



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.

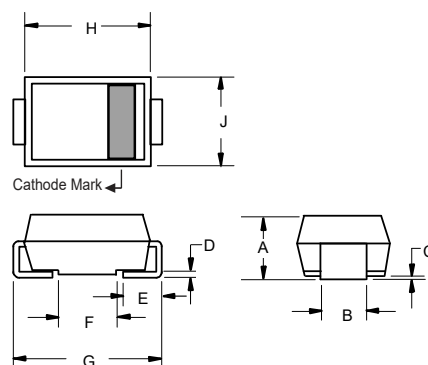
Internal Structure

Description	Simplified outline	Graphic symbol
Uni-directional		
Bi-directional		

XXXX = Marking code YYWW = Date Code

600Watt TVS
5.0 to 440
Volts

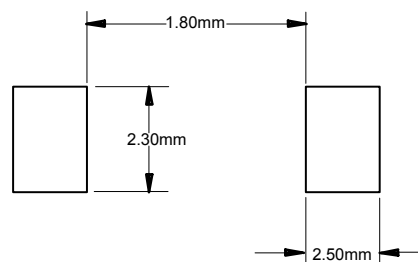
SMB (DO-214AA)
(LEAD FRAME)



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)	(Bi)	$V_{RWM}(V)$	Min (V)	Max (V)	$I_T (mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$	Uni	Bi
SMBJ5.0AQ	SMBJ5.0CAQ	5.0	6.40	7.07	10	9.2	65.2	800	KE	AE
SMBJ6.0AQ	SMBJ6.0CAQ	6.0	6.67	7.37	10	10.3	58.3	800	KG	AG
SMBJ6.5AQ	SMBJ6.5CAQ	6.5	7.22	7.98	10	11.2	53.6	500	KK	AK
SMBJ7.0AQ	SMBJ7.0CAQ	7.0	7.78	8.60	10	12.0	50.0	200	KM	AM
SMBJ7.5AQ	SMBJ7.5CAQ	7.5	8.33	9.21	1	12.9	46.5	100	KP	AP
SMBJ8.0AQ	SMBJ8.0CAQ	8.0	8.89	9.83	1	13.6	44.1	50	KR	AR
SMBJ8.5AQ	SMBJ8.5CAQ	8.5	9.44	10.40	1	14.4	41.7	10	KT	AT
SMBJ9.0AQ	SMBJ9.0CAQ	9.0	10.00	11.10	1	15.4	39.0	5	KV	AV
SMBJ10AQ	SMBJ10CAQ	10.0	11.10	12.30	1	17.0	35.3	5	KX	AX
SMBJ11AQ	SMBJ11CAQ	11.0	12.20	13.50	1	18.2	33.0	5	KZ	AZ
SMBJ12AQ	SMBJ12CAQ	12.0	13.30	14.70	1	19.9	30.2	5	LE	BE
SMBJ13AQ	SMBJ13CAQ	13.0	14.40	15.90	1	21.5	27.9	1	LG	BG
SMBJ14AQ	SMBJ14CAQ	14.0	15.60	17.20	1	23.2	25.9	1	LK	BK
SMBJ15AQ	SMBJ15CAQ	15.0	16.70	18.50	1	24.4	24.6	1	LM	BM
SMBJ16AQ	SMBJ16CAQ	16.0	17.80	19.70	1	26.0	23.1	1	LP	BP
SMBJ17AQ	SMBJ17CAQ	17.0	18.90	20.90	1	27.6	21.7	1	LR	BR
SMBJ18AQ	SMBJ18CAQ	18.0	20.00	22.10	1	29.2	20.6	1	LT	BT
SMBJ19AQ	SMBJ19CAQ	19.0	21.10	23.30	1	30.8	19.5	1	LU	BU
SMBJ20AQ	SMBJ20CAQ	20.0	22.20	24.50	1	32.4	18.5	1	LV	BV
SMBJ22AQ	SMBJ22CAQ	22.0	24.40	26.90	1	35.5	16.9	1	LX	BX
SMBJ24AQ	SMBJ24CAQ	24.0	26.70	29.50	1	38.9	15.4	1	LZ	BZ
SMBJ26AQ	SMBJ26CAQ	26.0	28.90	31.90	1	42.1	14.3	1	ME	CE
SMBJ28AQ	SMBJ28CAQ	28.0	31.10	34.40	1	45.4	13.2	1	MG	CG
SMBJ30AQ	SMBJ30CAQ	30.0	33.30	36.80	1	48.4	12.4	1	MK	CK
SMBJ33AQ	SMBJ33CAQ	33.0	36.70	40.60	1	53.3	11.3	1	MM	CM
SMBJ36AQ	SMBJ36CAQ	36.0	40.00	44.20	1	58.1	10.3	1	MP	CP
SMBJ40AQ	SMBJ40CAQ	40.0	44.40	49.10	1	64.5	9.3	1	MR	CR
SMBJ43AQ	SMBJ43CAQ	43.0	47.80	52.80	1	69.4	8.7	1	MT	CT
SMBJ45AQ	SMBJ45CAQ	45.0	50.00	55.30	1	72.7	8.3	1	MV	CV
SMBJ48AQ	SMBJ48CAQ	48.0	53.30	58.90	1	77.4	7.8	1	MX	CX
SMBJ51AQ	SMBJ51CAQ	51.0	56.70	62.70	1	82.4	7.3	1	MZ	CZ
SMBJ54AQ	SMBJ54CAQ	54.0	60.00	66.30	1	87.1	6.9	1	NE	DE
SMBJ58AQ	SMBJ58CAQ	58.0	64.40	71.20	1	93.6	6.4	1	NG	DG
SMBJ60AQ	SMBJ60CAQ	60.0	66.70	73.70	1	96.8	6.2	1	NK	DK
SMBJ64AQ	SMBJ64CAQ	64.0	71.10	78.60	1	103.0	5.8	1	NM	DM
SMBJ70AQ	SMBJ70CAQ	70.0	77.80	86.00	1	113.0	5.3	1	NP	DP
SMBJ75AQ	SMBJ75CAQ	75.0	83.30	92.10	1	121.0	5.0	1	NR	DR
SMBJ78AQ	SMBJ78CAQ	78.0	86.70	95.80	1	126.0	4.8	1	NT	DT
SMBJ80AQ	SMBJ80CAQ	80.0	88.80	97.60	1	129.6	4.6	1	NU	DU
SMBJ85AQ	SMBJ85CAQ	85.0	94.40	104.00	1	137.0	4.4	1	NV	DV

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SMBJ90AQ	SMBJ90CAQ	90.0	100.00	111.00	1	146.0	4.1	1	NX	DX
SMBJ100AQ	SMBJ100CAQ	100.0	111.00	123.00	1	162.0	3.7	1	NZ	DZ
SMBJ110AQ	SMBJ110CAQ	110.0	122.00	135.00	1	177.0	3.4	1	PE	EE
SMBJ120AQ	SMBJ120CAQ	120.0	133.00	147.00	1	193.0	3.1	1	PG	EG
SMBJ130AQ	SMBJ130CAQ	130.0	144.00	159.00	1	209.0	2.9	1	PK	EK
SMBJ140AQ	SMBJ140CAQ	140.0	155.00	171.00	1	226.8	2.7	1	PL	EL
SMBJ150AQ	SMBJ150CAQ	150.0	167.00	185.00	1	243.0	2.5	1	PM	EM
SMBJ160AQ	SMBJ160CAQ	160.0	178.00	197.00	1	259.0	2.3	1	PP	EP
SMBJ170AQ	SMBJ170CAQ	170.0	189.00	209.00	1	275.0	2.2	1	PR	ER
SMBJ180AQ	SMBJ180CAQ	180.0	200.00	220.00	1	291.6	2.1	1	PT	ET
SMBJ190AQ	SMBJ190CAQ	190.0	211.00	232.00	1	307.8	2.0	1	PU	EU
SMBJ200AQ	SMBJ200CAQ	200.0	224.00	247.00	1	324.0	1.85	1	PV	EV
SMBJ220AQ	SMBJ220CAQ	220.0	246.00	272.00	1	356.0	1.69	1	PX	EX
SMBJ250AQ	SMBJ250CAQ	250.0	279.00	309.00	1	405.0	1.48	1	PZ	EZ
SMBJ300AQ	SMBJ300CAQ	300.0	335.00	371.00	1	486.0	1.23	1	QE	FE
SMBJ350AQ	SMBJ350CAQ	350.0	391.00	432.00	1	567.0	1.06	1	QG	FG
SMBJ400AQ	SMBJ400CAQ	400.0	447.00	494.00	1	648.0	0.93	1	QK	FK
SMBJ440AQ	SMBJ440CAQ	440.0	492.00	543.00	1	713.0	0.84	1	QM	FM

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

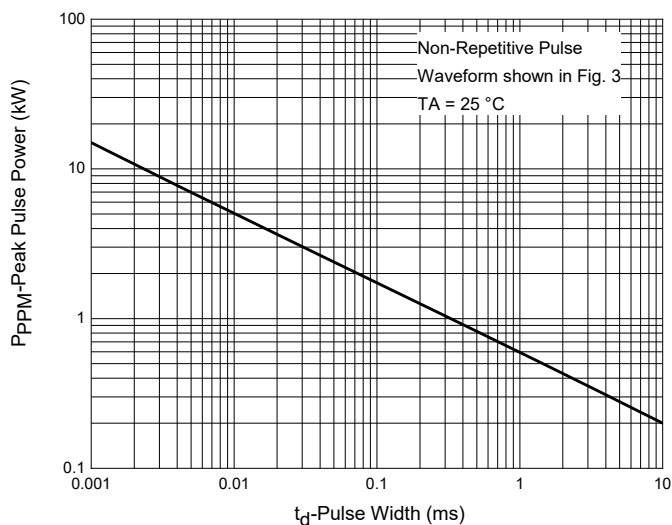


Fig. 2 - Typical Junction Capacitance

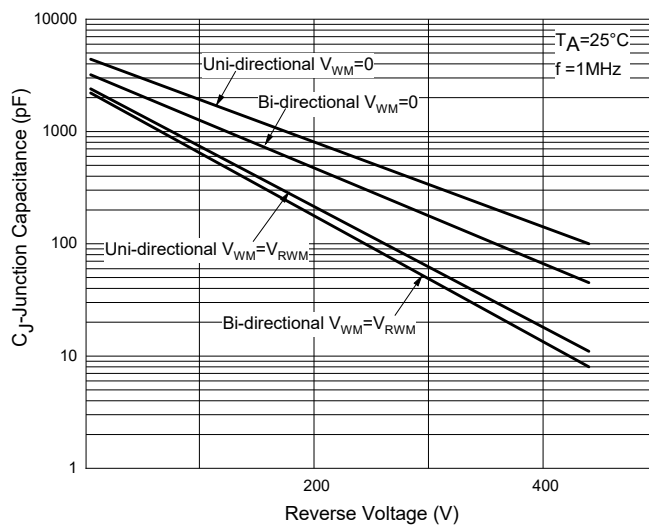


Fig. 3 - Pulse Waveform

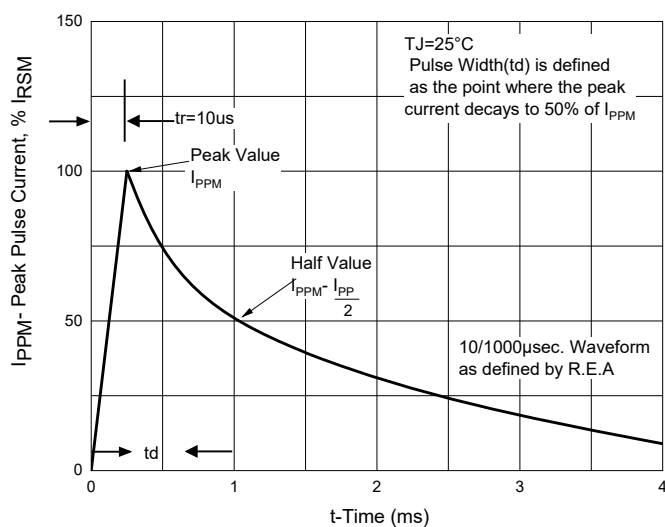


Fig. 4 - Pulse Derating Curve

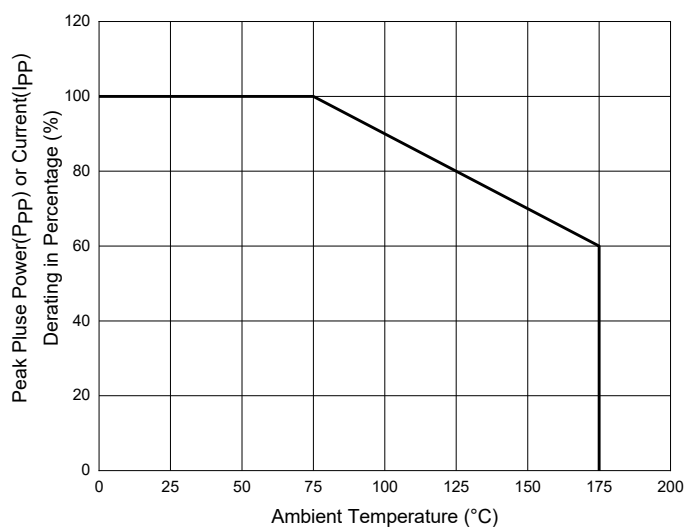


Fig. 5 - Peak Forward Voltage Drop vs Peak Forward Current

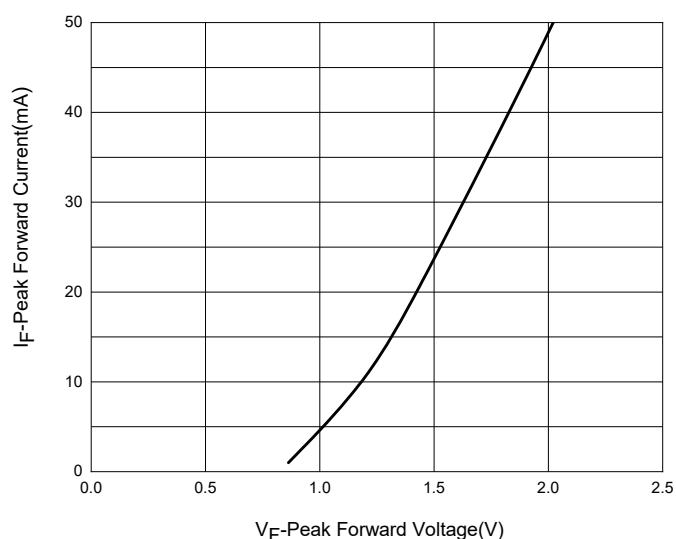
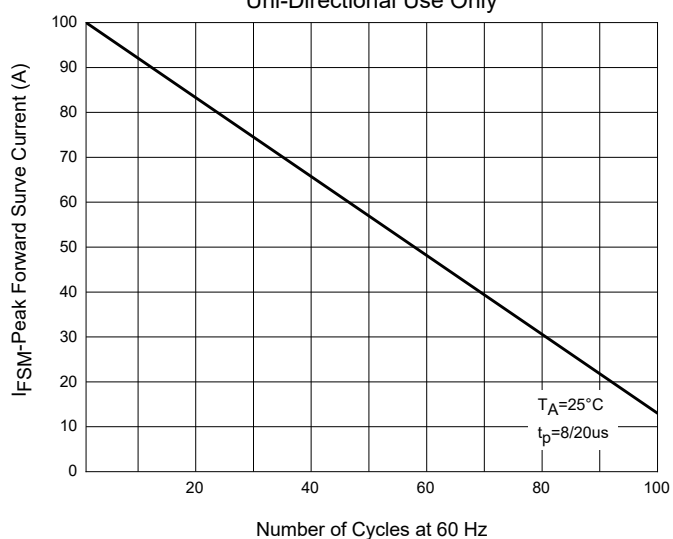


Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Use Only



Ordering Information

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

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