



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 (Note2) ("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.

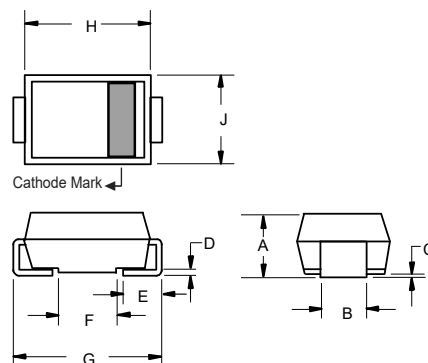
Internal Structure

Description	Simplified outline	Graphic symbol
Uni-directional		
Bi-directional		

XXXX = Marking code YYWW = Date Code

600Watt TVS
6.8 to 220
Volts

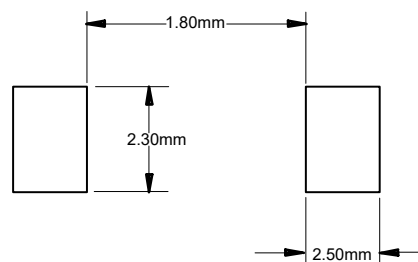
SMB (DO-214AA)
(LEAD FRAME)



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}	Device Marking Code	
(Uni)	(Bi)	$V_{RWM}(V)$	Min (V)	Max (V)	I_T (mA)	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$	Uni	Bi
SMBJP6KE6.8AQ	SMBJP6KE6.8CAQ	5.8	6.46	7.14	10	10.5	57.1	1000	6V8A	6V8C
SMBJP6KE7.5AQ	SMBJP6KE7.5CAQ	6.4	7.13	7.88	10	11.3	53.1	500	7V5A	7V5C
SMBJP6KE8.2AQ	SMBJP6KE8.2CAQ	7.0	7.79	8.61	10	12.1	49.6	200	8V2A	8V2C
SMBJP6KE9.1AQ	SMBJP6KE9.1CAQ	7.8	8.65	9.56	1	13.4	44.8	50	9V1A	9V1C
SMBJP6KE10AQ	SMBJP6KE10CAQ	8.6	9.50	10.50	1	14.5	41.4	10	10A	10C
SMBJP6KE11AQ	SMBJP6KE11CAQ	9.4	10.45	11.55	1	15.6	38.5	5	11A	11C
SMBJP6KE12AQ	SMBJP6KE12CAQ	10.2	11.40	12.60	1	16.7	35.9	5	12A	12C
SMBJP6KE13AQ	SMBJP6KE13CAQ	11.1	12.35	13.65	1	18.2	33.0	5	13A	13C
SMBJP6KE15AQ	SMBJP6KE15CAQ	12.8	14.25	15.75	1	21.2	28.3	1	15A	15C
SMBJP6KE16AQ	SMBJP6KE16CAQ	13.6	15.20	16.80	1	22.5	26.7	1	16A	16C
SMBJP6KE18AQ	SMBJP6KE18CAQ	15.3	17.10	18.90	1	25.2	23.8	1	18A	18C
SMBJP6KE20AQ	SMBJP6KE20CAQ	17.1	19.00	21.00	1	27.7	21.7	1	20A	20C
SMBJP6KE22AQ	SMBJP6KE22CAQ	18.8	20.90	23.10	1	30.6	19.6	1	22A	22C
SMBJP6KE24AQ	SMBJP6KE24CAQ	20.5	22.80	25.20	1	33.2	18.1	1	24A	24C
SMBJP6KE27AQ	SMBJP6KE27CAQ	23.1	25.65	28.35	1	37.5	16.0	1	27A	27C
SMBJP6KE30AQ	SMBJP6KE30CAQ	25.6	28.50	31.50	1	41.4	14.5	1	30A	30C
SMBJP6KE33AQ	SMBJP6KE33CAQ	28.2	31.35	34.65	1	45.7	13.1	1	33A	33C
SMBJP6KE36AQ	SMBJP6KE36CAQ	30.8	34.20	37.80	1	49.9	12.0	1	36A	36C
SMBJP6KE39AQ	SMBJP6KE39CAQ	33.3	37.05	40.95	1	53.9	11.1	1	39A	39C
SMBJP6KE43AQ	SMBJP6KE43CAQ	36.8	40.85	45.15	1	59.3	10.1	1	43A	43C
SMBJP6KE47AQ	SMBJP6KE47CAQ	40.2	44.65	49.35	1	64.8	9.3	1	47A	47C
SMBJP6KE51AQ	SMBJP6KE51CAQ	43.6	48.45	53.55	1	70.1	8.6	1	51A	51C
SMBJP6KE56AQ	SMBJP6KE56CAQ	47.8	53.20	58.80	1	77.0	7.8	1	56A	56C
SMBJP6KE62AQ	SMBJP6KE62CAQ	53.0	58.90	65.10	1	85.0	7.1	1	62A	62C
SMBJP6KE68AQ	SMBJP6KE68CAQ	58.1	64.60	71.40	1	92.0	6.5	1	68A	68C
SMBJP6KE75AQ	SMBJP6KE75CAQ	64.1	71.25	78.75	1	103.0	5.8	1	75A	75C
SMBJP6KE82AQ	SMBJP6KE82CAQ	70.1	77.90	86.10	1	113.0	5.3	1	82A	82C
SMBJP6KE91AQ	SMBJP6KE91CAQ	77.8	86.45	95.35	1	125.0	4.8	1	91A	91C
SMBJP6KE100AQ	SMBJP6KE100CAQ	85.5	95.00	105.00	1	137.0	4.4	1	100A	100C
SMBJP6KE110AQ	SMBJP6KE110CAQ	94.0	104.50	115.50	1	152.0	4.0	1	110A	110C
SMBJP6KE120AQ	SMBJP6KE120CAQ	102.0	114.00	126.00	1	165.0	3.6	1	120A	120C
SMBJP6KE130AQ	SMBJP6KE130CAQ	111.0	123.50	136.50	1	179.0	3.4	1	130A	130C
SMBJP6KE150AQ	SMBJP6KE150CAQ	128.0	142.50	157.50	1	207.0	2.9	1	150A	150C
SMBJP6KE160AQ	SMBJP6KE160CAQ	136.0	152.00	168.00	1	219.0	2.7	1	160A	160C
SMBJP6KE170AQ	SMBJP6KE170CAQ	145.0	161.50	178.50	1	234.0	2.6	1	170A	170C
SMBJP6KE180AQ	SMBJP6KE180CAQ	154.0	171.00	189.00	1	246.0	2.4	1	180A	180C
SMBJP6KE200AQ	SMBJP6KE200CAQ	171.0	190.00	210.00	1	274.0	2.2	1	200A	200C
SMBJP6KE220AQ	SMBJP6KE220CAQ	185.0	209.00	231.00	1	328.0	1.8	1	220A	220C

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

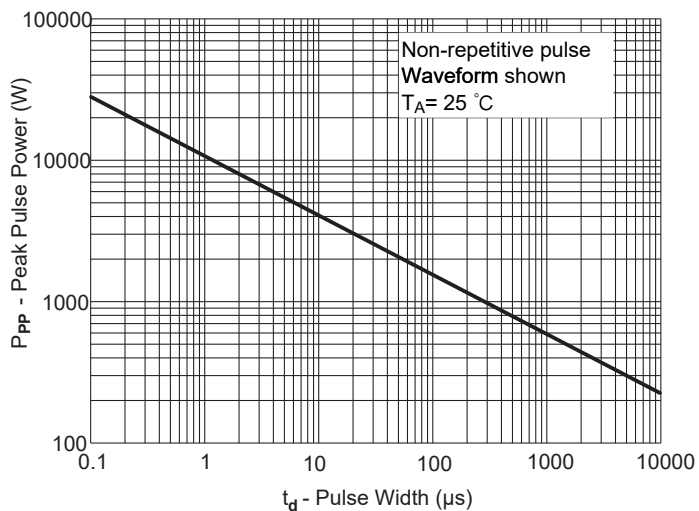


Fig. 2 - Typical Junction Capacitance

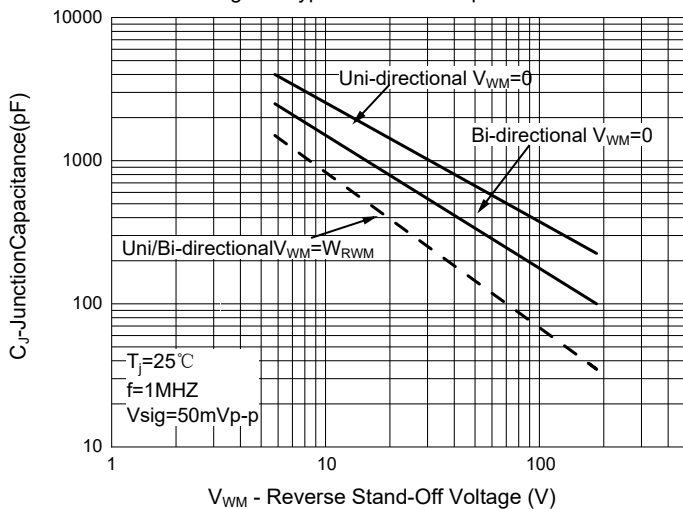


Fig. 3 - Pulse Waveform

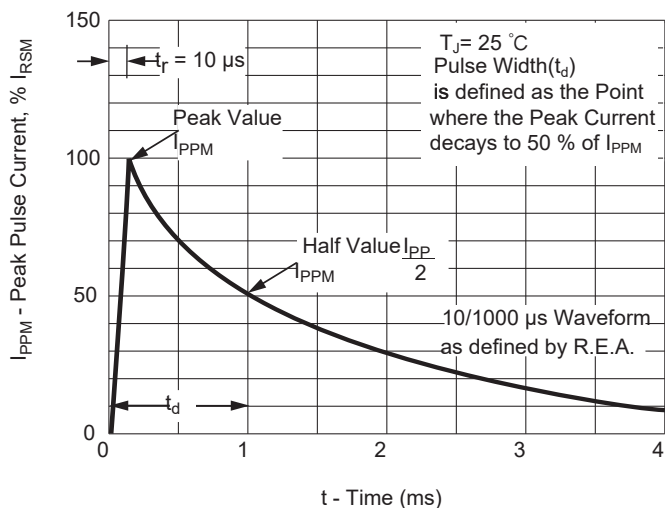
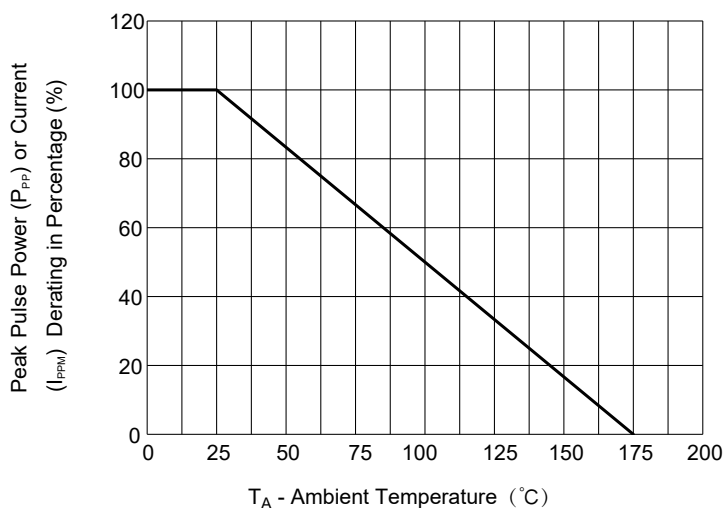


Fig. 4 - Pulse Derating Curve



Ordering Information

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

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