Technical Data
Data Sheet N0069 Rev. D

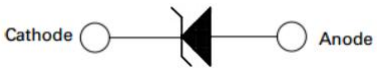
5.0 SMLJ SERIES
SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

SMC

Features

- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Repetition rate (duty cycle):0.01%
- Fast response time: typically less than 1.0 ps from 0 volts to BV for unidirectional types
- Plastic Case Material has UL Flammability Classification Rating 94V-O
- High temperature soldering: 260°C/40 seconds at terminals

Circuit Diagram



Unipolar

Bipolar

Mechanical Data

- Case: SMC Low Profile Molded Plastic
- Terminals: Solder Plated , Solderable per MIL-STD 750, Method 2026
- Polarity: Color band denoted positive end (cathode) except Bidirectional

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

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000 us waveform (NOTE 1, 2, Fig.1)	P_{PPM}	5000	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional Device only (Note 2),(Note 3)	I_{FSM}	300	A
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	15	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	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_L= 25°C per Fig. 2.
2. Mounted on 8.0x8.0mm Copper Pads to each terminal.
3. Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4pulses per minute maximum.

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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 IT(MA)	MAXMUM CLAMPING VOLTAGE @I_{PP} V_C(V)	PEAK PULSE CURRENT I_{PP}(A)	REVERSE LEAKAGE @V_{RWM} I_R(uA)	
		UNI	BI							T_J= 25°C	T_J= 150°C
5.0SMLJ12A	5.0SMLJ12CA	5PEP	5BEP	12	13.3	14.7	1	19.9	252	100	300
5.0SMLJ13A	5.0SMLJ13CA	5PEQ	5BEQ	13	14.4	15.9	1	21.5	233	80	300
5.0SMLJ14A	5.0SMLJ14CA	5PER	5BER	14	15.6	17.2	1	23.2	216	50	300
5.0SMLJ15A	5.0SMLJ15CA	5PES	5BES	15	16.7	18.5	1	24.4	205	20	300
5.0SMLJ16A	5.0SMLJ16CA	5PET	5BET	16	17.8	19.7	1	26	193	10	300
5.0SMLJ17A	5.0SMLJ17CA	5PEU	5BEU	17	18.9	20.9	1	27.6	181	5	50
5.0SMLJ18A	5.0SMLJ18CA	5PEV	5BEV	18	20	22.1	1	29.2	172	5	50
5.0SMLJ20A	5.0SMLJ20CA	5PEW	5BEW	20	22.2	24.5	1	32.4	155	5	50
5.0SMLJ22A	5.0SMLJ22CA	5PEX	5BEX	22	24.4	26.9	1	35.5	141	2	50
5.0SMLJ24A	5.0SMLJ24CA	5PEZ	5BEZ	24	26.7	29.5	1	38.9	129	2	50
5.0SMLJ26A	5.0SMLJ26CA	5PFE	5BFE	26	28.9	31.9	1	42.1	119	2	50
5.0SMLJ28A	5.0SMLJ28CA	5PFG	5BFG	28	31.1	34.4	1	45.4	110	2	50
5.0SMLJ30A	5.0SMLJ30CA	5PFK	5BFK	30	33.3	36.8	1	48.4	103	2	50
5.0SMLJ33A	5.0SMLJ33CA	5PFM	5BFM	33	36.7	40.6	1	53.3	93.9	2	50
5.0SMLJ36A	5.0SMLJ36CA	5PFP	5BFP	36	40	44.2	1	58.1	86.1	2	50
5.0SMLJ40A	5.0SMLJ40CA	5PFR	5BFR	40	44.4	49.1	1	64.5	77.6	2	50
5.0SMLJ43A	5.0SMLJ43CA	5PFT	5BFT	43	47.8	52.8	1	69.4	72.1	2	50
5.0SMLJ45A	5.0SMLJ45CA	5PFV	5BFV	45	50	55.3	1	72.7	68.8	2	50
5.0SMLJ48A		5PFX		48	53.3	58.9	1	77.4	64.7	2	50
5.0SMLJ51A		5PFZ		51	56.7	62.7	1	82.4	60.7	2	50
5.0SMLJ54A		5PGE		54	60	66.3	1	87.1	57.5	2	50
5.0SMLJ58A		5PGG		58	64.4	71.2	1	93.6	53.5	2	50
5.0SMLJ60A		5PGK		60	66.7	73.7	1	96.8	51.7	2	50
5.0SMLJ64A		5PGM		64	71.1	78.6	1	103	48.6	2	50
5.0SMLJ70A		5PGP		70	77.8	86	1	113	44.3	2	50
5.0SMLJ75A		5PGR		75	83.3	92.1	1	121	41.4	2	50
5.0SMLJ78A		5PGT		78	86.7	95.8	1	126	39.7	2	50
5.0SMLJ85A		5PGV		85	94.4	104	1	137	36.5	2	50
5.0SMLJ90A		5PGX		90	100	111	1	146	34.3	2	50
5.0SMLJ100A		5PGZ		100	111	123	1	162	30.9	2	50
5.0SMLJ110A		5PHE		110	122	135	1	177	28.3	2	50
5.0SMLJ120A		5PHG		120	133	147	1	193	26	2	50
5.0SMLJ130A		5PHK		130	144	159	1	209	24	2	50
5.0SMLJ150A		5PHM		150	167	185	1	243	20.6	2	50
5.0SMLJ160A		5PHP		160	178	197	1	259	19.3	2	50
5.0SMLJ170A		5PHR		170	189	209	1	275	18.2	2	50

For bidirectional type having VRWM of 20 volts and less, the IR limit is double.
For parts without A, The VBR is + 10%.

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Ratings and Characteristics Curves

Fig. 1 - Peak Pulse Power Rating Curve

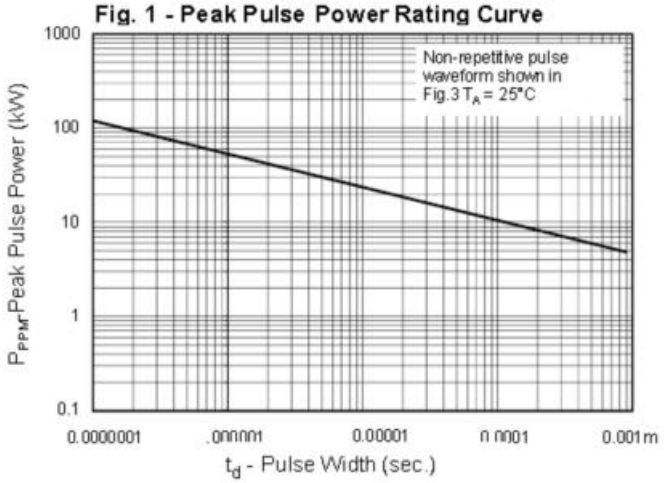


Fig.2 - Pulse Derating Curve

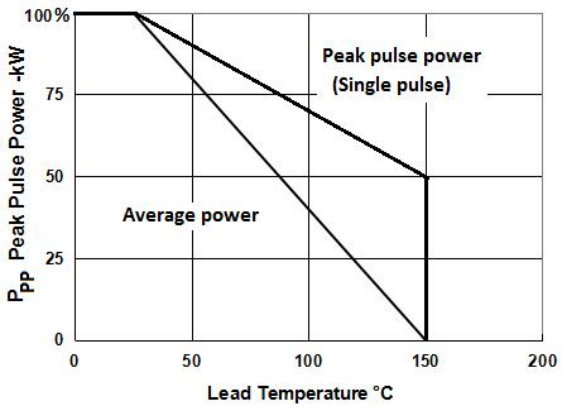


Fig.3 - Pulse Waveform

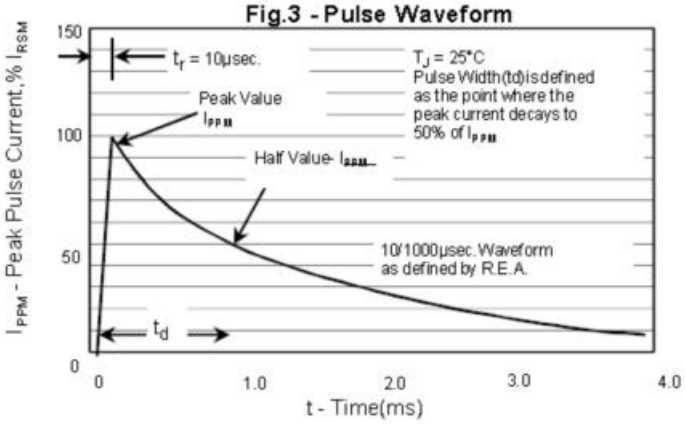


Fig. 4 - Typical Junction Capacitance

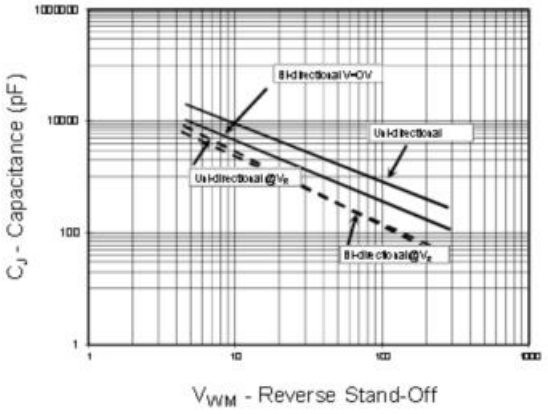


Fig. 5 - Steady State Power Derating Curve

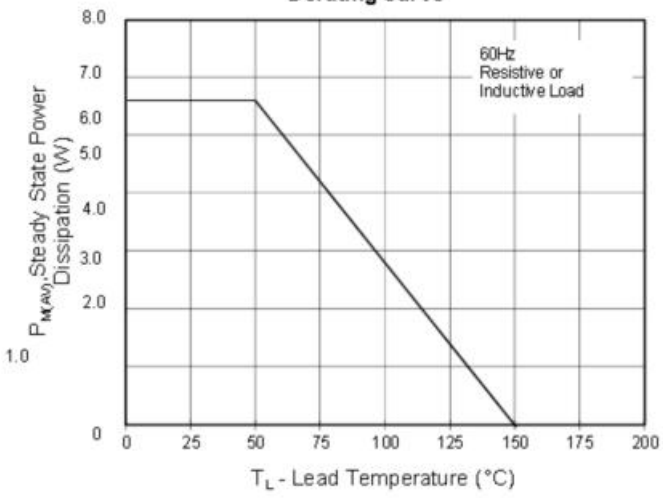
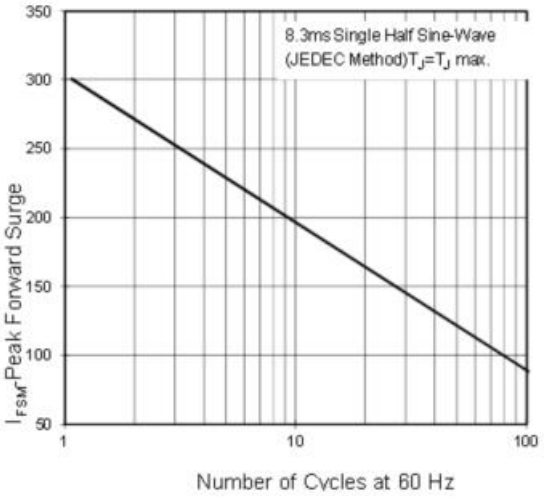


Fig.6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



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RoHS

Ordering Information

Device	Package	Shipping
5.0SMLJ12A THRU 5.0SMLJ170A	SMC (Pb-Free)	3000pcs / reel
5.0SMLJ12ATR THRU 5.0SMLJ170ATR	SMC (Pb-Free)	3000pcs / reel

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

Marking Diagram

5.0SMLJ12A

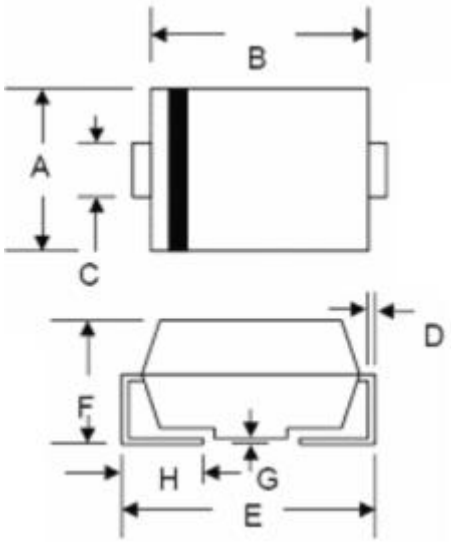
5.0SMLJ12CA

Where XXXXX is YYWWL

5PEP/5BEP = Marking code
YY = Year
WW = Week
L = Lot Number

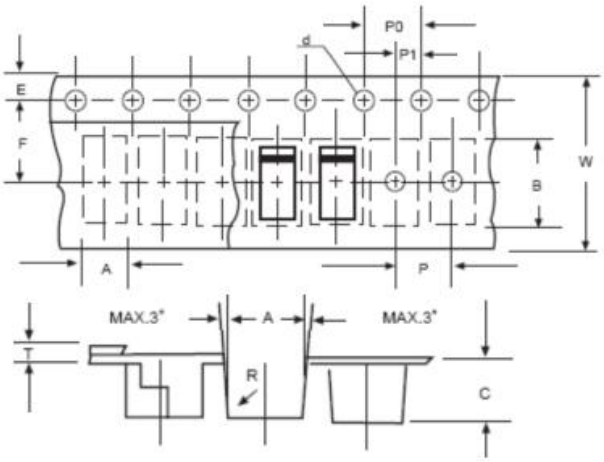
Cautions: Molding resin
Epoxy resin UL:94V-0

Mechanical Dimensions SMC



	SMC/DO-214AB			
Dim.	Min.	Max.	Min.	Max.
A	5.59	6.22	0.220	0.245
B	6.60	7.11	0.260	0.280
C	2.90	3.20	0.114	0.126
D	0.152	0.305	0.006	0.012
E	7.75	8.13	0.305	0.320
F	2.00	2.62	0.079	0.103
G	-	0.203	-	0.008
H	0.76	1.52	0.030	0.060
	In Millimeters		In inches	

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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