

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 (μ A)
		MIN	MAX				
SMCJ13CA	13.0	14.40	16.50	1	21.5	69.7	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 μ 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_A=25°C unless otherwise noted)

Figure 1 - Peak Pulse Power Rating

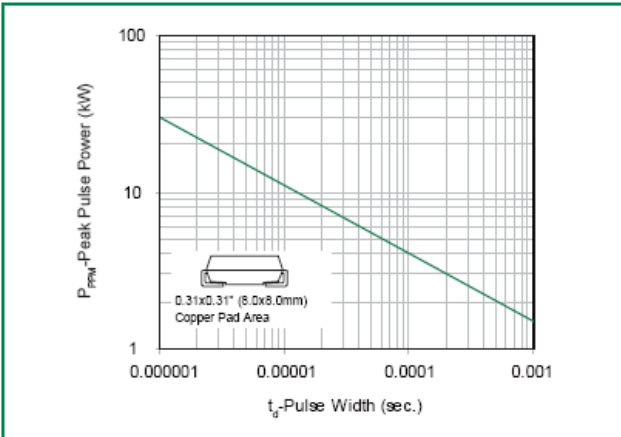


Figure 2 - Pulse Derating Curve

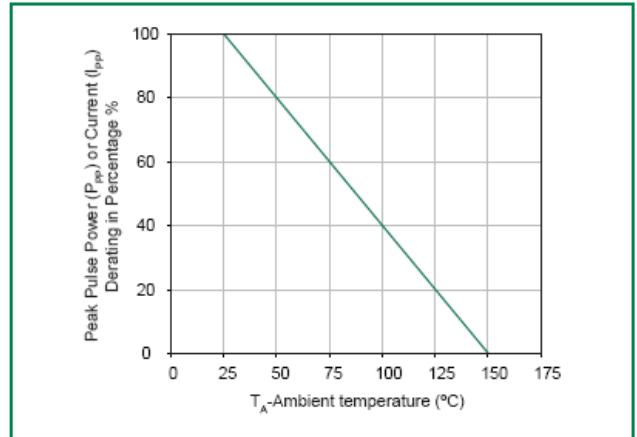


Figure 3 - Pulse Waveform

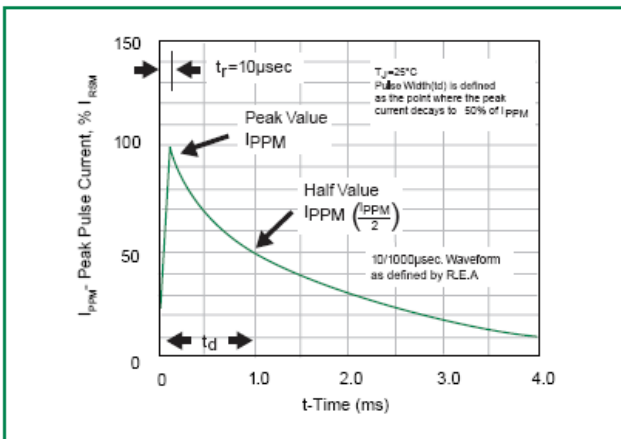


Figure 4 - Typical Junction Capacitance

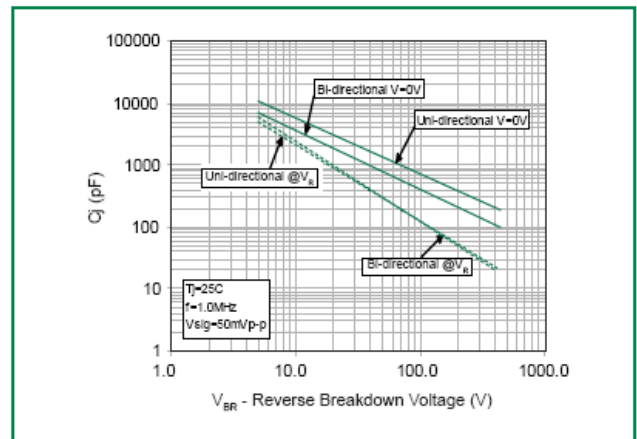


Figure 5 - Steady State Power Dissipation Derating Curve

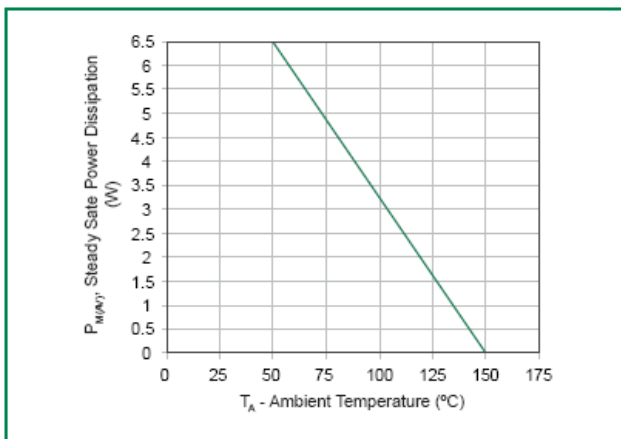
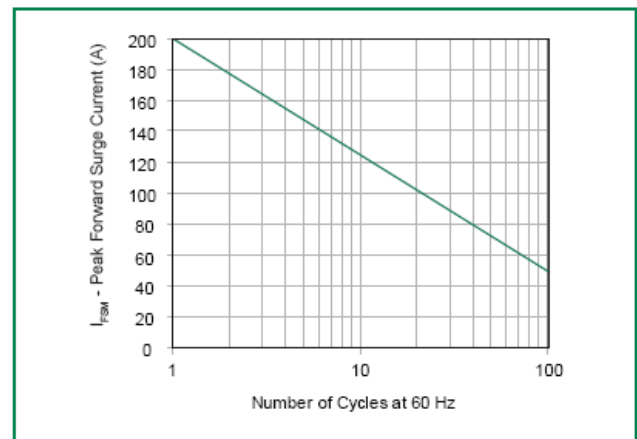
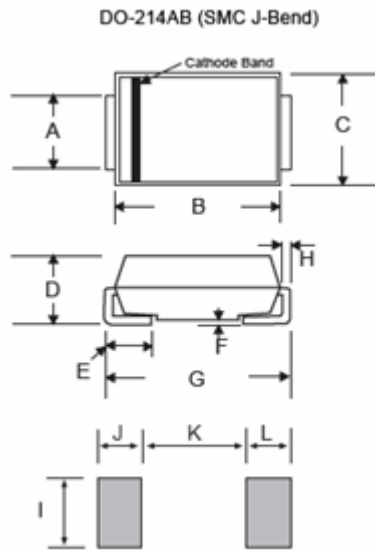



Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only



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