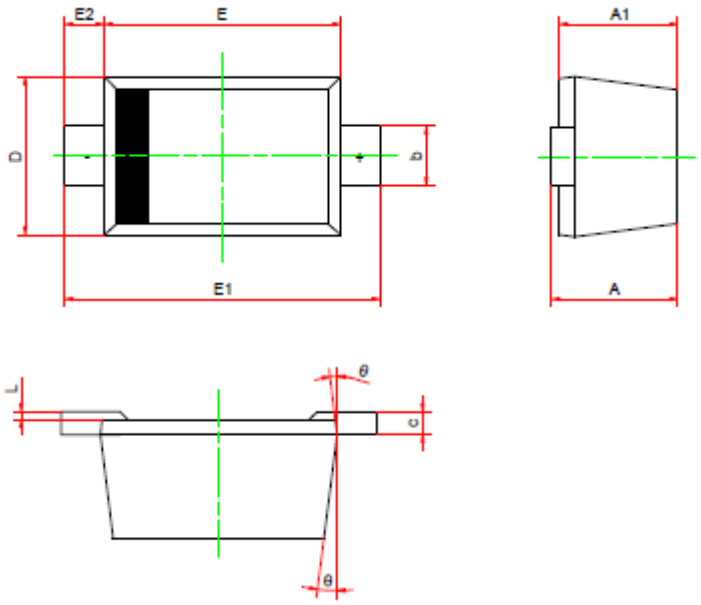
Version: A0 2021-05-19

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℃ to150℃ 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

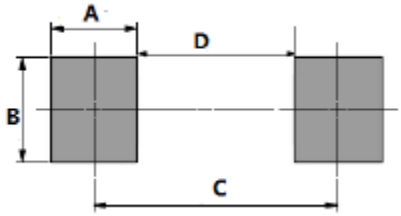
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	0.510-0.770	0.020-0.030
A1	0.500-0.700	0.020-0.028
b	0.250-0.350	0.010-0.014
c	0.080-0.150	0.003-0.006
D	0.750-0.850	0.030-0.033
E	1.100-1.300	0.043-0.051
E1	1.500-1.700	0.059-0.067
E2	0.200 Ref	0.080 Ref
L	0.010-0.070	0.000-0.003
θ	7° Ref	

Recommended Soldering Pad



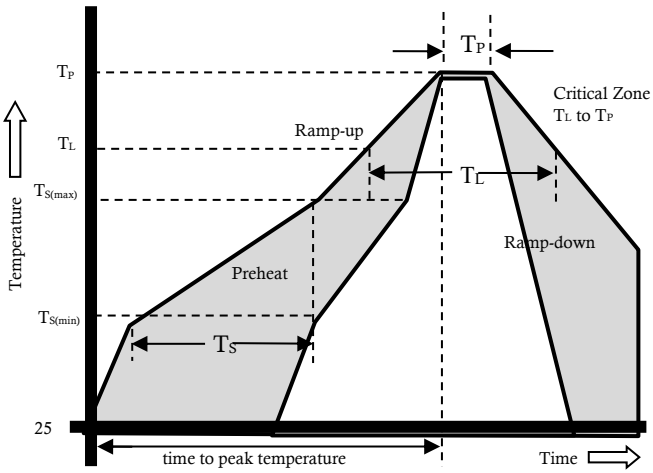
REF	mm	inch
A	0.5	0.020
B	0.6	0.024
C	1.42	0.056
D	0.92BSC	0.036

Notes:

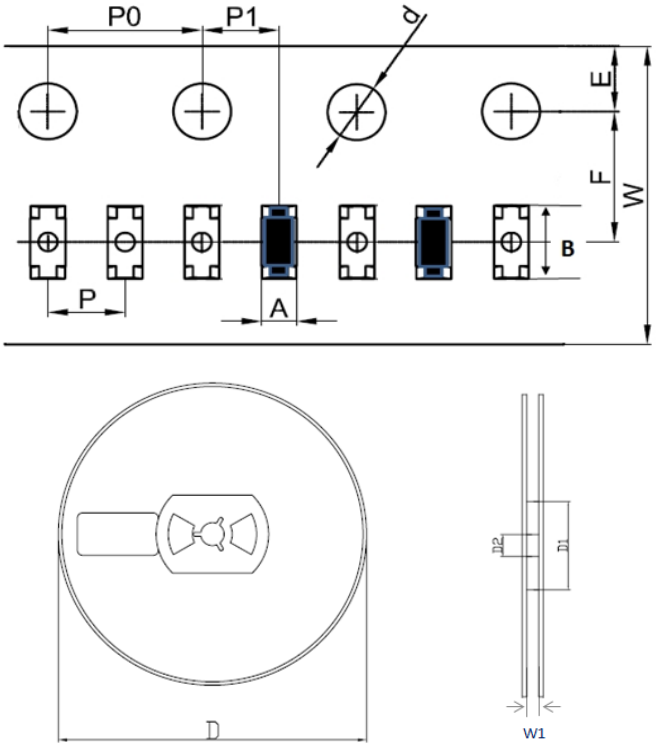
This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met

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	0.95+/-0.10	0.037+/-0.004
B	1.95+/-0.10	0.077+/-0.004
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	2.00+/-0.20	0.079+/-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	8.60+/-1.00	0.339+/-0.039

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