

5.0SMDJ Series 5000W Transient Voltage Suppressor

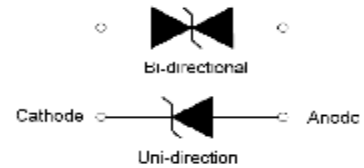
Features and benefits

- 2 Glass passivated or planar junction
- 2 Excellent clamping capability
- 2 Repetition rate (duty cycle): 0.01%
- 2 Typical IR less than 1μA above 10V.
- 2 Low profile package and low inductance
- 2 5000W Peak Pulse power capability at 10×1000μs waveform.
- 2 Fast response time: typically less than 1.0ps from 0V to VBR min.
- 2 High temperature soldering: 260°C/10s at terminals.
- 2 Plastic package has Underwriters Laboratory Flammability 94V-0.
- 2 Meets MSL level 1, per J-STD-020
- 2 For surface mounted applications in order to optimize board space

Pin Information and Graphic symbol



SMC




symbol

Application information

- 2 I/O interface;
- 2 AC/DC power supply;
- 2 Low frequency signal transmission line (RS232, RS485, etc.)

Agency Approvals

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

ABSOLUTE MAXIMUM RATINGS (T_A=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	T _J / T _{STG}	-55 to +150	°C
Steady state power dissipation at T _L =75°C	P _{M(AV)}	6.5	W
Peak pulse power dissipation on 10/1000μs waveform	P _{PP}	5000	W
Maximum instantaneous forward voltage at 100A for unidirectional only	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 _{θJL}	15	°C/W
Typical thermal resistance junction to ambient	R _{θJA}	75	°C/W

Marking

ORDERING INFORMATION



5PEN:Device Marking Code.
1509:In ninth week ,2015

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

- (1) 5000W 5.0SMDJ Series
- (2) V_R Voltage
- (3) Bi-Directional
- (4) 5% V_{BR} voltage tolerance

ELECTRICAL CHARACTERISTICS (TA=25°C)

Part Number		Marking		V_R	$I_R@V_R$	$V_{BR}@I_T$		I_T	$V_C@I_{PP}$	$I_{PP}^{\text{①}}$
Uni-Polar	Bi-Polar	Uni	Bi	V	μA	min(V)	max(V)	mA	max(V)	A
5.0SMDJ11A	5.0SMDJ11CA	5PEN	5BEN	11	5	12.20	13.50	10	18.2	275.0
5.0SMDJ12A	5.0SMDJ12CA	5PEP	5BEP	12	5	13.30	14.70	10	19.9	252.0
5.0SMDJ13A	5.0SMDJ13CA	5PEQ	5BEQ	13	5	14.40	15.90	10	21.5	233.0
5.0SMDJ14A	5.0SMDJ14CA	5PER	5BER	14	5	15.60	17.20	10	23.2	216.0
5.0SMDJ15A	5.0SMDJ15CA	5PES	5BES	15	5	16.70	18.50	1	24.4	205.0
5.0SMDJ16A	5.0SMDJ16CA	5PET	5BET	16	5	17.80	19.70	1	26.0	193.0
5.0SMDJ17A	5.0SMDJ17CA	5PEU	5BEU	17	5	18.90	20.90	1	27.6	181.0
5.0SMDJ18A	5.0SMDJ18CA	5PEV	5BEV	18	5	20.00	22.10	1	29.2	172.0
5.0SMDJ20A	5.0SMDJ20CA	5PEW	5BEW	20	5	22.20	24.50	1	32.4	155.0
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	22	1	24.40	26.90	1	35.5	141.0
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	24	1	26.70	29.50	1	38.9	129.0
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	26	1	28.90	31.90	1	42.1	119.0
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	28	1	31.10	34.40	1	45.4	110.0
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	30	1	33.30	36.80	1	48.4	103.0
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	33	1	36.70	40.60	1	53.3	93.9
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	36	1	40.00	44.20	1	58.1	86.1
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	40	1	44.40	49.10	1	64.5	77.6
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	43	1	47.80	52.80	1	69.4	72.1
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	45	1	50.00	55.30	1	72.7	68.8
5.0SMDJ48A	5.0SMDJ48CA	5PFX	5BFX	48	1	53.30	58.90	1	77.4	64.7
5.0SMDJ51A	5.0SMDJ51CA	5PFZ	5BFZ	51	1	56.70	62.70	1	82.4	60.7
5.0SMDJ54A	5.0SMDJ54CA	5PGE	5BGE	54	1	60.00	66.30	1	87.1	57.5
5.0SMDJ58A	5.0SMDJ58CA	5PGG	5BGG	58	1	64.40	71.20	1	93.6	53.5

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, continued)

5.0SMDJ60A	5.0SMDJ60CA	5PGK	5BGK	60	1	66.70	73.70	1	96.8	51.7
5.0SMDJ64A	5.0SMDJ64CA	5PGM	5BGM	64	1	71.10	78.60	1	103.0	48.6
5.0SMDJ70A	5.0SMDJ70CA	5PGP	5BGP	70	1	77.80	86.00	1	113.0	44.3
5.0SMDJ75A	5.0SMDJ75CA	5PGR	5BGR	75	1	83.30	92.10	1	121.0	41.4
5.0SMDJ78A	5.0SMDJ78CA	5PGT	5BGT	78	1	86.70	95.80	1	126.0	39.7
5.0SMDJ85A	5.0SMDJ85CA	5PGV	5BGV	85	1	94.40	104.0	1	137.0	36.5
5.0SMDJ90A	5.0SMDJ90CA	5PGX	5BGX	90	1	100.0	111.0	1	146.0	34.3
5.0SMDJ100A	5.0SMDJ100CA	5PGZ	5BGZ	100	1	111.0	123.0	1	162.0	30.9
5.0SMDJ110A	5.0SMDJ110CA	5PHE	5BHE	110	1	122.0	135.0	1	177.0	28.3
5.0SMDJ120A	5.0SMDJ120CA	5PHG	5BHG	120	1	133.0	147.0	1	193.0	26.0
5.0SMDJ130A	5.0SMDJ130CA	5PHK	5BHK	130	1	144.0	159.0	1	209.0	24.0
5.0SMDJ150A	5.0SMDJ150CA	5PHM	5BHM	150	1	167.0	185.0	1	243.0	20.6
5.0SMDJ160A	5.0SMDJ160CA	5PHP	5BHP	160	1	178.0	197.0	1	259.0	19.3
5.0SMDJ170A	5.0SMDJ170CA	5PHR	5BHR	170	1	189.0	209.0	1	275.0	18.2

① Surge waveform: 10/1000 μs

V_R : Stand-off Voltage -- Maximum voltage that can be applied

V_{BR} : Breakdown Voltage

V_C : Clamping Voltage -- Peak voltage measured across the suppressor at a specified I_{pp}

I_R : Reverse Leakage Current

RATINGS AND V-I CHARACTERISTICS CURVES ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

FIG.1:V- I curve characteristics (Uni-directional)

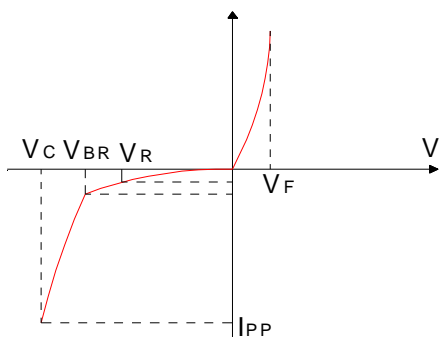


FIG.2:V- I curve characteristics (Bi-directional)

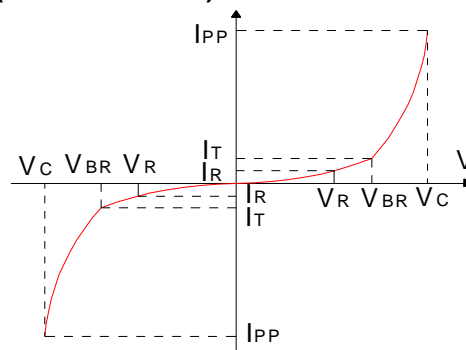


FIG.3: Pulse waveform

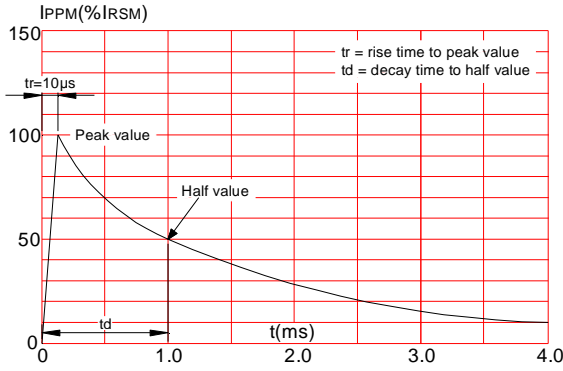
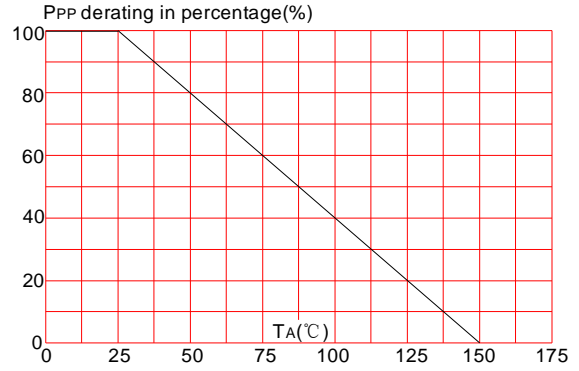
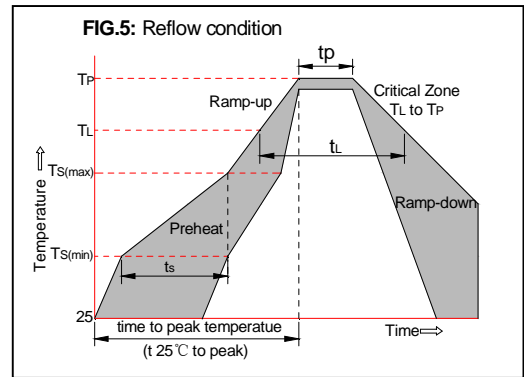


FIG.4: Pulse derating curve

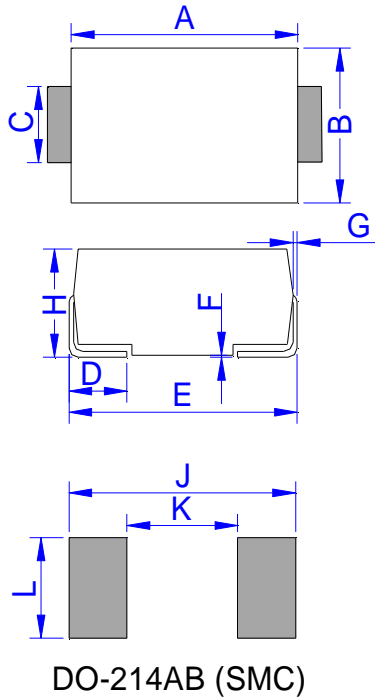


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.5)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+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. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C



PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	6.60	7.11	0.260	0.280
B	5.59	6.20	0.220	0.244
C	2.75	3.20	0.108	0.126
D	0.76	1.52	0.030	0.060
E	7.74	8.13	0.305	0.320
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	8.12		0.320	
K		4.69		0.185
L	3.07		0.121	

TAPE AND REEL SPECIFICATION-SMC

OUTLINE	REEL (PCS)	PACKAGE	TAPE & REEL
TAPING	3,000	SMC(DO214AB)	13inch