



# THE DATASHEET OF SMBJP6KE91A-TP



**SMBJP6KE6.8(C)A  
 THRU  
 SMBJP6KE550(C)A**

**Features**

- Halogen free available upon request by adding suffix "-HF"
- For surface mount applications in order to optimize board space
- Available in both unidirectional and bidirectional construction and suffix "C" designates bidirectional type
- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Fast response time: typical less than 1.0ps from 0 volts to  $V_{BR}$  minimum
- Low inductance
- Excellent clamping capability
- UL Recognized File # E331408

**Mechanical Data**

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Terminals: solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes positive end (cathode) except Bidirectional
- Maximum soldering temperature: 260°C for 10 seconds

**Maximum Ratings @ 25°C Unless Otherwise Specified**

Peak Pulse Current on 10/1000us waveform	$I_{PP}$	See Table 1	Note: 2
Peak Pulse Power Dissipation	$P_{PP}$	600W	Note: 2,
Operation And Storage Temperature Range	$T_J, T_{STG}$	-55°C to +175°C	
Thermal Resistance	$R_{thJC}$ $R_{thJL}$	25°C/W 20°C/W	

- NOTES: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.  
 2. Non-repetitive current pulse, per Fig.3 and derated above  $T_A=25^\circ C$  per Fig.2.

**Transient  
 Voltage Suppressor  
 6.8 to 550 Volts  
 600 Watt**

**DO-214AA  
 (SMBJ) (LEAD FRAME)**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
A	.160	.185	4.06	4.70	
B	.130	.155	3.30	3.94	
C	.006	.012	0.15	0.31	
D	.030	.060	0.76	1.52	
E	.200	.220	5.08	5.59	
F	.079	.096	2.00	2.44	
G	.075	.087	1.91	2.21	
H	.002	.008	0.05	0.203	

**SUGGESTED SOLDER  
 PAD LAYOUT**



# SMBJP6KE6.8(C)A THRU SMBJP6KE550(C)A

## ELECTRICAL CHARACTERISTICS @25°C

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE $V_{WM}$ (VOLTS)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ $I_T$ (VOLTS)			MAXIMUM CLAMPING VOLTAGE @ $I_{PP}$ (VOLTS)	PEAK PULSE CURRENT $I_{PP}$ (AMPS)	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_D$ ( $\mu$ A)	MARKING CODE
		MIN	MAX	$I_T$ (mA)				
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  $V_{rwm}$  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.

# SMBJP6KE6.8(C)A THRU SMBJP6KE550(C)A

## ELECTRICAL CHARACTERISTICS @25°C

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE $V_{WM}$ (VOLTS)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ $I_T$ (VOLTS)			MAXIMUM CLAMPING VOLTAGE @ $I_{PP}$ (VOLTS)	PEAK PULSE CURRENT $I_{PP}$ (AMPS)	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_D$ ( $\mu$ A)	MARKING CODE
		MIN	MAX	$I_T$ (mA)				
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
SMBJP6KE9.1CA	7.78	8.65	9.55	1	13.4	45.5	50	9V1C
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
SMBJP6KE39CA	33.30	37.10	41.00	1	53.9	11.3	5	39C
SMBJP6KE43CA	36.80	40.90	45.20	1	59.3	10.3	5	43C
SMBJP6KE47CA	40.20	44.70	49.40	1	64.8	9.4	5	47C
SMBJP6KE51CA	43.60	48.50	53.60	1	70.1	8.7	5	51C
SMBJP6KE56CA	47.80	53.20	58.80	1	77.0	7.9	5	56C
SMBJP6KE62CA	53.00	58.90	65.10	1	85.0	7.2	5	62C
SMBJP6KE68CA	58.10	64.60	71.40	1	92.0	6.6	5	68C
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
SMBJP6KE100CA	85.50	95.00	105.00	1	137.0	4.5	5	100C
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## RATINGS AND CHARACTERISTIC CURVES

Fig. 1 – Peak Pulse Power Rating Curve



Fig. 2-PULSE RATING CURVE



Fig. 3 – Pulse Waveform



Fig. 4 – Typical Junction Capacitance



Fig. 5 – Typical Transient Thermal Impedance





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### Ordering Information :

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

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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