

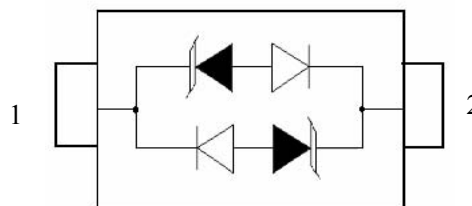
**Transient Voltage Suppressor**

Version: A0 2013-11-1

**Features**

- IEC 61000-4-2(ESD) ±15KV(air), ±8KV(contact)
- 150Watts peak pulse power (tp=8/20µS)
- Ultra low capacitance:1.5pF maximum
- Low clamping voltage
- Moisture sensitivity level: Level 1
- Weight 5.0 mg
- Small package:SOD323

**Exterior**




SOD323

**Application information**

- Ethernet

**Agency Approvals**

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

**Part Number and Electrical Parameter**

Part Number	I <sub>DRM</sub> @V <sub>DRM</sub>		V <sub>BR</sub> <sup>①</sup> @I <sub>R</sub>		V <sub>c</sub> @I <sub>pp</sub> <sup>②</sup>		V <sub>c</sub> @I <sub>pp</sub> <sup>②</sup>		Co <sup>③</sup>
	µA	V	V	mA	V	A	V	A	pF
	MAX		MIN		MAX		MAX		MAX
BV03CW	0.5	3	3.5	1	5.8	1	15	10	1.5

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

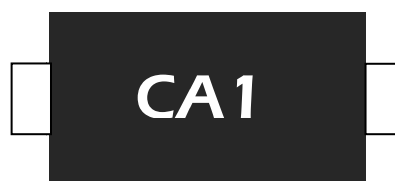
- ① V<sub>BR</sub> is measured at I<sub>R</sub>=1mA
- ② Surge Waveform: 8/20 µ S.
- ③ Off-state capacitance is measured in V<sub>DC</sub>=0V, V<sub>RMS</sub>=1V, f=1MHz

**Part Numbering System**

BV            03CW  
(1)            (2)

- (1) Bencent Transient Voltage Suppressor
- (2) Series: 03 etc.

**Mark**



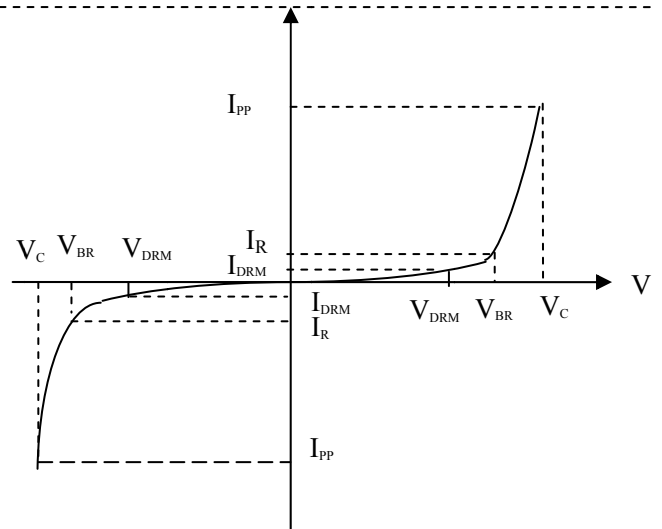
CA1: Part Number

**Transient Voltage Suppressor**

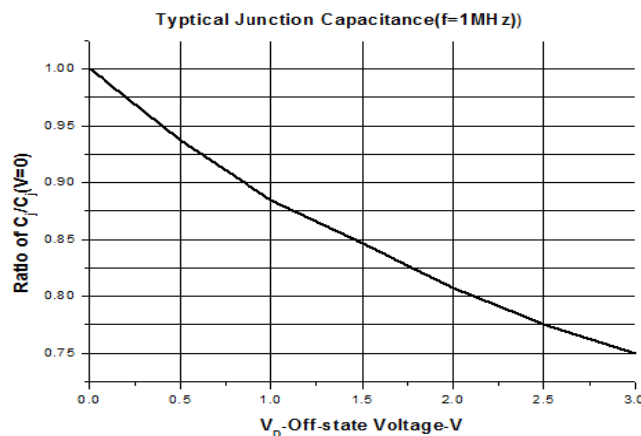
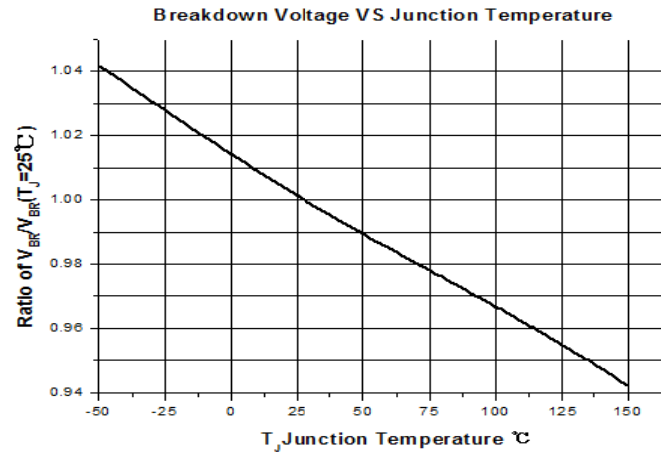
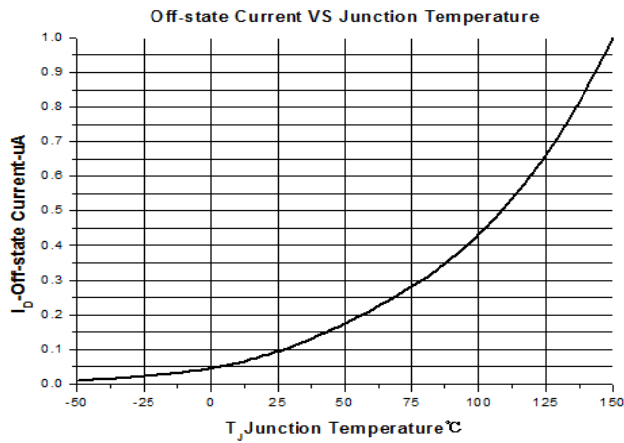
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V-I Curve

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



Typical Characteristics



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

**Transient Voltage Suppressor**

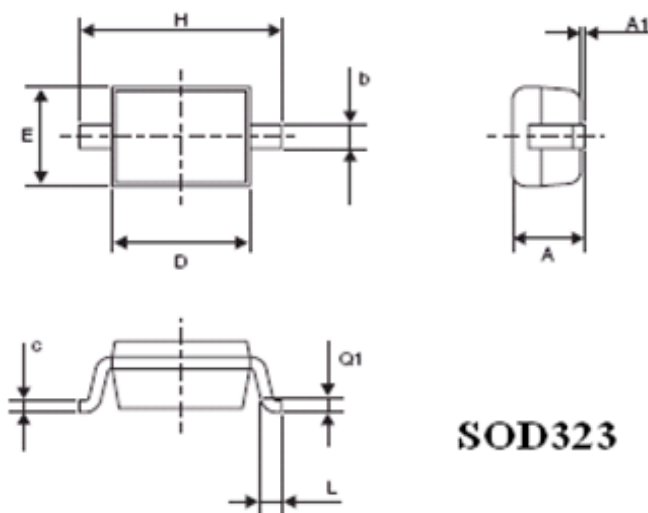
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Environmental Characteristics

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: $150^{\circ}\text{C}$ Time:168H
High-low Temperature Cycle test	Temperature: From $-40^{\circ}\text{C}$ to $125^{\circ}\text{C}$ Dwell time : 30min,10cycles
High Temperature &High Humidity Test	Temperature: $85^{\circ}\text{C}$ Humidity:85% Time:168H
Pressure cooker Test	Temperature: $121^{\circ}\text{C}$ , 2atm. Humidity:100% Time:24H
Resistance of soldering heat	Temperature: $260\pm 5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

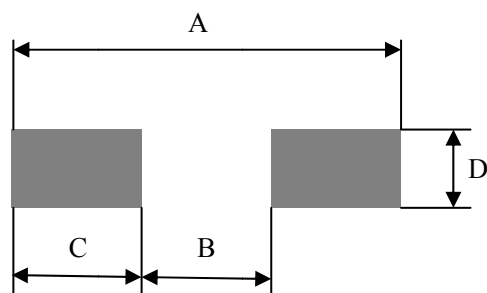
Note: The above testing items can be specified by customer's special request

Product Dimensions



REF	mm	inch
A	1.17	0.046
A1	0.1	0.004
b	$0.34\pm 0.10$	$0.013\pm 0.0039$
c	$0.17\pm 0.08$	$0.007\pm 0.0032$
D	$1.66\pm 0.14$	$0.065\pm 0.0055$
E	$1.28\pm 0.17$	$0.050\pm 0.0066$
H	$2.5\pm 0.2$	$0.098\pm 0.0079$
L	$0.28\pm 0.18$	$0.011\pm 0.0071$
Q1	$0.25\pm 0.15$	$0.010\pm 0.0059$

Recommended Soldering Pad

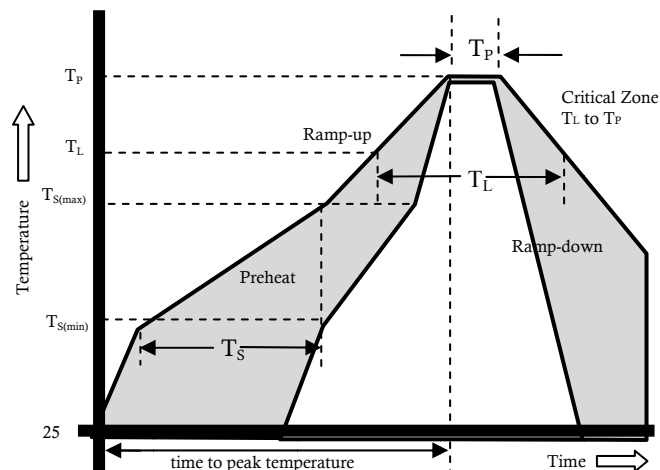


REF	mm	inch
A	3.20	0.126
B	1.08	0.043
C	1.06	0.042
D	0.54	0.021

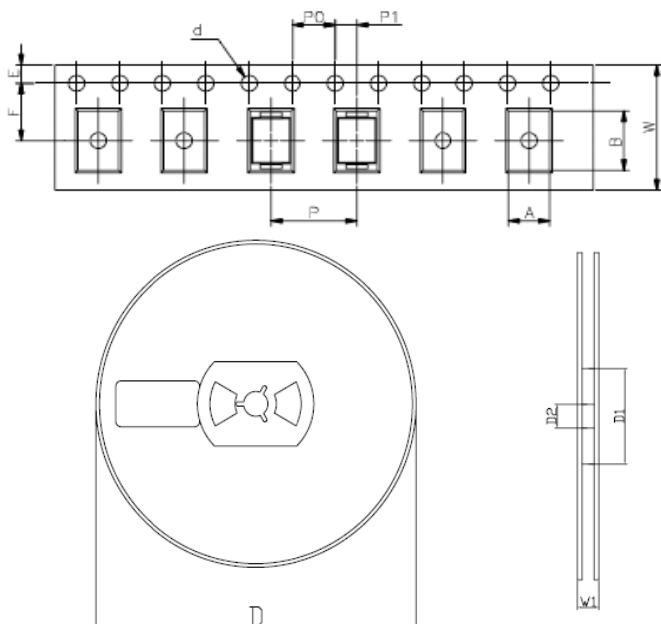
## Transient Voltage Suppressor

### 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) T <sub>amp</sub> (T <sub>L</sub> ) to peak		3°C/s max
T <sub>S</sub> (max) to T <sub>L</sub> - Ramp-up Rate		3°C/s max
Reflow	- Temperature (T <sub>L</sub> ) (Liquid)	217°C
	- Temperature (T <sub>L</sub> )	60 – 150 secs
Peak Temperature (T <sub>P</sub> )		260±0/-5 °C
Time within 5°C of actual peak Temperature (T <sub>P</sub> )		8– 15secs
Ramp-down Rate		6°C/s max
Time 25°C to peak Temperature (T <sub>P</sub> )		8 mins Max.
Do not exceed		260°C



### Package Reel Information



REF	mm	inch
A	1.46±/-0.1	0.057±/-0.004
B	2.9±/-0.1	0.114±/-0.004
d	1.25±/-0.1	0.049±/-0.004
D	178±/-1.0	7.01±/-0.039
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	14.4±/-0.5	0.567±/-0.020

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	3,000	90,000	177	360	370	220