

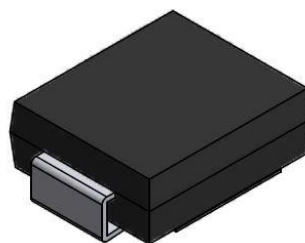
## Transient Voltage Suppressor

Version: A5 2018/4/3

### Features

- IEC 61000-4-2(ESD)  $\pm 15KV$ (air),  $\pm 8KV$ (contact)
- 5000Watts peak pulse power ( $t_p=10/1000\mu$  S)
- Quick response to surge voltage
- Low clamping voltage
- Moisture sensitivity level: Level 1

### Exterior



DO-214AB (SMC)

### 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 Number and Electrical Parameter

Part Number		Marking		$V_R(V)$	$V_{BR}$ min.(V)	$V_{BR}$ max.(V)	$I_t$ (mA)	Max Vc @ $I_{PP}^{\text{①}}$ (V)	$I_{PP}^{\text{①}}$ (A)	$I_R@V_R$ (uA)
BI	UNI	BI	UNI							
BV-5SMDJ11CA	BV-5SMDJ11A	5D11C	5D11	11	12.2	13.5	1	18.2	275	800
BV-5 SMDJ12CA	BV-5SMDJ12A	5D12C	5D12	12	13.3	14.7	1	19.9	252	800
BV-5SMDJ13CA	BV-5SMDJ13A	5D13C	5D13	13	14.4	15.9	1	21.5	233	500
BV-5SMDJ14CA	BV-5SMDJ14A	5D14C	5D14	14	15.6	17.2	1	23.2	216	200
BV-5SMDJ15CA	BV-5SMDJ15A	5D15C	5D15	15	16.7	18.5	1	24.4	205	100
BV-5SMDJ16CA	BV-5SMDJ16A	5D16C	5D16	16	17.8	19.7	1	26	193	50
BV-5SMDJ17CA	BV-5SMDJ17A	5D17C	5D17	17	18.9	20.9	1	27.6	181	20
BV-5SMDJ18CA	BV-5SMDJ18A	5D18C	5D18	18	20	22.1	1	29.2	172	10
BV-5SMDJ20CA	BV-5SMDJ20A	5D20C	5D20	20	22.2	24.5	1	32.4	155	5
BV-5SMDJ22CA	BV-5SMDJ22A	5D22C	5D22	22	24.4	26.9	1	35.5	141	5
BV-5SMDJ24CA	BV-5SMDJ24A	5D24C	5D24	24	26.7	29.5	1	38.9	129	2
BV-5SMDJ26CA	BV-5SMDJ26A	5D26C	5D26	26	28.9	31.9	1	42.1	119	2
BV-5SMDJ28CA	BV-5SMDJ28A	5D28C	5D28	28	31.1	34.4	1	45.4	110	2
BV-5SMDJ30CA	BV-5SMDJ30A	5D30C	5D30	30	33.3	36.8	1	48.4	103	2
BV-5SMDJ33CA	BV-5SMDJ33A	5D33C	5D33	33	36.7	40.6	1	53.3	93.9	2
BV-5SMDJ36CA	BV-5SMDJ36A	5D36C	5D36	36	40	44.2	1	58.1	86.1	2
BV-5SMDJ40CA	BV-5SMDJ40A	5D40C	5D40	40	44.4	49.1	1	64.5	77.6	2

Part Number		Marking		$V_R$ (V)	$V_{BR}$ min.(V)	$V_{BR}$ max.(V)	$I_t$ (mA)	$@I_{PP}^{\textcircled{1}}$ (V)	$I_{PP}^{\textcircled{1}}$ (A)	$I_R@V_R$ ( $\mu$ A)
BI	UNI	BI	UNI							
BV-5SMDJ43CA	BV-5SMDJ43A	5D43C	5D43	43	47.8	52.8	1	69.4	72.1	2
BV-5SMDJ45CA	BV-5SMDJ45A	5D45C	5D45	45	50	55.3	1	72.7	68.8	2
BV-5SMDJ48CA	BV-5SMDJ48A	5D48C	5D48	48	53.3	58.9	1	77.4	64.7	2
BV-5SMDJ51CA	BV-5SMDJ51A	5D51C	5D51	51	56.7	62.7	1	82.4	60.7	2
BV-5SMDJ54CA	BV-5SMDJ54A	5D54C	5D54	54	60	66.3	1	87.1	57.5	2
BV-5SMDJ58CA	BV-5SMDJ58A	5D58C	5D58	58	64.4	71.2	1	93.6	53.5	2
BV-5SMDJ60CA	BV-5SMDJ60A	5D60C	5D60	60	66.7	73.7	1	96.8	51.7	2
BV-5SMDJ64CA	BV-5SMDJ64A	5D64C	5D64	64	71.1	78.6	1	103	48.6	2
BV-5SMDJ70CA	BV-5SMDJ70A	5D70C	5D70	70	77.8	86	1	113	44.3	2
BV-5SMDJ75CA	BV-5SMDJ75A	5D75C	5D75	75	83.3	92.1	1	121	41.4	2
BV-5SMDJ78CA	BV-5SMDJ78A	5D78C	5D78	78	86.7	95.8	1	126	39.7	2
BV-5SMDJ85CA	BV-5SMDJ85A	5D85C	5D85	85	94.4	104	1	137	36.5	2
BV-5SMDJ90CA	BV-5SMDJ90A	5D90C	5D90	90	100	111	1	146	34.3	2
BV-5SMDJ100CA	BV-5SMDJ100A	5D100C	5D100	100	111	123	1	162	30.9	2
BV-5SMDJ110CA	BV-5SMDJ110A	5D110C	5D110	110	122	135	1	177	28.3	2
BV-5SMDJ120CA	BV-5SMDJ120A	5D120C	5D120	120	133	147	1	193	26	2
BV-5SMDJ130CA	BV-5SMDJ130A	5D130C	5D130	130	144	159	1	209	24	2
BV-5SMDJ150CA	BV-5SMDJ150A	5D150C	5D150	150	167	185	1	243	20.6	2
BV-5SMDJ160CA	BV-5SMDJ160A	5D160C	5D160	160	178	197	1	259	19.3	2
BV-5SMDJ170CA	BV-5SMDJ170A	5D170C	5D170	170	189	209	1	275	18.2	2

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

$\textcircled{1}$  Surge Waveform: 10/1000 $\mu$  S

### Mark



BI:5DXXC



UNI:5DXX

### Part Number System

BV 5SMDJ XX C A  
(1) (2) (3) (4) (5)

(1) Bencent Transient Voltage Suppressor

(3)  $V_R=XXV$

(5) Suffix 'A' denotes 5% tolerance devices

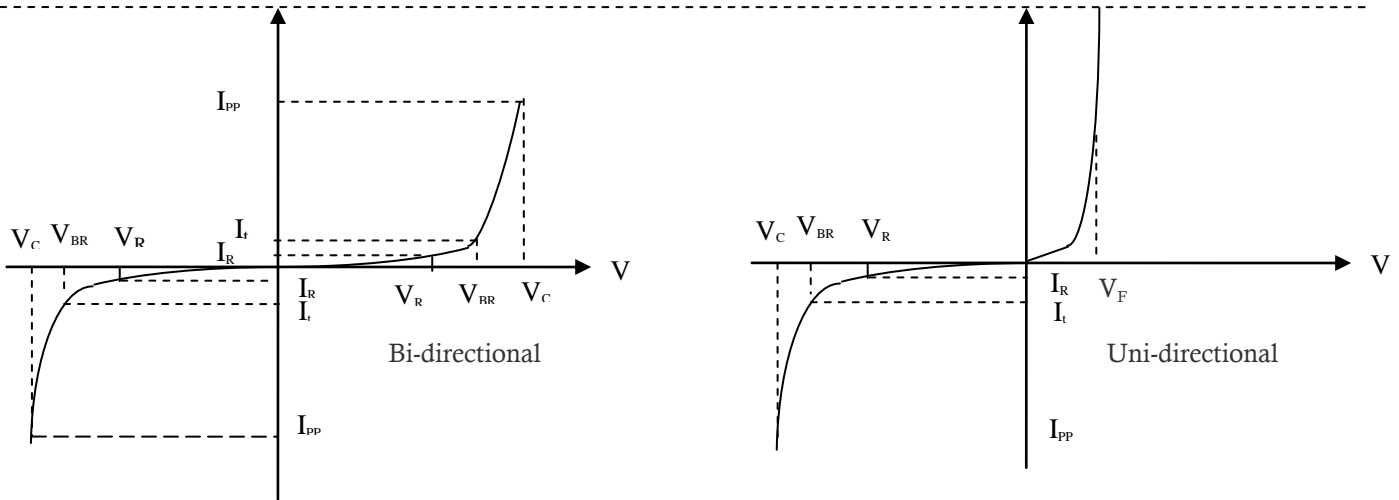
(2) Series Code

(4) BI-directional

Transient Voltage Suppressor

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V-I Curve

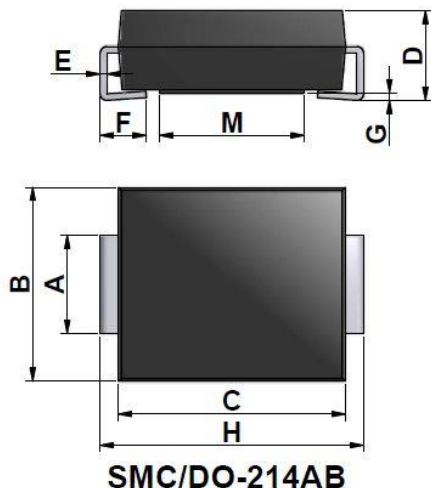


Parameters	Definition
$V_F$	Forward Voltage drop for UNI-directional
$V_C$	Clamping Voltage
$I_{PP}$	Surge Waveform 10/1000 $\mu$ s
$V_R$	Stand-off Voltage
$V_{BR}$	Breakdown Voltage
$I_R$	Reverse Leakage Current
$I_t$	Test Current
$P_{pp}$	Peak Pulse Power Dissipation

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	$^{\circ}C$

Product Dimensions

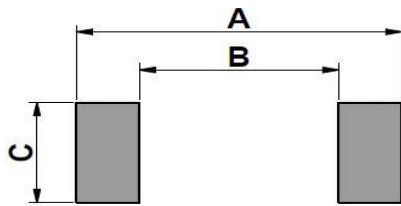


REF	mm	inch
A	$3 \pm 0.1$	$0.118 \pm 0.004$
B	$6 \pm 0.2$	$0.236 \pm 0.008$
C	$7 \pm 0.2$	$0.276 \pm 0.008$
D	$2.7 \pm 0.3$	$0.106 \pm 0.012$
E	$0.2 \pm 0.1$	$0.008 \pm 0.004$
F	$1.3 \pm 0.3$	$0.051 \pm 0.012$
G	$0 \sim 0.4$	$0.000 \sim 0.016$
H	$8 \pm 0.25$	$0.315 \pm 0.010$
M	$4.4 \pm 0.2$	$0.173 \pm 0.008$

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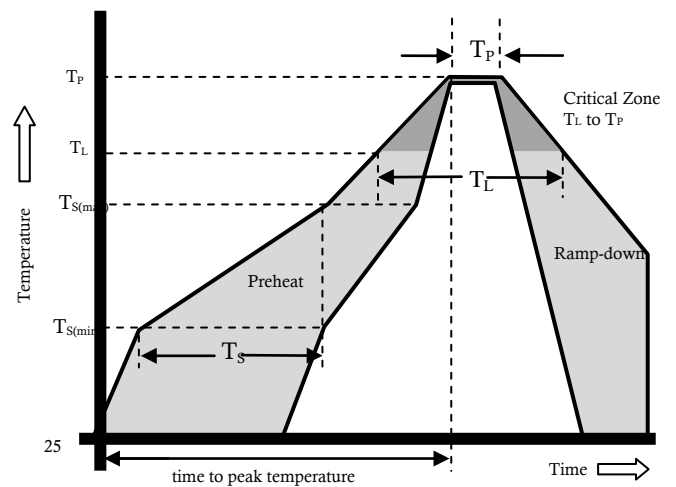
### Recommended Soldering Pad



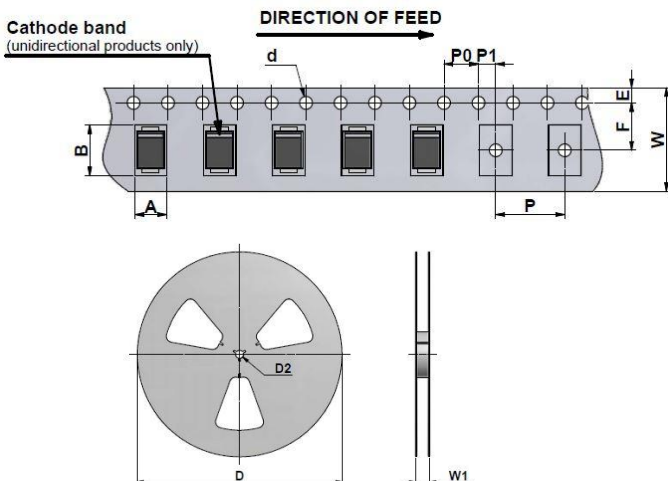
REF	mm	inch
A	8.25	0.325
B	5.05	0.199
C	3.05	0.120

### Reflow Profile

Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60 – 180 seconds
Average ramp up rate (Liquidus Temp (T <sub>L</sub> ) to peak)		3°C/second max
Ts(max) to T <sub>L</sub> - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T <sub>L</sub> ) (Liquidus)	217°C
	- Temperature (T <sub>L</sub> )	60 – 150 seconds
Peak Temp (T <sub>P</sub> )		260+0/-5 °C
Time within 5°C of actual Peak Temp (T <sub>P</sub> )		8-15 seconds
Ramp-down Rate		6°C/s max
Time 25°C to peak Temp (T <sub>P</sub> )		8 min max.
Do not exceed		260°C



### PackageReel Information



REF.	mm	inch
A	6.1 ± 0.3	0.240 ± 0.012
B	8.3 ± 0.3	0.327 ± 0.012
d	1.5 ± 0.1	0.059 ± 0.004
D	330.0	13.0
D2	13 ± 1.5	0.512 ± 0.059
E	1.7 ± 0.3	0.067 ± 0.012
F	7.5 ± 0.3	0.295 ± 0.012
P	8 ± 0.3	0.315 ± 0.012
P0	4 ± 0.3	0.157 ± 0.012
P1	2 ± 0.3	0.079 ± 0.012
W	16 ± 0.5	0.630 ± 0.020
W1	23 ± 3	0.906 ± 0.118

Outline	Reel (pcs)	Per Carton (pcs)	Reel Diameters (mm)	Carton Size(mm)		
				L	W	H
Taping	3,000	48,000	330	360	360	385

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