

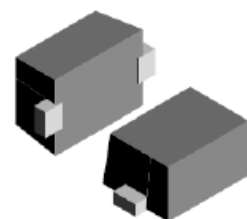
Transient Voltage Suppressor

Version: A1 2022-10-09

Features

- IEC 61000-4-2(ESD)±30KV(air), ±30KV(contact)
- IEC61000-4-5(Lightning) 7A (8/20μS)
- 63Watts peak pulse power (tp=8/20μS)
- IEC 61000-4-4(EFT): 40A (5/50ns)
- Low operating voltage and low clamping
- Small package:SOD923
- Moisture sensitivity level: Level 1

Exterior



Application information

- Cell Phone
- PDA
- Notebook
- Digital Cameras
- Portable Instrumentation
- Audio and video equipment

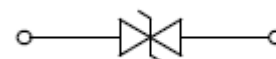
Package (top view)



Agency Approvals

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

Schematic Symbol



Part Number and Electrical Parameter

Part Number	I _{DRM} @V _{DRM} ^①		V _{BR} @I _R ^①		V _c @I _{pp} ^②		R _{DYN} @TLP ^③	V _c @I _{pp} TLP ^③		Co ^④
	μA	V	V	mA	V	A	Ω	V	A	pF
	MAX		MIN		TYP		TYP	TYP		TYP
BV-D905ZCA	1	5	6	1	9	7	0.1	8.3	16	20

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: 8/20 uS
- ③ TLP parameter: Z₀ = 50Ω, t_p = 100ns, t_r = 1ns, R_{DYN} is calculated from 4A to16A
- ④ Off-state capacitance is measured in V_{DC}=0V, V_{RMS}=0.3V, f=1MHZ

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Part Numbering System

Mark

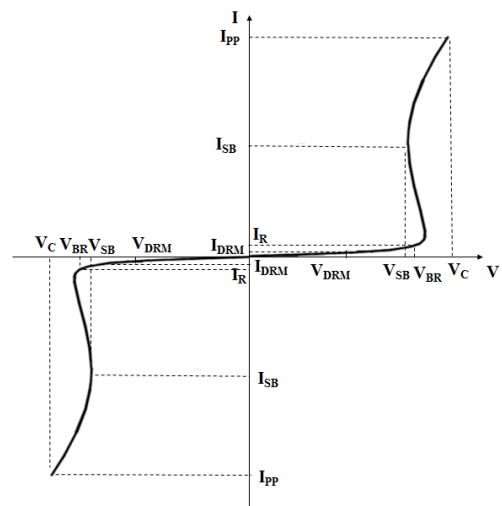
BV D9 05 Z C A
(1) (2) (3) (4) (5) (6)

- (1) Bencent Transient Voltage Suppressor
- (2) Package: SOD923
- (3) Stand-off Voltage: 5V
- (4) Normal Capacitance
- (5) Bidirectional
- (5) Bencent internal code



V-I Curve

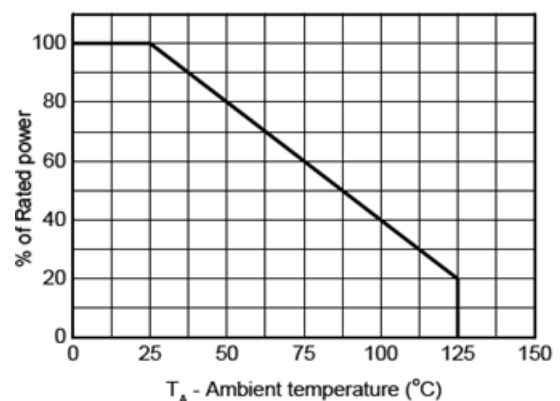
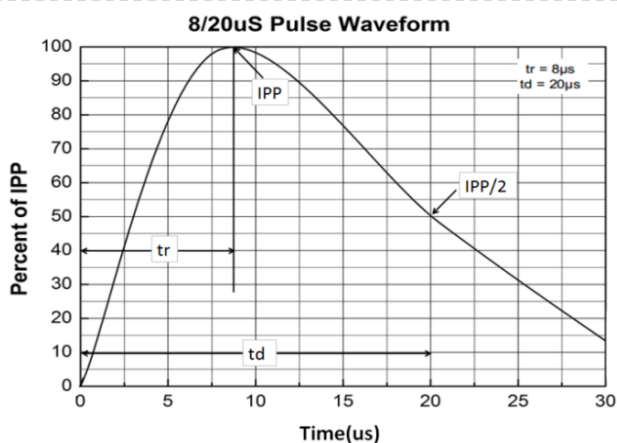
Parameters	Definition
V_C	Clamping voltage
I_{PP}	Surge waveform 8/20us
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test current
V_{SB}	Snapback voltage
I_{SB}	Test current
P_{pp}	Peak Pulse Power Dissipation



Thermal Considerations

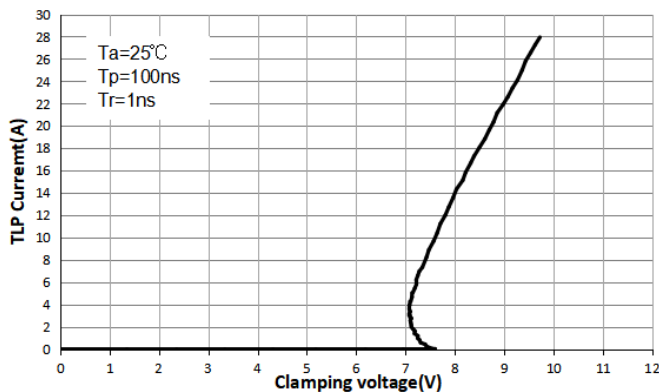
symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-40 to +150	°C
T_S	Storage Temperature Range	-40 to +150	°C

Typical Characteristics

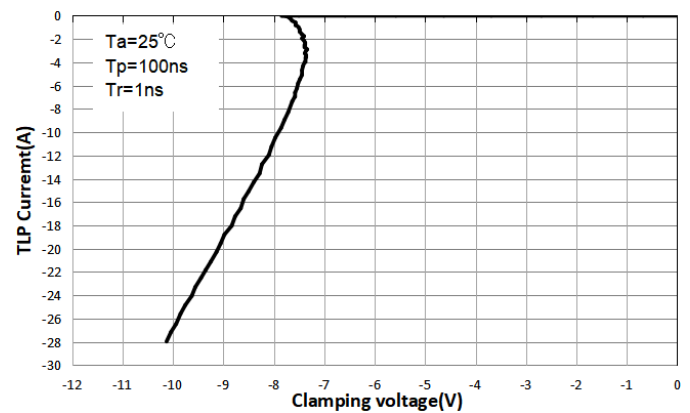


Power derating vs. Ambient temperature

TLP IV curve Pin1 to Pin2



TLP IV curve Pin2 to Pin1

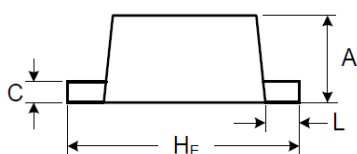
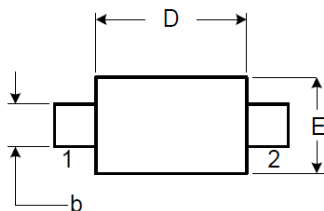


Environmental Characteristics

Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: $150\pm 3^{\circ}\text{C}$ 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,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

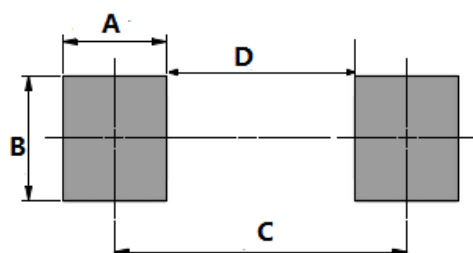


REF	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.42	0.45	0.017	0.018
b	0.20	0.30	0.008	0.012
C	0.12	0.25	0.005	0.01
D	0.80	1.00	0.032	0.04
E	0.60	0.80	0.024	0.032
H_E	1.00	1.20	0.040	0.048
L	0.10	0.20	0.004	0.008

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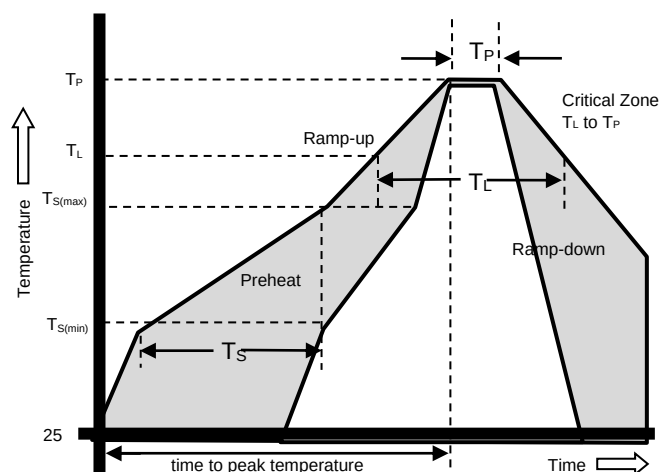
Recommended Soldering Pad



REF	mm	inch
A	0.4	0.016
B	0.6	0.024
C	0.9	0.035
D	0.5BSC	0.020 BSC

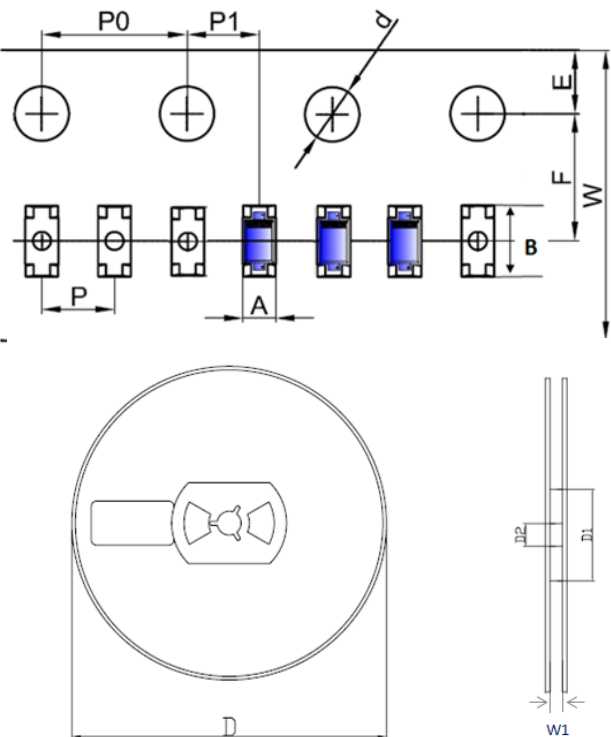
Reflow Profile

Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time (Min toMax)	60 – 180 secs
Average ramp up rate (Liquid)		3°C/s Max
T _{amp} (T _L) to peak		
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



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Package Reel Information

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REF	mm	inch
A	0.75+/-0.10	0.030+/-0.004
B	1.2+/-0.10	0.047+/-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	8,000	240,000	178	390	370	220