

TRANSIENT VOLTAGE SUPPRESSOR

SMC Series

Features

- 1500Watts peak pulse power (tp=10/1000μs)
- Low leakage.
- Quick response to surge voltage
- Excellent clamping capability.
- Uni and Bidirectional unit.
- Polarity: Color band denotes cathode end except bipolar



DO-214AB

Mechanical Data

- Epoxy: UL 94V-0 rate flame retardant.
- Case: SMC/DO-214AB, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode end except bipolar.
- Weight: 0.260 gram (approx.)
- RoHS Compliant



BI-directional



UNI-directional

Maximum Ratings (@TA = 25°C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	T_J/T_{STG}	-55 to +150	°C
Steady state power dissipation at $T_L=75^\circ\text{C}$	$P_{M(AV)}$	6.5	W
Peak pulse power dissipation on 10/1000μs waveform	P_{PP}	1500	W
Maximum instantaneous forward voltage at 50A for unidirectional	V_F	5.0	V
Peak forward surge current, 8.3ms single half sine wave (1)	I_{FSM}	200	A
Typical thermal resistance junction to lead	$R_{\theta_{JL}}$	15	°C/W
Typical thermal resistance	$R_{\theta_{JA}}$	75	°C/W

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

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

Part Number		V _R	I _{R@V_R}	V _{BR@IT(2)}		I _T	V _{C@IPP}	IPP(3)
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
SMCJ5.0A	SMCJ5.0CA	5	300	6.4	7	10	9.2	163
SMCJ6.0A	SMCJ6.0CA	6	250	6.67	7.37	10	10.3	145.6
SMCJ6.5A	SMCJ6.5CA	6.5	150	7.22	7.98	10	11.2	134
SMCJ7.0A	SMCJ7.0CA	7	100	7.78	8.6	10	12	125
SMCJ7.5A	SMCJ7.5CA	7.5	50	8.33	9.21	1	12.9	116.3
SMCJ8.0A	SMCJ8.0CA	8	30	8.89	9.83	1	13.6	110.3
SMCJ8.5A	SMCJ8.5CA	8.5	20	9.44	10.4	1	14.4	104.2
SMCJ9.0A	SMCJ9.0CA	9	10	10	11.1	1	15.4	97.4
SMCJ10A	SMCJ10CA	10	5	11.1	12.3	1	17	88.2
SMCJ11A	SMCJ11CA	11	2	12.2	13.5	1	18.2	82.4
SMCJ12A	SMCJ12CA	12	1	13.3	14.7	1	19.9	75.4
SMCJ13A	SMCJ13CA	13	1	14.4	15.9	1	21.5	69.8
SMCJ14A	SMCJ14CA	14	1	15.6	17.2	1	23.2	64.7
SMCJ15A	SMCJ15CA	15	1	16.7	18.5	1	24.4	61.5
SMCJ16A	SMCJ16CA	16	1	17.8	19.7	1	26	57.7
SMCJ17A	SMCJ17CA	17	1	18.9	20.9	1	27.6	54.4
SMCJ18A	SMCJ18CA	18	1	20	22.1	1	29.2	51.4
SMCJ20A	SMCJ20CA	20	1	22.2	24.5	1	32.4	46.3
SMCJ22A	SMCJ22CA	22	1	24.4	26.9	1	35.5	42.3
SMCJ24A	SMCJ24CA	24	1	26.7	29.5	1	38.9	38.6
SMCJ26A	SMCJ26CA	26	1	28.9	31.9	1	42.1	35.6
SMCJ28A	SMCJ28CA	28	1	31.1	34.4	1	45.4	33.1
SMCJ30A	SMCJ30CA	30	1	33.3	36.8	1	48.4	31
SMCJ33A	SMCJ33CA	33	1	36.7	40.6	1	53.3	28.2
SMCJ36A	SMCJ36CA	36	1	40	44.2	1	58.1	25.8
SMCJ40A	SMCJ40CA	40	1	44.4	49.1	1	64.5	23.3
SMCJ43A	SMCJ43CA	43	1	47.8	52.8	1	69.4	21.6
SMCJ45A	SMCJ45CA	45	1	50	55.3	1	72.7	20.6
SMCJ48A	SMCJ48CA	48	1	53.3	58.9	1	77.4	19.4
SMCJ51A	SMCJ51CA	51	1	56.7	62.7	1	82.4	18.2
SMCJ54A	SMCJ54CA	54	1	60	66.3	1	87.1	17.2
SMCJ58A	SMCJ58CA	58	1	64.4	71.2	1	93.6	16.1
SMCJ60A	SMCJ60CA	60	1	66.7	73.7	1	96.8	15.5

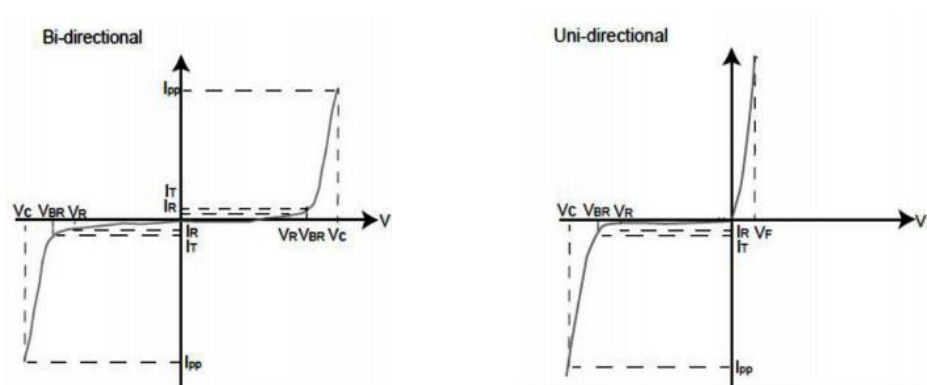
Part Number		V_R	$I_R@V_R$	$V_{BR}@I_T^{(2)}$		I_T	$V_C@I_{PP}$	$I_{PP}^{(3)}$
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
SMCJ64A	SMCJ64CA	64	1	71.1	78.6	1	103	14.6
SMCJ70A	SMCJ70CA	70	1	77.8	86	1	113	13.3
SMCJ75A	SMCJ75CA	75	1	83.3	92.1	1	121	12.4
SMCJ78A	SMCJ78CA	78	1	86.7	95.8	1	126	11.9
SMCJ85A	SMCJ85CA	85	1	94.4	104	1	137	11
SMCJ90A	SMCJ90CA	90	1	100	111	1	146	10.3
SMCJ100A	SMCJ100CA	100	1	111	123	1	162	9.3
SMCJ110A	SMCJ110CA	110	1	122	135	1	177	8.5
SMCJ120A	SMCJ120CA	120	1	133	147	1	193	7.8
SMCJ130A	SMCJ130CA	130	1	144	159	1	209	7.2
SMCJ150A	SMCJ150CA	150	1	167	185	1	243	6.2
SMCJ160A	SMCJ160CA	160	1	178	197	1	259	5.8
SMCJ170A	SMCJ170CA	170	1	189	209	1	275	5.5
SMCJ180A	SMCJ180CA	180	1	201	222	1	292	5.2
SMCJ190A	SMCJ190CA	190	1	211	234	1	307	4.9
SMCJ200A	SMCJ200CA	200	1	224	247	1	324	4.7
SMCJ210A	SMCJ210CA	210	1	233	258	1	337	4.5
SMCJ220A	SMCJ220CA	220	1	246	272	1	356	4.2
SMCJ250A	SMCJ250CA	250	1	279	309	1	405	3.7
SMCJ300A	SMCJ300CA	300	1	335	371	1	486	3.1
SMCJ350A	SMCJ350CA	350	1	391	432	1	567	2.7
SMCJ400A	SMCJ400CA	400	1	447	494	1	648	2.3
SMCJ440A	SMCJ440CA	440	1	492	543	1	713	2.1
SMCJ510A	SMCJ510CA	510	1	570.1	640.5	1	833.4	1.8

Notes: 2. V_{BR} measured with I_T current pulse = 10 ~ 15ms

3. Per 10 x 1000 μ s waveform

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

V-I Curve



Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

Fig.1 - Pulse Derating Curve

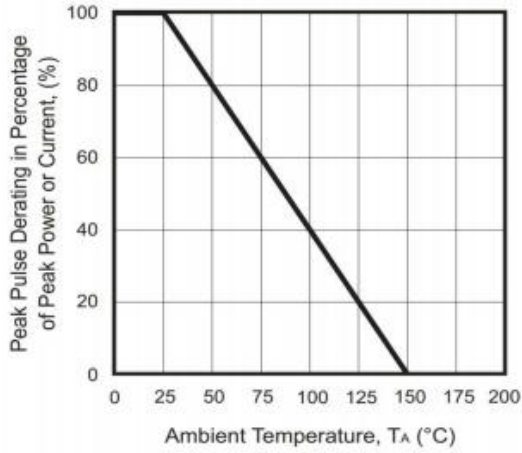


Fig.2 - Max. Non-Repetitive Surge Current

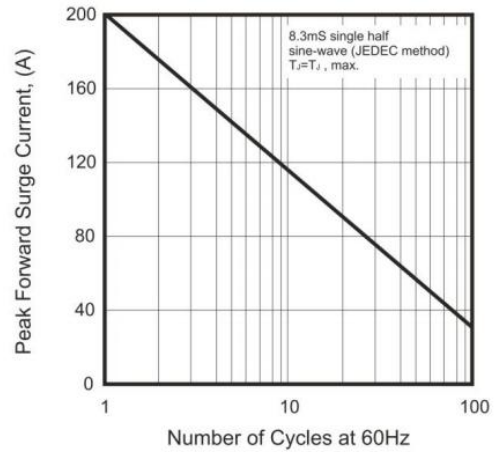


Fig.3 - Steady State Power Derating Curve

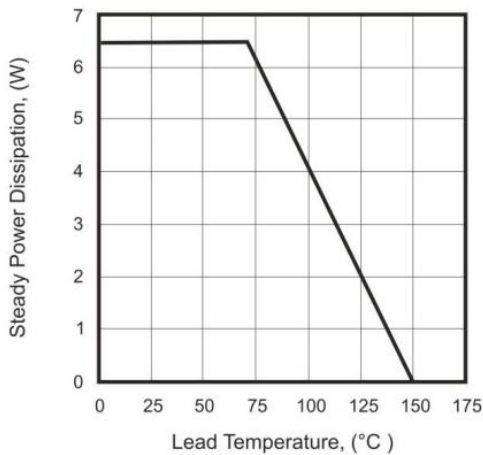


Fig.4 - Peak Pulse Power Rating Curve

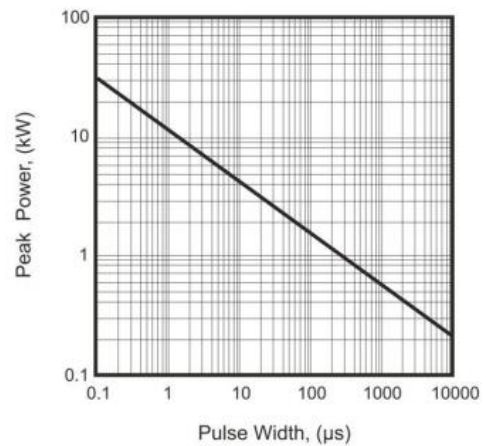


Fig.5 - Pulse Waveform

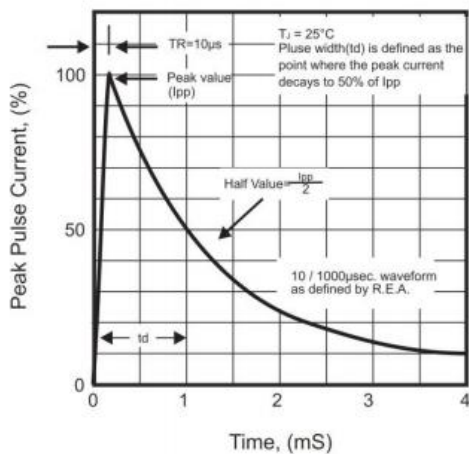
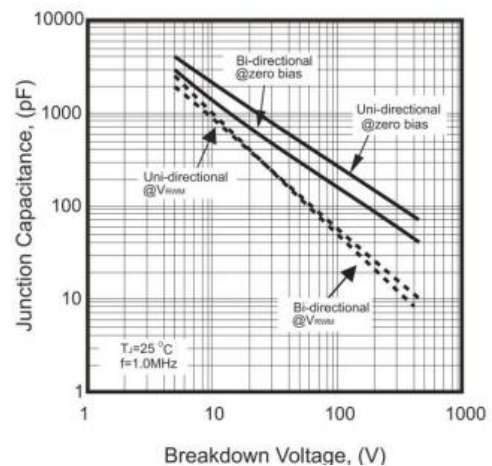
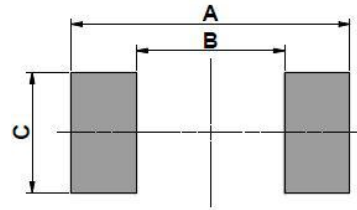
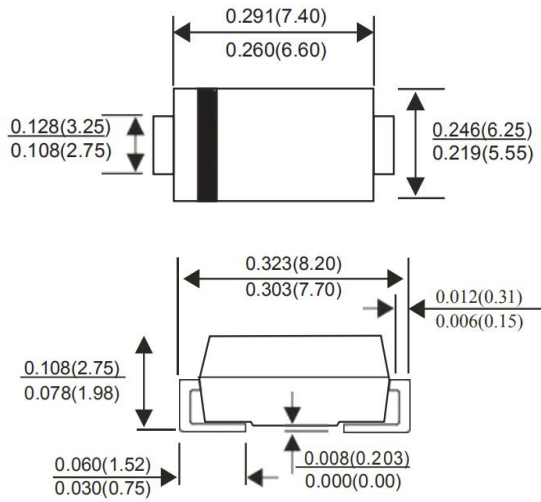


Fig.6 - Typical Junction Capacitance



Product Dimensions And Suggested PAD Layout

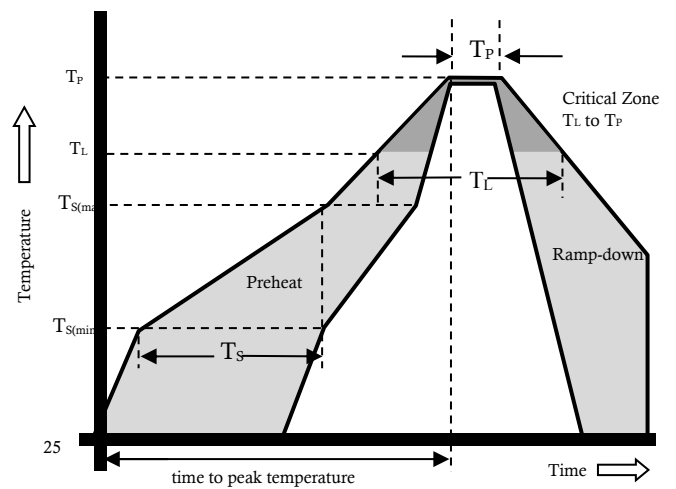


REF	mm	inch
A	8.13	0.32
B	4.69max	0.185max
C	3.2min	0.126min

SMC/DO-214AB

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

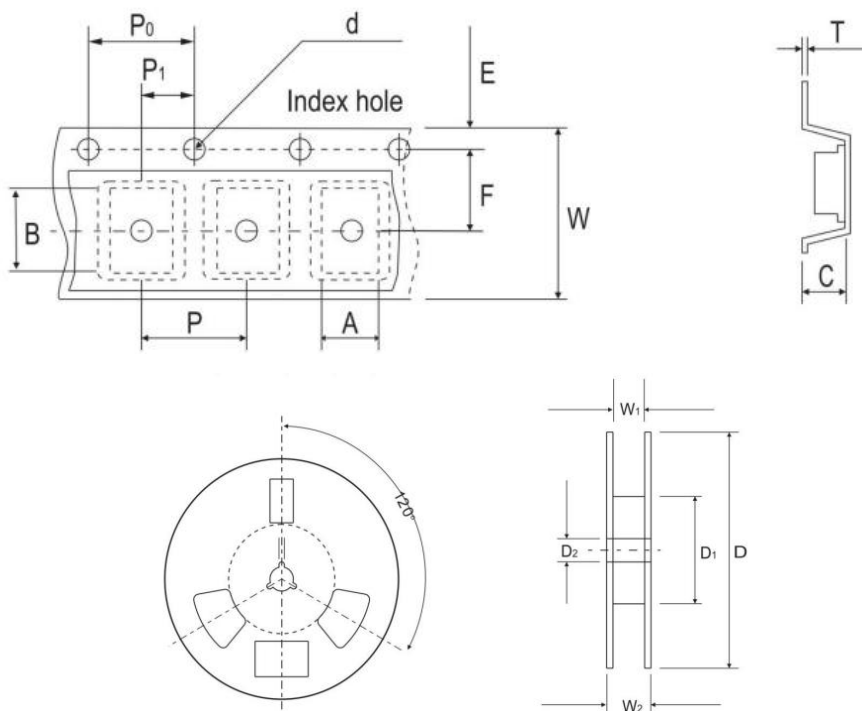
SMCJ XXX C A
(1) (2) (3) (4)

- (1) Series Code
- (2) Reverse Stand-Off Voltage
- (3)BI-directional
- (4)Suffix ‘A’ denotes 5% tolerance devices

Marking Codes

Part Number	SMCJXXXXA
	SMCJXXXXCA
Marking Code	SMCJXXXXA
	SMCJXXXXCA

Reel Taping Specification



DO-214AB (SMC)	SYMBOL	A	B	C	d	T	D	D1	D2
	(mm)	See Note 1			1.55 ± 0.05	0.40 (Max.)	330	50.00 (Min.)	13.00 + 0.50 - 0.20
	(inch)	See Note 1			0.061 ± 0.002	0.016 (Max.)	13	1.969 (Min.)	0.512 + 0.020 - 0.008
	SYMBOL	E	F	P	P0	P1	W	W1	W2
	(mm)	1.75 ± 0.10	7.50 ± 0.05	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	16.00 ± 0.10	16.40 + 2.00 - 0.00	22.40 (Max.)
	(inch)	0.069±0.004	0.295±0.002	0.315±0.004	0.157±0.004	0.079±0.002	0.630±0.004	0.646 + 0.079 - 0.000	0.882 (Max.)

Ordering information

Package	Base qty	Reel Size	Delivery mode
DO-214AB(SMC)	3000 PCS	13 inch	Tape and reel



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