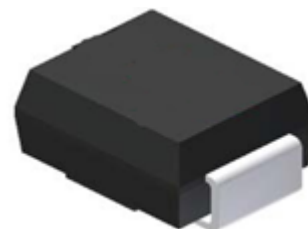


SMCJ SERIES

Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors

Features

- Voltage Range 5.0V - 440V
- 1500W Peak Pulse Power Dissipation
- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Response Time is Typically < 1 ns
- Uni-direction, less than 5.0ns for Bi-direction, from 0 Volts to BV min
- ESD Rating of above 16 kV per Human Body Model
- ESD Rating of above 30 kV (Contact Discharge) per IEC61000-4-2
- EFT (Electrical Fast Transients) Rating of 40 A per IEC61000-4-4
- Plastic material has UL flammability classification 94V-0
- Typical IR less than 1uA above 10V
- Meets MSL 1 Requirements
- Solid-state silicon avalanche technology
- ROHS compliant



SMC

Ordering Information		
Device	Qty per Reel	Reel Size
MESMCJxxA(CA)	3000	13Inch

“xx” = Working Peak Reverse Voltage

Maximum Ratings and Electrical Characteristics			
Characteristics	Symbols	Value	Unit
Peak Power Dissipation At $T_j = 25^{\circ}\text{C}$, $T_p = 1\text{ms}$ (Note 1,2)	P_{PK}	1500	W
Peak Forward Surge Current 8.3ms single half sine-wave super	I_{FSM}	200	A
Lead Soldering Temperature	T_L	260 (10 sec.)	$^{\circ}\text{C}$
Operating Temperature Range	T_J	-55 to +155	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to +175	$^{\circ}\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. Non-repetitive current pulse, per fig. 4 and derated above $T_A = 25^{\circ}\text{C}$ per fig.1.
2. Thermal Resistance junction to Lead
3. 8.3ms single half-sine wave duty cycle= 4 pulses maximum per minute (unidirectional units only).
4. Ratings at 25°C ambient temperature unless otherwise specified.
5. Single phase, half wave, 60Hz, resistive or inductive load.
6. For Capacitive Load, Derate Current By 20%

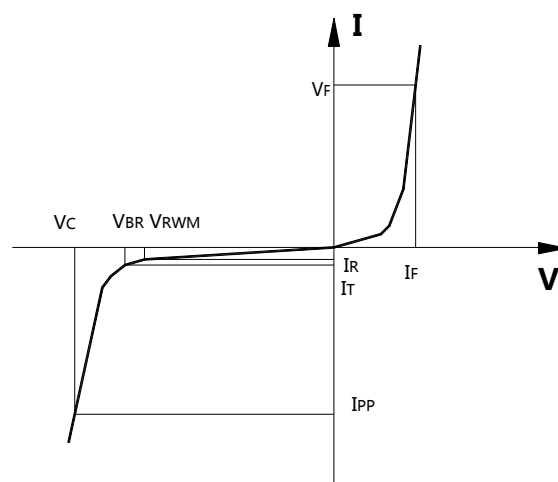
Electrical Characteristics (T_{amb}=25℃ Unless Otherwise Specified)

SMCJ PART NUMBER		MARKING CODE		V _{RWM}	V _{BR} @ I _T (V)		I _T	I _R @ V _{RWM}	V _C (Max)	I _{PP} (Max)
Uni-polar	Bi-polar	Uni	Bi	(V)	Min	Max	(mA)	(uA)	(V)	(A)
MESMCJ5.0A	MESMCJ5.0CA	GDE	BDE	5.0	6.40	7.35	10	800	9.2	163.0
MESMCJ6.0A	MESMCJ6.0CA	GDG	BDG	6.0	6.67	7.89	10	800	10.3	145.6
MESMCJ6.5A	MESMCJ6.5CA	GDK	BDK	6.5	7.22	8.30	10	500	11.2	133.9
MESMCJ7.0A	MESMCJ7.0CA	GDM	BDM	7.0	7.78	8.95	10	200	12.0	125.0
MESMCJ7.5A	MESMCJ7.5CA	GDP	BDP	7.5	8.33	9.58	1	100	12.9	116.3
MESMCJ8.0A	MESMCJ8.0CA	GDR	BDR	8.0	8.89	10.23	1	50	13.6	110.3
MESMCJ8.5A	MESMCJ8.5CA	GDT	BDT	8.5	9.44	10.82	1	20	14.4	104.2
MESMCJ9.0A	MESMCJ9.0CA	GDV	BDV	9.0	10.0	11.5	1	10	15.4	97.4
MESMCJ10A	MESMCJ10CA	GDX	BDX	10	11.1	12.8	1	5	17.0	88.2
MESMCJ11A	MESMCJ11CA	GDZ	BDZ	11	12.2	14.0	1	5	18.2	82.4
MESMCJ12A	MESMCJ12CA	GEE	BEE	12	13.3	15.3	1	5	19.9	75.4
MESMCJ13A	MESMCJ13CA	GEG	BEG	13	14.4	16.5	1	5	21.5	69.8
MESMCJ14A	MESMCJ14CA	GEK	BEK	14	15.6	17.9	1	5	23.2	64.7
MESMCJ15A	MESMCJ15CA	GEM	BEM	15	16.7	19.2	1	5	24.4	61.5
MESMCJ16A	MESMCJ16CA	GEP	BEP	16	17.8	20.5	1	5	26.0	57.7
MESMCJ17A	MESMCJ17CA	GER	BER	17	18.9	21.7	1	5	27.6	54.3
MESMCJ18A	MESMCJ18CA	GET	BET	18	20.0	23.3	1	5	29.2	51.4
MESMCJ20A	MESMCJ20CA	GEV	BEV	20	22.2	25.5	1	5	32.4	46.3
MESMCJ22A	MESMCJ22CA	GEX	BEX	22	24.4	28.0	1	5	35.5	42.3
MESMCJ24A	MESMCJ24CA	GEZ	BEZ	24	26.7	30.7	1	5	38.9	38.6
MESMCJ26A	MESMCJ26CA	GFE	BFE	26	28.9	33.2	1	5	42.1	35.6
MESMCJ28A	MESMCJ28CA	GFG	BFG	28	31.1	35.8	1	5	45.4	33.0
MESMCJ30A	MESMCJ30CA	GFK	BFK	30	33.3	38.3	1	5	48.4	31.0
MESMCJ33A	MESMCJ33CA	GFM	BFM	33	36.7	42.2	1	5	53.3	28.1
MESMCJ36A	MESMCJ36CA	GFP	BFP	36	40.0	46.0	1	5	58.1	25.8
MESMCJ40A	MESMCJ40CA	GFR	BFR	40	44.4	51.1	1	5	64.5	23.3
MESMCJ43A	MESMCJ43CA	GFT	BFT	43	47.8	54.9	1	5	69.4	21.6
MESMCJ45A	MESMCJ45CA	GFV	BFV	45	50.0	57.5	1	5	72.7	20.6
MESMCJ48A	MESMCJ48CA	GFX	BFX	48	53.3	61.3	1	5	77.4	19.4
MESMCJ51A	MESMCJ51CA	GFZ	BFZ	51	56.7	65.2	1	5	82.4	18.2
MESMCJ54A	MESMCJ54CA	GGE	BGE	54	60.0	69.0	1	5	87.1	17.2
MESMCJ58A	MESMCJ58CA	GGG	BGG	58	64.4	74.1	1	5	93.6	16.0
MESMCJ60A	MESMCJ60CA	GGK	BGK	60	66.7	76.7	1	5	96.8	15.5
MESMCJ64A	MESMCJ64CA	GGM	BGM	64	71.1	81.8	1	5	103	14.6
MESMCJ70A	MESMCJ70CA	GGP	BGP	70	77.8	89.5	1	5	113	13.3
MESMCJ75A	MESMCJ75CA	GGR	BGR	75	83.0	95.8	1	5	121	12.4
MESMCJ78A	MESMCJ78CA	GGT	BGT	78	86.0	99.7	1	5	126	11.9
MESMCJ85A	MESMCJ85CA	GGV	BGV	85	94.0	108.2	1	5	137	10.9
MESMCJ90A	MESMCJ90CA	GGX	BGX	90	100	115.5	1	5	146	10.3

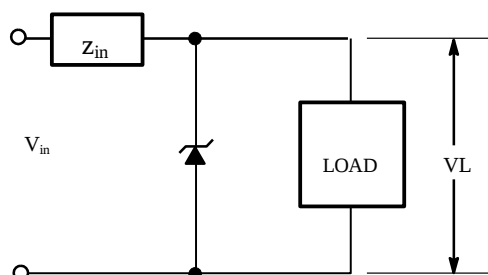
Electrical Characteristics (T_{amb}=25℃ Unless Otherwise Specified)

SMCJ PART NUMBER		MARKING CODE		V _{RWM}	V _{BR} @ I _T (V)		I _T	I _R @ V _{RWM}	V _C (Max)	I _{PP} (Max)
Uni-polar	Bi-polar	Uni	Bi	(V)	Min	Max	(mA)	(uA)	(V)	(A)
MESMCJ100A	MESMCJ100CA	GGZ	BGZ	100	111	128.0	1	5	162	9.3
MESMCJ110A	MESMCJ110CA	GHE	BHE	110	122	140.5	1	5	177	8.5
MESMCJ120A	MESMCJ120CA	GHG	BHG	120	133	153.0	1	5	193	7.8
MESMCJ130A	MESMCJ130CA	GHK	BHK	130	144	165.5	1	5	209	7.2
MESMCJ150A	MESMCJ150CA	GHM	BHM	150	167	192.5	1	5	243	6.2
MESMCJ160A	MESMCJ160CA	GHP	BHP	160	178	205.0	1	5	259	5.8
MESMCJ170A	MESMCJ170CA	GHR	BHR	170	189	217.5	1	5	275	5.5
MESMCJ180A	MESMCJ180CA	GHT	BHT	180	200	230.4	1	5	290	5.2
MESMCJ190A	MESMCJ190CA	GHU	BHU	190	211	243.2	1	5	306	4.9
MESMCJ200A	MESMCJ200CA	GHV	BHV	200	222	256.0	1	5	322	4.7
MESMCJ210A	MESMCJ210CA	GHW	BHW	210	233	268.8	1	5	339	4.4
MESMCJ220A	MESMCJ220CA	GHX	BHX	220	244	281.6	1	5	355	4.2
MESMCJ250A	MESMCJ250CA	GJG	BJG	250	278	309.0	1	5	403	3.7
MESMCJ300A	MESMCJ300CA	GJK	BJK	300	333	371.0	1	5	484	3.1
MESMCJ350A	MESMCJ350CA	GJM	BJM	350	389	432.0	1	5	565	2.7
MESMCJ400A	MESMCJ400CA	GJP	BJP	400	444	494.0	1	5	645	2.3
MESMCJ440A	MESMCJ440CA	GJR	BJR	440	489	543.0	1	5	710	2.1

Symbol	Parameter
V _{RWM}	Working Peak Reverse Voltage
V _{BR}	Breakdown Voltage @ I _T
V _C	Clamping Voltage @ I _{PP}
I _T	Test Current
I _R	Leakage current at V _{RWM}
I _{PP}	Peak pulse current



Typical Protection Circuit



Typical Electrical Characteristics Applications

Rating and Characteristics Curves

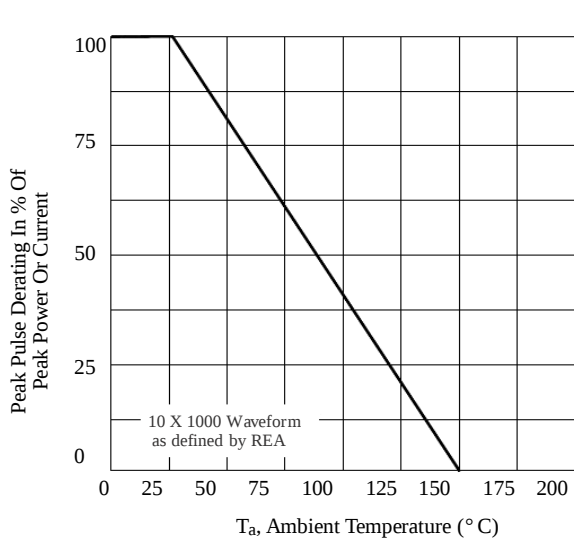


Fig. 1 Pulse Derating Curve

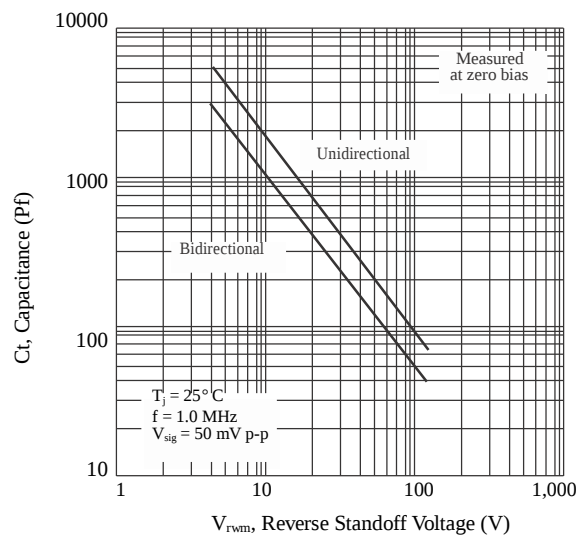


Fig. 2 Typical Total Capacitance

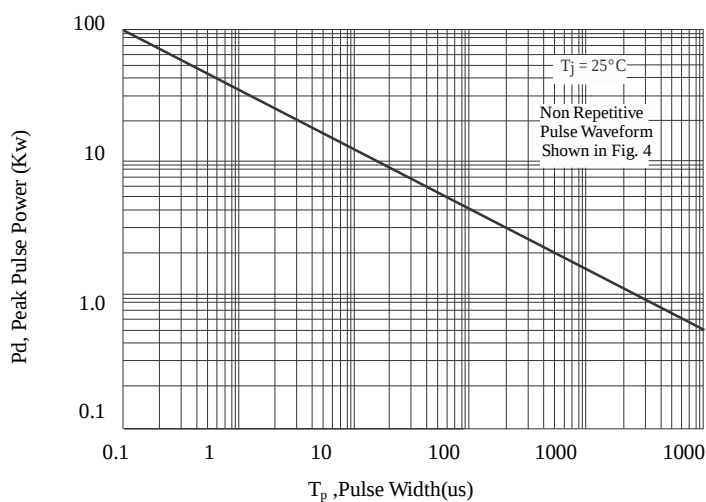


Fig. 3 Pulse Rating Curve

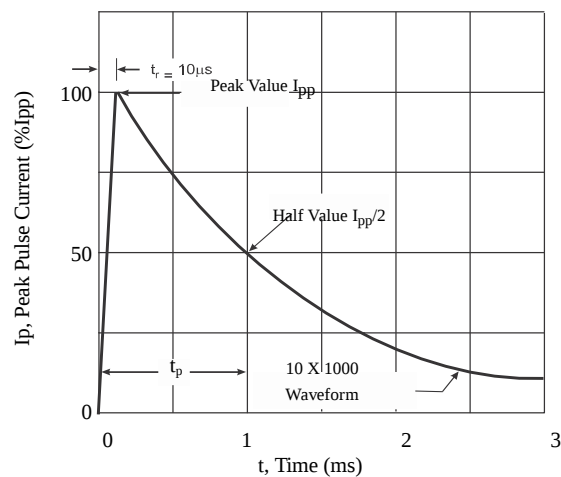


Fig. 4 Pulse Waveform

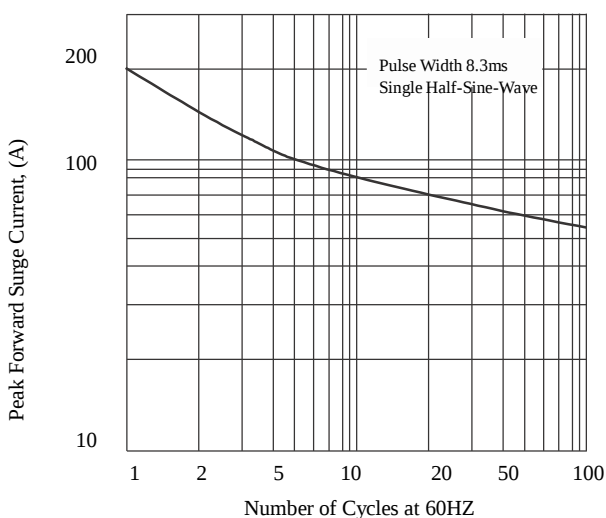


Fig. 5, Maximum Non-Repetitive Surge Current

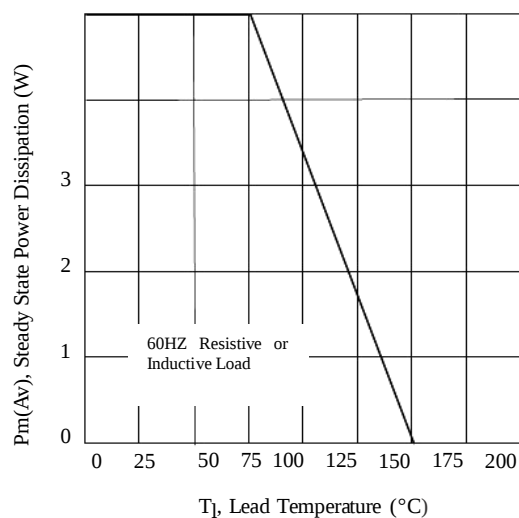


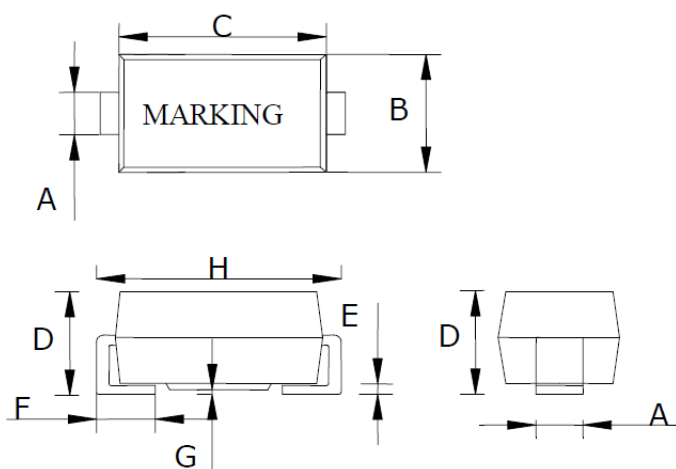
Fig. 6 Steady State Power Derating Curve

Package Information

SMC

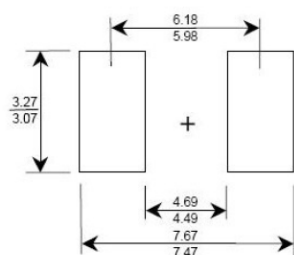
Mechanical Data

- Case: SMC
- Case Material: Molded Plastic. UL Flammability

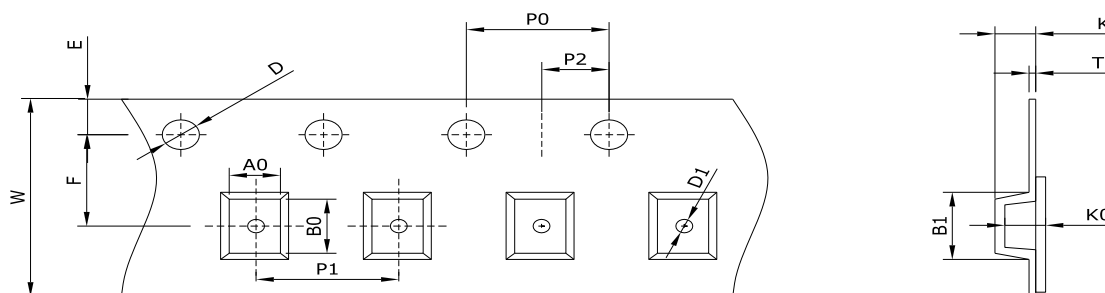


DMI	Millimeters		Inches	
	Min	Max	Min	Max
A	2.75	3.25	0.108	0.128
B	5.5	6.2	0.217	0.244
C	6.5	7.11	0.256	0.28
D	2.1	2.7	0.083	0.106
E	0.051	0.203	0.002	0.008
F	0.9	1.52	0.035	0.06
G	-	0.203	-	0.008
H	7.4	8.4	0.291	0.331

Recommended Pad outline



Recommended Pad outline



Package	Chip Size (mm)	Pocket Size B0×A0×K0(mm)	Tape Width	Reel Diameter	Quantity Per Reel	P0	P1
SMC	8.00×6.00×2.50	8.40×6.10×2.60	16mm	330mm	3000	4mm	8mm
D	D1	E	F	K	T	W	
1.5mm	1.0mm	1.75mm	7.5mm	2.65mm	0.5mm	16mm	