Microsemi
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SMCG/J6036 thru SMCG/J6072A

5.5 thru 185 Volts
1500 Watts
Transient Voltage Suppressors

FEATURES:

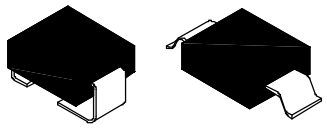
- BIDIRECTIONAL
- 1500 WATTS PEAK POWER
- VOLTAGE RANGE FROM 5.5V TO 185V
- LOW INDUCTANCE
- LOW PROFILE PACKAGE FOR SURFACE MOUNTING

DESCRIPTION:

These Transient Voltage Suppressor devices are a series of Bi-directional Silicon Transient Suppressors used in AC applications where large voltage transients can permanently damage voltage-sensitive components.

These devices are manufactured using two silicon PN, junctions in a back to back configuration. They are characterized by their high surge capability, fast response time, and low impedance, (R_{on}) for clamping surge.

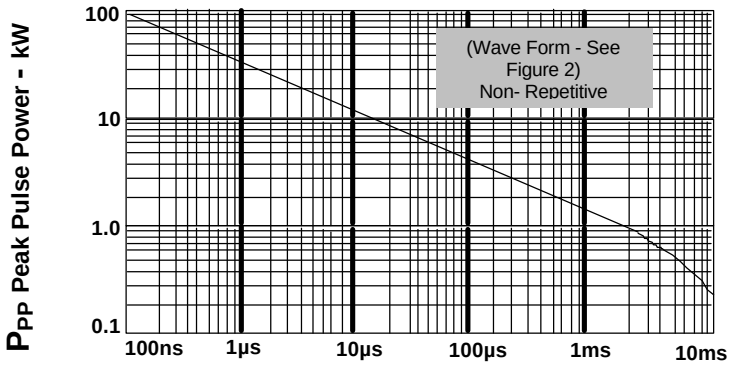
The SMC series, rated for 1500 watts during a one millisecond pulse, can be used to protect sensitive circuits against transients induced by lighting and inductive load switching. The response time of TAZ clamping action is less than ($5x10^{-9}$) sec; therefore, they can protect Integrated Circuits, MOS devices, Hybrids, and other voltage-sensitive semiconductors and components. This series of devices has also been proven very effective as EMP and ESD suppressors.



DO-214AB | DO-215AB

MAXIMUM RATINGS:

1500 watts of peak pulse power dissipation at 25°C
$t_{clamping}$ (0 volts to $V_{(BR)}$ min): less than 5×10^{-9} seconds
Operating and Storage Temperature: -65° to +150°C
Steady state power dissipation: 5.0 watts at T_L = 25°C, at mounting plane.
Repetition rate (duty cycle): .01%



tp Pulse Time
Figure 1
Peak Pulse Power vs Pulse Time

Mechanical Characteristics

CASE: Molded, Surface Mountable.

TERMINALS: Gull-wing or C-Bend (modified J-bend) leads, tin lead plated

POLARITY: No markings on bi-directional devices.

PACKAGING: 16mm tape (See EIA Std. RS-481.)

THERMAL RESISTANCE: 20°C/W (typical) junction to lead (tab) at mounting plane.

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ELECTRICAL CHARACTERISTICS @ 25°c

MICROSEMI PART NUMBER MODIFIED "G" BEND LEAD	MICROSEMI PART NUMBER MODIFIED "J" BEND LEAD	Rated Stand-Off Voltage V_{RM} (See Note 1)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T VOLTS			MAXIMUM CLAMPING VOLTAGE V_C @ I_{PP} (1 mSEC)	MAXIMUM STANDOFF CURRENT I_D @ V_{RM}	PEAK PULSE CURRENT (See Fig. 2) I_{PP}	Maximum Temperature Coefficient $\alpha_{V(BR)}$
		VOLTS	MIN	MAX	mA	VOLTS	µA	A	%/°C
SMCG6036	SMCJ6036	5.5	6.75	8.25	10	11.7	1000	128	.061
SMCG6036A	SMCJ6036A	6.0	7.13	7.88	10	11.3	1000	132	.061
SMCG6037	SMCJ6037	6.5	7.38	9.02	10	12.5	500	120	.065
SMCG6037A	SMCJ6037A	7.0	7.79	8.61	10	12.1	500	124	.065
SMCG6038	SMCJ6038	7.0	8.19	10.00	10	13.8	200	109	.068
SMCG6038A	SMCJ6038A	7.5	8.65	9.55	10	13.4	200	112	.068
SMCG6039	SMCJ6039	8.0	9.0	11.0	1	15.0	50	100	.073
SMCG6039A	SMCJ6039A	8.5	9.5	10.5	1	14.5	50	103	.073
SMCG6040	SMCJ6040	8.5	9.9	12.1	1	16.2	10	93	.075
SMCG6040A	SMCJ6040A	9.0	10.5	11.6	1	15.6	10	96	.075
SMCG6041	SMCJ6041	9.0	10.8	13.2	1	17.3	5	87	.078
SMCG6041A	SMCJ6041A	10.0	11.4	12.6	1	16.7	5	90	.078
SMCG6042	SMCJ6042	10.0	11.7	14.3	1	19.0	5	79	.081
SMCG6042A	SMCJ6042A	11.0	12.4	13.7	1	18.2	5	82	.081
SMCG6043	SMCJ6043	11.0	13.5	16.5	1	22.0	5	68	.084
SMCG6043A	SMCJ6043A	12.0	14.3	15.8	1	21.2	5	71	.084
SMCG6044	SMCJ6044	12.0	14.4	17.5	1	23.5	5	64	.086
SMCG6044A	SMCJ6044A	13.0	15.2	16.8	1	22.5	5	67	.068
SMCG6045	SMCJ6045	14.0	16.2	19.8	1	26.5	5	56.5	.088
SMCG6045A	SMCJ6045A	15.0	17.1	18.9	1	25.2	5	59.5	.088
SMCG6046	SMCJ6046	16.0	18.0	22.0	1	29.1	5	51.5	.090
SMCG6046A	SMCJ6046A	17.0	19.0	21.0	1	27.7	5	54	.090
SMCG6047	SMCJ6047	17.0	19.8	24.2	1	31.9	5	47	.092
SMCG6047A	SMCJ6047A	18.0	20.9	23.1	1	30.6	5	49	.092
SMCG6048	SMCJ6048	19.0	21.6	26.4	1	34.7	5	43	.094
SMCG6048A	SMCJ6048A	20.0	22.8	25.2	1	33.2	5	45	.094
SMCG6049	SMCJ6049	21.0	24.3	29.7	1	39.1	5	38.5	.095
SMCG6049A	SMCJ6049A	22.0	25.7	28.4	1	37.5	5	40	.096
SMCG6050	SMCJ6050	24.0	27.0	33.0	1	43.5	5	34.5	.097
SMCG6050A	SMCJ6050A	25.0	28.5	31.5	1	41.4	5	36	.097
SMCG6051	SMCJ6051	26.0	29.7	36.3	1	47.7	5	31.5	.098
SMCG6051A	SMCJ6051A	28.0	31.4	34.7	1	45.7	5	33	.098
SMCG6052	SMCJ6052	29.0	32.4	39.6	1	52.0	5	29	.099
SMCG6052A	SMCJ6052A	30.0	34.2	37.8	1	49.9	5	30	.099
SMCG6053	SMCJ6053	31.0	35.1	42.9	1	56.4	5	26.5	.100
SMCG6053A	SMCJ6053A	33.0	37.1	41.0	1	53.9	5	28	.100
SMCG6054	SMCJ6054	34.0	38.7	47.3	1	61.9	5	24	.101
SMCG6054A	SMCJ6054A	36.0	40.9	45.2	1	59.3	5	25.3	.101
SMCG6055	SMCJ6055	38.0	42.3	51.7	1	67.8	5	22.2	.101
SMCG6055A	SMCJ6055A	40.0	44.7	49.4	1	64.8	5	23.2	.101
SMCG6056	SMCJ6056	41.0	45.9	56.1	1	73.5	5	20.4	.102
SMCG6056A	SMCJ6056A	43.0	48.5	53.6	1	70.1	5	21.4	.102
SMCG6057	SMCJ6057	45.0	50.4	61.6	1	80.5	5	18.6	.103
SMCG6057A	SMCJ6057A	47.0	53.2	58.8	1	77.0	5	19.5	.103

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		VOLTS	MIN	MAX	mA	VOLTS	µA	A	%/°C
SMCG6058	SMCJ6058	48.0	55.8	68.2	1	89.0	5	16.9	.104
SMCG6058A	SMCJ6058A	53.0	58.9	65.1	1	85.0	5	17.7	.104
SMCG6059	SMCJ6059	55.0	61.2	74.8	1	98.0	5	15.3	.104
SMCG6059A	SMCJ6059A	58.0	64.6	71.4	1	92.0	5	16.3	.104
SMCG6060	SMCJ6060	60.0	67.5	82.5	1	108.0	5	13.9	.105
SMCG6060A	SMCJ6060A	64.0	71.3	78.8	1	103.0	5	14.6	.105
SMCG6061	SMCJ6061	66.0	73.8	90.2	1	118.0	5	12.7	.105
SMCG6061A	SMCJ6061A	70.0	77.9	86.1	1	113.0	5	13.3	.105
SMCG6062	SMCJ6062	73.0	81.9	100.0	1	131.0	5	11.4	.106
SMCG6062A	SMCJ6062A	75.0	86.5	95.5	1	125.0	5	12.0	.106
SMCG6063	SMCJ6063	81.0	90.0	110.0	1	144.0	5	10.4	.106
SMCG6063A	SMCJ6063A	82.0	95.0	105.0	1	137.0	5	11.0	.106
SMCG6064	SMCJ6064	90.0	99.0	121.0	1	158.0	5	9.5	.107
SMCG6064A	SMCJ6064A	94.0	105.0	116.0	1	152.0	5	9.9	.107
SMCG6065	SMCJ6065	95.0	108.0	132.0	1	176.0	5	8.5	.107
SMCG6065A	SMCJ6065A	100.0	114.0	126.0	1	168.0	5	8.9	.107
SMCG6066	SMCJ6066	105.0	117.0	143.0	1	191.0	5	7.8	.107
SMCG6066A	SMCJ6066A	110.0	124.0	137.0	1	182.0	5	8.2	.107
SMCG6067	SMCJ6067	121.0	135.0	165.0	1	223.0	5	6.7	.108
SMCG6067A	SMCJ6067A	128.0	143.0	158.0	1	213.0	5	7.0	.108
SMCG6068	SMCJ6068	137.0	153.0	187.0	1	258.0	5	5.8	.108
SMCG6068A	SMCJ6068A	145.0	162.0	179.0	1	245.0	5	6.1	.108
SMCG6069	SMCJ6069	145.0	162.0	198.0	1	274.0	5	5.5	.108
SMCG6069A	SMCJ6069A	150.0	171.0	189.0	1	261.0	5	5.7	.108
SMCG6070	SMCJ6070	155.0	171.0	210.0	1	292.0	5	5.1	.108
SMCG6070A	SMCJ6070A	160.0	181.0	200.0	1	278.0	5	5.4	.108
SMCG6071	SMCJ6071	165.0	180.0	220.0	1	308.0	5	4.9	.108
SMCG6071A	SMCJ6071A	170.0	190.0	210.0	1	294.0	5	5.1	.108
SMCG6072	SMCJ6072	175.0	198.0	242.0	1	344.0	5	4.3	.108
SMCG6072A	SMCJ6072A	185.0	209.0	231.0	1	328.0	5	4.6	.108

Microsemi Corp.'s SMC Series (1500W) surface mountable packages are designed specifically for transient voltage suppression. The wide leads assure a large surface contact and low resistance path for surge current flow to ground. These high-speed transient voltage suppressors can be used to effectively protect sensitive components such as integrated circuits and MOS devices.

Note 1: A TAZ is normally selected according to the rated "Stand Off Voltage" V_{RM} which should be equal to or greater than the DC or continuous peak operating voltage level.

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TRANSIENT VOLTAGE SUPPRESSORS

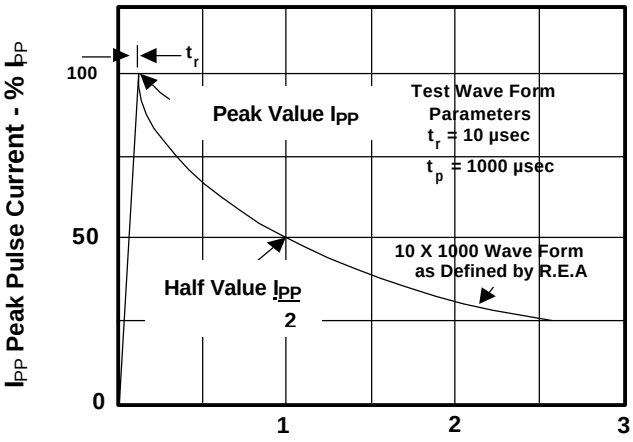


Figure 2
Pulse Waveform

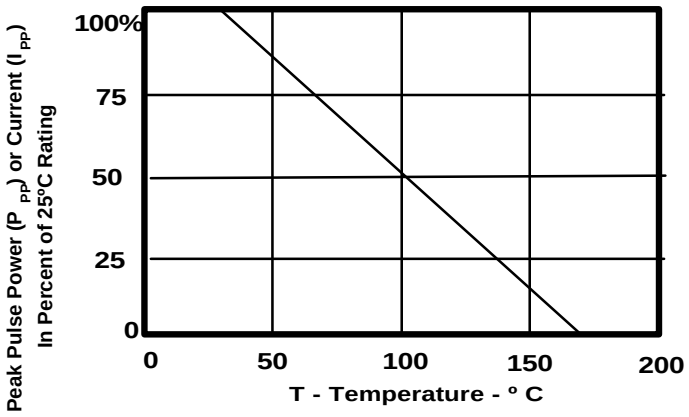


FIGURE 3
Derating Curve

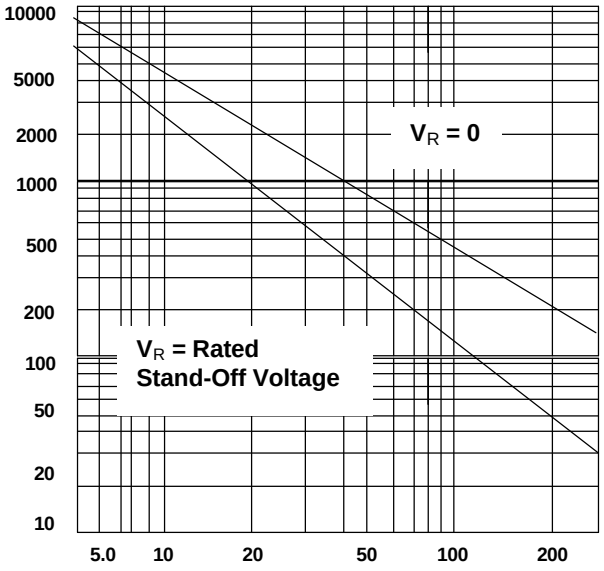
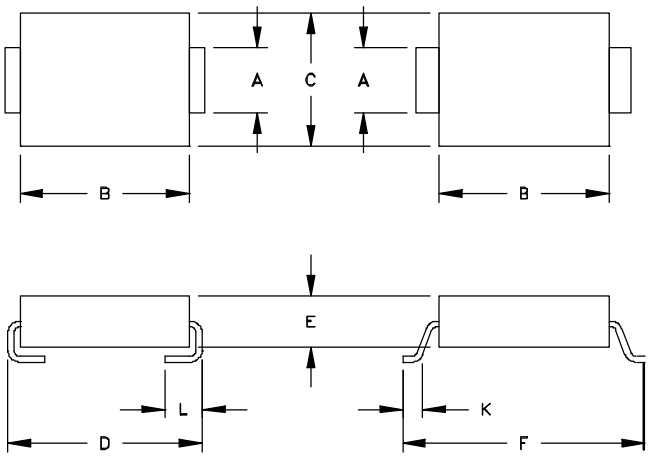


Figure 4
TYPICAL CAPACITANCE
VS BREAKDOWN VOLTAGE



DIMENSIONS IN INCHES								
	A	B	C	D	E	F	K	L
MIN.	.115	.260	.220	.305	.075	.380	.025	.030
MAX.	.121	.280	.245	.320	.095	.400	.040	.060
DIMENSIONS IN MILLIMETERS								
	A	B	C	D	E	F	K	L
MIN.	2.92	6.60	5.59	7.75	1.90	9.65	0.635	0.760
MAX.	3.07	7.11	6.22	8.13	2.41	10.16	1.016	1.520

Typical Standoff Height: 0.004" – 0.008" (0.1mm – 0.2mm)