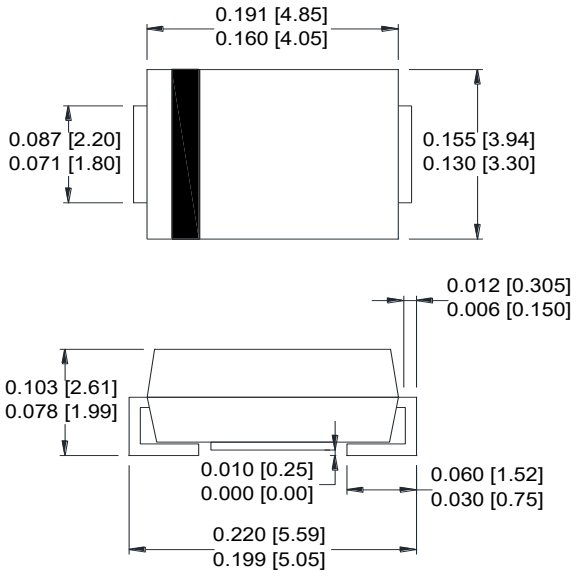
Working Voltage: 3.3V to 440V
Peak Pulse Power: 600W

Surface Mount Transient Voltage Suppressors

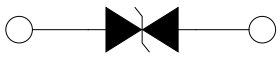
Features

- Glass passivated chip
- 600W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle):0.01 %
- High reliability application and automotive grade AEC Q101 qualified
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant
- Meets MSL level 1
- IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact)

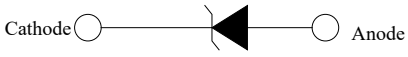
SMB/ DO-214AA



Dimensions : inch [mm]



Bi-directional



Uni-directional

Mechanical Data

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any

Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000μs waveform(1)	P_{PP}	600	W
Peak pulse current with a 10/1000μs waveform(1)	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at T_L = 75 °C	P_D	5.0	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only(2)	I_{FSM}	100	A
Maximum instantaneous forward voltage at 50 A for unidirectional only(3)	V_F	3.5/5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to +150	°C

Note:

(1)Non-repetitive current pulse per Fig.5 and derated above T_A= 25 °C per Fig.1

(2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(3)V_F<3.5V for devices of V_{BR}<200V and V_F<5.0V for devices of V_{BR}>201V

Ratings and Characteristics Curves (T_A=25°C unless otherwise noted)

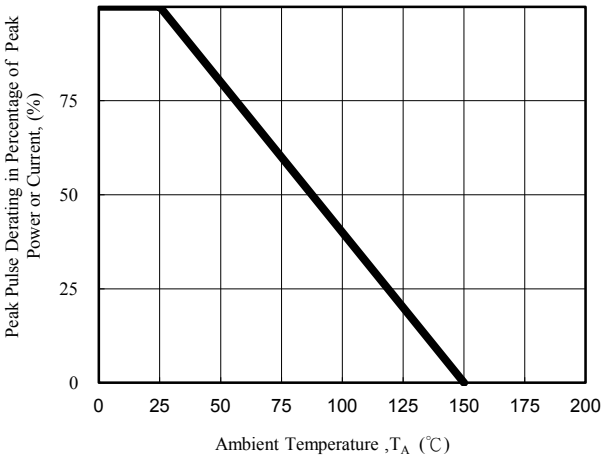


Fig. 1 - Pulse Derating Curve

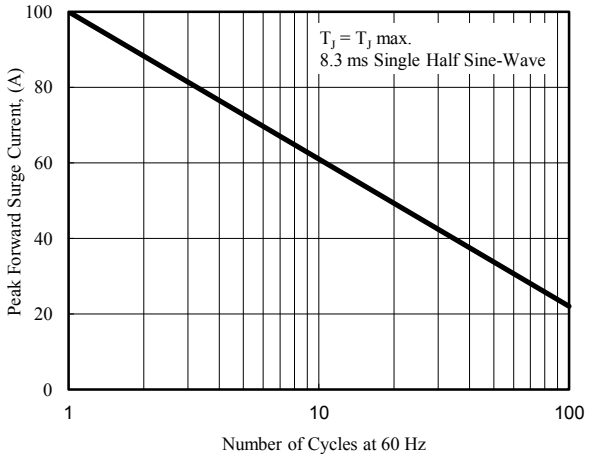


Fig. 2 - Maximum Non-Repetitive Surge Current

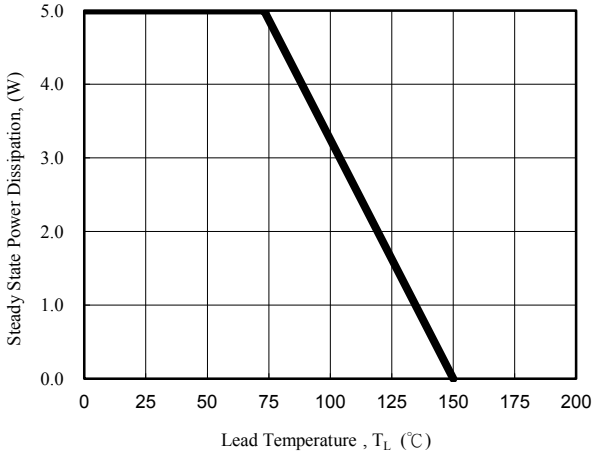


Fig. 3 - Steady State Power Derating Curve

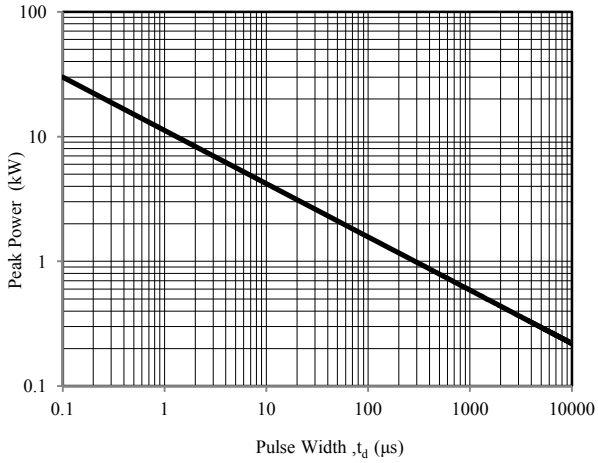


Fig. 4 - Peak Pulse Power Rating Curve

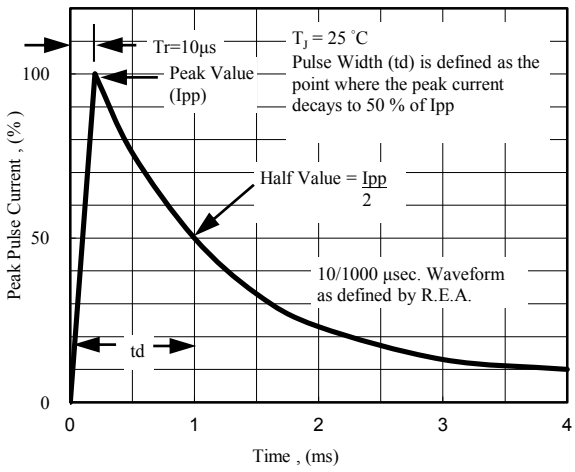


Fig. 5 - Pulse Waveform

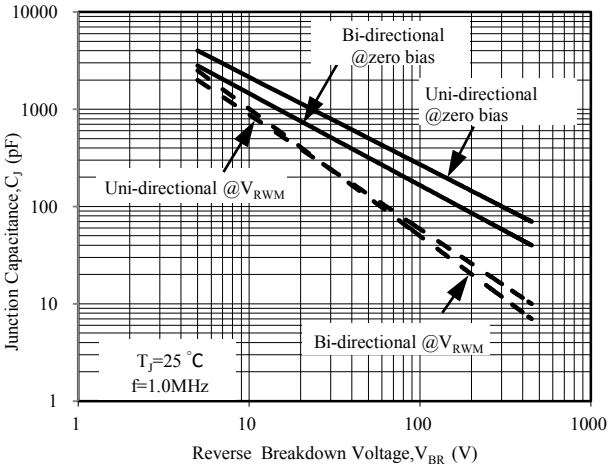


Fig. 6 - Typical Junction Capacitance

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage V_{BR} @I_T			Maximum Reverse Leakage I_R @V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage V_C @I_{PP} (V)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
TPSMBJ3.3A	TPSMBJ3.3CA	KCA	DLA	5.20	6.50	10	600	3.3	75.00	8.0
TPSMBJ5.0A	TPSMBJ5.0CA	KEA	AEA	6.40	7.00	10	800	5.0	65.22	9.2
TPSMBJ6.0A	TPSMBJ6.0CA	KGA	AGA	6.67	7.37	10	800	6.0	58.25	10.3
TPSMBJ6.5A	TPSMBJ6.5CA	KKA	AKA	7.22	7.98	10	500	6.5	53.57	11.2
TPSMBJ7.0A	TPSMBJ7.0CA	KMA	AMA	7.78	8.60	10	200	7.0	50.00	12.0
TPSMBJ7.5A	TPSMBJ7.5CA	KPA	APA	8.33	9.21	1	100	7.5	46.51	12.9
TPSMBJ8.0A	TPSMBJ8.0CA	KRA	ARA	8.89	9.83	1	50	8.0	44.12	13.6
TPSMBJ8.5A	TPSMBJ8.5CA	KTA	ATA	9.44	10.40	1	10	8.5	41.67	14.4
TPSMBJ9.0A	TPSMBJ9.0CA	KVA	AVA	10.00	11.10	1	5	9.0	38.96	15.4
TPSMBJ10A	TPSMBJ10CA	KXA	AXA	11.10	12.30	1	5	10.0	35.29	17.0
TPSMBJ11A	TPSMBJ11CA	KZA	AZA	12.20	13.50	1	1	11.0	32.97	18.2
TPSMBJ12A	TPSMBJ12CA	LEA	BEA	13.30	14.70	1	1	12.0	30.15	19.9
TPSMBJ13A	TPSMBJ13CA	LGA	BGA	14.40	15.90	1	1	13.0	27.91	21.5
TPSMBJ14A	TPSMBJ14CA	LKA	BKA	15.60	17.20	1	1	14.0	25.86	23.2
TPSMBJ15A	TPSMBJ15CA	LMA	BMA	16.70	18.50	1	1	15.0	24.59	24.4
TPSMBJ16A	TPSMBJ16CA	LPA	BPA	17.80	19.70	1	1	16.0	23.08	26.0
TPSMBJ17A	TPSMBJ17CA	LRA	BRA	18.90	20.90	1	1	17.0	21.74	27.6
TPSMBJ18A	TPSMBJ18CA	LTA	BTA	20.00	22.10	1	1	18.0	20.55	29.2
TPSMBJ19A	TPSMBJ19CA	LBA	BBA	21.10	23.30	1	1	19.0	19.49	30.8
TPSMBJ20A	TPSMBJ20CA	LVA	BVA	22.20	24.50	1	1	20.0	18.52	32.4
TPSMBJ22A	TPSMBJ22CA	LXA	BXA	24.40	26.90	1	1	22.0	16.90	35.5
TPSMBJ24A	TPSMBJ24CA	LZA	BZA	26.70	29.50	1	1	24.0	15.42	38.9
TPSMBJ26A	TPSMBJ26CA	MEA	CEA	28.90	31.90	1	1	26.0	14.25	42.1
TPSMBJ28A	TPSMBJ28CA	MGA	CGA	31.10	34.40	1	1	28.0	13.22	45.4
TPSMBJ30A	TPSMBJ30CA	MKA	CKA	33.30	36.80	1	1	30.0	12.40	48.4
TPSMBJ33A	TPSMBJ33CA	MMA	CMA	36.70	40.60	1	1	33.0	11.26	53.3
TPSMBJ36A	TPSMBJ36CA	MPA	CPA	40.00	44.20	1	1	36.0	10.33	58.1
TPSMBJ39A	TPSMBJ39CA	MOA	COA	43.60	47.96	1	1	39.0	9.39	63.9
TPSMBJ40A	TPSMBJ40CA	MRA	CRA	44.40	49.10	1	1	40.0	9.30	64.5
TPSMBJ43A	TPSMBJ43CA	MTA	CTA	47.80	52.80	1	1	43.0	8.65	69.4
TPSMBJ45A	TPSMBJ45CA	MVA	CVA	50.00	55.30	1	1	45.0	8.25	72.7
TPSMBJ48A	TPSMBJ48CA	MXA	CXA	53.30	58.90	1	1	48.0	7.75	77.4
TPSMBJ51A	TPSMBJ51CA	MZA	CZA	56.70	62.70	1	1	51.0	7.28	82.4
TPSMBJ54A	TPSMBJ54CA	NEA	DEA	60.00	66.30	1	1	54.0	6.89	87.1
TPSMBJ58A	TPSMBJ58CA	NGA	DGA	64.40	71.20	1	1	58.0	6.41	93.6
TPSMBJ60A	TPSMBJ60CA	NKA	DKA	66.70	73.70	1	1	60.0	6.20	96.8
TPSMBJ64A	TPSMBJ64CA	NMA	DMA	71.10	78.60	1	1	64.0	5.83	103.0
TPSMBJ70A	TPSMBJ70CA	NPA	DPA	77.80	86.00	1	1	70.0	5.31	113.0
TPSMBJ75A	TPSMBJ75CA	NRA	DRA	83.30	92.10	1	1	75.0	4.96	121.0
TPSMBJ78A	TPSMBJ78CA	NTA	DTA	86.70	95.80	1	1	78.0	4.76	126.0
TPSMBJ80A	TPSMBJ80CA	NBA	DBA	88.80	97.60	1	1	80.0	4.63	129.6
TPSMBJ85A	TPSMBJ85CA	NVA	DVA	94.40	104.00	1	1	85.0	4.38	137.0
TPSMBJ90A	TPSMBJ90CA	NXA	DXA	100.00	111.00	1	1	90.0	4.11	146.0
TPSMBJ100A	TPSMBJ100CA	NZA	DZA	111.00	123.00	1	1	100.0	3.70	162.0
TPSMBJ110A	TPSMBJ110CA	PEA	EEA	122.00	135.00	1	1	110.0	3.39	177.0
TPSMBJ120A	TPSMBJ120CA	PGA	EGA	133.00	147.00	1	1	120.0	3.11	193.0
TPSMBJ130A	TPSMBJ130CA	PKA	EKA	144.00	159.00	1	1	130.0	2.87	209.0
TPSMBJ140A	TPSMBJ140CA	PBA	EBA	155.00	171.00	1	1	140.0	2.65	226.8
TPSMBJ150A	TPSMBJ150CA	PMA	EMA	167.00	185.00	1	1	150.0	2.47	243.0
TPSMBJ160A	TPSMBJ160CA	PPA	EPA	178.00	197.00	1	1	160.0	2.32	259.0
TPSMBJ170A	TPSMBJ170CA	PRA	ERA	189.00	209.00	1	1	170.0	2.18	275.0
TPSMBJ180A	TPSMBJ180CA	PTA	ETA	200.00	220.00	1	1	180.0	2.06	291.6
TPSMBJ190A	TPSMBJ190CA	PVA	EVA	211.00	232.00	1	1	190.0	1.95	307.8
TPSMBJ200A	TPSMBJ200CA	PWA	EWA	224.00	247.00	1	1	200.0	1.85	324.0

Note:

1. Suffix 'A ' denotes 5% tolerance device.
2. Add suffix ' CA ' after part number to specify Bi-directional devices.
3. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double.

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage V_{BR} @I_T			Maximum Reverse Leakage I_R @V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage V_C @I_{PP} (V)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
TPSMBJ220A	TPSMBJ220CA	PXA	EXA	246.00	272.00	1	1	220.0	1.69	356.0
TPSMBJ250A	TPSMBJ250CA	PZA	EZA	279.00	309.00	1	1	250.0	1.48	405.0
TPSMBJ300A	TPSMBJ300CA	QEA	FEA	335.00	371.00	1	1	300.0	1.23	486.0
TPSMBJ350A	TPSMBJ350CA	QGA	FGA	391.00	432.00	1	1	350.0	1.06	567.0
TPSMBJ400A	TPSMBJ400CA	QKA	FKA	447.00	494.00	1	1	400.0	0.93	648.0
TPSMBJ440A	TPSMBJ440CA	QMA	FMA	492.00	543.00	1	1	440.0	0.84	713.0

Note:

1. Suffix 'A ' denotes 5% tolerance device.
2. Add suffix ' CA ' after part number to specify Bi-directional devices
3. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double