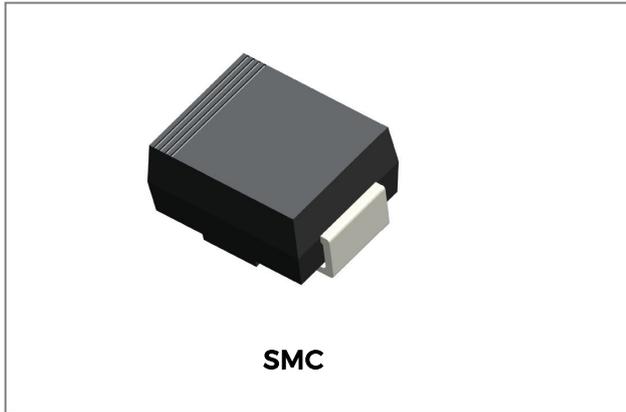


3.0SMCJ SERIES SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR



Features

- Glass Passivated Die Construction
- 3000W Peak Pulse Power Dissipation
- 5.0V- 170V Standoff Voltage
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Case 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

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

Maximum Ratings and Thermal Characteristics@T_A=25°C unless otherwise specified

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000us waveform (NOTE 1, 2, 4, Fig.1)	P _{PPM}	3000	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 2),(Note 3)	I _{FSM}	300	A
Typical Thermal Resistance Junction to Lead	R _{θJL}	15	°C/W
Typical Thermal Resistance Junction to Ambient	R _{θJA}	75	°C/W
Operating Junction and Storage Temperature Range	T _J ,T _{STG}	-55 to 150	°C

- Notes:**
1. Non-repetitive current pulse , per Fig. 3 and derated above T_i = 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.
 4. For a surge greater than the maximum values but energy level < 500 A²s, the diode will fail in short circuit.

Electrical Characteristics@T_A=25°C unless otherwise specified

UNI-POLAR	BI-POLAR	DEVICE MARKING CODE		REVERSE STAND-OFF VOLTAGE V _{RWM} (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @I _T	BREAKDOWN VOLTAGE VBR (V) MAX. @I _T	TEST CURRENT I _T (mA)	MAXIMUM CLAMPING VOLTAGE @I _{PP} V _C (V)	PEAK PULSE CURRENT I _{PP} (A)	REVERSE LEAKAGE @V _{RWM} I _R (μA)	REVERSE LEAKAGE @V _{RWM} T _J =150°C I _R (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

For bidirectional type having V_{RWM} of 10 volts and less, the IR limit is double.
For parts without A , the VBR is ± 10%

Technical Data
Data Sheet N0001 Rev. C



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 (μ A)	REVERSE LEAKAGE @ V_{RWM} $T_j=150^\circ\text{C}$ I_r (μ A)
		UNI	BI								
3.0SMCJ54A	3.0SMCJ54CA	HGE	IGE	54	60	66.3	1	87.1	34.4	1	50
3.0SMCJ58A	3.0SMCJ58CA	HGC	IGC	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

Ratings and Characteristics Curves

Fig. 1 - Peak Pulse Power Rating Curve

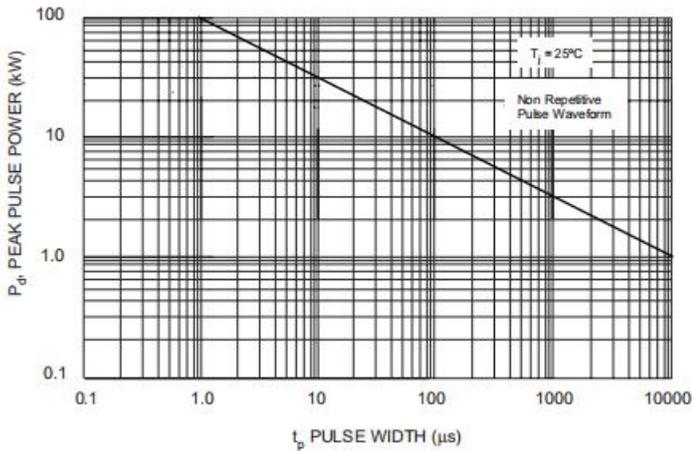


Fig.2 - Pulse Derating Curve

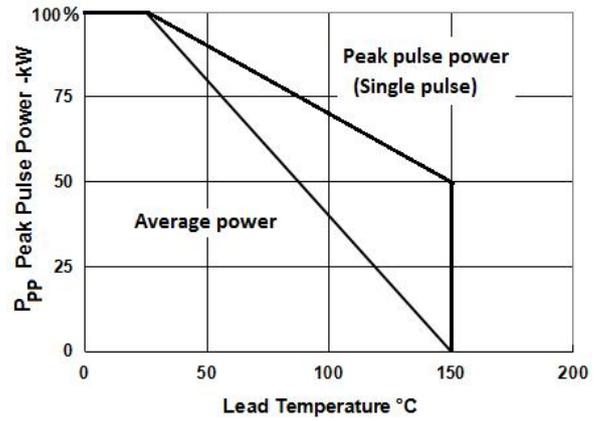


Fig.3 - Pulse Waveform

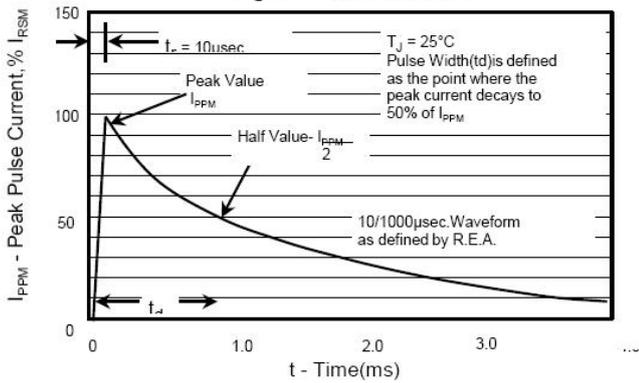


Fig. 4 - Typical Junction Capacitance

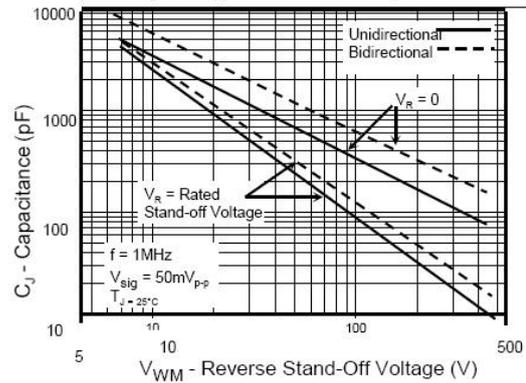


Fig. 5 - Steady State Power Derating Curve

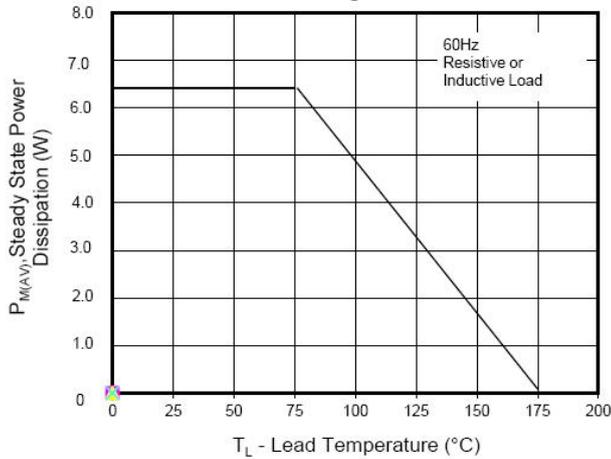
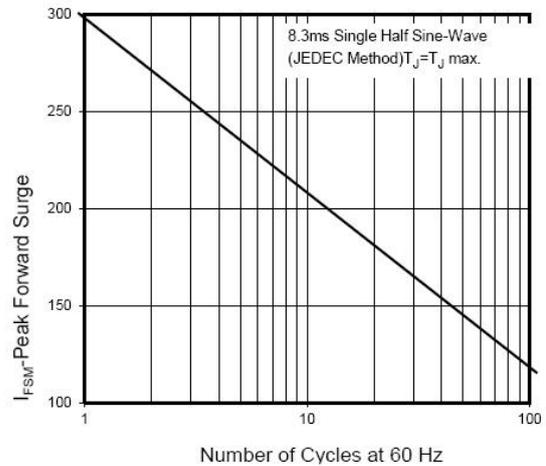


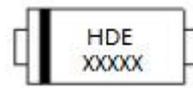
Fig.6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



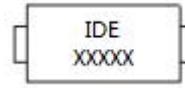
Ordering Information **Marking Diagram**

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



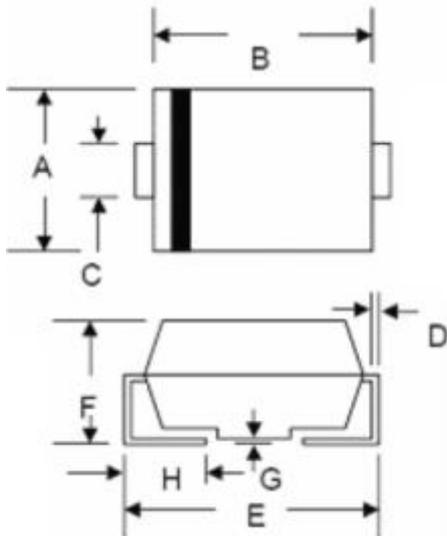
3.0SMCJ5.0CA

Where XXXXX is YYWWL

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

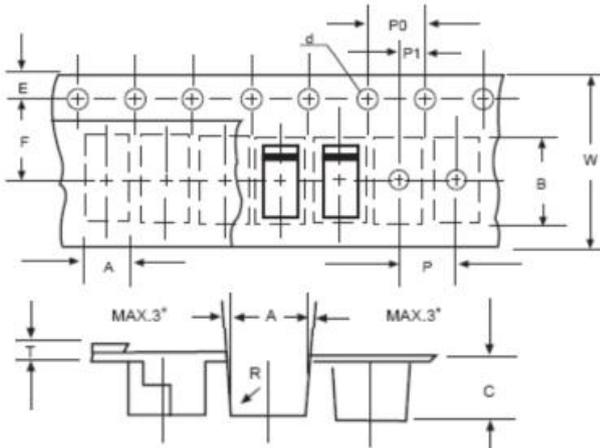
Cautions: Molding resin
Epoxy resin UL94V-0

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



DISCLAIMER:

- 1- The information given herein, including the specifications and dimensions, is subject to change without prior notice to improve product characteristics. Before ordering, purchasers are advised to contact the SMC Diode Solutions sales department for the latest version of the datasheet(s).
- 2- In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment, and safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement.
- 3- In no event shall SMC Diode Solutions be liable for any damages that may result from an accident or any other cause during operation of the user's units according to the datasheet(s). SMC Diode Solution assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in the datasheets.
- 4- In no event shall SMC Diode Solutions be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.
- 5- No license is granted by the datasheet(s) under any patents or other rights of any third party or SMC Diode Solutions.
- 6- The datasheet(s) may not be reproduced or duplicated, in any form, in whole or part, without the expressed written permission of SMC Diode Solutions.
- 7- The products (technologies) described in the datasheet(s) are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety nor are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations..