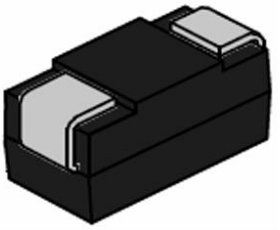
TRANSIENT VOLTAGE SUPPRESSOR

5.0SMDJ SERIES

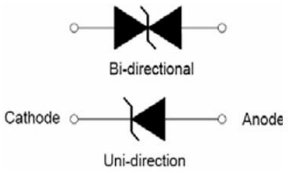
Features

- Low profile package.
- Low inductance.
- Excellent clamping capability.
- 5000w pulse power capability at 10×1000μs waveform.
- Typical IR less than 1μA above14

- Fast response time: typically less than 1.0ps from 0V to VBR min.
- High temperature to reflow soldering: 260℃/40s at terminals.
- Plastic package has underwriters laboratory flammability 94V-0.
- Meets MSL level 1, per J-STD020, LF maximum peak of 260℃.
- For surface mounted applications in order to optimize board space.



SMC



Symbol

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	T_J/T_{STG}	-55 to +150	℃
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	6.5	W
Peak pulse power dissipation on 10/ 1000μs waveform	P_{PP}	5000	W
Maximum instantaneous forward voltage at 25A for unidirectional	V_F	5.0	V
Peak forward surge current, 8.3ms single half sine wave （Note 1）	I_{FSM}	300	A
Typical thermal resistance junction to lead	$R\theta_{JL}$	15	℃/W
Typical thermal resistance	$R\theta_{JA}$	75	℃/W

. Electrical Characteristic (@TA = 25°C, unless otherwise specified)

Part Number		VR	I_R@V_R	VBR@IT		IT	VC@IPP	IPP③
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
5.0SMDJ11A	5.0SMDJ11CA	11	5	12.20	13.50	10	18.2	275.0
5.0SMDJ12A	5.0SMDJ12CA	12	5	13.30	14.70	10	19.9	252.0
5.0SMDJ13A	5.0SMDJ13CA	13	5	14.40	15.90	10	21.5	233.0
5.0SMDJ14A	5.0SMDJ14CA	14	5	15.60	17.20	10	23.2	216.0
5.0SMDJ15A	5.0SMDJ15CA	15	5	16.70	18.50	1	24.4	205.0
5.0SMDJ16A	5.0SMDJ16CA	16	5	17.80	19.70	1	26.0	193.0
5.0SMDJ17A	5.0SMDJ17CA	17	5	18.90	20.90	1	27.6	181.0
5.0SMDJ18A	5.0SMDJ18CA	18	5	20.00	22.10	1	29.2	172.0
5.0SMDJ20A	5.0SMDJ20CA	20	5	22.20	24.50	1	32.4	155.0
5.0SMDJ22A	5.0SMDJ22CA	22	5	24.40	26.90	1	35.5	141.0
5.0SMDJ24A	5.0SMDJ24CA	24	5	26.70	29.50	1	38.9	129.0
5.0SMDJ26A	5.0SMDJ26CA	26	5	28.90	31.90	1	42.1	119.0
5.0SMDJ28A	5.0SMDJ28CA	28	5	31.10	34.40	1	45.4	110.0
5.0SMDJ30A	5.0SMDJ30CA	30	5	33.30	36.80	1	48.4	103.0
5.0SMDJ33A	5.0SMDJ33CA	33	1	36.70	40.60	1	53.3	93.9
5.0SMDJ36A	5.0SMDJ36CA	36	1	40.00	44.20	1	58.1	86.1
5.0SMDJ40A	5.0SMDJ40CA	40	1	44.40	49.10	1	64.5	77.6
5.0SMDJ43A	5.0SMDJ43CA	43	1	47.80	52.80	1	69.4	72.1
5.0SMDJ45A	5.0SMDJ45CA	45	1	50.00	55.30	1	72.7	68.8
5.0SMDJ48A	5.0SMDJ48CA	48	1	53.30	58.90	1	77.4	64.7
5.0SMDJ51A	5.0SMDJ51CA	51	1	56.70	62.70	1	82.4	60.7
5.0SMDJ54A	5.0SMDJ54CA	54	1	60.00	66.30	1	87.1	57.5
5.0SMDJ58A	5.0SMDJ58CA	58	1	64.40	71.20	1	93.6	53.5

Part Number		VR	I_R@V_R	VBR@IT		IT	VC@IPP	IPP③
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
5.0SMDJ60A	5.0SMDJ60CA	60	1	66.70	73.70	1	96.8	51.7
5.0SMDJ64A	5.0SMDJ64CA	64	1	71.10	78.60	1	103.0	48.6
5.0SMDJ70A	5.0SMDJ70CA	70	1	77.80	86.00	1	113.0	44.3
5.0SMDJ75A	5.0SMDJ75CA	75	1	83.30	92.10	1	121.0	41.4
5.0SMDJ78A	5.0SMDJ78CA	78	1	86.70	95.80	1	126.0	39.7
5.0SMDJ85A	5.0SMDJ85CA	85	1	94.40	104.0	1	137.0	36.5
5.0SMDJ90A	5.0SMDJ90CA	90	1	100.0	111.0	1	146.0	34.3
5.0SMDJ100A	5.0SMDJ100CA	100	1	111.0	123.0	1	162.0	30.9
5.0SMDJ110A	5.0SMDJ110CA	110	1	122.0	135.0	1	177.0	28.3
5.0SMDJ120A	5.0SMDJ120CA	120	1	133.0	147.0	1	193.0	26.0
5.0SMDJ130A	5.0SMDJ130CA	130	1	144.0	159.0	1	209.0	24.0
5.0SMDJ150A	5.0SMDJ150CA	150	1	167.0	185.0	1	243.0	20.6
5.0SMDJ160A	5.0SMDJ160CA	160	1	178.0	197.0	1	259.0	19.3
5.0SMDJ170A	5.0SMDJ170CA	170	1	189.0	209.0	1	275.0	18.2

Notes:

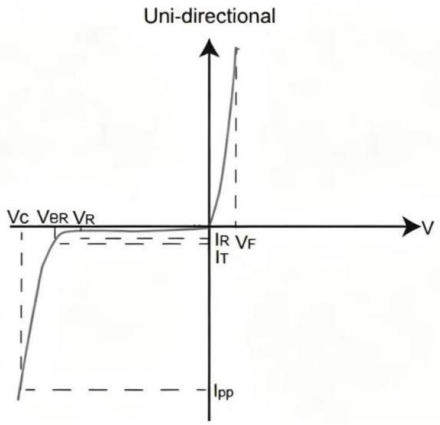
Notes： 1.Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

2. VBR measured with IT current pulse = 10 ~ 15ms

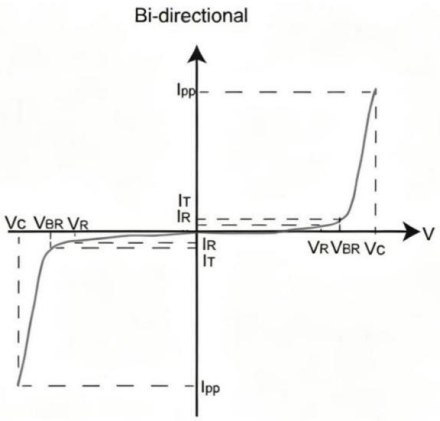
3.Per 10 x 1000μs waveform

4.For bidirectional type having VR of 10 volts and less, the IR limit is double

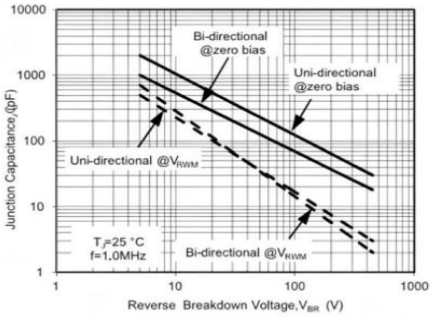
V-I Curve

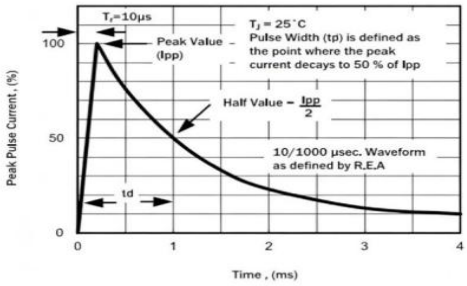


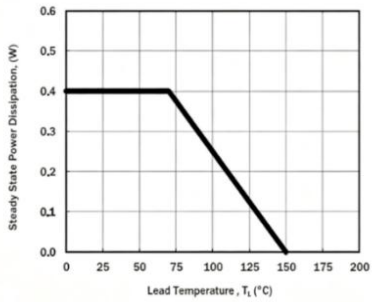
Typical

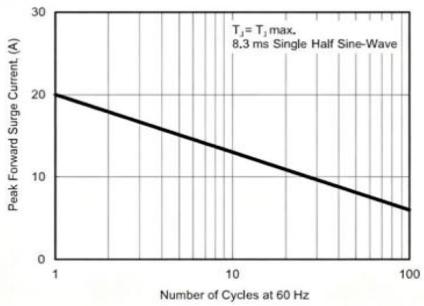


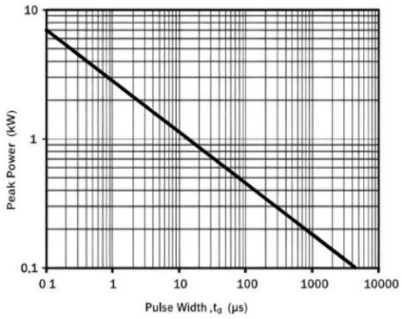
Performance Characteristics （T.=25°C unless otherwise Specified）

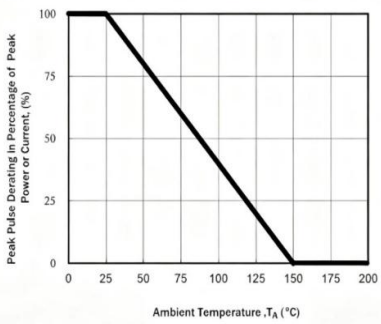




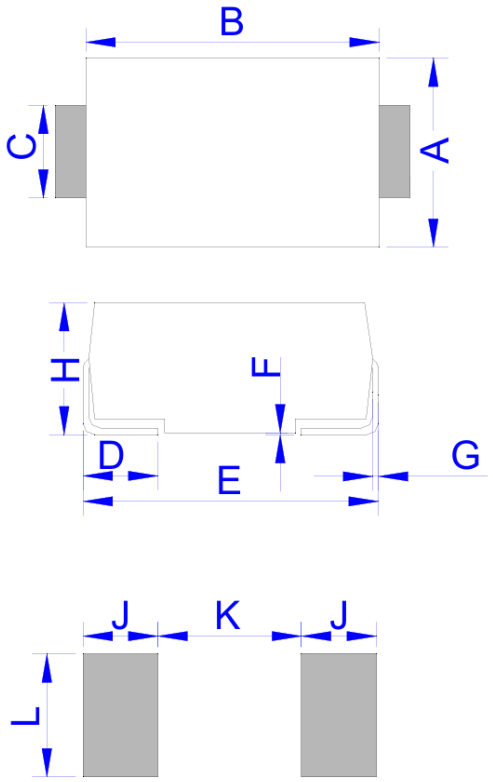








ProductDimensions And Suggested PADLayout

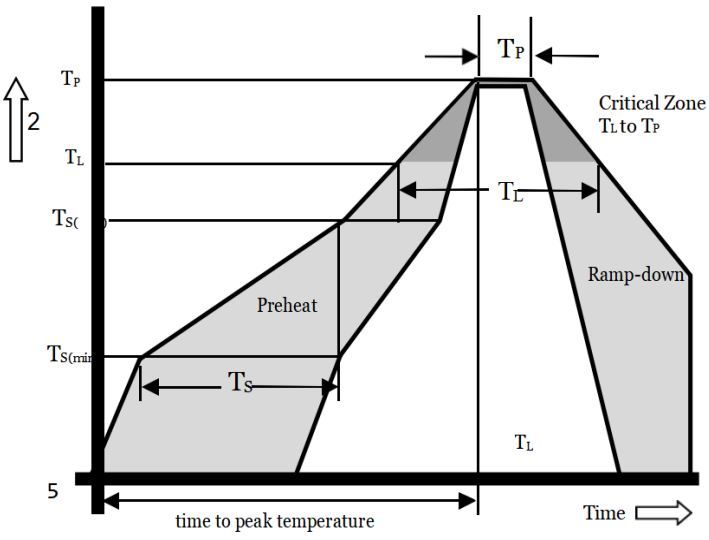


DO-214AB (SMC)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	5.75	6.26	0.226	0.246
B	6.90	7.40	0.272	0.291
C	2.75	3.25	0.108	0.128
D	0.95	1.52	0.037	0.060
E	7.70	8.20	0.303	0.323
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.15	2.62	0.085	0.103
J	2.40		0.094	
K		4.20		0.165
L	3.30		0.130	

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_L) to peak)		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Temperature (T_L)	60 – 150 seconds
Peak Temp (T_P)		260+0/-5 °C
Time within 5°C of actual Peak Temp (T_P)		8-15 seconds
Ramp-down Rate		6°C/s max
Time 25°C to peak Temp (T_P)		8 min max.
Do not exceed		260°C



Part Number System

5.0SMDJ XXX C A(1) (2) (3) (4)

(1) Series Code

(2) Reverse Stand-Off Voltage (3)BI-directional

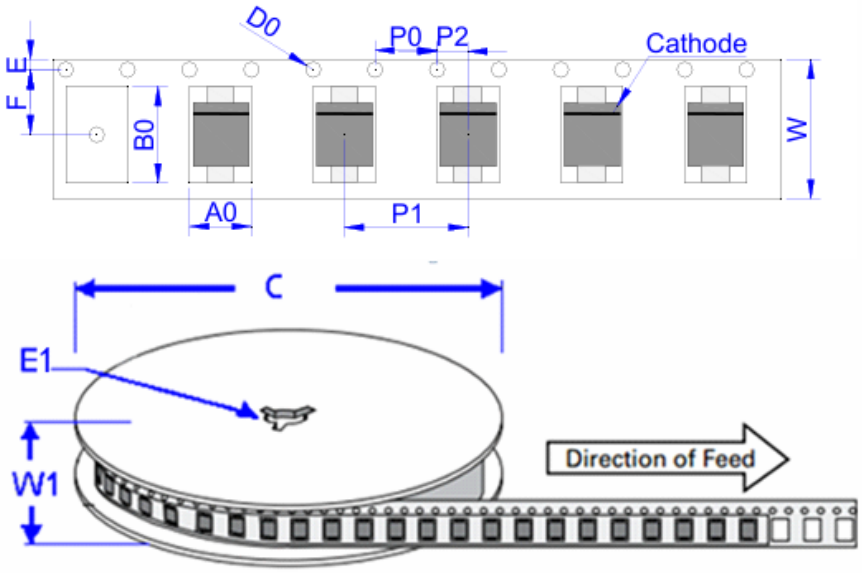
(3) Suffix "A" denotes 5% tolerance devices

Marking

	5.0SMDJ XXA

5.0SMDJ XXCA

Reel Taping Specification



Ref.	Dimensions	
	Millimeters	Inches
A0	6.05 ± 0.3	0.238 ± 0.012
B0	8.31 ± 0.3	0.327 ± 0.012
C	330.0	13.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524 ± 0.012
F	7.50 ± 0.2	0.295 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	8.00 ± 0.2	0.3145 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	16.0 ± 0.2	0.630 ± 0.008
W1	19.7 ± 2.0	0.776 ± 0.079

Ordering information

PART No.	UNIT WEIGHT (g/PCS) typ.	PACKAGE	QUANTITY	TAPE & REEL
5.0SMDJxxA/CA	0.294/0.342	SMC(DO-214AB)	3,000	13inch

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