

## Description

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



## Features

- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Plastic material has UL flammability classification 94V-0
- Typical IR less than 5uA above 10V
- Fast response time: typically less than 1.0ps from 0 Volts to  $V_{BR}$  min

## Maximum Ratings And Electrical Characteristics

Part Number (BI)	Reverse Stand Off Voltage $V_R$ (Volts)	Breakdown Voltage $V_{BR}$ (Volts)@ $I_T$		Test Current $I_T$ (mA)	Maximun Clamping Voltage $V_C$ @ $I_{PP}$ (V)	Maximun Peak Pulse Current $I_{PP}$ (A)	Maximun Reverse Leakage $I_R$ @ $V_R$ ( $\mu$ A)
		MIN	MAX				
SMCJ33CA	33.0	36.70	42.20	1	53.3	28.0	5

For bidirectional type having  $V_{RWM}$  of 10 volts and less, the  $I_R$  limit is double.  
For parts without A ( $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is 5% higher than with A parts).

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at $T_A=25^\circ\text{C}$ by 10x1000 $\mu$ s waveform (Fig.1)(Note 1), (Note 2)	$P_{PPM}$	1500	W
Power Dissipation on infinite heat sink at $T_A=50^\circ\text{C}$	$P_{M(AV)}$	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	$I_{FSM}$	200	A
Maximum Instantaneous Forward Voltage at 25A for Unidirectional only (Note 4)	$V_F$	3.5V/5	V
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-65 to 150	$^\circ\text{C}$
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	15	$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	75	$^\circ\text{C/W}$

### Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 2.
2. Mounted on 5.0x5.0mm copper pad to each terminal.
3. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only.
4.  $V_F < 3.5\text{V}$  for  $V_{BR} \leq 200\text{V}$  and  $V_F < 6.5\text{V}$  for  $V_{BR} \geq 201\text{V}$ .

Rating And Characteristic Curves

Ratings and Characteristic Curves (T<sub>A</sub>=25°C unless otherwise noted)

Figure 1 - Peak Pulse Power Rating

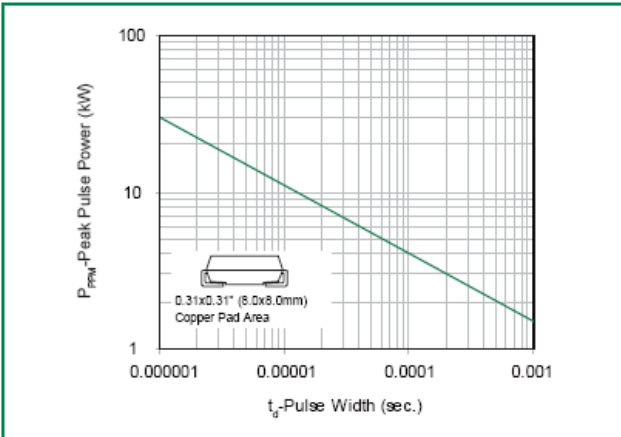


Figure 2 - Pulse Derating Curve

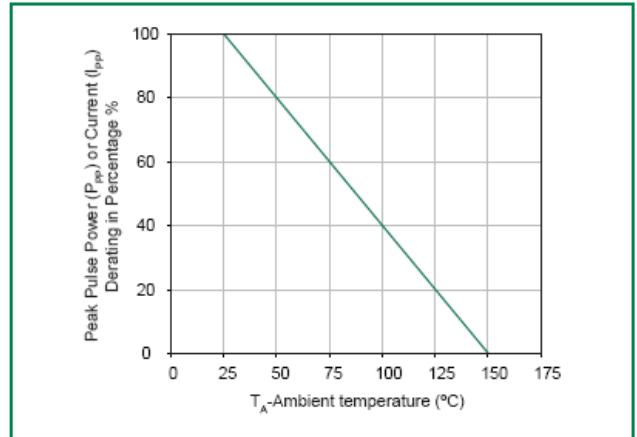


Figure 3 - Pulse Waveform

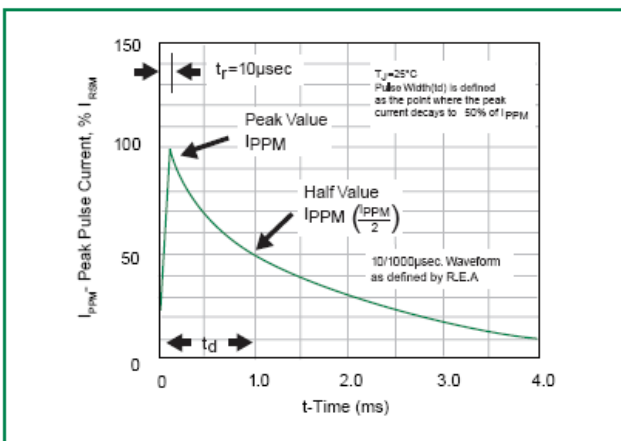


Figure 4 - Typical Junction Capacitance

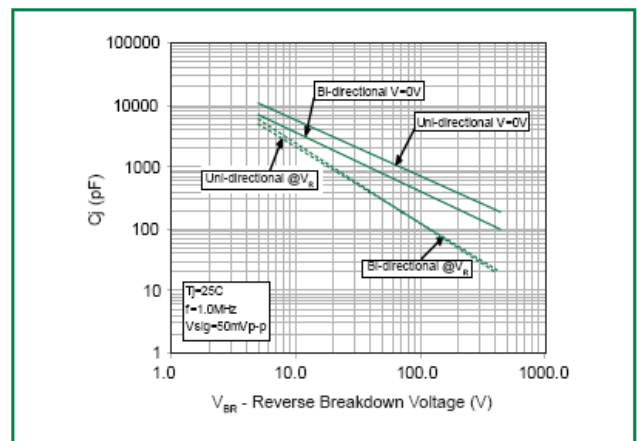


Figure 5 - Steady State Power Dissipation Derating Curve

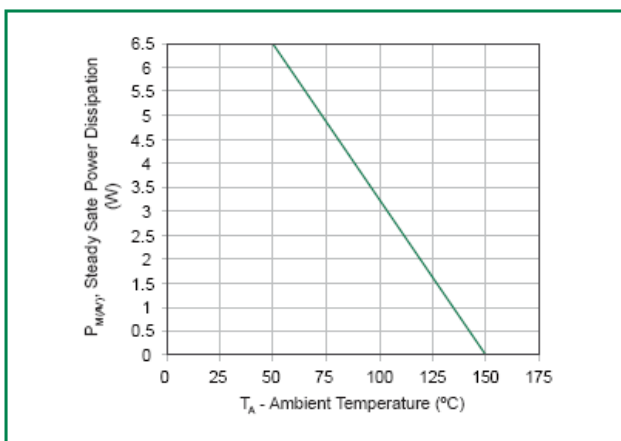
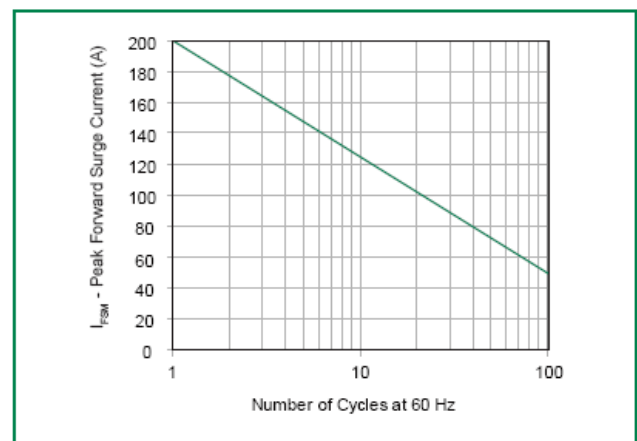
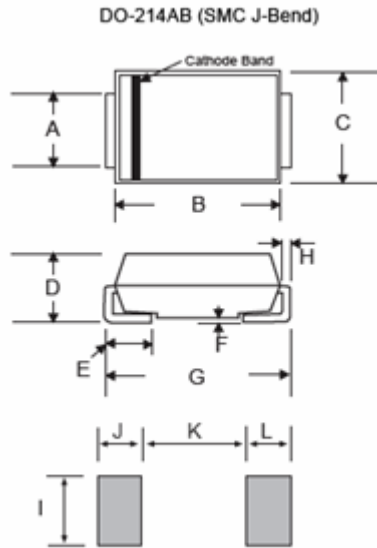



Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only



**Dimensions**


Dimension	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.114	0.126	2.900	3.200
B	0.260	0.280	6.600	7.110
C	0.220	0.245	5.590	6.220
D	0.079	0.103	2.060	2.620
E	0.030	0.060	0.760	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.750	8.130
H	0.006	0.012	0.152	0.305
I	0.129	-	3.300	-
J	0.094	-	2.400	-
K	-	0.165	-	4.200
L	0.094	-	2.400	-

**Summary of Packing Options**

Package Type	Description	Packing Quantity	Industry Standard
DO-214AB 	Embossed Carrier Reel Pack	500 PCS	EIA-481-1