



E480232

Features

- Fully Automotive Qualified to AEC-Q101
- For Surface Mount Applications
- Excellent Clamping Capability
- 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
Power Dissipation on Infinite Heatsink at $T_L = 75^\circ\text{C}$	P_D	5.0	W
Peak Forward Surge Current Unidirectional Only (Note 4)	I_{FSM}	100	A

Note:

- Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
- Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ per Fig.4.
- 8.3ms, single half sine wave duty cycle = 4 pulses per Minutes maximum.

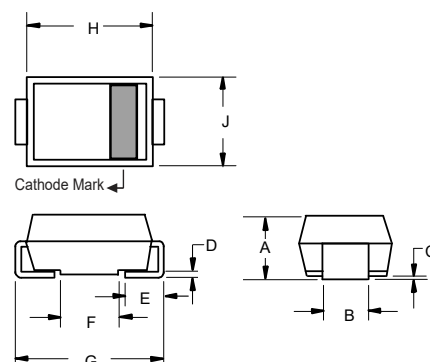
Internal Structure

Description	Simplified outline	Graphic symbol
Uni-directional		
Bi-directional		

XXXX = Marking code YYWW = Date Code

600Watt TVS
6.8 to 540
Volts

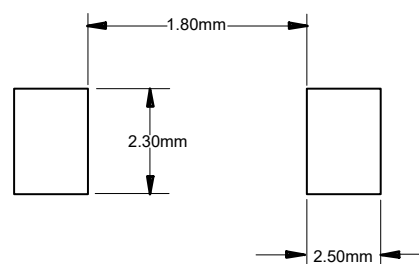
SMB (DO-214AA)
(LEAD FRAME)



DIMENSIONS

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



Thermal Characteristics

Parameter	Symbol	Value	Unit
Operating Junction Temperature Range	T_J	-55 to +175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	20	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	100	°C/W
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	15	°C/W

Note:

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}	Marking Code
(Uni)	$V_{RWM}(V)$	Min (V)	Max (V)	I_T (mA)	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$	Uni
SMBJP6KE6.8AQ	5.8	6.46	7.14	10	10.5	57.1	1000	6V8A
SMBJP6KE7.5AQ	6.4	7.13	7.88	10	11.3	53.1	500	7V5A
SMBJP6KE8.2AQ	7.0	7.79	8.61	10	12.1	49.6	200	8V2A
SMBJP6KE9.1AQ	7.8	8.65	9.56	1	13.4	44.8	50	9V1A
SMBJP6KE10AQ	8.6	9.50	10.50	1	14.5	41.4	10	10A
SMBJP6KE11AQ	9.4	10.45	11.55	1	15.6	38.5	5	11A
SMBJP6KE12AQ	10.2	11.40	12.60	1	16.7	35.9	5	12A
SMBJP6KE13AQ	11.1	12.35	13.65	1	18.2	33.0	5	13A
SMBJP6KE15AQ	12.8	14.25	15.75	1	21.2	28.3	1	15A
SMBJP6KE16AQ	13.6	15.20	16.80	1	22.5	26.7	1	16A
SMBJP6KE18AQ	15.3	17.10	18.90	1	25.2	23.8	1	18A
SMBJP6KE20AQ	17.1	19.00	21.00	1	27.7	21.7	1	20A
SMBJP6KE22AQ	18.8	20.90	23.10	1	30.6	19.6	1	22A
SMBJP6KE24AQ	20.5	22.80	25.20	1	33.2	18.1	1	24A
SMBJP6KE27AQ	23.1	25.65	28.35	1	37.5	16.0	1	27A
SMBJP6KE30AQ	25.6	28.50	31.50	1	41.4	14.5	1	30A
SMBJP6KE33AQ	28.2	31.35	34.65	1	45.7	13.1	1	33A
SMBJP6KE36AQ	30.8	34.20	37.80	1	49.9	12.0	1	36A
SMBJP6KE39AQ	33.3	37.05	40.95	1	53.9	11.1	1	39A
SMBJP6KE43AQ	36.8	40.85	45.15	1	59.3	10.1	1	43A
SMBJP6KE47AQ	40.2	44.65	49.35	1	64.8	9.3	1	47A
SMBJP6KE51AQ	43.6	48.45	53.55	1	70.1	8.6	1	51A
SMBJP6KE56AQ	47.8	53.20	58.80	1	77.0	7.8	1	56A
SMBJP6KE62AQ	53.0	58.90	65.10	1	85.0	7.1	1	62A
SMBJP6KE68AQ	58.1	64.60	71.40	1	92.0	6.5	1	68A
SMBJP6KE75AQ	64.1	71.25	78.75	1	103.0	5.8	1	75A
SMBJP6KE82AQ	70.1	77.90	86.10	1	113.0	5.3	1	82A
SMBJP6KE91AQ	77.8	86.45	95.35	1	125.0	4.8	1	91A
SMBJP6KE100AQ	85.5	95.00	105.00	1	137.0	4.4	1	100A
SMBJP6KE110AQ	94.0	104.50	115.50	1	152.0	4.0	1	110A
SMBJP6KE120AQ	102.0	114.00	126.00	1	165.0	3.6	1	120A
SMBJP6KE130AQ	111.0	123.50	136.50	1	179.0	3.4	1	130A
SMBJP6KE150AQ	128.0	142.50	157.50	1	207.0	2.9	1	150A
SMBJP6KE160AQ	136.0	152.00	168.00	1	219.0	2.7	1	160A
SMBJP6KE170AQ	145.0	161.50	178.50	1	234.0	2.6	1	170A
SMBJP6KE180AQ	154.0	171.00	189.00	1	246.0	2.4	1	180A
SMBJP6KE200AQ	171.0	190.00	210.00	1	274.0	2.2	1	200A
SMBJP6KE220AQ	185.0	209.00	231.00	1	328.0	1.8	1	220A
SMBJP6KE250AQ	214.0	237.00	263.00	1	344.0	1.9	1	250A
SMBJP6KE300AQ	256.0	285.00	315.00	1	414.0	1.45	1	300A
SMBJP6KE350AQ	300.0	332.50	367.50	1	482.0	1.24	1	350A
SMBJP6KE400AQ	342.0	380.00	420.00	1	548.0	1.09	1	400A
SMBJP6KE440AQ	376.0	418.00	462.00	1	607.2	0.99	1	440A
SMBJP6KE480AQ	408.0	456.00	504.00	1	658.0	0.91	1	480A
SMBJP6KE510AQ	434.0	485.00	534.00	1	698.1	0.86	1	510A
SMBJP6KE530AQ	451.0	503.50	556.50	1	725.0	0.8	1	530A
SMBJP6KE540AQ	460.0	513.00	567.00	1	740.0	0.8	1	540A

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SMBJP6KE6.8CAQ	5.8	6.46	7.14	10	10.5	57.1	1000	6V8C
SMBJP6KE7.5CAQ	6.4	7.13	7.88	10	11.3	53.1	500	7V5C
SMBJP6KE8.2CAQ	7.0	7.79	8.61	10	12.1	49.6	200	8V2C
SMBJP6KE9.1CAQ	7.8	8.65	9.56	1	13.4	44.8	50	9V1C
SMBJP6KE10CAQ	8.6	9.50	10.50	1	14.5	41.4	10	10C
SMBJP6KE11CAQ	9.4	10.45	11.55	1	15.6	38.5	5	11C
SMBJP6KE12CAQ	10.2	11.40	12.60	1	16.7	35.9	5	12C
SMBJP6KE13CAQ	11.1	12.35	13.65	1	18.2	33.0	5	13C
SMBJP6KE15CAQ	12.8	14.25	15.75	1	21.2	28.3	1	15C
SMBJP6KE16CAQ	13.6	15.20	16.80	1	22.5	26.7	1	16C
SMBJP6KE18CAQ	15.3	17.10	18.90	1	25.2	23.8	1	18C
SMBJP6KE20CAQ	17.1	19.00	21.00	1	27.7	21.7	1	20C
SMBJP6KE22CAQ	18.8	20.90	23.10	1	30.6	19.6	1	22C
SMBJP6KE24CAQ	20.5	22.80	25.20	1	33.2	18.1	1	24C
SMBJP6KE27CAQ	23.1	25.65	28.35	1	37.5	16.0	1	27C
SMBJP6KE30CAQ	25.6	28.50	31.50	1	41.4	14.5	1	30C
SMBJP6KE33CAQ	28.2	31.35	34.65	1	45.7	13.1	1	33C
SMBJP6KE36CAQ	30.8	34.20	37.80	1	49.9	12.0	1	36C
SMBJP6KE39CAQ	33.3	37.05	40.95	1	53.9	11.1	1	39C
SMBJP6KE43CAQ	36.8	40.85	45.15	1	59.3	10.1	1	43C
SMBJP6KE47CAQ	40.2	44.65	49.35	1	64.8	9.3	1	47C
SMBJP6KE51CAQ	43.6	48.45	53.55	1	70.1	8.6	1	51C
SMBJP6KE56CAQ	47.8	53.20	58.80	1	77.0	7.8	1	56C
SMBJP6KE62CAQ	53.0	58.90	65.10	1	85.0	7.1	1	62C
SMBJP6KE68CAQ	58.1	64.60	71.40	1	92.0	6.5	1	68C
SMBJP6KE75CAQ	64.1	71.25	78.75	1	103.0	5.8	1	75C
SMBJP6KE82CAQ	70.1	77.90	86.10	1	113.0	5.3	1	82C
SMBJP6KE91CAQ	77.8	86.45	95.35	1	125.0	4.8	1	91C
SMBJP6KE100CAQ	85.5	95.00	105.00	1	137.0	4.4	1	100C
SMBJP6KE110CAQ	94.0	104.50	115.50	1	152.0	4.0	1	110C
SMBJP6KE120CAQ	102.0	114.00	126.00	1	165.0	3.6	1	120C
SMBJP6KE130CAQ	111.0	123.50	136.50	1	179.0	3.4	1	130C
SMBJP6KE150CAQ	128.0	142.50	157.50	1	207.0	2.9	1	150C
SMBJP6KE160CAQ	136.0	152.00	168.00	1	219.0	2.7	1	160C
SMBJP6KE170CAQ	145.0	161.50	178.50	1	234.0	2.6	1	170C
SMBJP6KE180CAQ	154.0	171.00	189.00	1	246.0	2.4	1	180C
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SMBJP6KE480CAQ	408.0	456.00	504.00	1	658.0	0.9	1	480C
SMBJP6KE510CAQ	434.0	485.00	535.00	1	698.1	0.9	1	510C
SMBJP6KE530CAQ	451.0	503.50	556.50	1	725.0	0.8	1	530C
SMBJP6KE540CAQ	460.0	513.00	567.00	1	740.0	0.8	1	540C

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

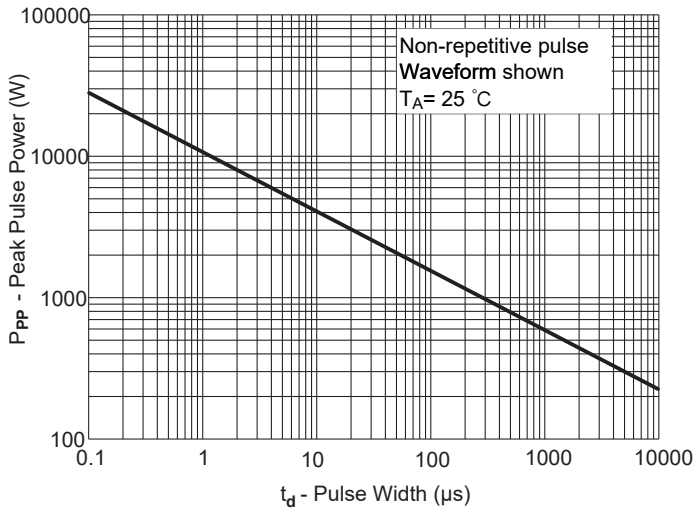


Fig. 2 - Typical Junction Capacitance

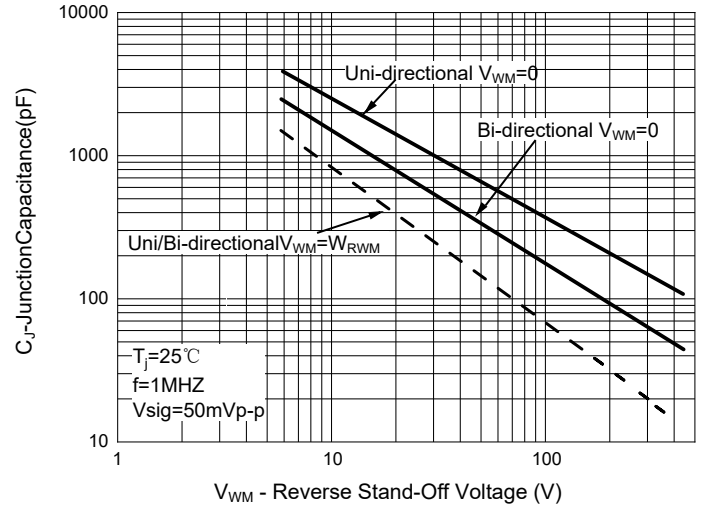


Fig. 3 - Pulse Waveform

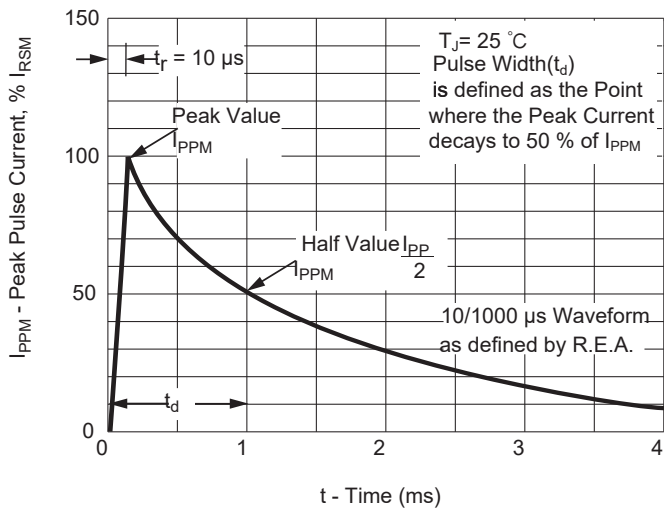
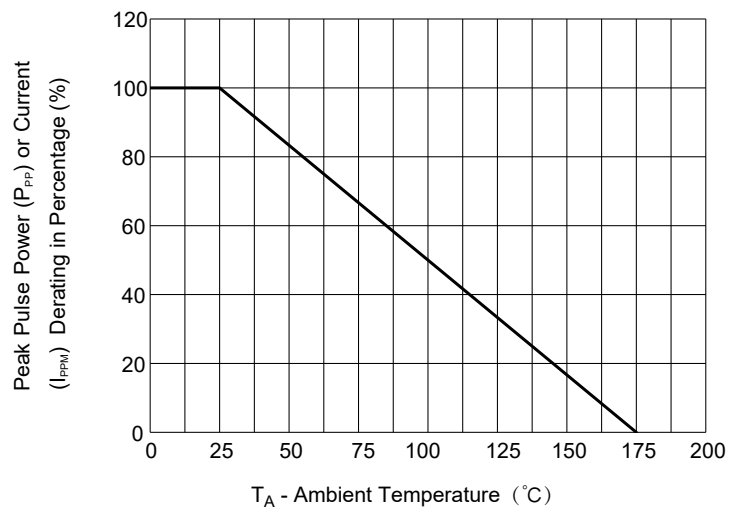


Fig. 4 - Pulse Derating Curve



Ordering Information

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

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