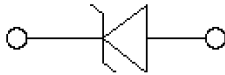
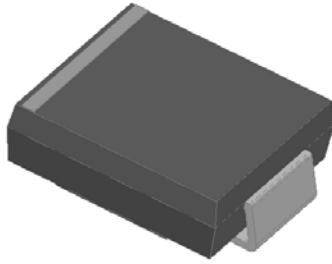
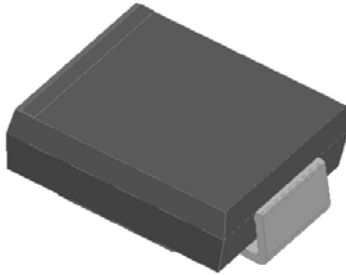


## Surface Mount Transient Voltage Suppressor Diodes

### Uni-directional



### Bi-directional



### Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 1500W peak pulse power capability with a 10/1000  $\mu$ s waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- Meets MSL level 1
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

### Typical Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, telecommunication.

### Mechanical Data

- **Package:** DO-214AB (SMC)  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** For uni-directional types the band denotes cathode end, no marking on bi-directional types

### ■Maximum Ratings ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform <sup>(1)</sup> <sup>(2)</sup>	$P_{PPM}$	W	1500
Peak pulse current, with a 10/1000us waveform <sup>(1)</sup>	$I_{PPM}$	A	See Next Table
Power dissipation, on infinite heat sink at $T_L=75^\circ\text{C}$ <sup>(2)</sup>	$P_D$	W	6.5
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(3)</sup>	$I_{FSM}$	A	200
Operating junction and storage temperature range	$T_J, T_{STG}$	$^\circ\text{C}$	-55 to +150

### ■Electrical Characteristics ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Maximum instantaneous forward voltage at 100A for unidirectional only <sup>(4)</sup>	$V_{FM}$	V	3.5/5.0



# SMCJ SERIES

## ■ Thermal Characteristics (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal Resistance(Typical)	$R_{\theta J-A}^{(5)}$	°C/W	junction to ambient	75
	$R_{\theta J-L}$	°C/W	junction to lead	15

Notes:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above  $T_A = 25^\circ\text{C}$  per Fig.2.
- (2) Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal
- (3) Measured on 8.3ms single half sine-wave or equivalent square wave,duty cycle=4 pulses per minute maximum.
- (4) VF=3.5V Max for devices of  $V_{BR} \leq 220\text{V}$ , and VF=5.0V Max for devices of  $V_{BR} > 220\text{V}$ .
- (5) Mounted on minimum recommended pad layout.

## ■ Electrical Characteristics (TA=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R^{(3)}$ @ $V_{RWM}$ ( $\mu\text{A}$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}^{(2)}$ (A)	Maximum Clamping Voltage $V_c$ @ $I_{PP}$ (V)
		Min(V)	Max (V)	$I_T^{(1)}$ (mA)				
SMCJ5.0A	SMCJ5.0CA(4)	6.4	7.07	10	1000	5	163.04	9.2
SMCJ6.0A	SMCJ6.0CA	6.67	7.37	10	1000	6	145.63	10.3
SMCJ6.5A	SMCJ6.5CA	7.22	7.98	10	500	6.5	133.93	11.2
SMCJ7.0A	SMCJ7.0CA	7.78	8.6	10	200	7	125	12
SMCJ7.5A	SMCJ7.5CA	8.33	9.21	1	100	7.5	116.28	12.9
SMCJ8.0A	SMCJ8.0CA	8.89	9.83	1	50	8	110.29	13.6
SMCJ8.5A	SMCJ8.5CA	9.44	10.4	1	20	8.5	104.17	14.4
SMCJ9.0A	SMCJ9.0CA	10	11.1	1	10	9	97.4	15.4
SMCJ10A	SMCJ10CA	11.1	12.3	1	5	10	88.24	17
SMCJ11A	SMCJ11CA	12.2	13.5	1	5	11	82.42	18.2
SMCJ12A	SMCJ12CA	13.3	14.7	1	5	12	75.38	19.9
SMCJ13A	SMCJ13CA	14.4	15.9	1	5	13	69.77	21.5
SMCJ14A	SMCJ14CA	15.6	17.2	1	5	14	64.66	23.2
SMCJ15A	SMCJ15CA	16.7	18.5	1	5	15	61.48	24.4
SMCJ16A	SMCJ16CA	17.8	19.7	1	5	16	57.69	26
SMCJ17A	SMCJ17CA	18.9	20.9	1	5	17	54.35	27.6
SMCJ18A	SMCJ18CA	20	22.1	1	5	18	51.37	29.2
SMCJ19A	SMCJ19CA	21.1	23.3	1	5	19	48.73	30.8
SMCJ20A	SMCJ20CA	22.2	24.5	1	5	20	46.3	32.4
SMCJ22A	SMCJ22CA	24.4	26.9	1	5	22	42.25	35.5
SMCJ24A	SMCJ24CA	26.7	29.5	1	5	24	38.56	38.9
SMCJ26A	SMCJ26CA	28.9	31.9	1	5	26	35.63	42.1
SMCJ28A	SMCJ28CA	31.1	34.4	1	5	28	33.04	45.4
SMCJ30A	SMCJ30CA	33.3	36.8	1	5	30	30.99	48.4
SMCJ33A	SMCJ33CA	36.7	40.6	1	5	33	28.14	53.3
SMCJ36A	SMCJ36CA	40	44.2	1	5	36	25.82	58.1
SMCJ40A	SMCJ40CA	44.4	49.1	1	5	40	23.26	64.5
SMCJ43A	SMCJ43CA	47.8	52.8	1	5	43	21.61	69.4
SMCJ45A	SMCJ45CA	50	55.3	1	5	45	20.63	72.7
SMCJ48A	SMCJ48CA	53.3	58.9	1	5	48	19.38	77.4
SMCJ51A	SMCJ51CA	56.7	62.7	1	5	51	18.2	82.4



# SMCJ SERIES

## ■Electrical Characteristics (TA=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R^{(3)}$ @ $V_{RWM}$ ( $\mu A$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}^{(2)}$ (A)	Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V)
		Min(V)	Max (V)	$I_T^{(1)}$ (mA)				
SMCJ54A	SMCJ54CA	60	66.3	1	5	54	17.22	87.1
SMCJ58A	SMCJ58CA	64.4	71.2	1	5	58	16.03	93.6
SMCJ60A	SMCJ60CA	66.7	73.7	1	5	60	15.5	96.8
SMCJ64A	SMCJ64CA	71.1	78.6	1	5	64	14.56	103
SMCJ70A	SMCJ70CA	77.8	86	1	5	70	13.27	113
SMCJ75A	SMCJ75CA	83.3	92.1	1	5	75	12.4	121
SMCJ78A	SMCJ78CA	86.7	95.8	1	5	78	11.9	126
SMCJ80A	SMCJ80CA	88.8	97.6	1	5	80	11.57	129.6
SMCJ85A	SMCJ85CA	94.4	104	1	5	85	10.95	137
SMCJ90A	SMCJ90CA	100	111	1	5	90	10.27	146
SMCJ100A	SMCJ100CA	111	123	1	5	100	9.26	162
SMCJ110A	SMCJ110CA	122	135	1	5	110	8.47	177
SMCJ120A	SMCJ120CA	133	147	1	5	120	7.77	193
SMCJ130A	SMCJ130CA	144	159	1	5	130	7.18	209
SMCJ140A	SMCJ140CA	155	171	1	5	140	6.61	226.8
SMCJ150A	SMCJ150CA	167	185	1	5	150	6.17	243
SMCJ160A	SMCJ160CA	178	197	1	5	160	5.79	259
SMCJ170A	SMCJ170CA	189	209	1	5	170	5.45	275
SMCJ180A	SMCJ180CA	200	220	1	5	180	5.14	291.6
SMCJ190A	SMCJ190CA	211	232	1	5	190	4.87	307.8
SMCJ200A	SMCJ200CA	224	247	1	5	200	4.63	324
SMCJ220A	SMCJ220CA	246	272	1	5	220	4.2	356
SMCJ250A	SMCJ250CA	279	309	1	5	250	3.7	405
SMCJ300A	SMCJ300CA	335	371	1	5	300	3.1	486
SMCJ350A	SMCJ350CA	391	432	1	5	350	2.65	567
SMCJ400A	SMCJ400CA	447	494	1	5	400	2.31	648
SMCJ440A	SMCJ440CA	492	543	1	5	440	2.1	713

### Notes:

- (1) Pulse Test:  $t_p \leq 50ms$  Pulse test:  $t_p \leq 50ms$ .
- (2) Surge current waveform per Fig. 3 and derated per Fig.2.
- (3) For bi-directional types having  $V_{RWM}$  of 10 V and less, the IR limit is doubled.
- (4) For the bi-directional SMCJ5.0CA, the maximum  $V_{BR}$  is 7.25 V.



# SMCJ SERIES

## Ordering Information (Example)

PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMCJ SERIES	F1	Approximate 0.257	3000	6000	42000	13" reel

## Characteristics(Typical)

FIG1: Peak Pulse Power Rating Curve

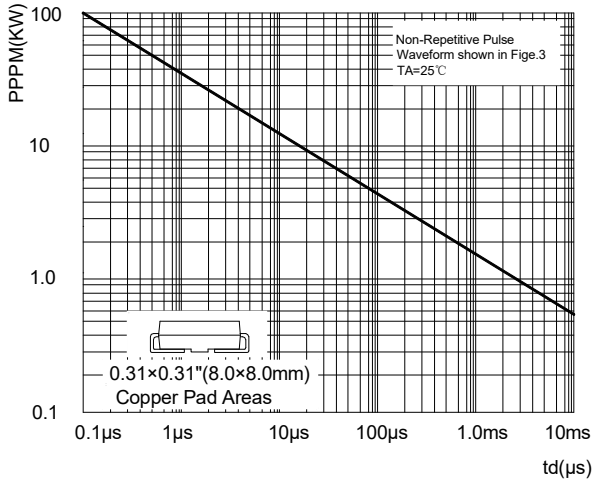


FIG2: Pulse Power or Current vs. Initial Junction Temperature

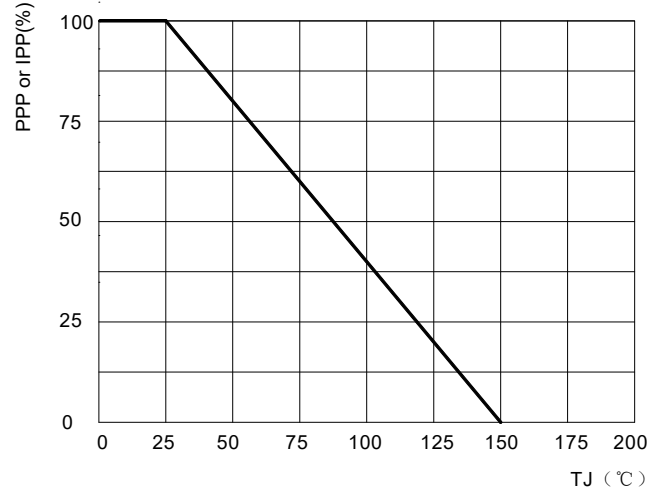


FIG3: Pulse Waveform

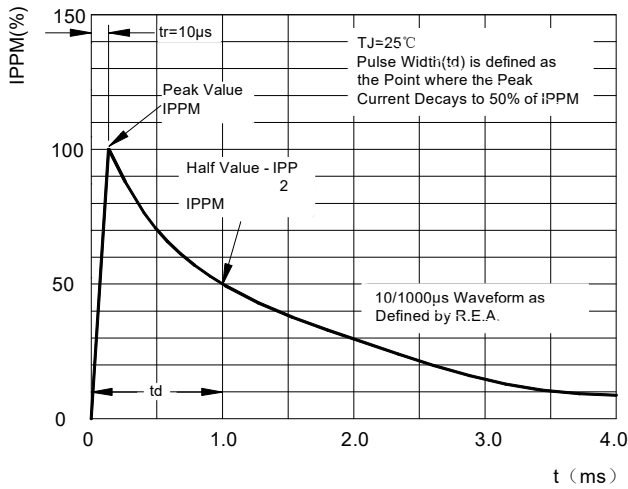


FIG4: Typical Transient Thermal Impedance

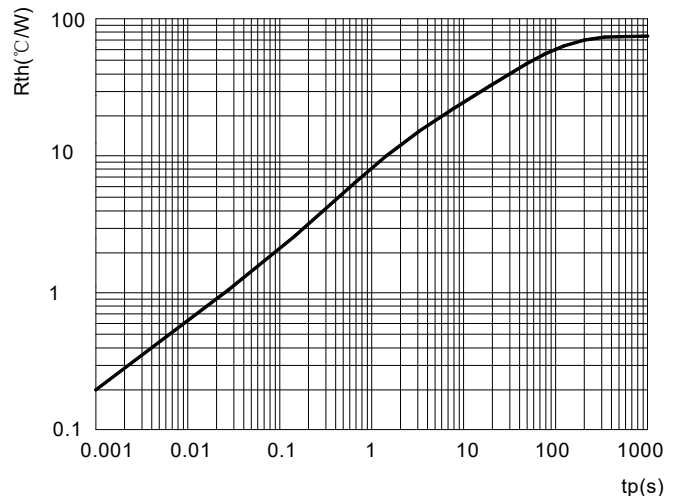


FIG5: Maximum Non-Repetitive Surge Current

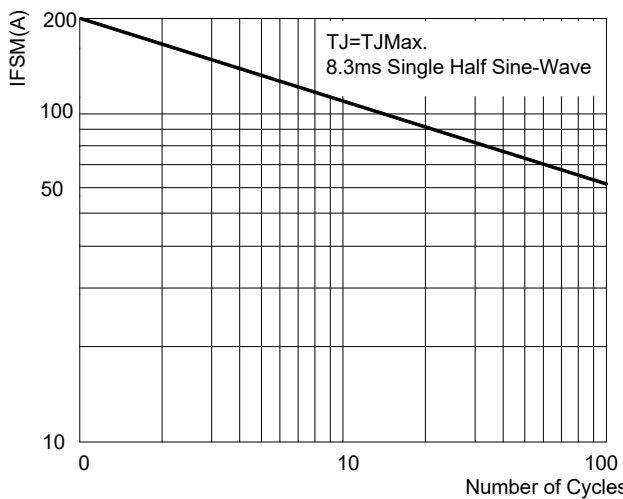
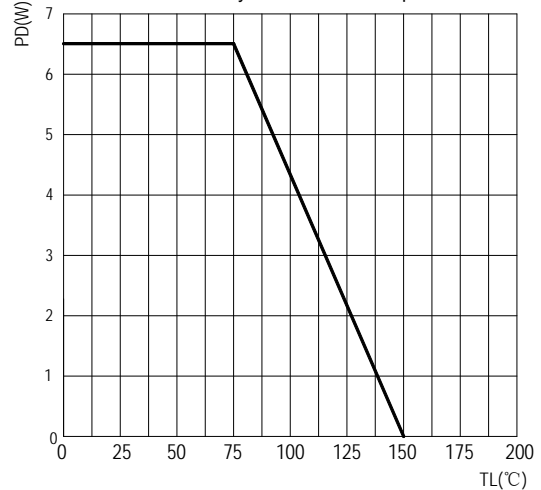


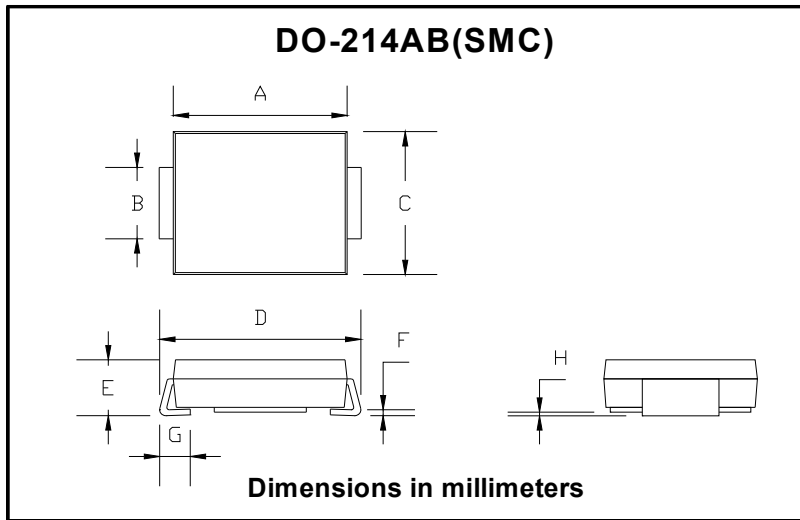
FIG6: Steady State Power Dissipation





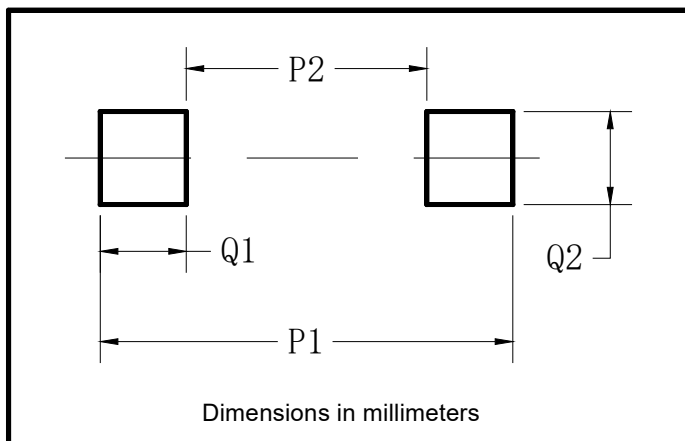
# SMCJ SERIES

## ■ Outline Dimensions



DO-214AB (SMC)		
Dim	Min	Max
A	6.60	7.11
B	2.85	3.27
C	5.59	6.22
D	7.75	8.13
E	1.99	2.61
F	0.15	0.31
G	0.76	1.52
H	0.05	0.20

## ■ Suggested pad layout



Dim	Typ
P1	9.9
P2	3.84
Q1	3.03
Q2	3.82



## SMCJ SERIES

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