GOOD-ARK
SEMICONDUCTOR

SMCJx Series

Surface Mount Transient Voltage Suppressors
Peak Pulse Power 1500W Stand-off Voltage 5V to 440V

Features

- Glass passivated junction
- Low incremental surge resistance, excellent clamping capability
- 1500W peak pulse power capability with a 10/1000us waveform, repetition rate (duty cycle): 0.01%
- Fast response time
- High temperature soldering guaranteed: 250°C/10seconds at terminals



DO-214AB(SMC)

RoHS
COMPLIANT

Mechanical Data

Case: JEDEC DO-214AB(SMC J-Bend) molded plastic over passivated junction
Terminals: Solder plated, solderable per MIL-STD-750 Method 2026

Polarity: For unidirectional types the band denotes the cathode,which is positive with respect to the anode under normal TVS operation

Weight: 0.007oz., 0.21g

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation With a 10/1000us Waveform[1,2]	P_{PPM}	Minimum 1500	W
Peak Pulse Current With a 10/1000us Waveform[1]	I_{PPM}	See Next Table	A
Peak Forward Surge Current 8.3ms Single Half Sine-wave Uni-Directional Only[2]	I_{FSM}	200	A
Typical Thermal Resistance, Junction To Ambient[3]	$R_{\theta JA}$	75	°C/W
Typical Thermal Resistance, Junction To Lead	$R_{\theta JL}$	15	°C/W
Operating Junction Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Notes:
1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2
2. Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal
3. Mounted on minimum recommended pad layout

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Electrical Characteristics T_A=25°C unless otherwise specified,V_F=3.5V at I_F=100A (uni-directional only)

Part Number (Uni)	Part Number (Bi)	Marking Code		Breakdown Voltage[1]		Test Current	Stand-off Voltage	Maximum Reverse Leakage Current[3]	Maximum Clamping Voltage	Maximum Peak Pulse Current[2]
				$V_{(BR)1}$		I_T	V_{WM}	I_D@V_{WM}	V_C@ I_{PPM}	I_{PPM}
		UNI	BI	Min.	Max.					
				V	V	mA	V	μA	V	A
SMCJ5.0A	SMCJ5.0CA[4]	GDE	BDE	6.40	7.07	10	5.0	1000	9.2	163.0
SMCJ6.0A	SMCJ6.0CA	GDG	BDG	6.67	7.37	10	6.0	1000	10.3	145.6
SMCJ6.5A	SMCJ6.5CA	GDK	BDK	7.22	7.98	10	6.5	500	11.2	133.9
SMCJ7.0A	SMCJ7.0CA	GDM	BDM	7.78	8.60	10	7.0	200	12.0	125.0
SMCJ7.5A	SMCJ7.5CA	GDP	BDP	8.33	9.21	1.0	7.5	100	12.9	116.3
SMCJ8.0A	SMCJ8.0CA	GDR	BDR	8.89	9.83	1.0	8.0	50	13.6	110.3
SMCJ8.5A	SMCJ8.5CA	GDT	BDT	9.44	10.4	1.0	8.5	20	14.4	104.2
SMCJ9.0A	SMCJ9.0CA	GDV	BDV	10.0	11.1	1.0	9.0	10.0	15.4	97.4
SMCJ10A	SMCJ10CA	GDX	BDX	11.1	12.3	1.0	10	5.0	17.0	88.2
SMCJ11A	SMCJ11CA	GDZ	BDZ	12.2	13.5	1.0	11	5.0	18.2	82.4
SMCJ12A	SMCJ12CA	GEE	BEE	13.3	14.7	1.0	12	5.0	19.9	75.4
SMCJ13A	SMCJ13CA	GEG	BEG	14.4	15.9	1.0	13	1.0	21.5	69.8
SMCJ14A	SMCJ14CA	GEK	BEK	15.6	17.2	1.0	14	1.0	23.2	64.7
SMCJ15A	SMCJ15CA	GEM	BEM	16.7	18.5	1.0	15	1.0	24.4	61.5
SMCJ16A	SMCJ16CA	GEP	BEP	17.8	19.7	1.0	16	1.0	26.0	57.7
SMCJ17A	SMCJ17CA	GER	BER	18.9	20.9	1.0	17	1.0	27.6	54.3
SMCJ18A	SMCJ18CA	GET	BET	20.0	22.1	1.0	18	1.0	29.2	51.4
SMCJ20A	SMCJ20CA	GEV	BEV	22.2	24.5	1.0	20	1.0	32.4	46.3
SMCJ22A	SMCJ22CA	GEX	BEX	24.4	26.9	1.0	22	1.0	35.5	42.3
SMCJ24A	SMCJ24CA	GEZ	BEZ	26.7	29.5	1.0	24	1.0	38.9	38.6
SMCJ26A	SMCJ26CA	GFE	BFE	28.9	31.9	1.0	26	1.0	42.1	35.6
SMCJ28A	SMCJ28CA	GFG	BFG	31.1	34.4	1.0	28	1.0	45.4	33.0
SMCJ30A	SMCJ30CA	GFK	BFK	33.3	36.8	1.0	30	1.0	48.4	31.0
SMCJ33A	SMCJ33CA	GFM	BFM	36.7	40.6	1.0	33	1.0	53.3	28.1
SMCJ36A	SMCJ36CA	GFP	BFP	40.0	44.2	1.0	36	1.0	58.1	25.8
SMCJ40A	SMCJ40CA	GFR	BFR	44.4	49.1	1.0	40	1.0	64.5	23.3
SMCJ43A	SMCJ43CA	GFT	BFT	47.8	52.8	1.0	43	1.0	69.4	21.6

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Part Number (Uni)	Part Number (Bi)	Marking Code		Breakdown Voltage[1]		Test Current	Stand-off Voltage	Maximum Reverse Leakage Current[3]	Maximum Clamping Voltage	Maximum Peak Pulse Current[2]
				$V_{(BR)1}$		I_T	VWM	I_D@V_{WM}	V_C@ I_{PPM}	I_{PPM2}
		UNI	BI	Min.	Max.					
				V	V	mA	V	μA	V	A
SMCJ45A	SMCJ45CA	GFV	BFV	50.0	55.3	1.0	45	1.0	72.7	20.6
SMCJ48A	SMCJ48CA	GFX	BFX	53.3	58.9	1.0	48	1.0	77.4	19.4
SMCJ51A	SMCJ51CA	GFZ	BFZ	56.7	62.7	1.0	51	1.0	82.4	18.2
SMCJ54A	SMCJ54CA	GGE	BGE	60.0	66.3	1.0	54	1.0	87.1	17.2
SMCJ58A	SMCJ58CA	GGG	BGG	64.4	71.2	1.0	58	1.0	93	16.0
SMCJ60A	SMCJ60CA	GGK	BGK	66.7	73.7	1.0	60	1.0	96	15.5
SMCJ64A	SMCJ64CA	GGM	BGM	71.1	78.6	1.0	64	1.0	103	14.6
SMCJ70A	SMCJ70CA	GGP	BGP	77.8	86.0	1.0	70	1.0	113	13.3
SMCJ75A	SMCJ75CA	GGR	BGR	83.3	92.1	1.0	75	1.0	121	12.4
SMCJ78A	SMCJ78CA	GGT	BGT	86.7	95.8	1.0	78	1.0	126	11.9
SMCJ85A	SMCJ85CA	GGV	BGV	94.4	104	1.0	85	1.0	137	10.9
SMCJ90A	SMCJ90CA	GGX	BGX	100	111	1.0	90	1.0	146	10.3
SMCJ100A	SMCJ100CA	GGZ	BGZ	111	123	1.0	100	1.0	162	9.3
SMCJ110A	SMCJ110CA	GHE	BHE	122	135	1.0	110	1.0	177	8.5
SMCJ120A	SMCJ120CA	GHG	BHG	133	147	1.0	120	1.0	193	7.8
SMCJ130A	SMCJ130CA	GHK	BHK	144	159	1.0	130	1.0	209	7.2
SMCJ150A	SMCJ150CA	GHM	BHM	167	185	1.0	150	1.0	243	6.2
SMCJ160A	SMCJ160CA	GHP	BHP	178	197	1.0	160	1.0	259	5.8
SMCJ170A	SMCJ170CA	GHR	BHR	189	209	1.0	170	1.0	275	5.5
SMCJ180A	SMCJ180CA	GHT	BHT	209	222	1.0	180	1.0	292	5.0
SMCJ200A	SMCJ200CA	GHV	BHV	224	247	1.0	200	1.0	324	4.6
SMCJ220A	SMCJ220CA	GHX	BHX	246	272	1.0	220	1.0	356.	4.2
SMCJ250A	SMCJ250CA	GHZ	BHZ	279	309	1.0	250	1.0	405	3.7
SMCJ300A	SMCJ300CA	GJE	BJE	335	371	1.0	300	1.0	486	3.1
SMCJ350A	SMCJ350CA	GJG	BJG	391	432	1.0	350	1.0	567	2.6
SMCJ400A	SMCJ400CA	GJK	BJK	447	494	1.0	400	1.0	648	2.3
SMCJ440A	SMCJ440CA	GJM	BJM	492	543	1.0	440	1.0	713	2.1

Notes: 1. $V_{(BR)}$ measured after I_T applied for 300us square wave pulse or equivalent
2. Surge current waveform per Fig. 3 and derate per Fig. 2
3. For bi-directional types having V_{WM} of 10 Volts and less, the I_D limit is doubled
4. For the bidirectional SMCJ5.0CA, the maximum $V_{(BR)}$ is 7.25V.

Ratings and Characteristic Curves (TA = 25 °C unless otherwise noted)

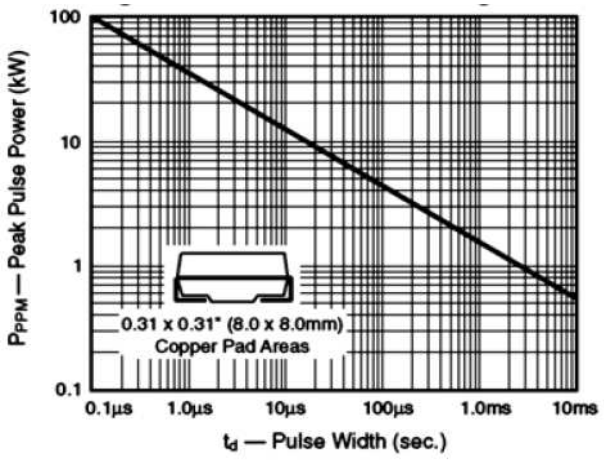


Figure 1. Peak Pulse Power Rating Curve

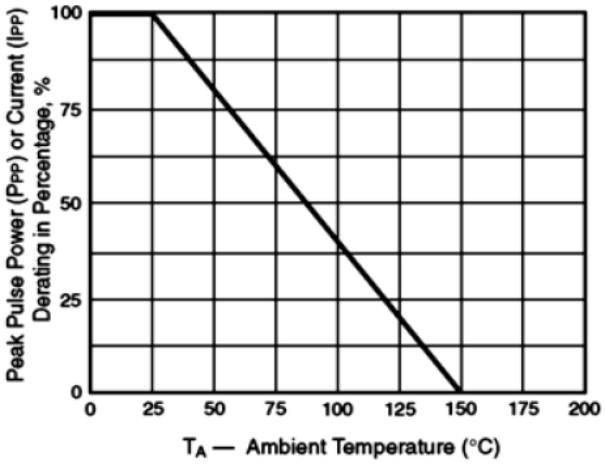


Figure 2. Pulse Derating Curve

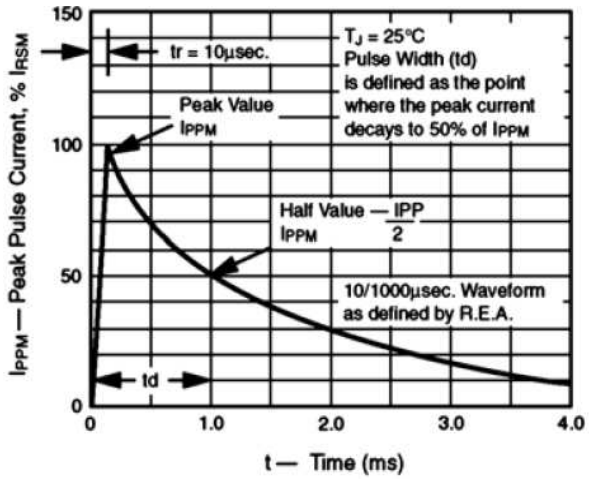


Figure 3. Pulse Waveform

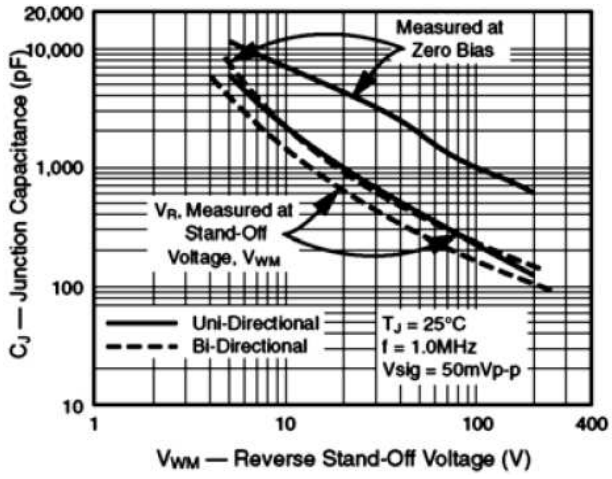


Figure 4. Typical Junction Capacitance Uni-Directional

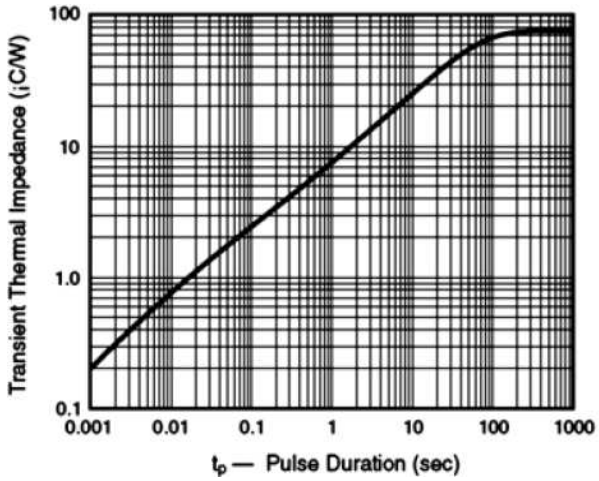


Figure 5. Typical Transient Thermal Impedance

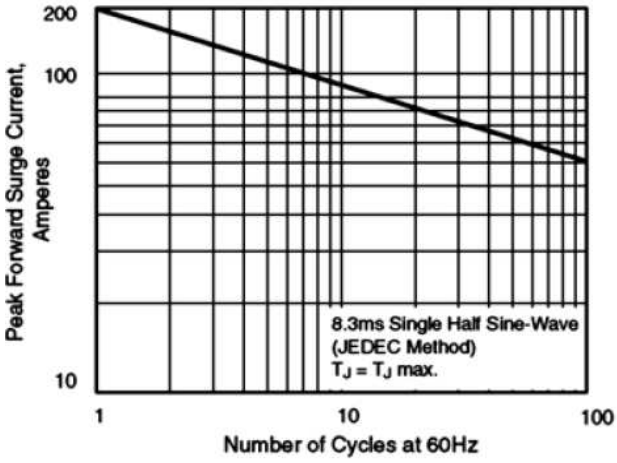
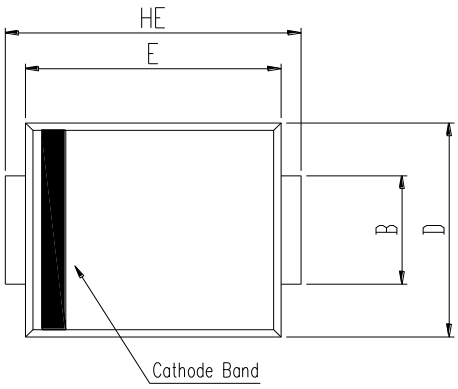
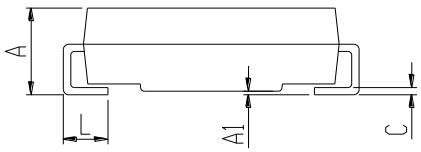


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Use Only

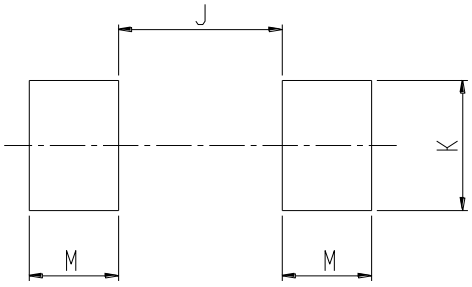
Package Outline Dimensions DO-214AB(SMC)





SMC (DO-214AB)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.00	0.20	0.000	0.008
B	2.92	3.07	0.115	0.121
C	0.15	0.31	0.006	0.012
D	5.59	6.22	0.220	0.245
E	6.60	7.11	0.260	0.280
HE	7.75	8.13	0.305	0.320
L	0.76	1.52	0.030	0.060

Recommended Pad Layout



SMC Recommended Pad Layout (Reference ONLY)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	-	4.60	-	0.181
K	3.20	-	0.126	-
M	2.00	-	0.079	-