



E480232

Features

- For Surface Mount Applications
- Excellent Clamping Capability
- Fast Response Time: Typical Less Than 1ps From 0V to VBR min
- High Temp Soldering: 260°C / 10 Seconds at Terminals
- 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)
- ESD protection of data lines in accordance with IEC 61000-4-2, ±30kV(Air), ±30kV (Contact)

Maximum Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power Surge Current with a 10/1000µs Waveform (Note 3)	I_{PPM}	See Next Table	A
Peak Pulse Power Dissipation (Note 3)	P_{PPM}	600	W
Peak Forward Surge Current Unidirectional Only (Note 4)	I_{FSM}	100	A
Maximum Instantaneous Forward Voltage @ 1A for Unidirectional Only (Note 5)	V_F	1.5	V

Internal Structure

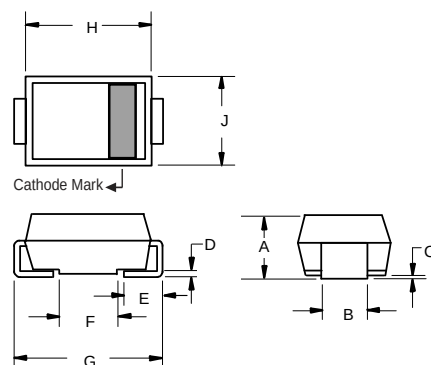
Description	Simplified outline	Graphic symbol
Uni-directional		
Bi-directional		

XXXX = Marking code

The locations of the dots represent different product lines

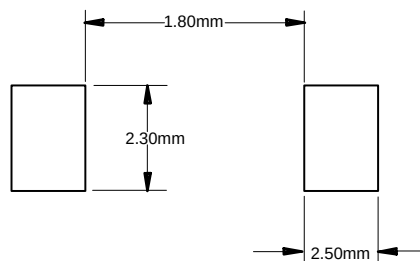
600 Watt TVS

SMB (DO-214AA) (LEAD FRAME)



DIM	INCHES		MM		NOTE
	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 and Thermal Characteristics

Parameter	Symbol	Value	Unit
Operating Junction Temperature Range	T_J	-65 to +150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-65 to +150	$^{\circ}\text{C}$
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	20	$^{\circ}\text{C/W}$
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	60	$^{\circ}\text{C/W}$
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	25	$^{\circ}\text{C/W}$

Note:

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.
4. 8.3ms, single half sine wave duty cycle = 4 pulses per Minutes maximum, for unidirectional device only.
5. Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal.

Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC Part Number	Working Peak Reverse Voltage	Breakdown Voltage V_{BR} @ I_T			Maximum Clamping Voltage @ I_{PP}	Maximum Reverse Surge Current	Maximum Reverse Leakage @ V_{RWM}	Device Marking Code
ϵ Uni ζ	$V_{RWM}(V)$	Min (V)	Max (V)	I_T (mA)	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$	Uni
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	451.00	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	468.00	522.50	577.50	1	760.0	0.8	1	550A

For Bi-directional type having V_{RWM} of 10 Volts and less, the IR limit is double

Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC Part Number	Working Peak Reverse Voltage	Breakdown Voltage V_{BR} @ I_T			Maximum Clamping Voltage @ I_{PP}	Maximum Reverse Surge Current	Maximum Reverse Leakage @ V_{RWM}	Device Marking Code
(Bi)	$V_{RWM}(V)$	Min (V)	Max (V)	I_T (mA)	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$	Bi
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	1	15C
SMBJP6KE16CA	13.60	15.20	16.80	1	22.5	27.1	1	16C
SMBJP6KE18CA	15.30	17.10	18.90	1	25.5	24.2	1	18C
SMBJP6KE20CA	17.10	19.00	21.00	1	27.7	22.0	1	20C
SMBJP6KE22CA	18.80	20.90	23.10	1	30.6	19.9	1	22C
SMBJP6KE24CA	20.50	22.80	25.20	1	33.2	18.4	1	24C
SMBJP6KE27CA	23.10	25.70	28.40	1	37.5	16.3	1	27C
SMBJP6KE30CA	25.60	28.50	31.50	1	41.4	14.7	1	30C
SMBJP6KE33CA	28.20	31.40	34.70	1	45.7	13.3	1	33C
SMBJP6KE36CA	30.80	34.20	37.80	1	49.9	12.2	1	36C
SMBJP6KE39CA	33.30	37.10	41.00	1	53.9	11.3	1	39C
SMBJP6KE43CA	36.80	40.90	45.20	1	59.3	10.3	1	43C
SMBJP6KE47CA	40.20	44.70	49.40	1	64.8	9.4	1	47C
SMBJP6KE51CA	43.60	48.50	53.60	1	70.1	8.7	1	51C
SMBJP6KE56CA	47.80	53.20	58.80	1	77.0	7.9	1	56C
SMBJP6KE62CA	53.00	58.90	65.10	1	85.0	7.2	1	62C
SMBJP6KE68CA	58.10	64.60	71.40	1	92.0	6.6	1	68C
SMBJP6KE75CA	64.10	71.30	78.80	1	103.0	5.9	1	75C
SMBJP6KE82CA	70.10	77.90	86.10	1	113.0	5.4	1	82C
SMBJP6KE91CA	77.80	86.50	95.50	1	125.0	4.9	1	91C
SMBJP6KE100CA	85.50	95.00	105.00	1	137.0	4.5	1	100C
SMBJP6KE110CA	94.00	105.00	116.00	1	152.0	4.0	1	110C
SMBJP6KE120CA	102.00	114.00	126.00	1	165.0	3.7	1	120C
SMBJP6KE130CA	111.00	124.00	137.00	1	179.0	3.4	1	130C
SMBJP6KE150CA	128.00	143.00	158.00	1	207.0	2.9	1	150C
SMBJP6KE160CA	136.00	152.00	168.00	1	219.0	2.8	1	160C
SMBJP6KE170CA	145.00	162.00	179.00	1	234.0	2.6	1	170C
SMBJP6KE180CA	154.00	171.00	189.00	1	246.0	2.5	1	180C
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SMBJP6KE250CA	214.00	237.00	263.00	1	344.0	1.9	1	250C
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SMBJP6KE440CA	376.00	418.00	462.00	1	602.0	1.0	1	440C
SMBJP6KE480CA	408.00	456.00	504.00	1	658.0	0.9	1	480C
SMBJP6KE510CA	434.00	485.00	535.00	1	698.0	0.9	1	510C
SMBJP6KE530CA	451.00	503.50	556.50	1	725.0	0.8	1	530C
SMBJP6KE540CA	459.00	513.00	567.00	1	740.0	0.8	1	540C
SMBJP6KE550CA	468.00	522.50	577.50	1	760.0	0.8	1	550C

For Bi-directional type having V_{RWM} of 10 Volts and less, the IR limit is double

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

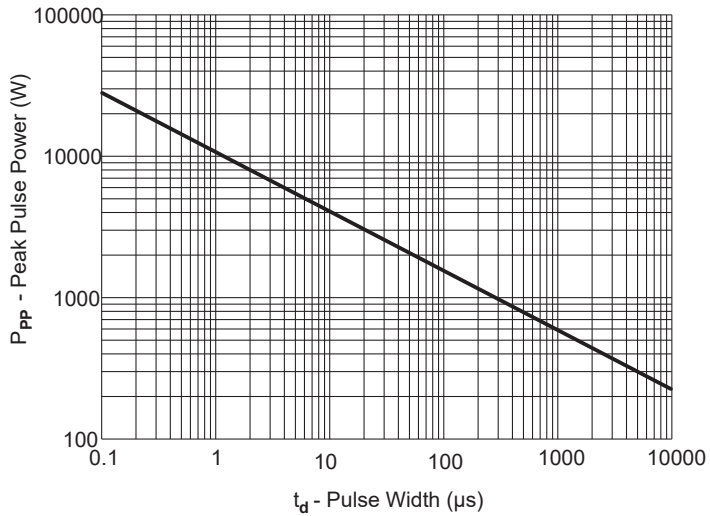


Fig. 2 - Typical Junction Capacitance

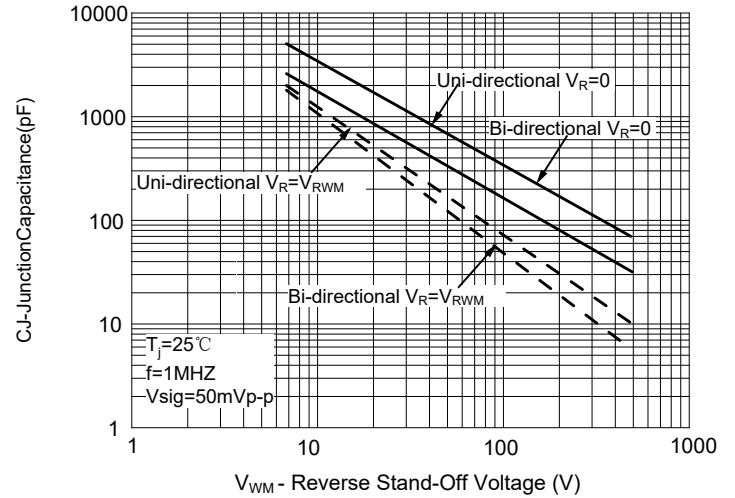


Fig. 3 - Pulse Waveform

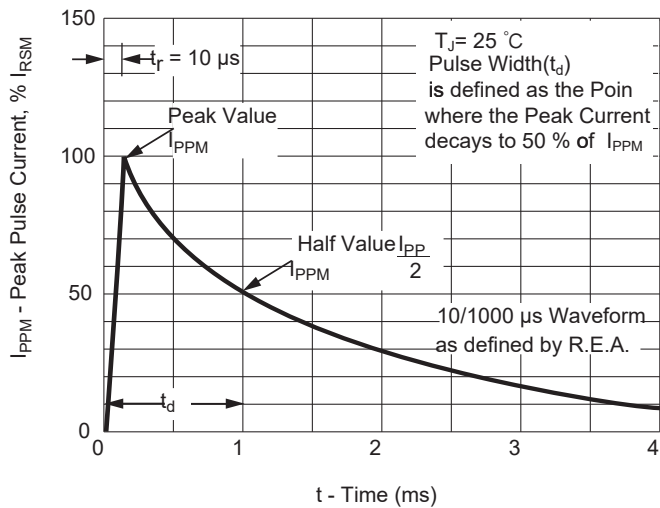


Fig. 4 - Pulse Derating Curve

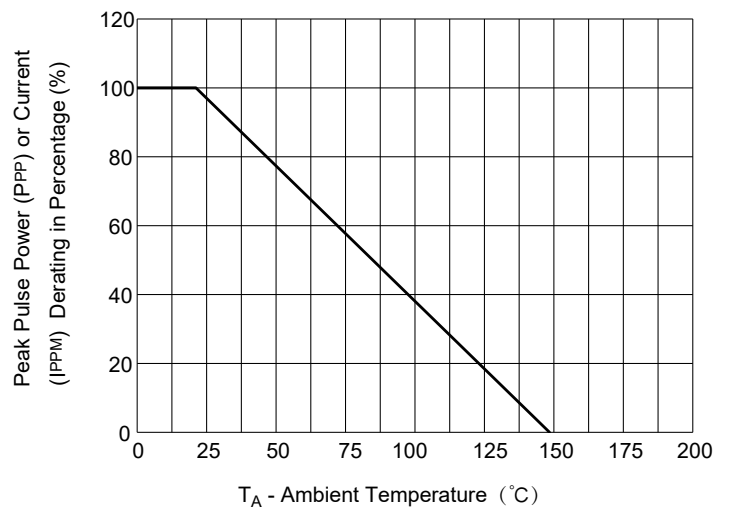
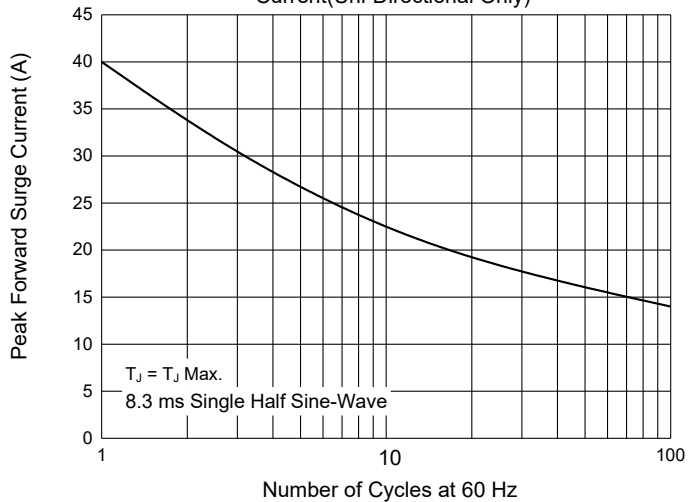


Fig. 5 - Maximum Non-Repetitive Peak Forward Surge Current(Uni-Directional Only)



Ordering Information

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

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