

DESCRIPTION

The TPSMBJ High Reliability series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

FEATURES

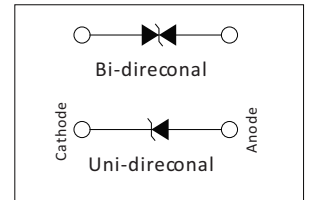
- > Glass passivated chip
- > 600 W peak pulse power capability with a 10/1000 μ s waveform, repeat rate (duty cycle):0.01 %
- > High reliability application and automotive grade
- > AEC Q101 qualified
- > Low leakage
- > Uni and Bidirectional unit
- > Excellent clamping capability
- > Very fast response time
- > RoHS compliant

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



DO-214AA PACKAGE



SCHEMATIC SYMBOL

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ UNLESS OTHERWISE SPECIFIED)

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾	P_{PP}	600	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	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 ~ +150	$^\circ\text{C}$

Note:

- (1) Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ 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) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$

ELECTRICAL CHARACTERISTICS

PART NUMBER		DEVICE MARKING CODE		BREAKDOWN VOLTAGE $V_{BR}@I_T$			MAXIMUM REVERSE LEAKAGE	WORKING PEAK REVERSE VOLTAGE	MAXIMUM REVERSE SURGE CURRENT	MAXIMUM CLAMPING VOLTAGE
UNI	BI	UNI	BI	Min.(V)	Max.(V)	I_T (mA)	$I_R@V_{RWM}$ (μA)	V_{RWM} (V)	I_{PP} (A)	$V_C@I_{PP}$ (V)
TPSMBJ11A	TPSMBJ11CA	KZA	AZA	12.20	13.50	1	1	11.0	32.97	18.20
TPSMBJ12A	TPSMBJ12CA	LEA	BEA	13.30	14.70	1	1	12.0	30.15	19.90
TPSMBJ13A	TPSMBJ13CA	LGA	BGA	14.40	15.90	1	1	13.0	27.91	21.50
TPSMBJ14A	TPSMBJ14CA	LKA	BKA	15.60	17.20	1	1	14.0	25.86	23.20
TPSMBJ15A	TPSMBJ15CA	LMA	BMA	16.70	18.50	1	1	15.0	24.59	24.40
TPSMBJ16A	TPSMBJ16CA	LPA	BPA	17.80	19.70	1	1	16.0	23.08	26.00



ELECTRICAL CHARACTERISTICS

PART NUMBER		DEVICE MARKING CODE		BREAKDOWN VOLTAGE $V_{BR}@I_T$			MAXIMUM REVERSE LEAKAGE	WORKING PEAK REVERSE VOLTAGE	MAXIMUM REVERSE SURGE CURRENT	MAXIMUM CLAMPING VOLTAGE
UNI	BI	UNI	BI	Min.(V)	Max.(V)	I_T (mA)	$I_R@V_{RWM}$ (uA)	V_{RWM} (V)	I_{PP} (A)	$V_C@I_{PP}$ (V)
TPSMBJ18A	TPSMBJ18CA	LTA	BTA	20.00	22.10	1	1	18.0	20.55	29.20
TPSMBJ20A	TPSMBJ20CA	LVA	BVA	22.20	24.50	1	1	20.0	18.52	32.40
TPSMBJ22A	TPSMBJ22CA	LXA	BXA	24.40	26.90	1	1	22.0	16.90	35.50
TPSMBJ24A	TPSMBJ24CA	LZA	BZA	26.70	29.50	1	1	24.0	15.42	38.90
TPSMBJ26A	TPSMBJ26CA	MEA	CEA	28.90	31.90	1	1	26.0	14.25	42.10
TPSMBJ28A	TPSMBJ28CA	MGA	CGA	31.10	34.40	1	1	28.0	13.22	45.40
TPSMBJ30A	TPSMBJ30CA	MKA	CKA	33.30	36.80	1	1	30.0	12.40	48.40
TPSMBJ33A	TPSMBJ33CA	MMA	CMA	36.70	40.60	1	1	33.0	11.26	53.30
TPSMBJ36A	TPSMBJ36CA	MPA	CPA	40.00	44.20	1	1	36.0	10.33	58.10
TPSMBJ40A	TPSMBJ40CA	MRA	CRA	44.40	49.10	1	1	40.0	9.30	64.50
TPSMBJ43A	TPSMBJ43CA	MTA	CTA	47.80	52.80	1	1	43.0	8.65	69.40
TPSMBJ45A	TPSMBJ45CA	MVA	CVA	50.00	55.30	1	1	45.0	8.25	72.70
TPSMBJ48A	TPSMBJ48CA	MXA	CXA	53.30	58.90	1	1	48.0	7.75	77.40
TPSMBJ51A	TPSMBJ51CA	MZA	CZA	56.70	62.70	1	1	51.0	7.28	82.40
TPSMBJ54A	TPSMBJ54CA	NEA	DEA	60.00	66.30	1	1	54.0	6.89	87.10
TPSMBJ58A	TPSMBJ58CA	NGA	DGA	64.40	71.20	1	1	58.0	6.41	93.60
TPSMBJ60A	TPSMBJ60CA	NKA	DKA	66.70	73.70	1	1	60.0	6.20	96.80
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
TPSMBJ85A	TPSMBJ85CA	NVA	DVA	94.40	92.10	1	1	85.0	4.38	137.0
TPSMBJ90A	TPSMBJ90CA	NXA	DXA	100.0	111.0	1	1	90.0	4.11	146.0
TPSMBJ100A	TPSMBJ100CA	NZA	DZA	111.0	123.0	1	1	100.0	3.70	162.0
TPSMBJ110A	TPSMBJ110CA	PEA	EEA	122.0	135.0	1	1	110.0	3.39	177.0
TPSMBJ120A	TPSMBJ120CA	PGA	EGA	133.0	147.0	1	1	120.0	3.11	193.0
TPSMBJ130A	TPSMBJ130CA	PKA	EKA	144.0	159.0	1	1	130.0	2.87	209.0
TPSMBJ140A	TPSMBJ140CA	PBA	EBA	155.0	171.0	1	1	140.0	2.65	226.8
TPSMBJ150A	TPSMBJ150CA	PMA	EMA	167.0	185.0	1	1	150.0	2.47	243.0
TPSMBJ160A	TPSMBJ160CA	PPA	EPA	178.0	197.0	1	1	160.0	2.32	259.0
TPSMBJ170A	TPSMBJ170CA	PRA	ERA	189.0	209.0	1	1	170.0	2.18	275.0

Note:

1. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
2. For Bi-Directional devices having V_C of 10 volts and under, the I_T limit is double

RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

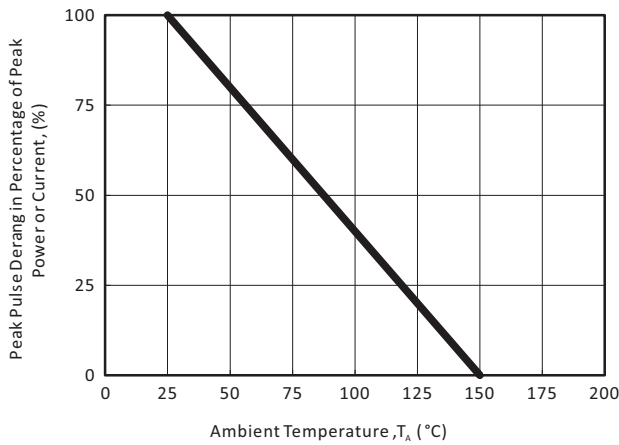


Fig. 1 - Pulse Derang Curve

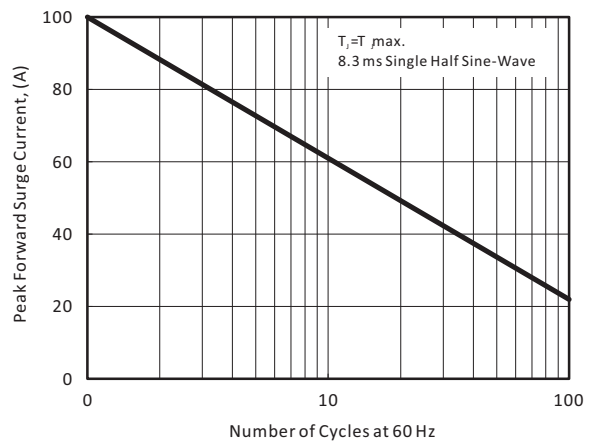


Fig. 2 - Maximum Non-Repeve Surge Current

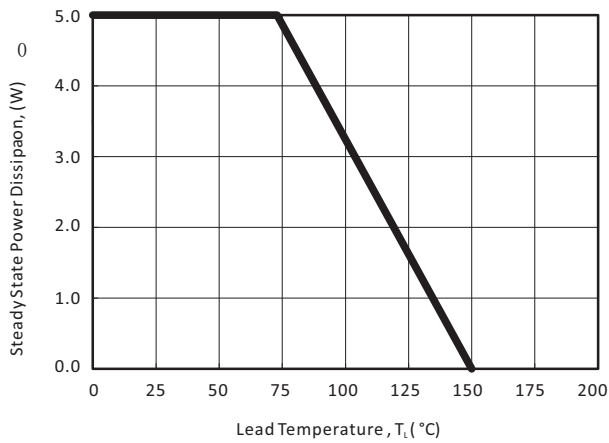


Fig. 3 - Steady State Power Derang Curve

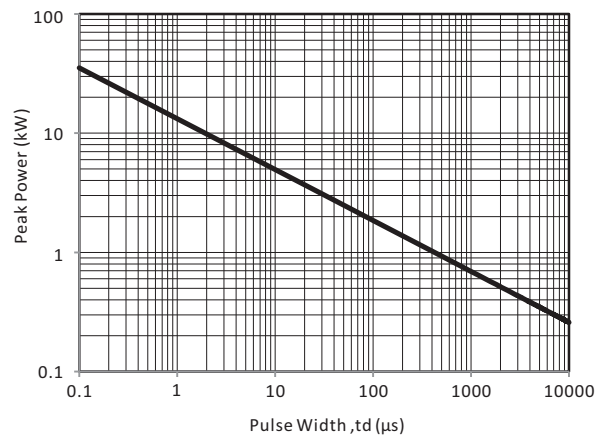


Fig. 4 - Peak Pulse Power Rang Curve

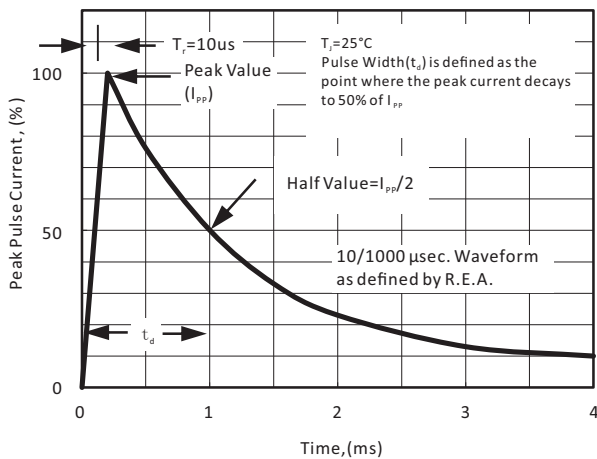


Fig. 5 - Pulse Waveform

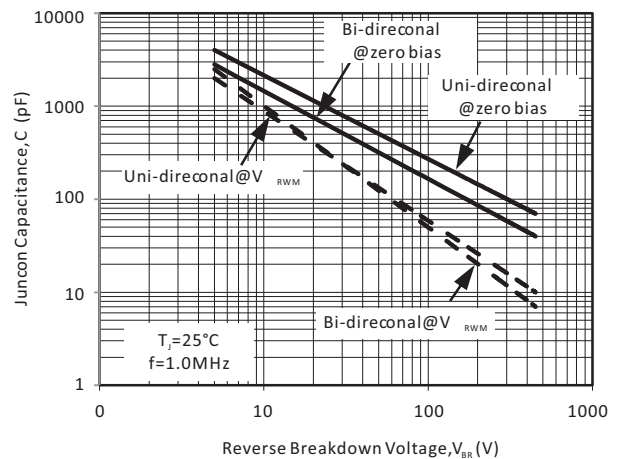


Fig. 6 - Typical Juncon Capacitance



DO-214AA(SMB) PACKAGE DIMENSIONS

SMB PACKAGE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.96	2.20	0.077	0.087
B	4.35	4.85	0.171	0.191
C	3.30	3.94	0.130	0.155
D	2.20	2.50	0.087	0.098
E	0.76	1.52	0.030	0.060
F	0.02	0.20	0.001	0.008
G	5.08	5.59	0.200	0.220
H	0.15	0.30	0.006	0.012

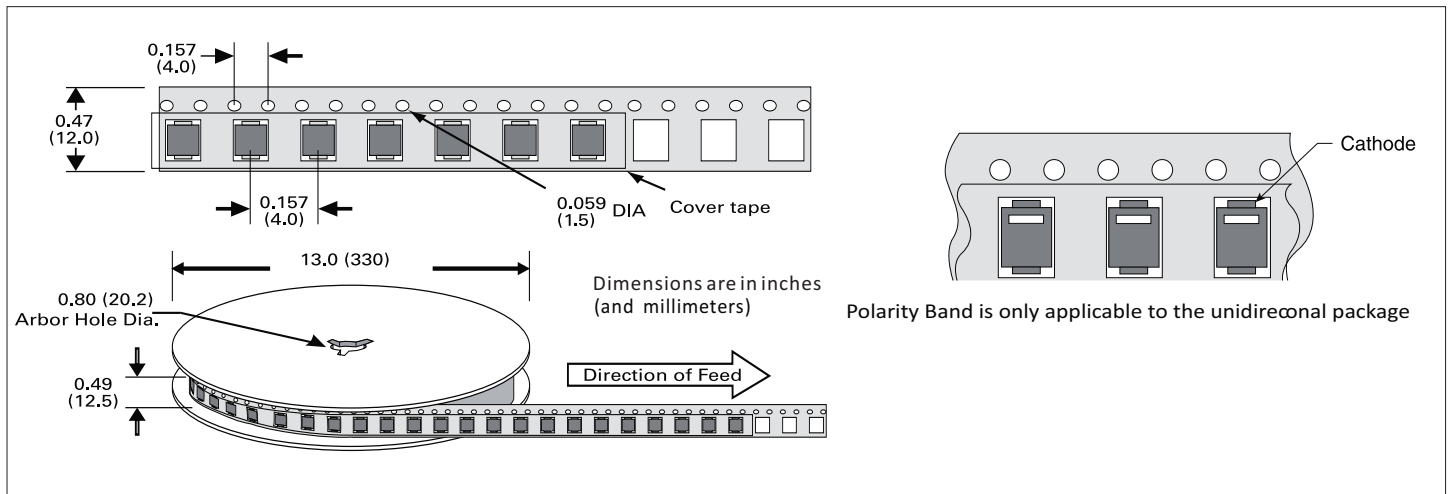
NOTES:

1. Dimensions are exclusive of mold flash and metal burrs
2. Polarity Band is only applicable to the unidirectional package

RECOMMENDED PAD LAYOUT DIMENSIONS

RECOMMENDED PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.20	-	0.087	-
B	1.45	-	0.057	-
C	-	2.55	-	0.100
D	1.45	-	0.057	-
E	5.60 REF		0.220 REF	

TAPE AND REEL SPECIFICATION



CONTACT US

Headquarters

No.3387 Shendu Road Pujiang I&E Park Minhang Shanghai
China

Hotline

400-021-5756

Web

[Http://www.semiware.com.cn](http://www.semiware.com.cn)

By Telephone

General: 86-21-3463-7172

Sales: 86-21-3463-7345

Technical Support: 86-21-34637172-8811

By Email

General: china@semiware.com.cn

Sales: sales33@semiware.com.cn

Technical Support: fae01@semiware.com.cn

By Fax

General: 86-21-3965-0654

Sales: 86-21-3463-7458

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