



# THE DATASHEET OF SMBJP6KE51A-TP



	<b>E480232</b>
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### Features

- For Surface Mount Applications in Order to Optimize Board Space
- Low Inductance
- Excellent Clamping Capability
- Fast Response Time: Typical Less Than 1ps From 0V to  $V_{BR}$  min
- Available in Both Unidirectional and Bidirectional Construction and Suffix "C" Designates Bidirectional Type
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note 2) ("P" Suffix Designates RoHS Compliant. See Ordering Information)

### Mechanical Data

- Polarity: Color Band Denotes Positive end( cathode) Except Bi-directional Types
- Maximum Soldering Temperature: 260°C for 10 Seconds
- Terminals: Solderable Per MIL-STD-750, Method 2026

### Maximum Ratings

- Operating Junction Temperature Range: -65°C to +150°C
- Storage Temperature Range: -65°C to +150°C
- Thermal Resistance : 20°C/W Junction to Lead
- Thermal Resistance : 25°C/W Junction to Case

### Electrical Characteristics @ 25°C Unless Otherwise Specified

Peak Pulse Power Surge Current on 10/1000µs Waveform	$I_{PP}$	See the Table	Note 3
Peak Pulse Power Dissipation	$P_{PP}$	600W	Note 3
Maximum Instantaneous Forward Voltage @ at 1A for Unidirectional Only	$V_F$	1.5V	

#### NOTES:

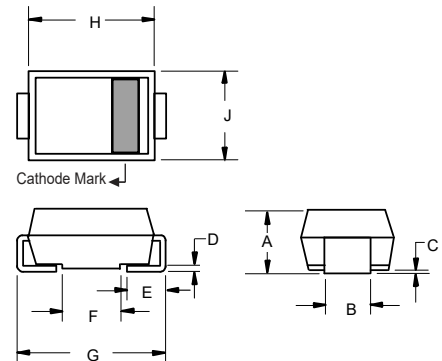
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
3. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.4

#### Pin Configuration:



## 600 Watt TVS 5.0 to 440 Volts

### SMB (DO-214AA) (LEAD FRAME)



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.079	0.103	2.00	2.62	
B	0.075	0.087	1.91	2.21	
C	0.002	0.008	0.05	0.20	
D	0.006	0.012	0.15	0.31	
E	0.030	0.060	0.76	1.52	
F	0.065	0.091	1.65	2.32	
G	0.200	0.220	5.08	5.59	
H	0.160	0.191	4.06	4.85	
J	0.130	0.155	3.30	3.94	

#### Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE $V_{WM}$	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ (VOLTS)			MAXIMUM CLAMPING VOLTAGE @ $I_{PP}$	PEAK PULSE CURRENT $I_{PP}$	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_D$	MARKING CODE
	VOLTS	MIN	MAX	$I_T$ (mA)	VOLTS	(AMPS)	( $\mu$ A)	
SMBJP6KE6.8A	5.80	6.45	7.14	10	10.5	58.1	1000	6V8A
SMBJP6KE7.5A	6.40	7.13	7.88	10	11.3	54.0	500	7V5A
SMBJP6KE8.2A	7.02	7.79	8.61	10	12.1	50.4	200	8V2A
SMBJP6KE9.1A	7.78	8.65	9.55	1	13.4	45.5	50	9V1A
SMBJP6KE10A	8.55	9.50	10.50	1	14.5	42.1	10	10A
SMBJP6KE11A	9.40	10.50	11.60	1	15.6	39.1	5	11A
SMBJP6KE12A	10.20	11.40	12.60	1	16.7	36.5	5	12A
SMBJP6KE13A	11.10	12.40	13.70	1	18.2	33.5	1	13A
SMBJP6KE15A	12.80	14.30	15.80	1	21.2	28.8	1	15A
SMBJP6KE16A	13.60	15.20	16.80	1	22.5	27.1	1	16A
SMBJP6KE18A	15.30	17.10	18.90	1	25.5	24.2	1	18A
SMBJP6KE20A	17.10	19.00	21.00	1	27.7	22.0	1	20A
SMBJP6KE22A	18.80	20.90	23.10	1	30.6	19.9	1	22A
SMBJP6KE24A	20.50	22.80	25.20	1	33.2	18.4	1	24A
SMBJP6KE27A	23.10	25.70	28.40	1	37.5	16.3	1	27A
SMBJP6KE30A	25.60	28.50	31.50	1	41.4	14.7	1	30A
SMBJP6KE33A	28.20	31.40	34.70	1	45.7	13.3	1	33A
SMBJP6KE36A	30.80	34.20	37.80	1	49.9	12.2	1	36A
SMBJP6KE39A	33.30	37.10	41.00	1	53.9	11.3	1	39A
SMBJP6KE43A	36.80	40.90	45.20	1	59.3	10.3	1	43A
SMBJP6KE47A	40.20	44.70	49.40	1	64.8	9.4	1	47A
SMBJP6KE51A	43.60	48.50	53.60	1	70.1	8.7	1	51A
SMBJP6KE56A	47.80	53.20	58.80	1	77.0	7.9	1	56A
SMBJP6KE62A	53.00	58.90	65.10	1	85.0	7.2	1	62A
SMBJP6KE68A	58.10	64.60	71.40	1	92.0	6.6	1	68A
SMBJP6KE75A	64.10	71.30	78.80	1	103.0	5.9	1	75A
SMBJP6KE82A	70.10	77.90	86.10	1	113.0	5.4	1	82A
SMBJP6KE91A	77.80	86.50	95.50	1	125.0	4.9	1	91A
SMBJP6KE100A	85.50	95.00	105.00	1	137.0	4.5	1	100A
SMBJP6KE110A	94.00	105.00	116.00	1	152.0	4.0	1	110A
SMBJP6KE120A	102.00	114.00	126.00	1	165.0	3.7	1	120A
SMBJP6KE130A	111.00	124.00	137.00	1	179.0	3.4	1	130A
SMBJP6KE150A	128.00	143.00	158.00	1	207.0	2.9	1	150A
SMBJP6KE160A	136.00	152.00	168.00	1	219.0	2.8	1	160A
SMBJP6KE170A	145.00	162.00	179.00	1	234.0	2.6	1	170A
SMBJP6KE180A	154.00	171.00	189.00	1	246.0	2.5	1	180A
SMBJP6KE200A	171.00	190.00	210.00	1	274.0	2.2	1	200A
SMBJP6KE220A	185.00	209.00	231.00	1	328.0	1.9	1	220A
SMBJP6KE250A	214.00	237.00	263.00	1	344.0	1.9	1	250A
SMBJP6KE300A	256.00	285.00	315.00	1	414.0	1.5	1	300A
SMBJP6KE350A	300.00	332.00	368.00	1	482.0	1.3	1	350A
SMBJP6KE400A	342.00	380.00	420.00	1	548.0	1.1	1	400A
SMBJP6KE440A	376.00	418.00	462.00	1	602.0	1.0	1	440A
SMBJP6KE480A	408.00	456.00	504.00	1	658.0	0.9	1	480A
SMBJP6KE510A	434.00	485.00	535.00	1	698.0	0.9	1	510A
SMBJP6KE530A	477.00	503.50	556.50	1	725.0	0.8	1	530A
SMBJP6KE540A	459.00	513.00	567.00	1	740.0	0.8	1	540A
SMBJP6KE550A	495.00	522.50	577.50	1	760.0	0.8	1	550A

For bi-directional type having  $V_{WM}$  of 10 volts and less, the  $I_R$  limit is double.  
The available parts are "A" type only, the parts without A ( $V_{BR}$  is  $\pm 10\%$ ) is not available.

Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE $V_{WM}$	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ (VOLTS)			MAXIMUM CLAMPING VOLTAGE @ $I_{PP}$	PEAK PULSE CURRENT $I_{PP}$	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_D$	MARKING CODE
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SMBJP6KE6.8CA	5.80	6.45	7.14	10	10.5	58.1	1000	6V8C
SMBJP6KE7.5CA	6.40	7.13	7.88	10	11.3	54.0	500	7V5C
SMBJP6KE8.2CA	7.02	7.79	8.61	10	12.1	50.4	200	8V2C
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SMBJP6KE10CA	8.55	9.50	10.50	1	14.5	42.1	10	10C
SMBJP6KE11CA	9.40	10.50	11.60	1	15.6	39.1	5	11C
SMBJP6KE12CA	10.20	11.40	12.60	1	16.7	36.5	5	12C
SMBJP6KE13CA	11.10	12.40	13.70	1	18.2	33.5	5	13C
SMBJP6KE15CA	12.80	14.30	15.80	1	21.2	28.8	5	15C
SMBJP6KE16CA	13.60	15.20	16.80	1	22.5	27.1	5	16C
SMBJP6KE18CA	15.30	17.10	18.90	1	25.5	24.2	5	18C
SMBJP6KE20CA	17.10	19.00	21.00	1	27.7	22.0	5	20C
SMBJP6KE22CA	18.80	20.90	23.10	1	30.6	19.9	5	22C
SMBJP6KE24CA	20.50	22.80	25.20	1	33.2	18.4	5	24C
SMBJP6KE27CA	23.10	25.70	28.40	1	37.5	16.3	5	27C
SMBJP6KE30CA	25.60	28.50	31.50	1	41.4	14.7	5	30C
SMBJP6KE33CA	28.20	31.40	34.70	1	45.7	13.3	5	33C
SMBJP6KE36CA	30.80	34.20	37.80	1	49.9	12.2	5	36C
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SMBJP6KE75CA	64.10	71.30	78.80	1	103.0	5.9	5	75C
SMBJP6KE82CA	70.10	77.90	86.10	1	113.0	5.4	5	82C
SMBJP6KE91CA	77.80	86.50	95.50	1	125.0	4.9	5	91C
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SMBJP6KE150CA	128.00	143.00	158.00	1	207.0	2.9	5	150C
SMBJP6KE160CA	136.00	152.00	168.00	1	219.0	2.8	5	160C
SMBJP6KE170CA	145.00	162.00	179.00	1	234.0	2.6	5	170C
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**Curve Characteristics**

Fig. 1 - Peak Pulse Power Rating Curve

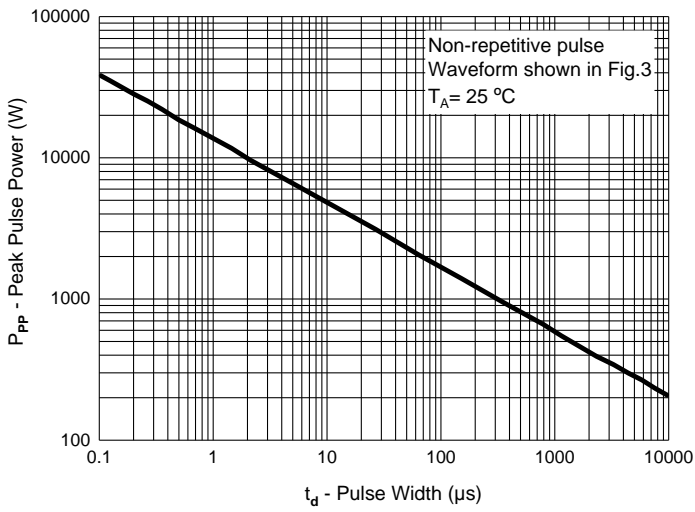


Fig. 2 - Typical Junction Capacitance

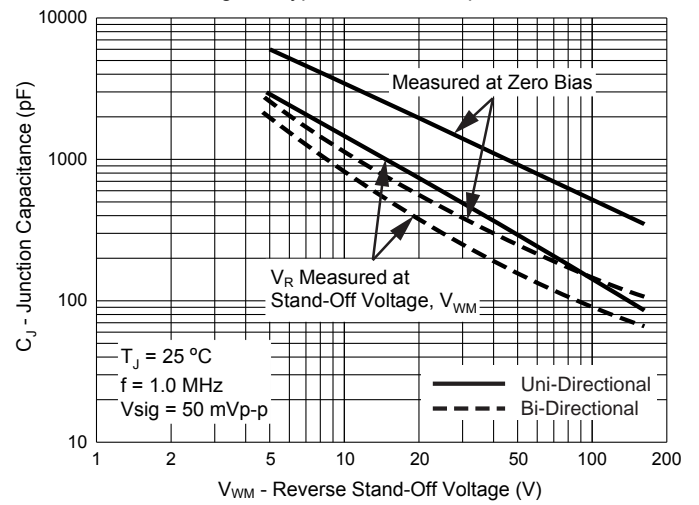


Fig. 3 - Pulse Waveform

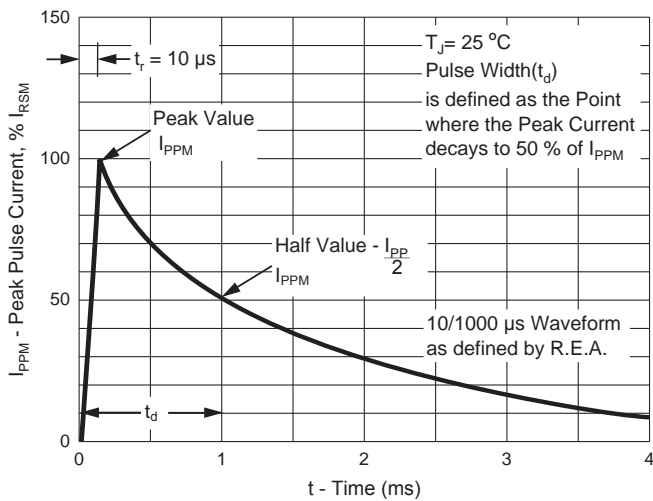
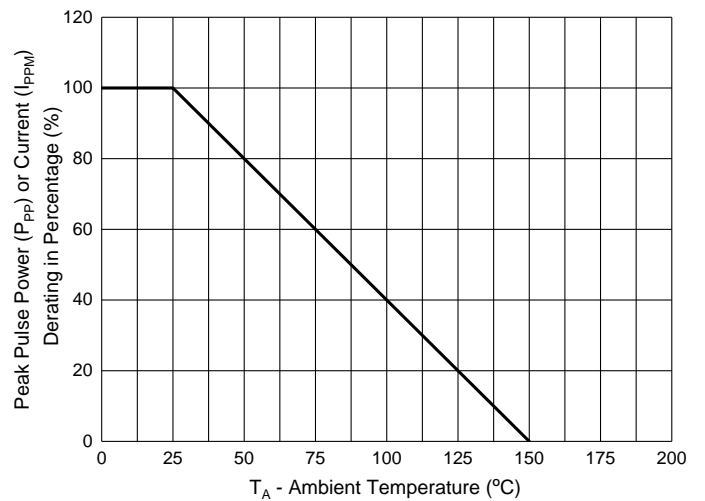


Fig. 4 - Pulse Derating Curve



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel

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