

# DIGITRON SEMICONDUCTORS

SMBJ5.0 – SMBJ170CA  
SMBG5.0 – SMBG170CA

SURFACE MOUNT 600W TVS

## MAXIMUM RATINGS

Ratings	Value
Peak pulse power dissipation @ 25°C	600w @ 10/1000 µs
t <sub>clamping</sub> (0 volts to V <sub>(BR)</sub> min):	< 100 ps theoretical for unidirectional and < 5 ns for bidirectional
Impulse repetition rate (dutyfactor)	0.01%
Operating and storage temperature:	-65° to +150°C
Thermal resistance:	25°C/W junction to lead, or 90°C/W junction to ambient when mounted on FR4 PC board with recommended footprint
Steady state power dissipation	5 watts at T <sub>L</sub> = 25°C, or 1.38 watts at T <sub>A</sub> = 25°C when mounted on FR4 PC board with recommended footprint
Forward surge @ 25°C:	50 Amps peak impulse of 8.3 ms half sine wave (unidirectional only)
Solder temperatures:	260°C for 10 s (maximum)

## ELECTRICAL CHARACTERISTICS

Part number	Part number	Reverse stand-off voltage	Breakdown voltage			Maximum clamping voltage @ I <sub>pp</sub>	Peak pulse current	Maximum standby current @ V <sub>WM</sub>
			V <sub>WM</sub>	V <sub>(BR)</sub>				
		Volts	Volts		mA	Volts	Amps	µA
			Min	Max				
SMBG5.0	SMBJ5.0	5.0	6.40	7.30	10	9.6	62.5	800
SMBG5.0A	SMBJ5.0A	5.0	6.40	7.00	10	9.2	65.2	800
SMBG6.0	SMBJ6.0	6.0	6.67	8.15	10	11.4	52.6	800
SMBG6.0A	SMBJ6.0A	6.0	6.67	7.37	10	10.3	58.3	800
SMBG6.5	SMBJ6.5	6.5	7.22	8.82	10	12.3	48.7	500
SMBG6.5A	SMBJ6.5A	6.5	7.22	7.98	10	11.2	53.6	500
SMBG7.0	SMBJ7.0	7.0	7.78	9.51	10	13.3	45.1	200
SMBG7.0A	SMBJ7.0A	7.0	7.78	8.60	10	12.0	50.0	200
SMBG7.5	SMBJ7.5	7.5	8.33	10.2	1	14.3	42.0	100
SMBG7.5A	SMBJ7.5A	7.5	8.33	9.21	1	12.9	46.5	100
SMBG8.0	SMBJ8.0	8.0	8.89	10.9	1	15.0	40.0	50
SMBG8.0A	SMBJ8.0A	8.0	8.89	9.83	1	13.6	44.1	50
SMBG8.5	SMBJ8.5	8.5	9.44	11.5	1	15.9	37.7	10
SMBG8.5A	SMBJ8.5A	8.5	9.44	10.4	1	14.4	41.7	10
SMBG9.0	SMBJ9.0	9.0	10.0	12.2	1	16.9	35.5	5
SMBG9.0A	SMBJ9.0A	9.0	10.0	11.1	1	15.4	39.0	5
SMBG10	SMBJ10	10	11.1	13.6	1	18.8	31.9	5
SMBG10A	SMBJ10A	10	11.1	12.3	1	17.0	35.3	5
SMBG11	SMBJ11	11	12.2	14.9	1	20.1	29.9	5
SMBG11A	SMBJ11A	11	12.2	13.5	1	18.2	33.0	5
SMBG12	SMBJ12	12	13.3	16.3	1	22.0	27.3	5
SMBG12A	SMBJ12A	12	13.3	14.7	1	19.9	30.2	5
SMBG13	SMBJ13	13	14.4	17.6	1	23.8	25.2	5
SMBG13A	SMBJ13A	13	14.4	15.9	1	21.5	27.9	5
SMBG14	SMBJ14	14	15.6	19.1	1	25.8	23.3	5

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Part number	Part number	Rated stand-off voltage	Breakdown voltage			Maximum clamping voltage @ $I_{pp}$	Peak pulse current	Maximum standby current @ $V_{WM}$	
		$V_{WM}$	$V_{(BR)}$		@ $I_{(BR)}$		$I_{pp}$	$I_D$	
		Volts	Volts		mA		Volts	Amps	$\mu A$
			Min	Max					
SMBG14A	SMBJ14A	14	15.6	17.2	1	23.2	25.8	5	
SMBG15	SMBJ15	15	16.7	20.4	1	26.9	22.3	5	
SMBG15A	SMBJ15A	15	16.7	18.5	1	24.4	24.0	5	
SMBG16	SMBJ16	16	17.8	21.8	1	28.8	20.8	5	
SMBG16A	SMBJ16A	16	17.8	19.7	1	26.0	23.1	5	
SMBG17	SMBJ17	17	18.9	23.1	1	30.5	19.7	5	
SMBG17A	SMBJ17A	17	18.9	20.9	1	27.6	21.7	5	
SMBG18	SMBJ18	18	20.0	24.4	1	32.2	18.6	5	
SMBG18A	SMBJ18A	18	20.0	22.1	1	29.2	20.5	5	
SMBG20	SMBJ20	20	22.2	27.1	1	35.8	16.7	5	
SMBG20A	SMBJ20A	20	22.2	24.5	1	32.4	18.5	5	
SMBG22	SMBJ22	22	24.4	29.8	1	39.4	15.2	5	
SMBG22A	SMBJ22A	22	24.4	26.9	1	35.5	16.9	5	
SMBG24	SMBJ24	24	26.7	32.6	1	43.0	14.0	5	
SMBG24A	SMBJ24A	24	26.7	29.5	1	38.9	15.4	5	
SMBG26	SMBJ26	26	28.9	35.3	1	46.6	12.4	5	
SMBG26A	SMBJ26A	26	28.9	31.9	1	42.1	14.2	5	
SMBG28	SMBJ28	28	31.1	38.0	1	50.0	12.0	5	
SMBG28A	SMBJ28A	28	31.1	34.4	1	45.4	13.2	5	
SMBG30	SMBJ30	30	33.3	40.7	1	53.5	11.2	5	
SMBG30A	SMBJ30A	30	33.3	36.8	1	48.4	12.4	5	
SMBG33	SMBJ33	33	36.7	44.9	1	59.0	10.2	5	
SMBG33A	SMBJ33A	33	36.7	40.6	1	53.3	11.3	5	
SMBG36	SMBJ36	36	40.0	48.9	1	64.3	9.3	5	
SMBG36A	SMBJ36A	36	40.0	44.2	1	58.1	10.3	5	
SMBG40	SMBJ40	40	44.4	54.3	1	71.4	8.4	5	
SMBG40A	SMBJ40A	40	44.4	49.1	1	64.5	9.3	5	
SMBG43	SMBJ43	43	47.8	58.4	1	76.7	7.8	5	
SMBG43A	SMBJ43A	43	47.8	52.8	1	69.4	8.6	5	
SMBG45	SMBJ45	45	50.0	61.1	1	80.3	7.5	5	
SMBG45A	SMBJ45A	45	50.0	55.3	1	72.7	8.3	5	
SMBG48	SMBJ48	48	53.3	65.1	1	85.5	7.0	5	
SMBG48A	SMBJ48A	48	53.3	58.9	1	77.4	7.7	5	
SMBG51	SMBJ51	51	56.7	69.3	1	91.1	6.6	5	
SMBG51A	SMBJ51A	51	56.7	62.7	1	82.4	7.3	5	
SMBG54	SMBJ54	54	60.0	73.3	1	96.3	6.2	5	
SMBG54A	SMBJ54A	54	60.0	66.3	1	87.1	6.9	5	

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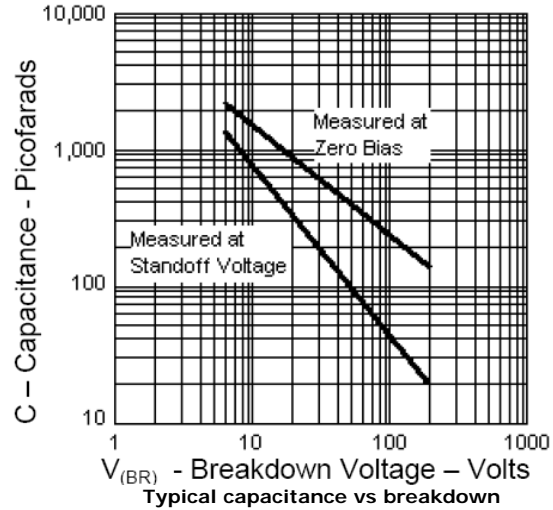
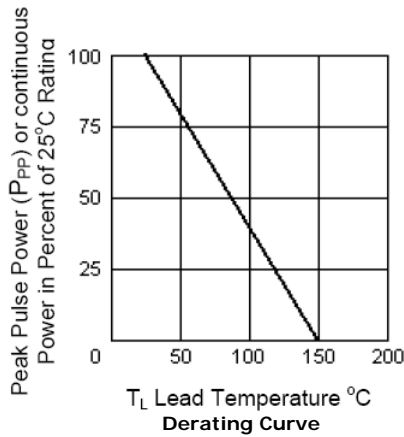
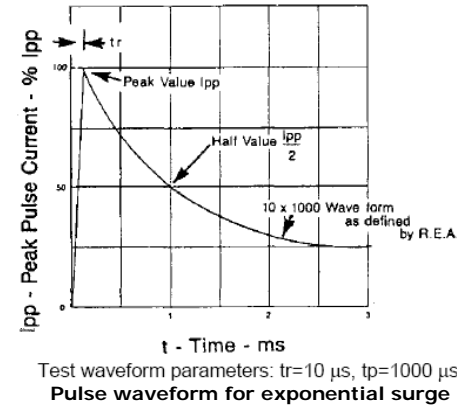
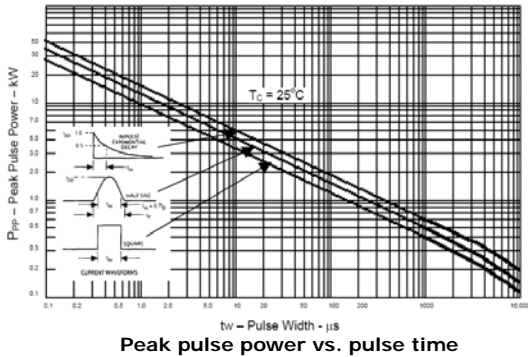
Part number	Part number	Rated stand-off voltage	Breakdown voltage			Maximum clamping voltage @ $I_{pp}$	Peak pulse current	Maximum standby current @ $V_{WM}$	
		$V_{WM}$	$V_{(BR)}$		@ $I_{(BR)}$		$I_{pp}$	$I_D$	
		Volts	Volts		mA		Volts	Amps	$\mu A$
			Min	Max					
SMBG58	SMBJ58	58	64.4	78.7	1	103.0	5.8	5	
SMBG58A	SMBJ58A	58	64.4	71.2	1	93.6	6.4	5	
SMBG60	SMBJ60	60	66.7	81.5	1	107.0	5.6	5	
SMBG60A	SMBJ60A	60	66.7	73.7	1	96.8	6.2	5	
SMBG64	SMBJ64	64	71.1	86.9	1	114.0	5.3	5	
SMBG64A	SMBJ64A	64	71.1	78.6	1	103.0	5.8	5	
SMBG70	SMBJ70	70	77.8	95.1	1	125	4.8	5	
SMBG70A	SMBJ70A	70	77.8	86.0	1	113	5.3	5	
SMBG75	SMBJ75	75	83.3	102.0	1	134	4.5	5	
SMBG75A	SMBJ75A	75	83.3	92.1	1	121	4.9	5	
SMBG78	SMBJ78	78	86.7	106.0	1	139	4.3	5	
SMBG78A	SMBJ78A	78	86.7	95.8	1	126	4.7	5	
SMBG85	SMBJ85	85	94.4	115.0	1	151	3.9	5	
SMBJ85A	SMBJ85A	85	94.4	104.0	1	137	4.4	5	
SMBG90	SMBJ90	90	100	122	1	160	3.8	5	
SMBG90A	SMBJ90A	90	100	111	1	146	4.1	5	
SMBG100	SMBJ100	100	111	136	1	179	3.4	5	
SMBG100A	SMBJ100A	100	111	123	1	162	3.7	5	
SMBG110	SMBJ110	110	122	149	1	196	3.0	5	
SMBG110A	SMBJ110A	110	122	135	1	177	3.4	5	
SMBG120	SMBJ120	120	133	163	1	214	2.8	5	
SMBG120A	SMBJ120A	120	133	147	1	193	3.1	5	
SMBG130	SMBJ130	130	144	176	1	231	2.6	5	
SMBG130A	SMBJ130A	130	144	159	1	209	2.9	5	
SMBG150	SMBJ150	150	167	204	1	268	2.2	5	
SMBG150A	SMBJ150A	150	167	185	1	243	2.5	5	
SMBG160	SMBJ160	160	178	218	1	287	2.1	5	
SMBG160A	SMBJ160A	160	178	197	1	259	2.3	5	
SMBG170	SMBJ170	170	189	231	1	304	2.0	5	
SMBJ170A	SMBJ170A	170	189	209	1	275	2.2	5	

For bidirectional device types indicate a C or CA suffix after the part number.

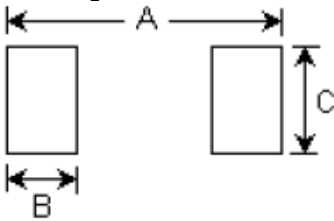
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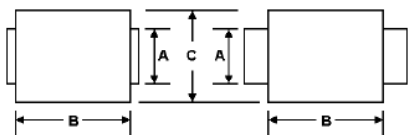
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## Pad Layout



	Inches	mm
A	0.260	6.600
B	0.085	2.160
C	0.110	2.790



### DIMENSIONS IN INCHES

	A	B	C	D	E	F	K	L
MIN	0.077	0.160	0.130	0.205	0.075	0.235	0.015	0.030
MAX	0.083	0.180	0.155	0.220	0.095	0.255	0.030	0.060

### DIMENSIONS IN MILLIMETERS

	A	B	C	D	E	F	K	L
MIN	1.960	4.060	3.300	5.210	1.900	5.970	0.381	0.760
MAX	2.100	4.570	3.940	5.590	2.410	6.480	0.762	1.520

SMBJ

SMBG

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.