

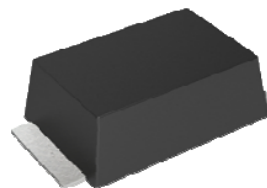
Transient Voltage Suppressor

Version: A1 2018-10-17

Features

- IEC 61000-4-2(ESD) $\pm 30\text{KV}$ (air), $\pm 30\text{KV}$ (contact)
- IEC61000-4-5(Lightning) 185A (8/20 μS)
- IEC61000-4-4(EFT) 40A (5/50nS)
- 5500 Watts peak pulse power ($t_p=8/20\mu\text{ S}$)
- Low clamping voltage
- Weight 15mg (Approximate)
- Moisture sensitivity level: Level 1
- Small package: SOD123-F

Exterior



SOD123-F

Application information

- DC power port
- DC High-Side Proximity Switches
- Industrial Controls

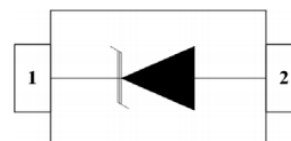
Package (top view)



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	$I_{\text{DRM}}@V_{\text{DRM}}$		$V_{\text{BR}}^{\text{①}}@I_{\text{R}}$		$V_{\text{C}}@I_{\text{PP}}^{\text{②}}$			$V_{\text{C}}@I_{\text{PP}}^{\text{②}}$			$\text{Co}^{\text{③}}$
	μA	V	V	mA	V	V	A	V	V	A	pF
	MAX		MIN		TYP	MAX		TYP	MAX		MAX
BV-D124ZB	1	24	25	1	27	29	100	30	33	185	1500

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

① V_{BR} is measured at $I_{\text{R}}=1\text{mA}$, pin 1 to 2

② Surge Waveform: 8/20 $\mu\text{ S}$, pin 1 to 2

③ Off-state capacitance is measured in $V_{\text{DC}}=0\text{V}$, $V_{\text{RMS}}=0.3\text{V}$, $f=1\text{MHz}$

Part Numbering System

BV D1 24 Z B
(1) (2) (3) (4) (5)

(1) Bencent Transient Voltage Suppressor

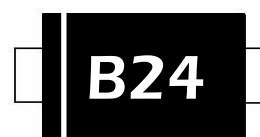
(2) Package:SOD123-F

(3) Off-state Voltage: 24V

(4) Normal Capacitance (Unidirectional Polarity omitted)

(5) Bencent intenal code

Mark



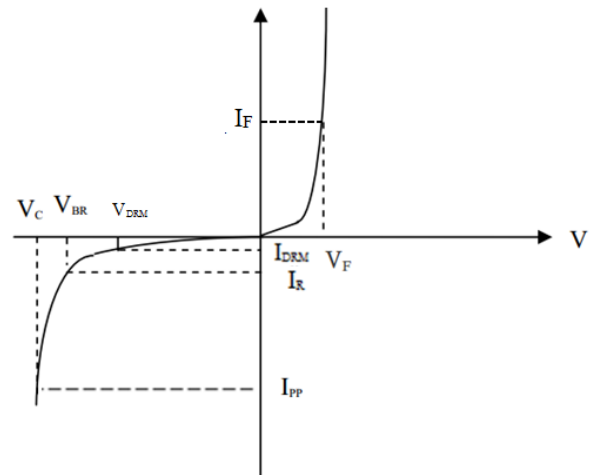
B24: Part Number

Transient Voltage Suppressor

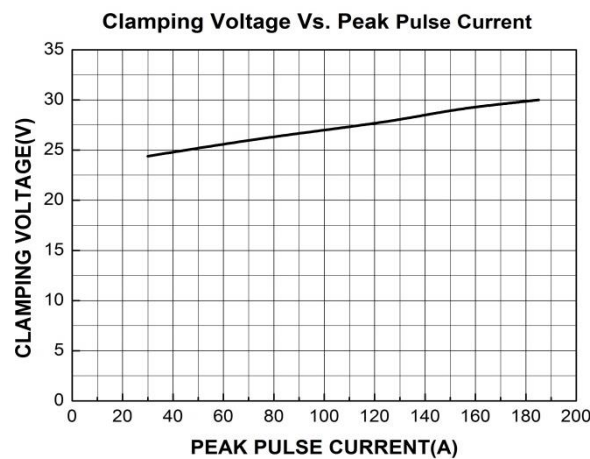
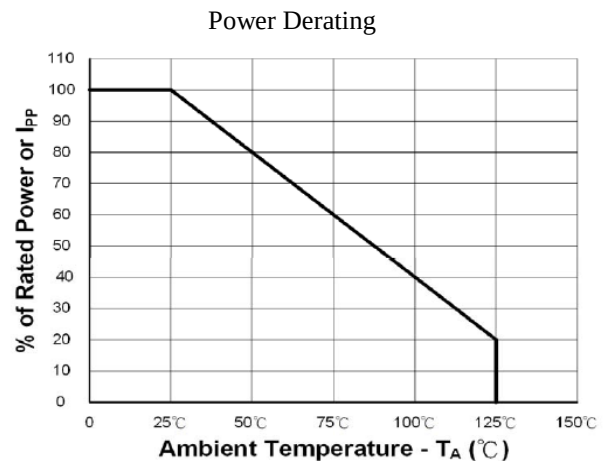
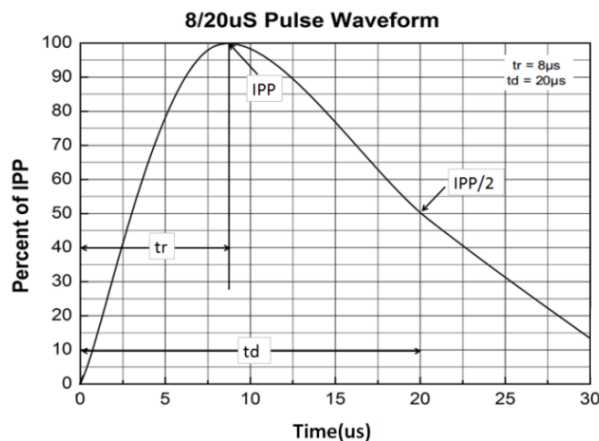
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V-I Curve

Parameters	Definition
VC	Clamping Voltage
Ipp	Surge Waveform 8/20μ s
VDRM	Stand-off Voltage
IDRM	Reverse Leakage Current
VBR	Breakdown Voltage
IR	Test Current
VF	Forward Voltage
IF	Test Current
Ppp	Peak Pulse Power Dissipation



Typical Characteristics



Thermal Considerations

symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-40 to +125	°C
T_S	Storage Temperature Range	-55 to +150	°C

Transient Voltage Suppressor

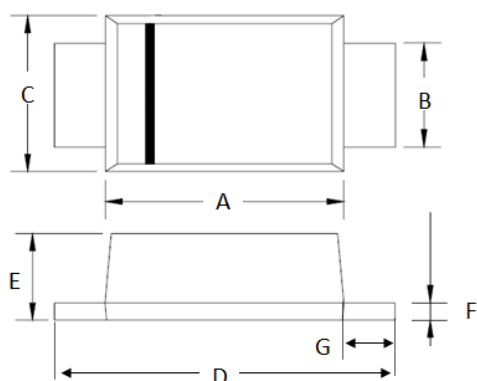
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Environmental Characteristics

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

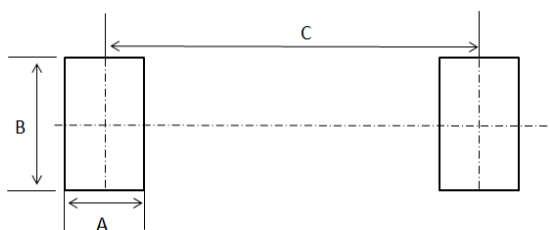
Product Dimensions



REF	mm	inch
A	2.50~2.90	0.098~0.114
B	0.80~1.20	0.031~0.047
C	1.70~1.90	0.067~0.075
D	3.50~3.90	0.138~0.154
E	0.80~1.20	0.031~0.047
F	0.10~0.30	0.004~0.012
G	0.50TYP	0.020TYP

SOD123-F

Recommended Soldering Pad



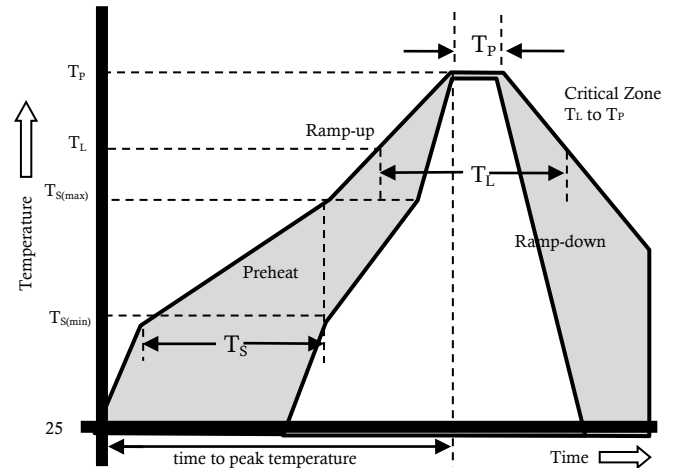
REF	mm	inch
A	1	0.039
B	1.6	0.063
C	3	0.118

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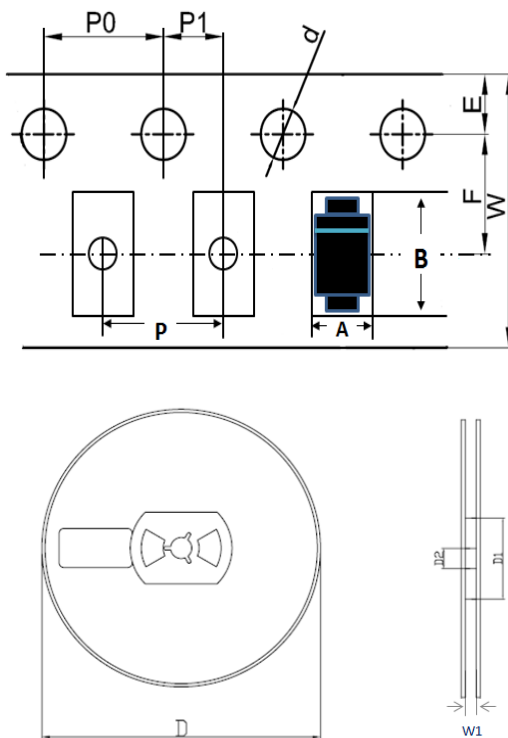
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Reflow Profile

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 (Liquid)		3°C/s max
Tamp (T _L) to peal		
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	2.10+/-0.30	0.083+/-0.012
B	4.10+/-0.30	0.161+/-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	178	390	370	220