

### Revision History

Version	Revision Description	Department	Owner	Date
A0	Initial release	R&D	Chen Pin	2013/11/1
A1	Add the typical Value for capacitance	R&D	Luo sheng hui	2016/05/10

<b>Issued by</b>		<b>Checked by</b>	<i>RD</i>	<b>Approval</b>	
			<i>QA</i>		
			<i>MD</i>		

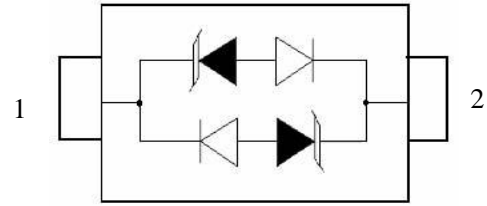
## Transient Voltage Suppressor

Version: A1 2016-05-06

### 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>		C <sub>0</sub> <sup>③</sup>	C <sub>0</sub> <sup>③</sup>
	µA	V	V	mA	V	A	V	A	pF	pF
	MAX		MIN		MAX		MAX		TYP	MAX
BV03CW	0.5	3	3.5	1	5.8	1	15	10	0.85	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: 8/20µS.

③ Off-state capacitance is measured in V<sub>DC</sub>=0V, V<sub>RMS</sub>=1V, f=1MHz

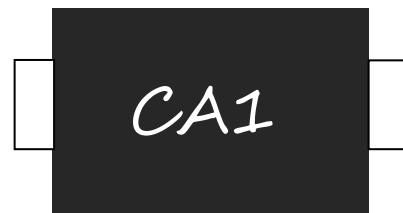
### Part Numbering System

BV            03CW  
(1)            (2)

(1) Bencent Transient Voltage Suppressor

(2) Series: 03 etc.

### Mark



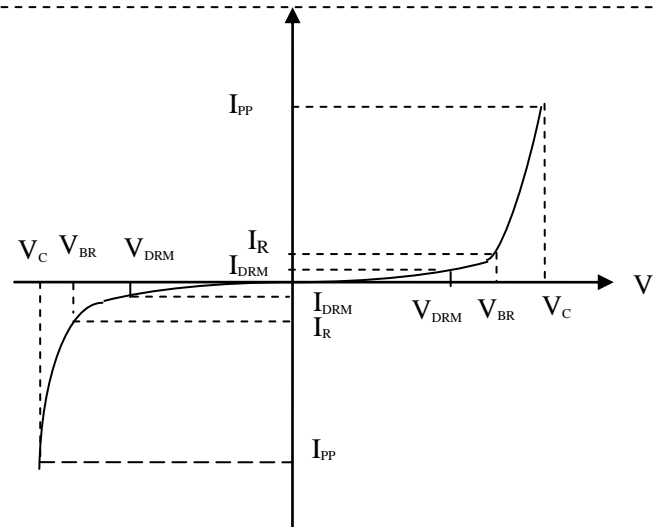
CA1: Part Number

## Transient Voltage Suppressor

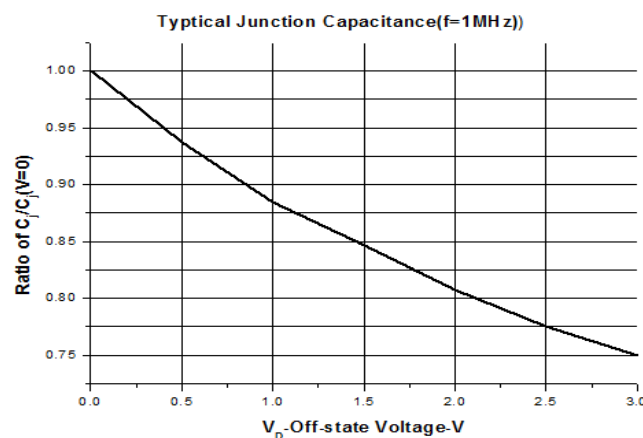
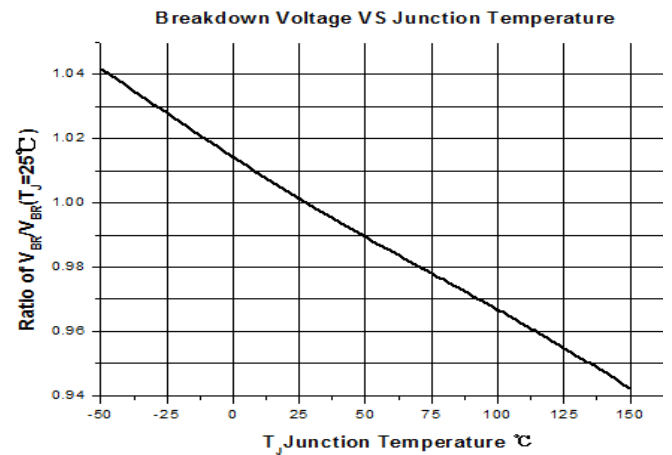
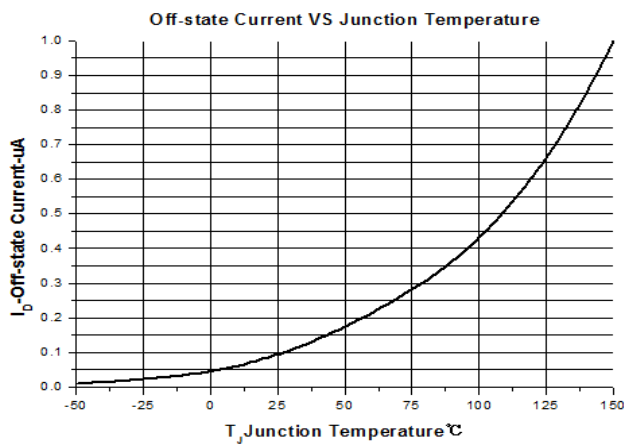
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### V-I Curve

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	$^{\circ}$ C
$T_s$	Storage Temperature Range	-55 to +150	$^{\circ}$ C

## Transient Voltage Suppressor

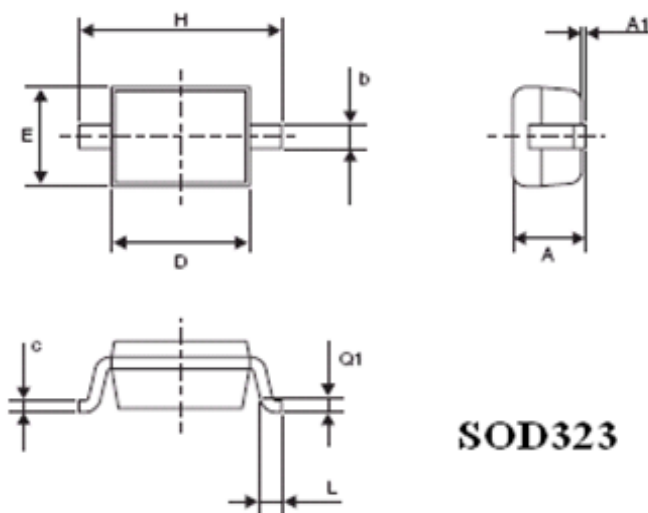
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### Environmental Characteristics

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

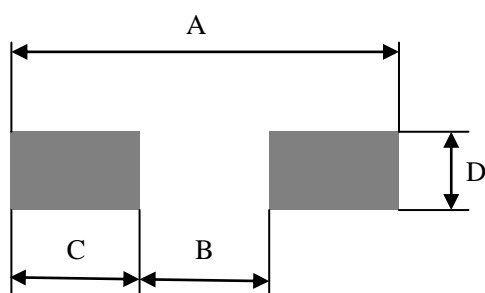
Note: The above testing items can be specified by customer's special request

### 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



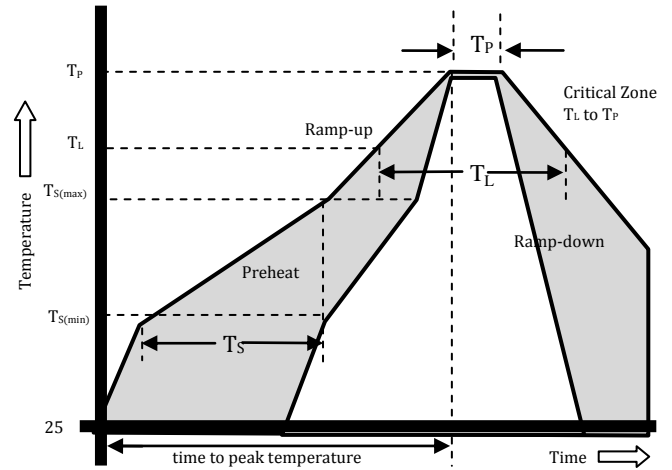
REF	mm	inch
A	3.20	0.126
B	1.08	0.043
C	1.06	0.042
D	0.54	0.021

## Transient Voltage Suppressor

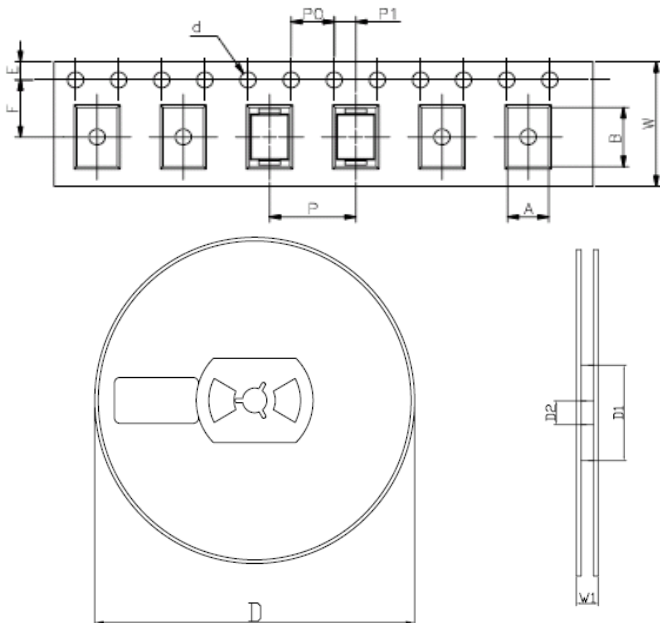
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### Reflow Profile

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) 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