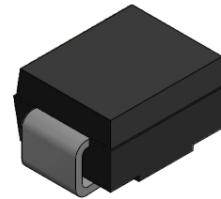


**Transient Voltage Suppressor**
**Features**

- IEC 61000-4-2(ESD)  $\pm 15\text{KV}$ (air),  $\pm 8\text{KV}$ (contact)
- 600Watts peak pulse power ( $t_p=10/1000 \mu\text{S}$ )
- Low clamping voltage
- Moisture sensitivity level: level 1

**Exterior**


SMB

**Application Information**

- DC Port
- RS485/232/422
- I/O Port

**Agency Approvals**

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

**Schematic Symbol**


BI-directional



UNI-directional

**Part Numbering and Electrical Parameter**

Part Number		Marking		Reverse Stand off Voltage $V_R$ (V)	$V_{BR}$ min. (V)	$V_{BR}$ max. (V)	$I_t$ (mA)	Max Clamping Voltage $V_C@I_{PP}^{(1)}$ (V)	Max Peak Pulse Current $I_{PP}^{(1)}$ (A)	Max Reverse Leakage $I_R@V_R$ ( $\mu\text{A}$ )
BI	UNI	BI	UNI							
BV-SMBJ5CA	BV-SMBJ5A	B5C	B5	5	6.4	7	10	9.2	65.3	800
BV-SMBJ6CA	BV-SMBJ6A	B6C	B6	6	6.67	7.37	10	10.3	58.3	800
BV-SMBJ6.5CA	BV-SMBJ6.5A	B6.5C	B6.5	6.5	7.22	7.98	10	11.2	53.6	500
BV-SMBJ7CA	BV-SMBJ7A	B7C	B7	7	7.78	8.6	10	12	50	200
BV-SMBJ7.5CA	BV-SMBJ7.5A	B7.5C	B7.5	7.5	8.33	9.21	1	12.9	46.6	100
BV-SMBJ8CA	BV-SMBJ8A	B8C	B8	8	8.89	9.83	1	13.6	44.2	50
BV-SMBJ8.5CA	BV-SMBJ8.5A	B8.5C	B8.5	8.5	9.44	10.4	1	14.4	41.7	20
BV-SMBJ9CA	BV-SMBJ9A	B9C	B9	9	10	11.1	1	15.4	39	10
BV-SMBJ10CA	BV-SMBJ10A	B10C	B10	10	11.1	12.3	1	17	35.3	5
BV-SMBJ11CA	BV-SMBJ11A	B11C	B11	11	12.2	13.5	1	18.2	33	1
BV-SMBJ12CA	BV-SMBJ12A	B12C	B12	12	13.3	14.7	1	19.9	30.2	1
BV-SMBJ13CA	BV-SMBJ13A	B13C	B13	13	14.4	15.9	1	21.5	28	1
BV-SMBJ14CA	BV-SMBJ14A	B14C	B14	14	15.6	17.2	1	23.2	25.9	1

Part Number		Marking		Reverse Stand off Voltage $V_R(V)$	$V_{BR}$ min. (V)	$V_{BR}$ max. (V)	$I_t$ (mA)	Max Clampin g Voltage $V_C@I_{PP}^{\text{①}}$ (V)	Max Peak Pulse Current $I_{PP}^{\text{①}}$ (A)	Max Reverse Leakage $I_R@V_R$ (uA)
BI	UNI	BI	UNI							
BV-SMBJ15CA	BV-SMBJ15A	B15C	B15	15	16.7	18.5	1	24.4	24.6	1
BV-SMBJ16CA	BV-SMBJ16A	B16C	B16	16	17.8	19.7	1	26	23.1	1
BV-SMBJ17CA	BV-SMBJ17A	B17C	B17	17	18.9	20.9	1	27.6	21.8	1
BV-SMBJ18CA	BV-SMBJ18A	B18C	B18	18	20	22.1	1	29.2	20.6	1
BV-SMBJ20CA	BV-SMBJ20A	B20C	B20	20	22.2	24.5	1	32.4	18.6	1
BV-SMBJ22CA	BV-SMBJ22A	B22C	B22	22	24.4	26.9	1	35.5	16.9	1
BV-SMBJ24CA	BV-SMBJ24A	B24C	B24	24	26.7	29.5	1	38.9	15.5	1
BV-SMBJ26CA	BV-SMBJ26A	B26C	B26	26	28.9	31.9	1	42.1	14.3	1
BV-SMBJ28CA	BV-SMBJ28A	B28C	B28	28	31.1	34.4	1	45.4	13.3	1
BV-SMBJ30CA	BV-SMBJ30A	B30C	B30	30	33.3	36.8	1	48.4	12.4	1
BV-SMBJ33CA	BV-SMBJ33A	B33C	B33	33	36.7	40.6	1	53.3	11.3	1
BV-SMBJ36CA	BV-SMBJ36A	B36C	B36	36	40	44.2	1	58.1	10.4	1
BV-SMBJ40CA	BV-SMBJ40A	B40C	B40	40	44.4	49.1	1	64.5	9.3	1
BV-SMBJ43CA	BV-SMBJ43A	B43C	B43	43	47.8	52.8	1	69.4	8.7	1
BV-SMBJ45CA	BV-SMBJ45A	B45C	B45	45	50	55.3	1	72.7	8.3	1
BV-SMBJ48CA	BV-SMBJ48A	B48C	B48	48	53.3	58.9	1	77.4	7.8	1
BV-SMBJ51CA	BV-SMBJ51A	B51C	B51	51	56.7	62.7	1	82.4	7.3	1
BV-SMBJ54CA	BV-SMBJ54A	B54C	B54	54	60	66.3	1	87.1	6.9	1
BV-SMBJ58CA	BV-SMBJ58A	B58C	B58	58	64.4	71.2	1	93.6	6.5	1
BV-SMBJ60CA	BV-SMBJ60A	B60C	B60	60	66.7	73.7	1	96.8	6.2	1
BV-SMBJ64CA	BV-SMBJ64A	B64C	B64	64	71.1	78.6	1	103	5.9	1
BV-SMBJ70CA	BV-SMBJ70A	B70C	B70	70	77.8	86	1	113	5.3	1
BV-SMBJ75CA	BV-SMBJ75A	B75C	B75	75	83.3	92.1	1	121	5	1
BV-SMBJ78CA	BV-SMBJ78A	B78C	B78	78	86.7	95.8	1	126	4.8	1
BV-SMBJ85CA	BV-SMBJ85A	B85C	B85	85	94.4	104	1	137	4.4	1
BV-SMBJ90CA	BV-SMBJ90A	B90C	B90	90	100	111	1	146	4.1	1
BV-SMBJ100CA	BV-SMBJ100A	B100C	B100	100	111	123	1	162	3.7	1
BV-SMBJ110CA	BV-SMBJ110A	B110C	B110	110	122	135	1	177	3.4	1

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

① Surge Waveform: 10/1000  $\mu$  S

### Mark

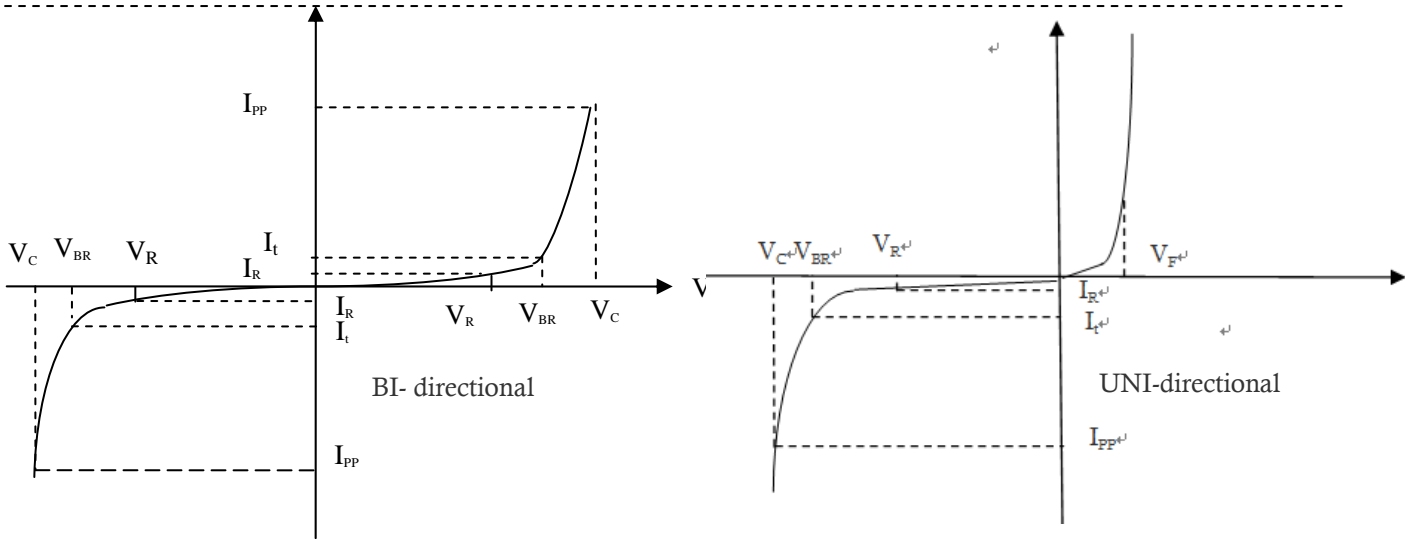


BI: BXXC



UNI: BXX

V-I Curve



Parameters	Definition
$V_F$	Forward Voltage drop for UNI-directional
$V_C$	Clamping Voltage
$I_{PP}$	Surge Waveform 10/1000 $\mu$ s
$V_R$	Stand-off Voltage
$V_{BR}$	Breakdown Voltage
$I_R$	Reverse Leakage Current
$I_t$	Test Current
$P_{pp}$	Peak Pulse Power Dissipation

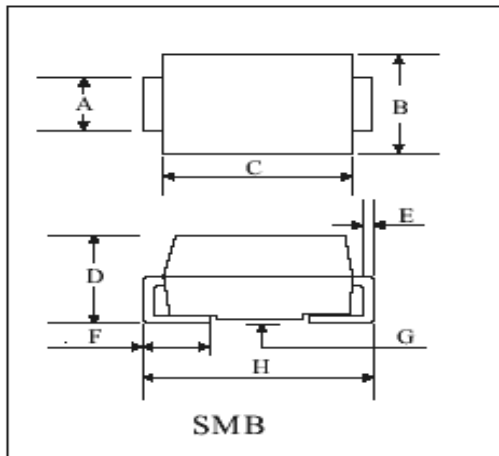
Thermal Considerations

symbol	Parameter	Value	Unit
$T_J$	Operating Junction Temperature Range	-55 to +150	$^{\circ}C$
$T_S$	Storage Temperature Range	-55 to +150	$^{\circ}C$

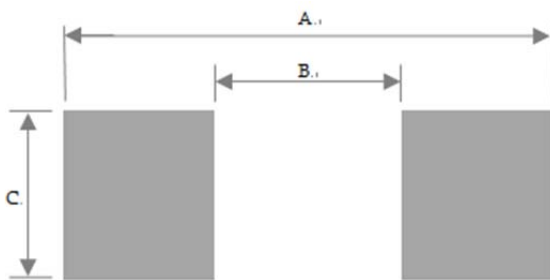
Environmental Characteristics

Testing Items	Technical Standards
High Temperature Reverse Bias Test	Temperature: $150 \pm 3^{\circ}C$ , Bias= $80\%V_{DRM}$ Time:96H
High Temperature Life Test	Temperature: $150^{\circ}C$ Time:168H
High-low Temperature Cycle Test	Temperature: From $-40^{\circ}C$ to $125^{\circ}C$ Dwell time: 30min, 10-100 cycles
High Temperature & High Humidity Test	Temperature: $85^{\circ}C$ Humidity:85% Test time:168H
Pressure Cooker Test	Temperature: $121^{\circ}C$ , 2atm. Humidity:100% Test time: 24H to 168H
Resistance of Soldering Heat	Temperature: $260 \pm 5^{\circ}C$ Time of dip soldering: 10s, 3times

Note: The above testing items can be specified by customers by contacting Bencent service

**Product Dimensions**


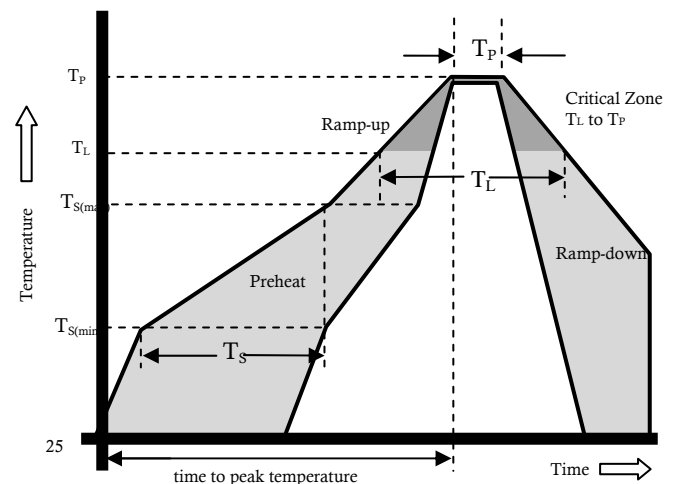
REF.	mm	inch
A	1.85--2.15	0.073--0.085
B	3.45--3.75	0.138--0.148
C	4.35--4.65	0.171--0.183
D	2.10--2.60	0.083--0.102
E	0.15--0.25	0.006--0.010
F	0.80--1.50	0.031--0.059
G	0.00--0.40	0.000--0.016
H	4.95--5.45	0.195--0.215

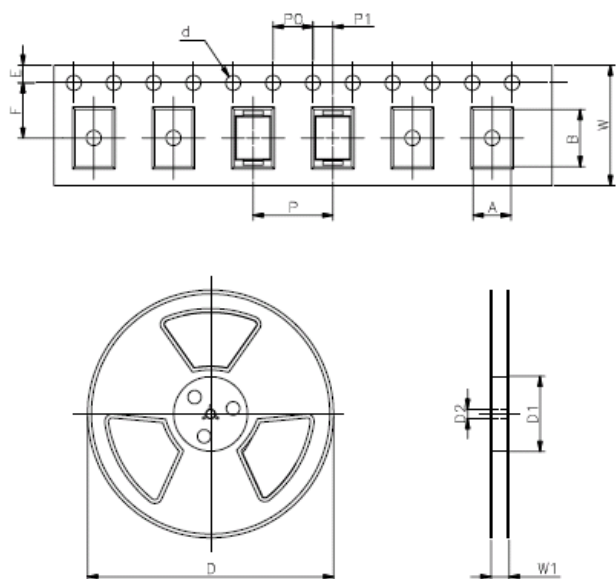
**Recommended Soldering Pad**


REF	mm	inch
A	5.45	0.215
B	2.45	0.097
C	2.15	0.085

**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(Liquidus Temp( $T_L$ ) to peak)		3°C/sec. Max.
Ts(max) to $T_L$ - Ramp-up Rate		3°C/sec. Max.
Reflow	- Temperature ( $T_L$ ) (Liquidus)	+217°C
	- Temperature ( $T_L$ )	60 – 150 secs.
Peak Temp ( $T_P$ )		+(260+0/-5)°C
Time within 5°C of actual Peak Temp ( $T_P$ )		30 secs.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp ( $T_P$ )		8 min. Max.
Do not exceed		+260°C



**Package Reel Information**


REF	mm	inch
A	3.8+/-0.3	0.150+/-0.012
B	5.5+/-0.3	0.217+/-0.012
d	1.5+/-0.1	0.059+/-0.004
D	330+/-1	13+/-0.039
D1	72+/-3	2.835+/-0.118
D2	13+/-0.3	0.512+/-0.012
E	1.75+/-0.2	0.069+/-0.008
F	5.5+/-0.02	0.217+/-0.008
P	8.0+/-0.2	0.315+/-0.008
P0	4.0+/-0.2	0.157+/-0.008
P1	2.0+/-0.2	0.079+/-0.008
W	12.0+/-0.2	0.472+/-0.008
W1	18+/-2.0	0.709+/-0.079

Outline	Reel (pcs)	Per Carton (pcs)	Reel Diameters (mm)	Carton Size(mm)		
				L	W	H
Taping	3,000	24,000	330	360	360	380