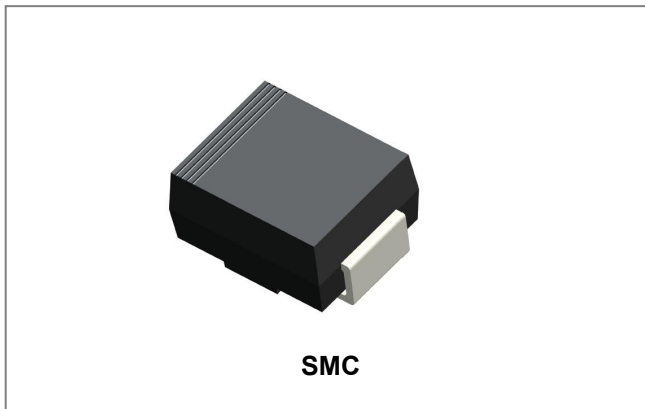




# THE DATASHEET OF 3.0SMCJ13A



## 3.0SMCJ SERIES SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR



### Features

- Glass Passivated Die Construction
- 3000W Peak Pulse Power Dissipation
- 5.0V- 170V Standoff Voltage
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Ability
- Fast Response Time
- Plastic Ase Material has UL Flammability Classification Rating 94V-O
- “-A” is an AEC-Q101 qualified device
- This is a Pb – Free Device
- All SMC Parts are Traceable to the Wafer Lot
- Additional testing can be offered upon request

### Circuit Diagram



Unipolar



Bipolar

### Mechanical Data

- Ase: SMC Low Profile Molded Plastic
- Terminals: Solder Plated , Solderable per MIL-STD 750, Method 2026
- Polarity: Athode Band or Athode Notch

### Maximum Ratings and Thermal Characteristics@T<sub>A</sub>=25°C unless otherwise specified

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000us waveform (NOTE 1, 2, Fig.1)	P <sub>PPM</sub>	3000	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 2),(Note 3)	I <sub>FSM</sub>	300	A
Typical Thermal Resistance Junction to Lead	R <sub>θJL</sub>	15	°C/W
Typical Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	75	°C/W
Operating Junction and Storage Temperature Range	T <sub>J</sub> ,T <sub>STG</sub>	-55 to 150	°C

- Notes:**
1. Non-repetitive current pulse , per Fig. 3 and derated above T<sub>i</sub> = 25°C per Fig. 2.
  2. Mounted on Copper Pad area of 0.8x0.8" (20x20mm) per Fig.5.
  3. Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4pulses per minute maximum.

**Electrical Characteristics @ T<sub>A</sub>=25°C unless otherwise specified**

UNI-POLAR	BI-POLAR	DEVICE MARKING CODE		REVERSE STAND-OFF VOLTAGE V <sub>RWM</sub> (V)	BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MIN. @I <sub>T</sub>	BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MAX. @I <sub>T</sub>	TEST CURRENT I <sub>T</sub> (mA)	MAXIMUM CLAMPING VOLTAGE @I <sub>PP</sub> V <sub>C</sub> (V)	PEAK PULSE CURRENT I <sub>PP</sub> (A)	REVERSE LEAKAGE @V <sub>RWM</sub> I <sub>R</sub> (μA)	REVERSE LEAKAGE @V <sub>RWM</sub> T <sub>J</sub> =150°C I <sub>R</sub> (μA)
		UNI	BI								
3.0SMCJ5.0A	3.0SMCJ5.0CA	HDE	IDE	5	6.4	7	10	9.2	326.1	800	2500
3.0SMCJ6.0A	3.0SMCJ6.0CA	HDG	IDG	6	6.67	7.37	10	10.3	291.3	800	2500
3.0SMCJ6.5A	3.0SMCJ6.5CA	HDK	IDK	6.5	7.22	7.98	10	11.2	267.9	500	1500
3.0SMCJ7.0A	3.0SMCJ7.0CA	HDM	IDM	7	7.78	8.6	10	12	250	200	500
3.0SMCJ7.5A	3.0SMCJ7.5CA	HDP	IDP	7.5	8.33	9.21	1	12.9	232.6	100	300
3.0SMCJ8.0A	3.0SMCJ8.0CA	HDR	IDR	8	8.89	9.83	1	13.6	220.6	50	300
3.0SMCJ8.5A	3.0SMCJ8.5CA	HDT	IDT	8.5	9.44	10.4	1	14.4	208.3	20	50
3.0SMCJ9.0A	3.0SMCJ9.0CA	HDV	IDV	9	10	11.1	1	15.4	194.8	10	50
3.0SMCJ10A	3.0SMCJ10CA	HDX	IDX	10	11.1	12.3	1	17	176.5	5	50
3.0SMCJ11A	3.0SMCJ11CA	HDZ	IDZ	11	12.2	13.5	1	18.2	164.8	1	50
3.0SMCJ12A	3.0SMCJ12CA	HEE	IEE	12	13.3	14.7	1	19.9	150.8	1	50
3.0SMCJ13A	3.0SMCJ13CA	HEG	IEG	13	14.4	15.9	1	21.5	139.5	1	50
3.0SMCJ14A	3.0SMCJ14CA	HEK	IEK	14	15.6	17.2	1	23.2	129.3	1	50
3.0SMCJ15A	3.0SMCJ15CA	HEM	IEM	15	16.7	18.5	1	24.4	123	1	50
3.0SMCJ16A	3.0SMCJ16CA	HEP	IEP	16	17.8	19.7	1	26	115.4	1	50
3.0SMCJ17A	3.0SMCJ17CA	HER	IER	17	18.9	20.9	1	27.6	108.7	1	50
3.0SMCJ18A	3.0SMCJ18CA	HET	IET	18	20	22.1	1	29.2	102.7	1	50
3.0SMCJ20A	3.0SMCJ20CA	HEV	IEV	20	22.2	24.5	1	32.4	92.6	1	50
3.0SMCJ22A	3.0SMCJ22CA	HEX	IEX	22	24.4	26.9	1	35.5	84.5	1	50
3.0SMCJ24A	3.0SMCJ24CA	HEZ	IEZ	24	26.7	29.5	1	38.9	77.1	1	50
3.0SMCJ26A	3.0SMCJ26CA	HFE	IFE	26	28.9	31.9	1	42.1	71.3	1	50
3.0SMCJ28A	3.0SMCJ28CA	HFG	IFG	28	31.1	34.4	1	45.4	66.1	1	50
3.0SMCJ30A	3.0SMCJ30CA	HFK	IFK	30	33.3	36.8	1	48.4	62	1	50
3.0SMCJ33A	3.0SMCJ33CA	HFM	IFM	33	36.7	40.6	1	53.3	56.3	1	50
3.0SMCJ36A	3.0SMCJ36CA	HFP	IFP	36	40	44.2	1	58.1	51.6	1	50
3.0SMCJ40A	3.0SMCJ40CA	HFR	IFR	40	44.4	49.1	1	64.5	46.5	1	50
3.0SMCJ43A	3.0SMCJ43CA	HFT	IFT	43	47.8	52.8	1	69.4	43.2	1	50
3.0SMCJ45A	3.0SMCJ45CA	HFV	IFV	45	50	55.3	1	72.7	41.3	1	50
3.0SMCJ48A	3.0SMCJ48CA	HFX	IFX	48	53.3	58.9	1	77.4	38.8	1	50
3.0SMCJ51A	3.0SMCJ51CA	HFZ	IFZ	51	56.7	62.7	1	82.4	36.4	1	50



### 3.0SMCJ SERIES

Technical Data  
Data Sheet N0001 Rev. B

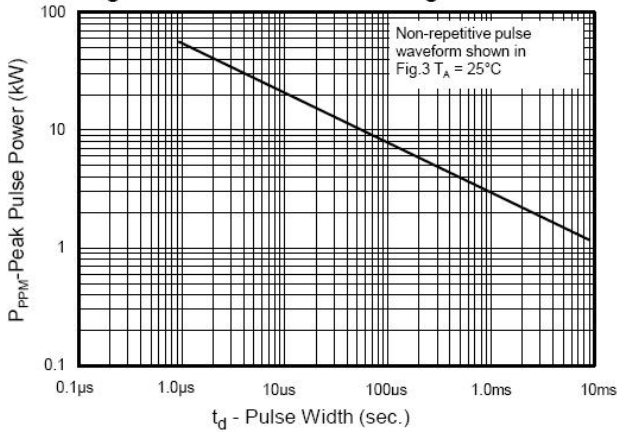
*Automotive Qualified*

UNI-POLAR	BI-POLAR	DEVICE MARKING CODE		REVERSE STAND-OFF VOLTAGE $V_{RWM}$ (V)	BREAKDOWN VOLTAGE $V_{BR}$ (V) MIN. @ $I_T$	BREAKDOWN VOLTAGE $V_{BR}$ (V) MAX. @ $I_T$	TEST CURRENT IT(MA)	MAXIMUM CLAMPING VOLTAGE @ $I_{PP}$ $V_C$ (V)	PEAK PULSE CURRENT $I_{PP}$ (A)	REVERSE LEAKAGE @ $V_{RWM}$ $I_R$ (uA)	REVERSE LEAKAGE @ $V_{RWM}$ $T_J=150^\circ C$ $I_R$ (uA)
		UNI	BI								
3.0SMCJ54A	3.0SMCJ54CA	HGE	IGE	54	60	66.3	1	87.1	34.4	1	50
3.0SMCJ58A	3.0SMCJ58CA	HGG	IGG	58	64.4	71.2	1	93.6	32.1	1	50
3.0SMCJ60A	3.0SMCJ60CA	HGK	IGK	60	66.7	73.7	1	96.8	31	1	50
3.0SMCJ64A	3.0SMCJ64CA	HGM	IGM	64	71.1	78.6	1	103	29.1	1	50
3.0SMCJ70A	3.0SMCJ70CA	HGP	IGP	70	77.8	86	1	113	26.5	1	50
3.0SMCJ75A	3.0SMCJ75CA	HGR	IGR	75	83.3	92.1	1	121	24.8	1	50
3.0SMCJ78A	3.0SMCJ78CA	HGT	IGT	78	86.7	95.8	1	126	23.8	1	50
3.0SMCJ85A	3.0SMCJ85CA	HGV	IGV	85	94.4	104	1	137	21.9	1	50
3.0SMCJ90A	3.0SMCJ90CA	HGX	IGX	90	100	111	1	146	20.5	1	50
3.0SMCJ100A	3.0SMCJ100CA	HGZ	IGZ	100	111	123	1	162	18.5	1	50
3.0SMCJ110A	3.0SMCJ110CA	HHE	IHE	110	122	135	1	177	16.9	1	50
3.0SMCJ120A	3.0SMCJ120CA	HHG	DHG	120	133	147	1	193	15.5	1	50
3.0SMCJ130A	3.0SMCJ130CA	HHK	IHK	130	144	159	1	209	14.4	1	50
3.0SMCJ150A	3.0SMCJ150CA	HHM	IHM	150	167	185	1	243	12.3	1	50
3.0SMCJ160A	3.0SMCJ160CA	HHP	IHP	160	178	197	1	259	11.6	1	50
3.0SMCJ170A	3.0SMCJ170CA	HHR	IHR	170	189	209	1	275	10.9	1	50

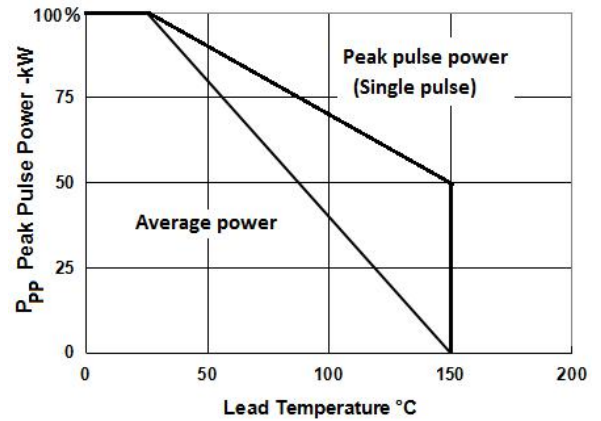
For bidirectional type having  $V_{RWM}$  of 10 volts and less, the  $I_R$  limit is double.  
For parts without A, the  $V_{BR}$  is  $\pm 10\%$

**Ratings and Characteristics Curves**

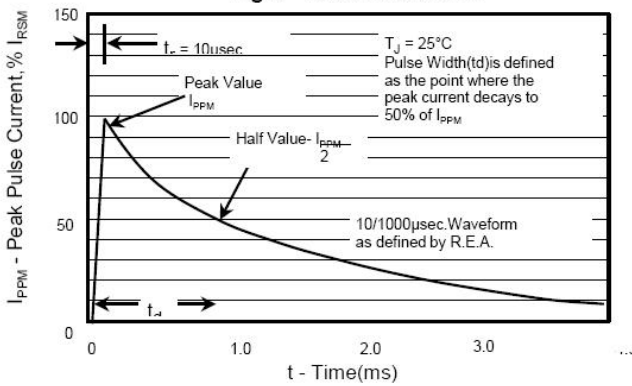
**Fig. 1 - Peak Pulse Power Rating Curve**



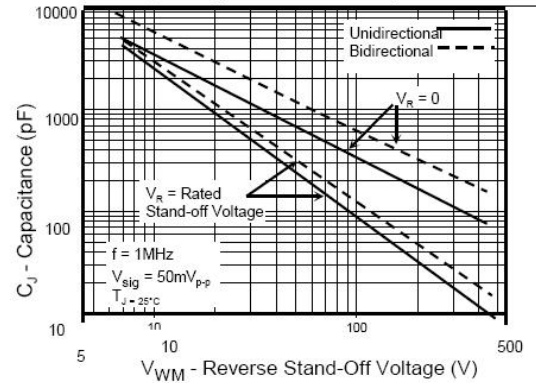
**Fig.2 - Pulse Derating Curve**



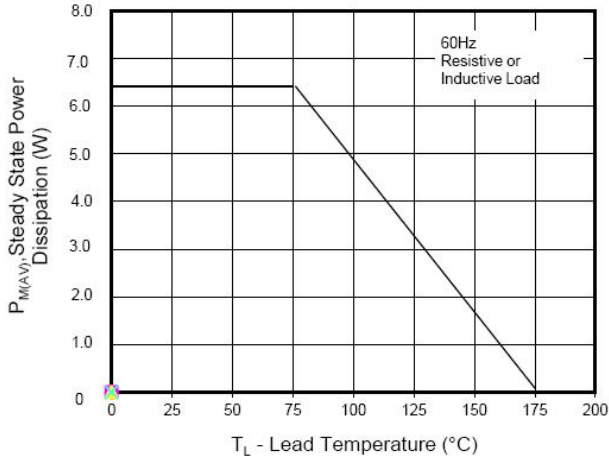
**Fig.3 - Pulse Waveform**



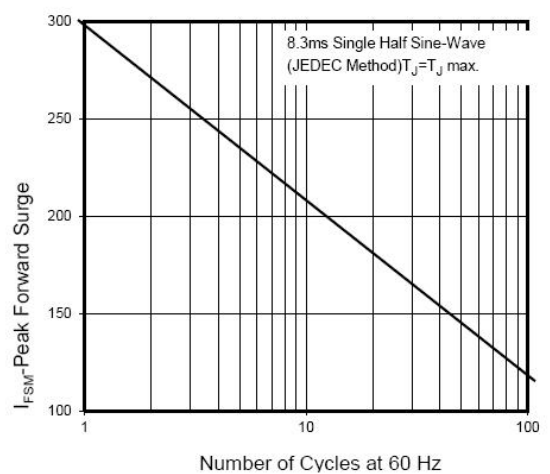
**Fig. 4 - Typical Junction Capacitance**



**Fig. 5 - Steady State Power Derating Curve**



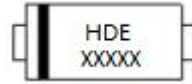
**Fig.6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only**



**Ordering Information** **Marking Diagram**

Device	Package	Plating	Shipping
3.0SMCJ5.0A THRU 3.0SMCJ170A	SMC (Pb-Free)	Pure Sn	3000pcs / reel
3.0SMCJ5.0ATR THRU 3.0SMCJ170ATR	SMC (Pb-Free)	Pure Sn	3000pcs / reel

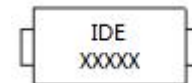
For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.



3.0SMCJ5.0A

Where XXXXX is YYWWL

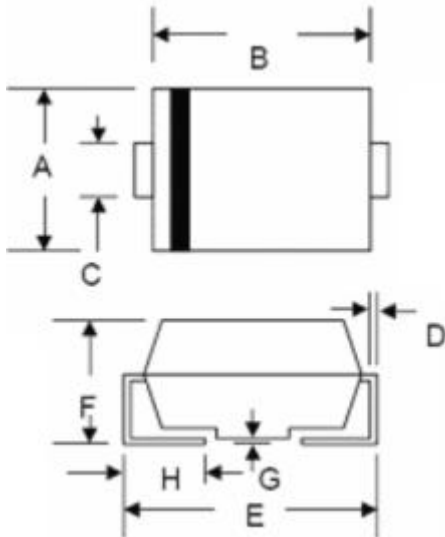
HDE/IDE = Marking code  
YY = Year  
WW = Week  
L = Lot Number



3.0SMCJ5.0CA

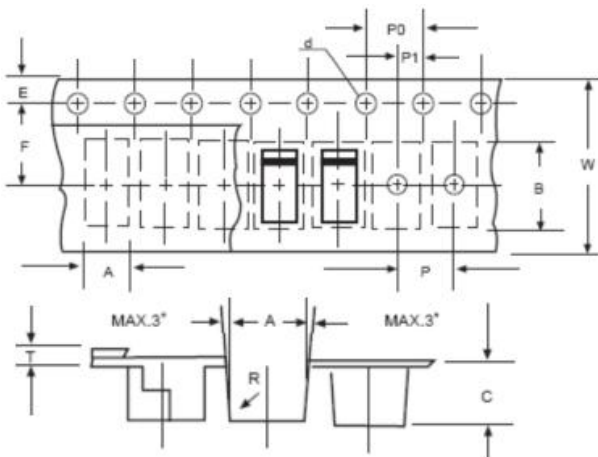
**Autions:** Molding resin  
Epoxy resin UL:94V-0

**Mechanical Dimensions SMC**



SYMBOL	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	5.59	6.22	0.220	0.245
B	6.60	7.11	0.260	0.280
C	2.75	3.25	0.108	0.128
D	0.152	0.305	0.006	0.012
E	7.75	8.25	0.305	0.325
F	2.00	2.95	0.079	0.116
G	0.051	0.203	0.002	0.008
H	0.76	1.60	0.030	0.063

**Carrier Tape Specification SMC**



SYMBOL	Millimeters	
	Min.	Max.
A	5.90	6.10
B	8.20	8.40
C	2.40	2.60
d	1.40	1.60
E	1.40	1.60
F	7.60	7.70
P	7.90	8.10
P0	3.90	4.10
P1	3.90	4.10
T	-	0.600
W	15.80	16.20



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