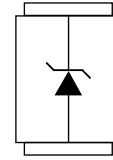


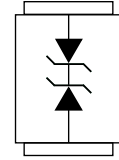
**Description**

The SMCJ Series are designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Unidirectional



Bidirectional

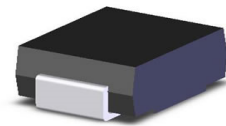


**Feature**

- Halogen-Free
- RoHS compliant
- For surface mounted application to optimize board space
- Low profile package
- Built-in strain relief
- Typical maximum temperature coefficient  
 $\Delta V_{BR} = 0.1\% \times V_{BR@25^\circ C} \times \Delta T$
- Glass passivated chip junction
- 1500W peak pulse power capability at 10\*1000μs waveform, repetition rate(duty cycles):0.01%
- Fast response time: typically less than 1.0ps from 0V to  $V_R$  min
- Excellent clamping capability
- Low incremental surge resistance
- High temperature soldering guaranteed:260°C/40 seconds at terminals

**Applications**

TVS device are ideal for the protection of I/O interfaces,  $V_{CC}$  bus and other vulnerable circuits used in telecom, computer industrial and consumer electronic application



SMCJ/DO-214AB

**Maximum Ratings and Thermal Characteristics( $T_A=25^\circ C$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at $T_A=25^\circ C$ by 10*1000μs waveform(Fig.1) (Note 1),(Note 2)	$P_{PPM}$	1500	W
Power Dissipation on infinite heat sink at $T_A=50^\circ C$	$P_{M(AV)}$	6.5	W
Peak Forward Surge Current,8.3ms Single Half Sine Wave (Note 3)	$I_{FSM}$	200	A
Maximum Instantaneous Forward Voltage at 100A for Unidirectional only (Note 4)	$V_F$	3.5/5.0	V
Operation Junction and Storage Temperature Range	$T_J, T_{STG}$	-65 to 150	$^\circ C$
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	15	$^\circ C/W$
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	75	$^\circ C/W$

**Notes:**

1. Non-repetitive current pulse , per Fig. 3 and derated above  $T_A=50^\circ C$  per Fig. 2.
2. Mounted on copper pad area of 0.31\*0.33" (8.0\*8.0mm) to each terminal.
3. Measured on 8.3ms single half sine wace or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.
4.  $V_F < 3.5V$  for  $V_{BR} \leq 200V$  and  $V_F < 5.0V$  for  $V_{BR} \geq 201V$ .

## Electrical characteristics

Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage $V_R$ (V)	Breakdown Voltage $V_{BR} @ I_T$ (V)		Test Current $I_T$ (mA)	Maximum Clamping Voltage $V_C @ I_{PP}$ (V)	Maximum Peak Pulse Current $I_{PP}$ (A)	Maximum Reverse Leakage $I_R @ V_R$ ( $\mu$ A)
			MIN	MAX				
SMCJ5.0A	SMCJ5.0CA	5.0	6.40	7.00	10	9.2	163.0	800
SMCJ6.0A	SMCJ6.0CA	6.0	6.67	7.37	10	10.3	145.7	800
SMCJ6.5A	SMCJ6.5CA	6.5	7.22	7.98	10	11.2	134.0	500
SMCJ7.0A	SMCJ7.0CA	7.0	7.78	8.60	10	12.0	125.0	200
SMCJ7.5A	SMCJ7.5CA	7.5	8.33	9.21	1	12.9	116.3	100
SMCJ8.0A	SMCJ8.0CA	8.0	8.89	9.83	1	13.6	110.3	50
SMCJ8.5A	SMCJ8.5CA	8.5	9.44	10.40	1	14.4	104.2	20
SMCJ9.0A	SMCJ9.0CA	9.0	10.00	11.10	1	15.4	97.4	10
SMCJ10A	SMCJ10CA	10.0	11.10	12.30	1	17.0	88.3	5
SMCJ11A	SMCJ11CA	11.0	12.20	13.50	1	18.2	82.5	1
SMCJ12A	SMCJ12CA	12.0	13.30	14.70	1	19.9	75.4	5
SMCJ13A	SMCJ13CA	13.0	14.40	15.90	1	21.5	69.8	1
SMCJ14A	SMCJ14CA	14.0	15.60	17.20	1	23.2	64.7	1
SMCJ15A	SMCJ15CA	15.0	16.70	18.50	1	24.4	61.5	1
SMCJ16A	SMCJ16CA	16.0	17.80	19.70	1	26.0	57.7	1
SMCJ17A	SMCJ17CA	17.0	18.90	20.90	1	27.6	54.4	1
SMCJ18A	SMCJ18CA	18.0	20.00	22.10	1	29.2	51.4	1
SMCJ20A	SMCJ20CA	20.0	22.20	24.50	1	32.4	46.3	1
SMCJ22A	SMCJ22CA	22.0	24.40	26.90	1	35.5	42.3	1
SMCJ24A	SMCJ24CA	24.0	26.70	29.50	1	38.9	38.6	1
SMCJ26A	SMCJ26CA	26.0	28.90	31.90	1	42.1	35.7	1
SMCJ28A	SMCJ28CA	28.0	31.10	34.40	1	45.4	33.1	1
SMCJ30A	SMCJ30CA	30.0	33.30	36.80	1	48.4	31.0	1
SMCJ33A	SMCJ33CA	33.0	36.70	40.60	1	53.3	28.2	1
SMCJ36A	SMCJ36CA	36.0	40.00	44.20	1	58.1	25.9	1
SMCJ40A	SMCJ40CA	40.0	44.40	49.10	1	64.5	23.3	1
SMCJ43A	SMCJ43CA	43.0	47.80	52.80	1	69.40	21.7	1
SMCJ45A	SMCJ45CA	45.0	50.00	55.30	1	72.7	20.6	1

Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage $V_R$ (V)	Breakdown Voltage $V_{BR} @ I_T$ (V)		Test Current $I_T$ (mA)	Maximum Clamping Voltage $V_C @ I_{PP}$ (V)	Maximum Peak Pulse Current $I_{PP}$ (A)	Maximum Reverse Leakage $I_R @ V_R$ ( $\mu$ A)
			MIN	MAX				
SMCJ48A	SMCJ48CA	48.0	53.30	58.90	1	77.4	19.4	1
SMCJ51A	SMCJ51CA	51.0	56.70	62.70	1	82.4	18.2	1
SMCJ54A	SMCJ54CA	54.0	60.00	66.30	1	87.1	17.3	1
SMCJ58A	SMCJ58CA	58.0	64.40	71.20	1	93.6	16.1	1
SMCJ60A	SMCJ60CA	60.0	66.70	73.70	1	96.8	15.5	1
SMCJ64A	SMCJ64CA	64.0	71.10	78.60	1	103.0	14.6	1
SMCJ70A	SMCJ70CA	70.0	77.80	86.00	1	113.0	13.3	1
SMCJ75A	SMCJ75CA	75.0	83.30	92.10	1	121.0	12.4	1
SMCJ78A	SMCJ78CA	78.0	86.70	95.80	1	126.0	11.9	1
SMCJ85A	SMCJ85CA	85.0	94.40	104.00	1	137.0	11.0	1
SMCJ90A	SMCJ90CA	90.0	100.00	111.00	1	146.0	10.3	1
SMCJ100A	SMCJ100CA	100.0	111.00	123.00	1	162.0	9.3	1
SMCJ110A	SMCJ110CA	110.0	122.00	135.00	1	177.0	8.5	1
SMCJ120A	SMCJ120CA	120.0	133.00	147.00	1	193.0	7.8	1
SMCJ130A	SMCJ130CA	130.0	144.00	159.00	1	209.0	7.2	1
SMCJ150A	SMCJ150CA	150.0	167.00	185.00	1	243.0	6.2	1
SMCJ160A	SMCJ160CA	160.0	178.00	197.00	1	259.0	5.8	1
SMCJ170A	SMCJ170CA	170.0	189.00	209.00	1	275.0	5.5	1
SMCJ180A	SMCJ180CA	180.0	201.00	222.00	1	292.0	5.1	1
SMCJ200A	SMCJ200CA	200.0	224.00	247.00	1	324.0	4.6	1
SMCJ220A	SMCJ220A	220.0	246.00	272.00	1	356.0	4.2	1
SMCJ250A	SMCJ250CA	250.0	279.00	309.00	1	405.0	3.7	1
SMCJ300A	SMCJ300CA	300.0	335.00	371.00	1	486.0	3.1	1
SMCJ350A	SMCJ350CA	350.0	391.00	432.00	1	567.0	2.6	1
SMCJ400A	SMCJ400CA	400.0	447.00	494.00	1	648.0	2.3	1
SMCJ440A	SMCJ440CA	440.0	492.00	543.00	1	713.0	2.1	1

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

For parts without A, the  $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is 5% higher than with A parts.

Ratings and Characteristic Curves  $T_A=25^\circ\text{C}$  unless otherwise noted

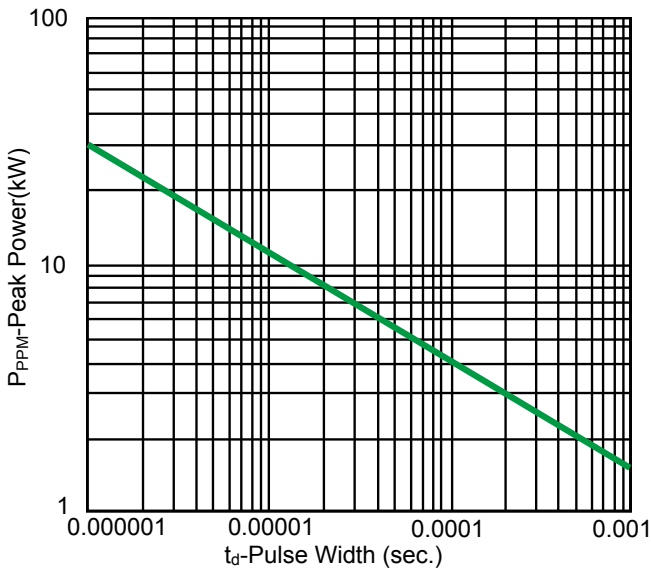


Figure 1-Peak Pulse Power Rating

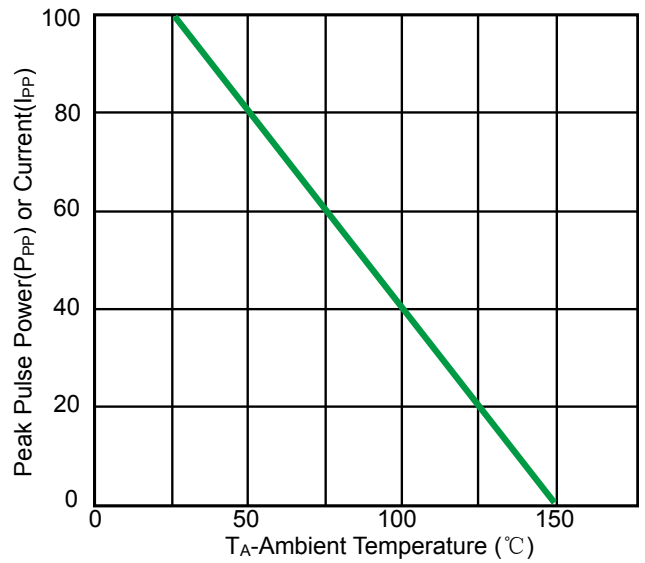


Figure 2-Pulse Derating Curve

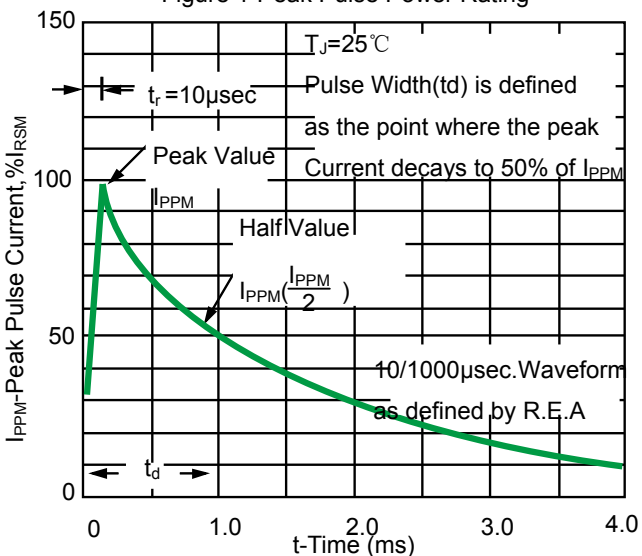


Figure 3-Pulse Waveform

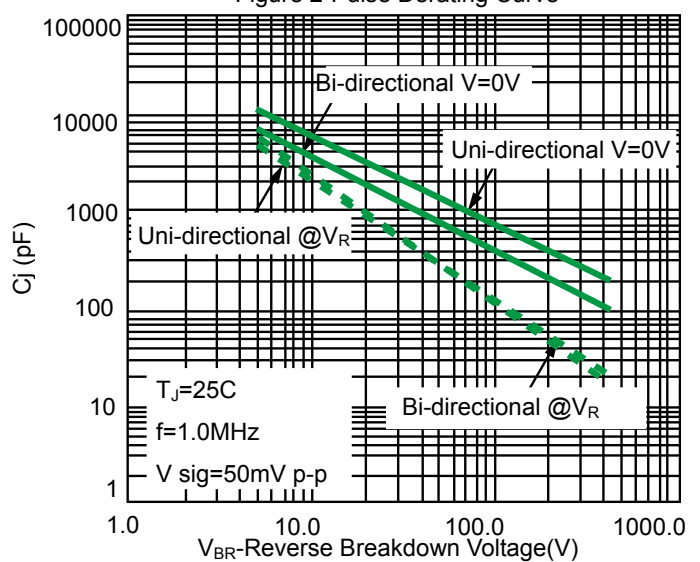


Figure 4-Typical Junction Capacitance

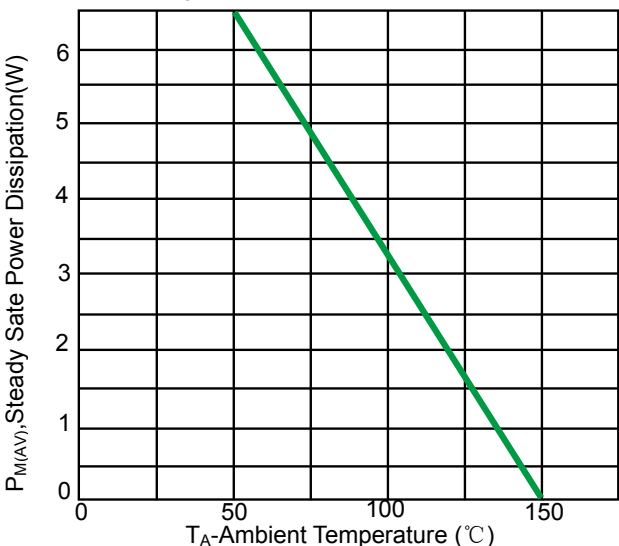


Figure 5-Steady State Power Dissipation Derating Curve

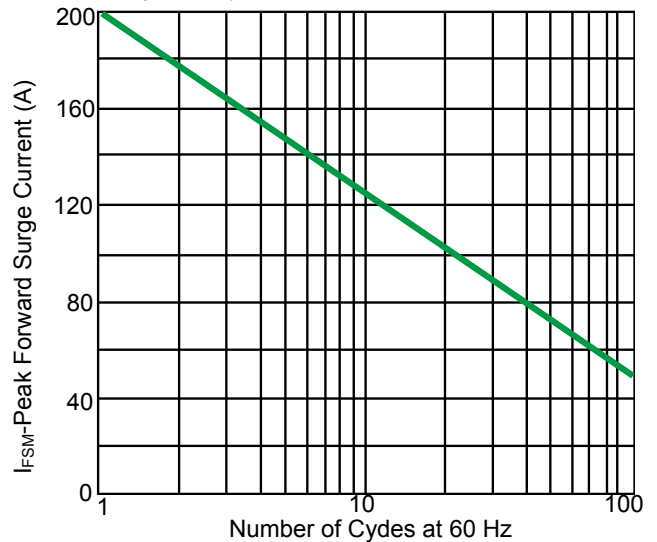
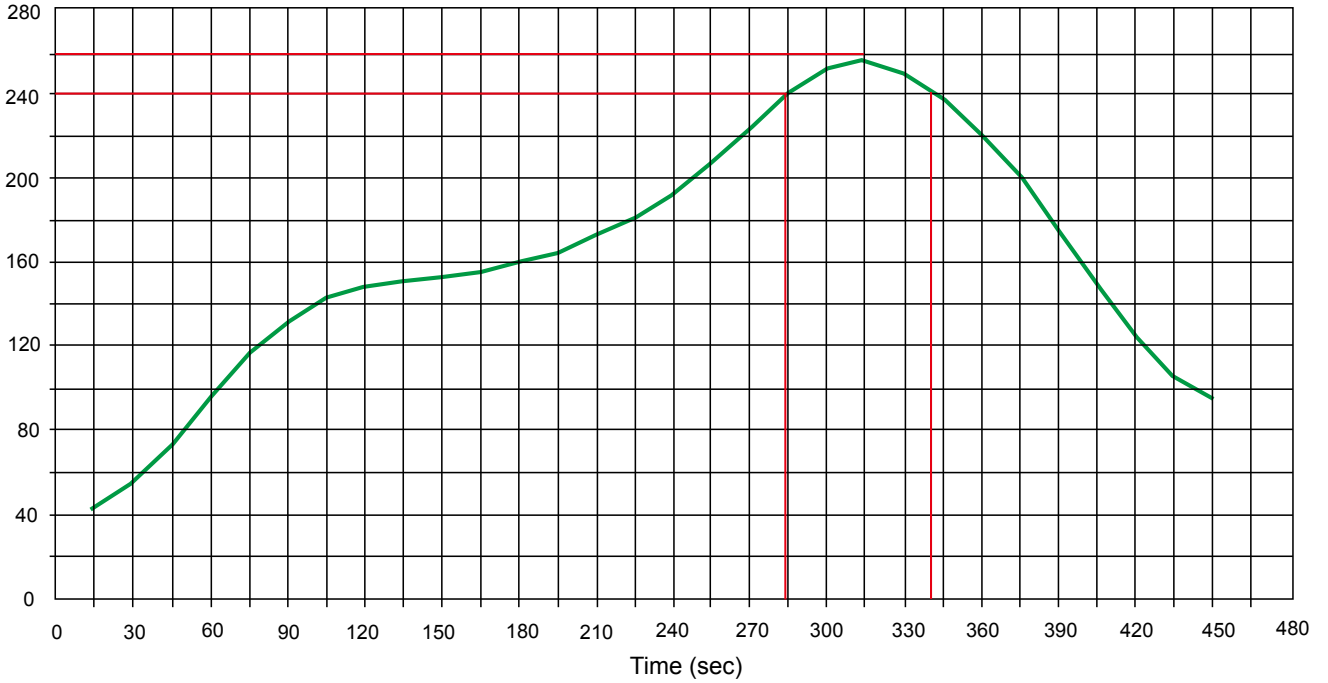


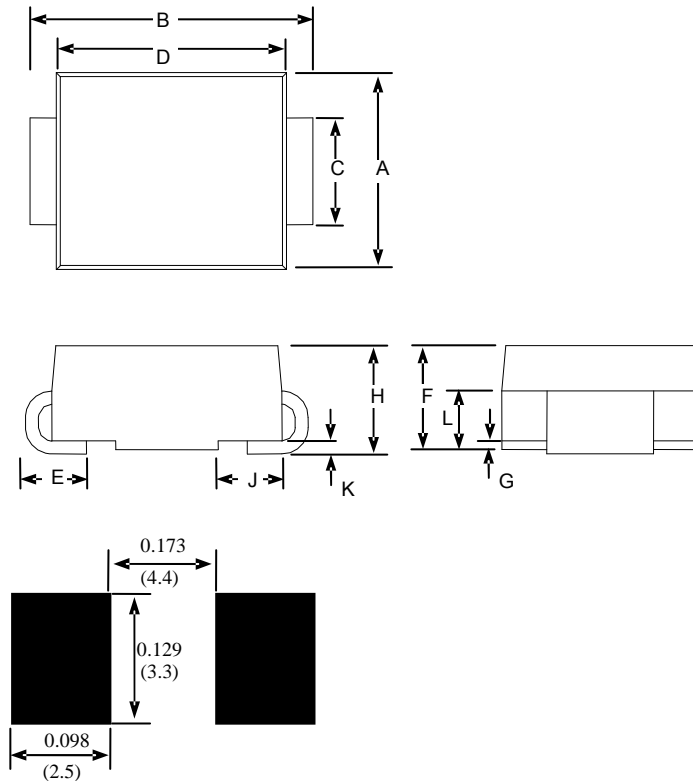
Figure 6-Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

Solder Reflow Recommendation

Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec



Product dimension(SMC)




DIMENSIONS ARE :  $\frac{\text{INCHES}}{\text{(Millimeters)}}$

Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.220	0.245	5.590	6.220
B	0.305	0.320	7.750	8.130
C	0.114	0.126	2.900	3.200
D	0.260	0.280	6.600	7.110
E	0.030	0.060	0.760	1.520
F	0.079	0.103	2.060	2.620
G	-	0.008	-	0.203
H	0.079	0.103	2.060	2.620
J	0.030	0.060	0.760	1.520
K	-	0.008	-	0.203

### Ordering information

Device	Package	Shipping
SMCJ Series	SMC (Pb-Free)	500 / Tape & Reel

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