DIGITRON SEMICONDUCTORS

SMC SERIES

TRANSIENT ABSORPTION ZENER DIODES
5.0 THROUGH 170.0 VOLTS, 1500 WATTS
UNIDIRECTIONAL AND BIDIRECTIONAL CONSTRUCTION

1500 watts of peak power dissipation (10 x 1000µs)
$t_{clamping}$ (0 volts to $V_{(BR)}$ min): less that 1 x 10-12 seconds
Forward surge rating: 200 amps, 1/120 seconds @ 25°C(excluding bidirectional)
Operating and storage temperature range: -65° to 150°C
For bi-directional indicate a C or CA suffix after the part number (i.e. SMCJ5.0C or SMCJ5.0CA)
Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).
Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

ELECTRICAL CHARACTERISTICS @ 25°C

Part number		Reverse stand-off voltage (1)	Breakdown voltage			Maximum clamping voltage	Peak pulse current	Maximum reverse leakage
			$V_{(BR)}$ @ I_T			@ I_{PP}		@ V_{WM}
Gull-wing lead	Modified "J" bend lead	V_{WM}			I_T		I_{PP}	I_D
		VOLTS	MIN	MAX	mA	VOLTS	AMPS	µA
SMCG5.0	SMCJ5.0	5.0	6.40	7.30	10	9.6	156.2	1000
SMCG5.0A	SMCJ5.0A	5.0	6.40	7.00	10	9.2	163.0	1000
SMCG6.0	SMCJ6.0	6.0	6.67	8.15	10	11.4	131.6	1000
SMCG6.0A	SMCJ6.0A	6.0	6.67	7.37	10	10.3	145.6	1000
SMCG6.5	SMCJ6.5	6.5	7.22	8.82	10	12.3	122.0	500
SMCG6.5A	SMCJ6.5A	6.5	7.22	7.98	10	11.2	133.9	500
SMCG7.0	SMCJ7.0	7.0	7.78	9.51	10	13.3	112.8	200
SMCG7.0A	SMCJ7.0A	7.0	7.78	8.60	10	12.0	125.0	200
SMCG7.5	SMCJ7.5	7.5	8.33	10.2	1	14.3	104.9	100
SMCG7.5A	SMCJ7.5A	7.5	8.33	9.21	1	12.9	116.3	100
SMCG8.0	SMCJ8.0	8.0	8.89	10.9	1	15.0	100.0	50
SMCG8.0A	SMCJ8.0A	8.0	8.89	9.83	1	13.6	110.3	50
SMCG8.5	SMCJ8.5	8.5	9.44	11.5	1	15.9	94.3	25
SMCG8.5A	SMCJ8.5A	8.5	9.44	10.4	1	14.4	104.2	25
SMCG9.0	SMCJ9.0	9.0	10.0	12.2	1	16.9	88.7	10
SMCG9.0A	SMCJ9.0A	9.0	10.0	11.1	1	15.4	97.4	10
SMCG10	SMCJ10	10	11.1	13.6	1	18.8	79.8	5
SMCG10A	SMCJ10A	10	11.1	12.3	1	17.0	88.2	5
SMCG11	SMCJ11	11	12.2	14.9	1	20.1	74.6	5
SMCG11A	SMCJ11A	11	12.2	13.5	1	18.2	82.4	5
SMCG12	SMCJ12	12	13.3	16.3	1	22.0	68.2	5
SMCG12A	SMCJ12A	12	13.3	14.7	1	19.9	75.3	5
SMCG13	SMCJ13	13	14.4	17.6	1	23.8	63.0	5
SMCG13A	SMCJ13A	13	14.4	15.9	1	21.5	69.7	5
SMCG14	SMCJ14	14	15.6	19.1	1	25.8	58.1	5
SMCG14A	SMCJ14A	14	15.6	17.2	1	23.2	64.7	5
SMCG15	SMCJ15	15	16.7	20.4	1	26.9	55.8	5
SMCG15A	SMCJ15A	15	16.7	18.5	1	24.4	61.5	5
SMCG16	SMCJ16	16	17.8	21.8	1	28.8	52.1	5
SMCG16A	SMCJ16A	16	17.8	19.7	1	26.0	57.7	5
SMCG17	SMCJ17	17	18.9	23.1	1	30.5	49.2	5
SMCG17A	SMCJ17A	17	18.9	20.9	1	27.6	53.3	5
SMCG18	SMCJ18	18	20.0	24.4	1	32.2	46.6	5

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ELECTRICAL CHARACTERISTICS @ 25°C

Part number		Reverse stand-off voltage (1)	Breakdown voltage			Maximum clamping voltage	Peak pulse current	Maximum reverse leakage
			$V_{(BR)}$ @ I_T			@ I_{PP}		@ V_{WM}
Gull-wing lead	Modified "J" bend lead	V_{WM}			I_T		I_{PP}	I_D
		VOLTS	MIN	MAX	mA	VOLTS	AMPS	µA
SMCG18A	SMCJ18A	18	20.0	22.1	1	29.2	51.4	5
SMCG20	SMCJ20	20	22.2	27.1	1	35.8	41.9	5
SMCG20A	SMCJ20A	20	22.2	24.5	1	32.4	46.3	5
SMCG22	SMCJ22	22	24.4	29.8	1	39.4	38.1	5
SMCG22A	SMCJ22A	22	24.4	26.9	1	35.5	42.2	5
SMCG24	SMCJ24	24	26.7	32.6	1	43.0	34.9	5
SMCG24A	SMCJ24A	24	26.7	29.5	1	38.9	38.6	5
SMCG26	SMCJ26	26	28.9	35.3	1	46.6	32.2	5
SMCG26A	SMCJ26A	26	28.9	31.9	1	42.1	35.6	5
SMCG28	SMCJ28	28	31.1	38.0	1	50.0	30.0	5
SMCG28A	SMCJ28A	28	31.1	34.4	1	45.4	33.0	5
SMCG30	SMCJ30	30	33.3	40.7	1	53.5	28.0	5
SMCG30A	SMCJ30A	30	33.3	36.8	1	48.4	31.0	5
SMCG33	SMCJ33	33	36.7	44.9	1	59.0	25.2	5
SMCG33A	SMCJ33A	33	36.7	40.6	1	53.3	28.1	5
SMCG36	SMCJ36	36	40.0	48.9	1	64.3	23.3	5
SMCG36A	SMCJ36A	36	40.0	44.2	1	58.1	25.8	5
SMCG40	SMCJ40	40	44.4	54.3	1	71.4	21.0	5
SMCG40A	SMCJ40A	40	44.4	49.1	1	64.5	23.2	5
SMCG43	SMCJ43	43	47.8	58.4	1	76.7	19.6	5
SMCG43A	SMCJ43A	43	47.8	52.8	1	69.4	21.6	5
SMCG45	SMCJ45	45	50.0	61.1	1	80.3	18.7	5
SMCG45A	SMCJ45A	45	50.0	55.3	1	72.7	20.6	5
SMCG48	SMCJ48	48	53.3	65.1	1	85.5	17.5	5
SMCG48A	SMCJ48A	48	53.3	58.9	1	77.4	19.4	5
SMCG51	SMCJ51	51	56.7	69.3	1	91.1	18.5	5
SMCG51A	SMCJ51A	51	56.7	62.7	1	82.4	18.2	5
SMCG54	SMCJ54	54	60.0	73.3	1	96.3	15.6	5
SMCG54A	SMCJ54A	54	60.0	66.3	1	87.1	17.2	5
SMCG58	SMCJ58	58	64.4	78.7	1	103.0	14.6	5
SMCG58A	SMCJ58A	58	64.4	71.2	1	93.6	16.0	5
SMCG60	SMCJ60	60	66.7	81.5	1	107.0	14.0	5
SMCG60A	SMCJ60A	60	66.7	73.7	1	96.8	15.5	5
SMCG64	SMCJ64	64	71.1	86.9	1	114.0	13.2	5
SMCG64A	SMCJ64A	64	71.1	78.6	1	103.0	14.6	5
SMCG70	SMCJ70	70	77.8	95.1	1	125.0	12.0	5
SMCG70A	SMCJ70A	70	77.8	86.0	1	113.0	13.3	5
SMCG75	SMCJ75	75	83.3	102.0	1	134.0	11.2	5

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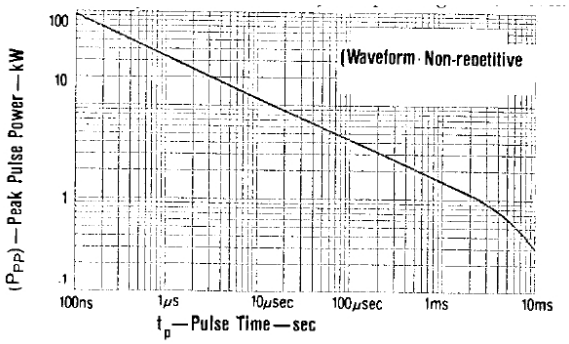
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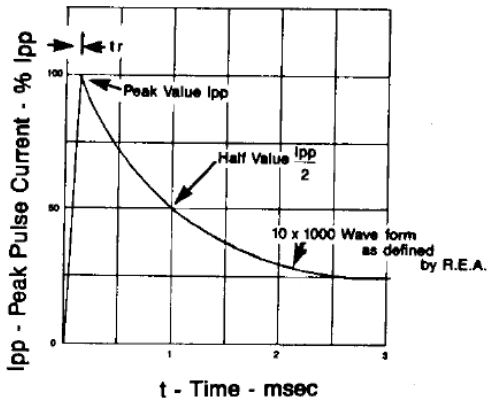
ELECTRICAL CHARACTERISTICS @ 25°C

Part number		Reverse stand-off voltage (1)	Breakdown voltage			Maximum clamping voltage	Peak pulse current	Maximum reverse leakage
			$V_{(BR)}$ @ I_T			@ I_{PP}		@ V_{WM}
Gull-wing lead	Modified "J" bend lead	V_{WM}			I_T		I_{PP}	I_D
		VOLTS	MIN	MAX	mA	VOLTS	AMPS	µA
SMCG75A	SMCJ75A	75	83.3	92.1	1	121.0	12.4	5
SMCG78	SMCJ78	78	86.7	106.0	1	139.0	10.8	5
SMCG78A	SMCJ78A	78	86.7	95.8	1	126.0	11.4	5
SMCG85	SMCJ85	85	94.4	115.0	1	151.0	9.9	5
SMCG85A	SMCJ85A	85	94.4	104.0	1	137.0	10.4	5
SMCG90	SMCJ90	90	100	122	1	160.0	9.4	5
SMCG90A	SMCJ90A	90	100	111	1	146.0	10.3	5
SMCG100	SMCJ100	100	111	136	1	179.0	8.4	5
SMCG100A	SMCJ100A	100	111	123	1	162.0	9.3	5
SMCG110	SMCJ110	110	122	149	1	196.0	7.7	5
SMCG110A	SMCJ110A	110	122	135	1	177.0	8.4	5
SMCG120	SMCJ120	120	133	163	1	214.0	7.0	5
SMCG120A	SMCJ120A	120	133	147	1	193.0	7.8	5
SMCG130	SMCJ130	130	144	176	1	231.0	6.5	5
SMCG130A	SMCJ130A	130	144	159	1	209.0	7.2	5
SMCG150	SMCJ150	150	167	204	1	268.0	5.6	5
SMCG150A	SMCJ150A	150	167	185	1	243.0	6.2	5
SMCG160	SMCJ160	160	178	218	1	287.0	5.2	5
SMCG160A	SMCJ160A	160	178	197	1	259.0	5.8	5
SMCG170	SMCJ170	170	189	231	1	304.0	4.9	5
SMCG170A	SMCJ170A	170	189	209	1	275.0	5.5	5

Note 1: Transient absorption zener diodes are normally selected according to the reverse stand off voltage which should be equal to or greater than the DC or continuous peak operating voltage level.



PEAK PULSE POWER VS PULSE TIME



PULSE WAVEFORM
(Test wave form parameters t_r = 10µs, t_p = 1000µs)

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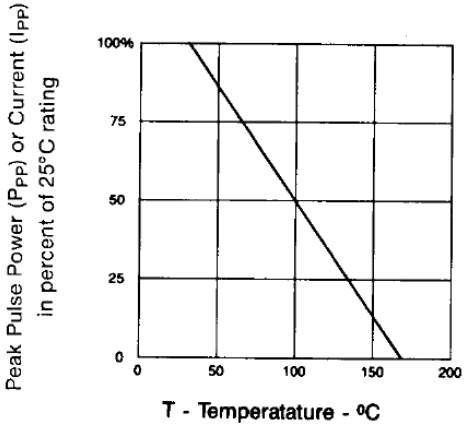
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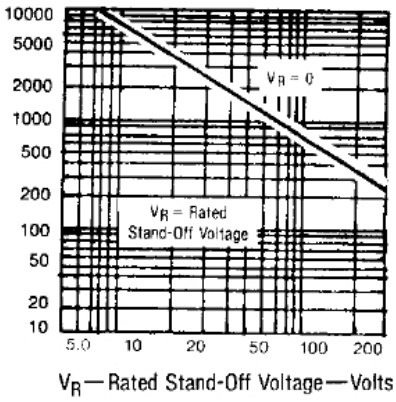
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DERATING CURVE



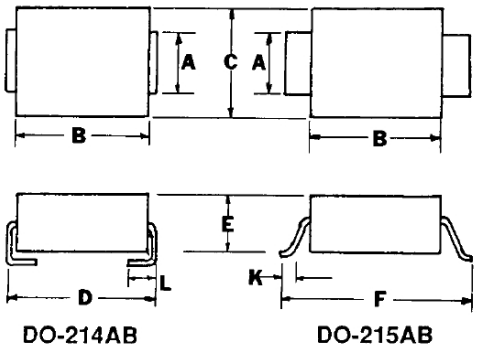
TYPICAL CAPACITANCE VS STAND-OFF VOLTAGE



DO-214AB



DO-215AB



DO-214AB DO-215AB

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.108	0.128	2.743	3.250
B	0.260	0.280	6.600	7.110
C	0.220	0.245	5.590	6.220
D	0.305	0.320	7.750	8.130
E	0.079	0.103	2.007	2.616
F	0.380	0.400	9.650	10.160
K	0.025	0.040	0.635	1.016
L	0.030	0.060	0.760	1.520
Typical stand-off height: 0.0041" – 0.008" (0.1mm – 0.2mm)				

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