

DESCRIPTION

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

FEATURES

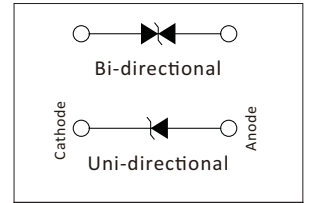
- > Glass passivated chip
- > 3000 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01 %
- > High reliability application and automotive grade
- > AEC Q101 qualified
- > Low leakage
- > Uni and Bidirectional unit
- > Excellent clamping capability
- > Very fast response time
- > RoHS compliant

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-214AB PACKAGE



SCHEMATIC SYMBOL

MAXIMUM RATINGS($T_A=25^{\circ}\text{C}$ HERWISE NOTED)

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾	P_{PP}	3000	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	6.5	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾	I_{FSM}	300	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} (uA)	V_{RWM} (V)	I_{PP} (A)	V_C @ I_{PP} (V)
TPSMDJ10A	TPSMDJ10CA	PDXA	DDXA	11.10	12.30	1	1	10.0	176.47	17.00
TPSMDJ11A	TPSMDJ11CA	PDZA	DDZA	12.20	13.50	1	1	11.0	164.84	18.20
TPSMDJ12A	TPSMDJ12CA	PEEA	DEEA	13.30	14.70	1	1	12.0	150.75	19.90
TPSMDJ13A	TPSMDJ13CA	PEGA	DEGA	14.40	15.90	1	1	13.0	139.53	21.50
TPSMDJ14A	TPSMDJ14CA	PEKA	DEKA	15.60	17.20	1	1	14.0	129.31	23.20
TPSMDJ15A	TPSMDJ15CA	PEMA	DEMA	16.70	18.50	1	1	15.0	122.95	24.40
TPSMDJ16A	TPSMDJ16CA	PEPA	DEPA	17.80	19.70	1	1	16.0	115.38	26.00
TPSMDJ18A	TPSMDJ18CA	PETA	DETA	20.00	22.10	1	1	18.0	102.74	29.20
TPSMDJ20A	TPSMDJ20CA	PEVA	DEVA	22.20	24.50	1	1	20.0	92.59	32.40
TPSMDJ22A	TPSMDJ22CA	PEXA	DEXA	24.40	26.90	1	1	22.0	84.51	35.50
TPSMDJ24A	TPSMDJ24CA	PEZA	DEZA	26.70	29.50	1	1	24.0	77.12	38.90
TPSMDJ26A	TPSMDJ26CA	PFEA	DFEA	28.90	31.90	1	1	26.0	71.26	42.10
TPSMDJ28A	TPSMDJ28CA	PFGA	DFGA	31.10	34.40	1	1	28.0	66.08	45.40
TPSMDJ30A	TPSMDJ30CA	PFKA	DFKA	33.30	36.80	1	1	30.0	61.98	48.40
TPSMDJ33A	TPSMDJ33CA	PFMA	DFMA	36.70	40.60	1	1	33.0	56.29	53.30
TPSMDJ36A	TPSMDJ36CA	PFPA	DFPA	40.00	44.20	1	1	36.0	51.64	58.10
TPSMDJ40A	TPSMDJ40CA	PFRA	DFRA	44.40	49.10	1	1	40.0	46.51	64.50
TPSMDJ43A	TPSMDJ43CA	PFTA	DFTA	47.80	52.80	1	1	43.0	43.23	69.40

Note:

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



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

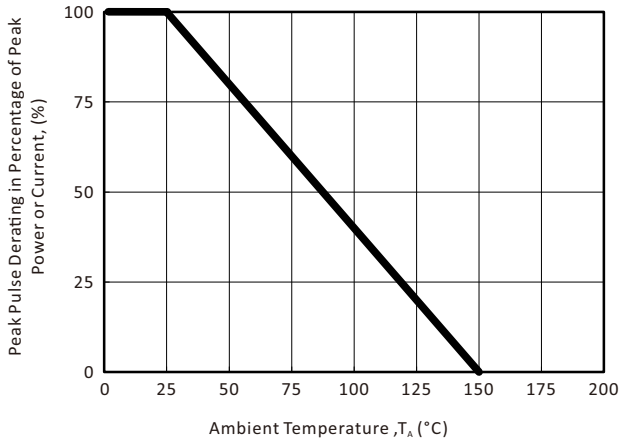


Fig. 1 - Pulse Derating Curve

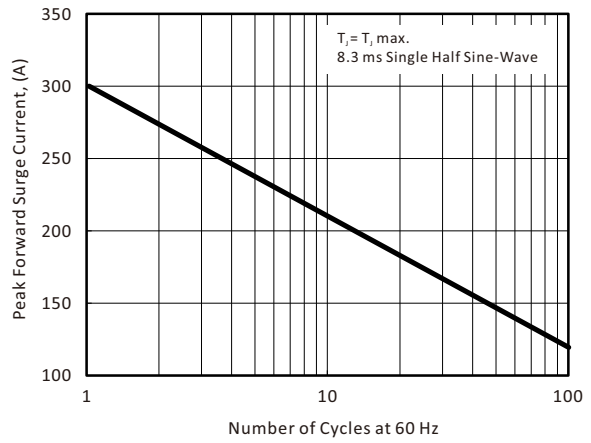


Fig. 2 - Maximum Non-Repetitive Surge Current

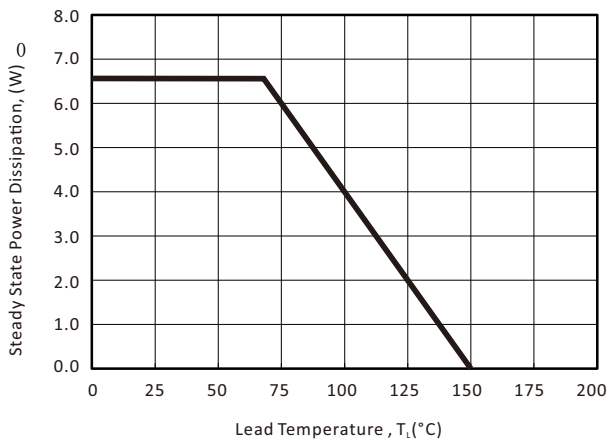


Fig. 3 - Steady State Power Derating Curve

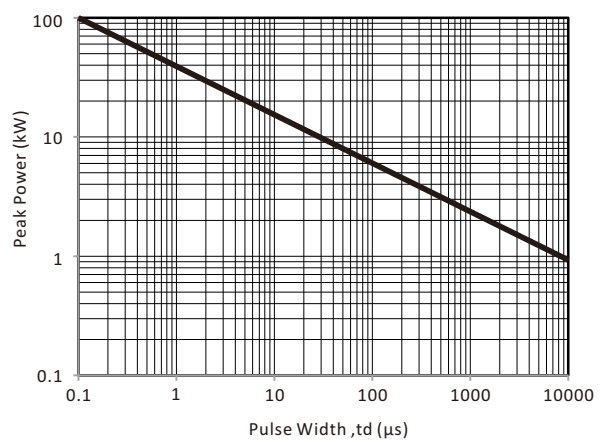


Fig. 4 - Peak Pulse Power Rating Curve

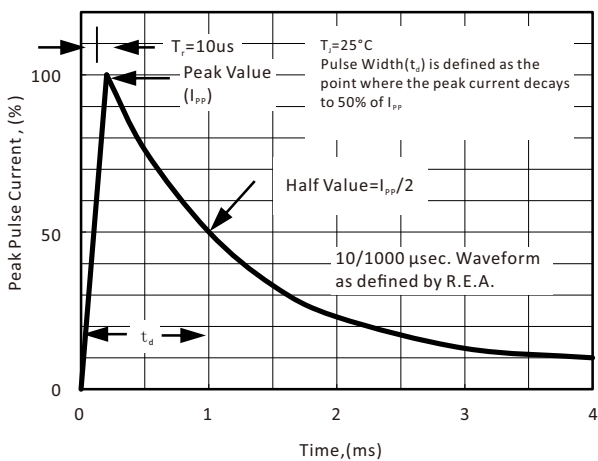


Fig. 5 - Pulse Waveform

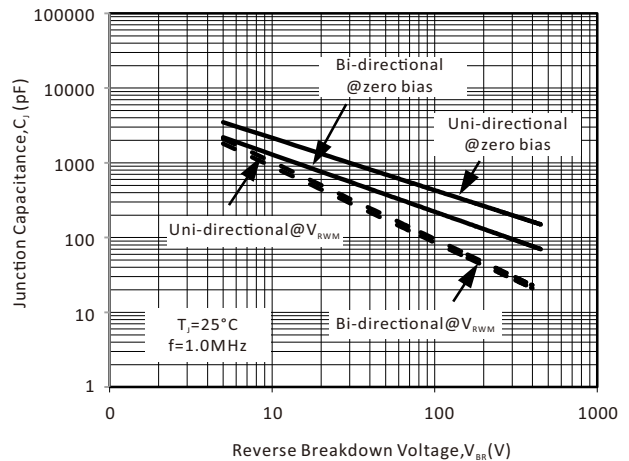
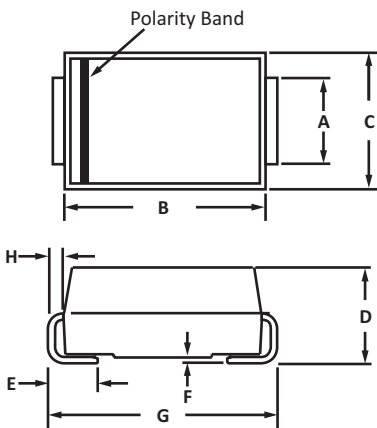


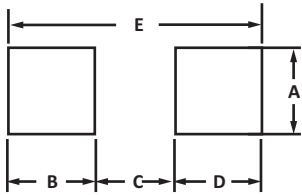
Fig. 6 - Typical Junction Capacitance



DO-214AB(SMC) PACKAGE DIMENSIONS

 <p>The diagram shows two views of the DO-214AB(SMC) package. The top view is a rectangle with dimensions A (height), B (width), and C (total height including leads). A 'Polarity Band' is indicated on the left side. The bottom view is a perspective view showing the leads with dimensions D (height), E (lead width), F (lead thickness), and G (total width including leads).</p>	DIM	MILLIMETERS		INCHES	
		Min.	Max.	Min.	Max.
A	2.90	3.20	0.114	0.126	
B	6.60	7.15	0.260	0.281	
C	5.55	6.04	0.219	0.238	
D	1.98	2.53	0.078	0.100	
E	0.75	1.51	0.030	0.059	
F	0.00	0.20	0.000	0.008	
G	7.75	7.95	0.305	0.313	
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

 <p>The diagram shows the recommended pad layout for the DO-214AB(SMC) package. It features two square pads. Dimension E is the total width between the inner edges of the pads. Dimension A is the height of the pads. Dimension B is the width of the left pad, C is the gap between the pads, and D is the width of the right pad.</p>	DIM	MILLIMETERS		INCHES	
		Min.	Max.	Min.	Max.
A	3.30	-	0.129	-	
B	2.40	-	0.094	-	
C	-	4.20	-	0.165	
D	2.40	-	0.094	-	
E	8.13 REF		0.320 REF		



CONTACT US**Headquarters**

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

Hotline

400-021-5756

Web

<http://www.semiware.com.cn>

By Telephone

Sales: 86-21-3463-7345

Customer Service: 86-21-3463-7172-8810/8826

Technical Support: 86-21-3463-7173-8811

By Email

Sales: sales03@semiware.com.cn

Customer Service: sales17@semiware.com.cn

Technical Support: fae03@semiware.com.cn

By Fax

General: 86-21-3965-0654

Sales: 86-21-3463-7458

COPYRIGHT ©Semiware 2009 - This literature is subject to all applicable copyright laws and is not for resale in any manner.

SPECIFICATIONS: Semiware reserves the right to change the electrical and or mechanical characteristics described herein without notice.

DESIGN CHANGES : Semiware reserves the right to discontinue product lines without notice and that the final judgement concerning selection and specifications is the buyer's and that in furnishing engineering and technical assistance. Semiware assumes no responsibility with respect to the selection or specifications of such products. Semiware makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Semiware assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability without limitation special, consequential or incidental damages.

LIFE SUPPORT POLICY: Semiware products are not authorized for use in life support systems without written consent from the factory.

