

DESCRIPTION

The TP5.0SMDJ High Reliability series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

FEATURES

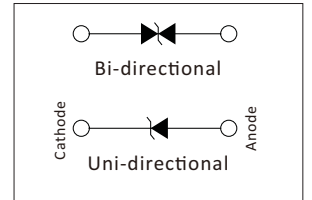
- > Glass passivated chip
- > 5000 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01 %
- > High reliability application and automotive grade
- > AEC Q101 qualified
- > Low leakage
- > Uni and Bidirectional unit
- > Excellent clamping capability
- > Very fast 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}	5000	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	V_F	3.5	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



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)	$I_R@V_{RWM}$ (μ A)	V_{RWM} (V)	I_{PP} (A)	$V_C@I_{PP}$ (V)
TP5.0SMDJ10A	TP5.0SMDJ10CA	5SAE	5DAE	11.10	12.30	1	1	10.0	294.12	17.00
TP5.0SMDJ11A	TP5.0SMDJ11CA	5SAF	5DAF	12.20	13.50	1	1	11.0	275.00	18.20
TP5.0SMDJ12A	TP5.0SMDJ12CA	5SAG	5DAG	13.30	14.70	1	1	12.0	252.00	19.90
TP5.0SMDJ13A	TP5.0SMDJ13CA	5SAK	5DAK	14.40	15.90	1	1	13.0	233.00	21.50
TP5.0SMDJ14A	TP5.0SMDJ14CA	5SAM	5DAM	15.60	17.20	1	1	14.0	216.00	23.20
TP5.0SMDJ15A	TP5.0SMDJ15CA	5SAP	5DAP	16.70	18.50	1	1	15.0	205.00	24.40
TP5.0SMDJ16A	TP5.0SMDJ16CA	5SAR	5DAR	17.80	19.70	1	1	16.0	193.00	26.00
TP5.0SMDJ18A	TP5.0SMDJ18CA	5SAV	5DAV	20.00	22.10	1	1	18.0	172.00	29.20
TP5.0SMDJ20A	TP5.0SMDJ20CA	5SAZ	5DAZ	22.20	24.50	1	1	20.0	155.00	32.40
TP5.0SMDJ22A	TP5.0SMDJ22CA	5SBE	5DBE	24.40	26.90	1	1	22.0	141.00	35.50
TP5.0SMDJ24A	TP5.0SMDJ24CA	5SBF	5DBF	26.70	29.50	1	1	24.0	129.00	38.90
TP5.0SMDJ26A	TP5.0SMDJ26CA	5SBG	5DBG	28.90	31.90	1	1	26.0	119.00	42.10
TP5.0SMDJ28A	TP5.0SMDJ28CA	5SBK	5DBK	31.10	34.40	1	1	28.0	110.00	45.40
TP5.0SMDJ30A	TP5.0SMDJ30CA	5SBM	5DBM	33.30	36.80	1	1	30.0	103.00	48.40
TP5.0SMDJ33A	TP5.0SMDJ33CA	5SBP	5DBP	36.70	40.60	1	1	33.0	93.90	53.30
TP5.0SMDJ36A	TP5.0SMDJ36CA	5SBR	5DBR	40.00	44.20	1	1	36.0	86.10	58.10
TP5.0SMDJ40A	TP5.0SMDJ40CA	5SBT	5DBT	44.40	49.10	1	1	40.0	77.60	64.50
TP5.0SMDJ43A	TP5.0SMDJ43CA	5SBV	5DBV	47.80	52.80	1	1	43.0	72.10	69.40
TP5.0SMDJ45A	TP5.0SMDJ45CA	5SBX	5DBX	50.00	55.30	1	1	45.0	68.80	72.70
TP5.0SMDJ48A	TP5.0SMDJ48CA	5SBZ	5DBZ	53.30	58.90	1	1	48.0	64.70	77.40
TP5.0SMDJ51A	TP5.0SMDJ51CA	5SCE	5DCE	56.70	62.70	1	1	51.0	60.70	82.40
TP5.0SMDJ54A	TP5.0SMDJ54CA	5SCF	5DCF	60.00	66.30	1	1	54.0	57.50	87.10
TP5.0SMDJ58A	TP5.0SMDJ58CA	5SCG	5DCG	64.40	71.20	1	1	58.0	53.50	93.60

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



RATINGS AND CHARACTERISTICS CURVES (T_A=25°C UNLESS OTHERWISE NOTED)

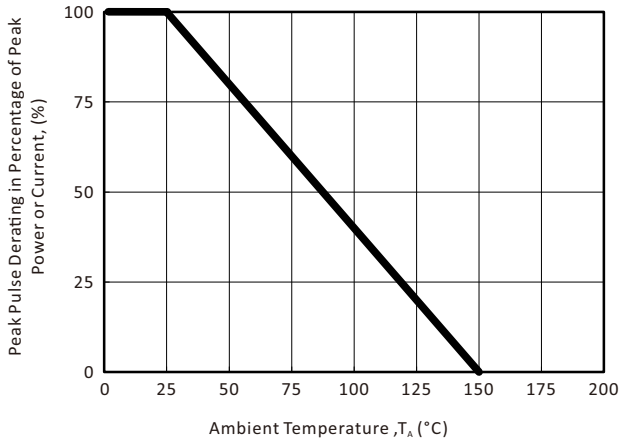


Fig. 1 - Pulse Derating Curve

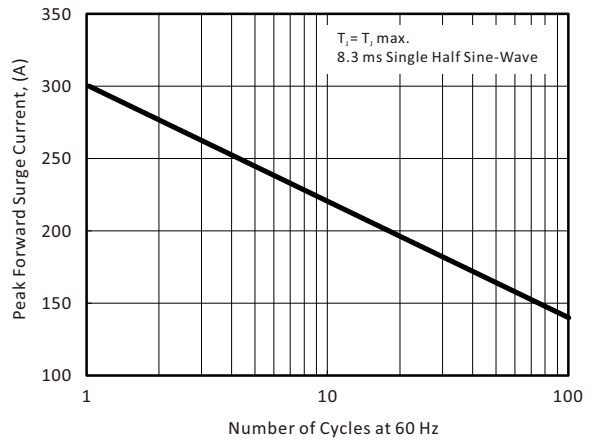


Fig. 2 - Maximum Non-Repetitive Surge Current

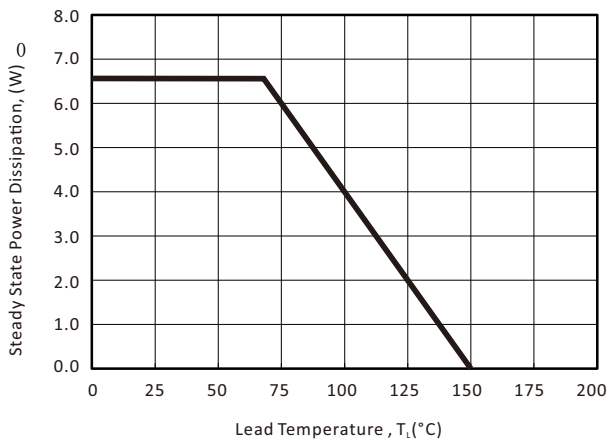


Fig. 3 - Steady State Power Derating Curve

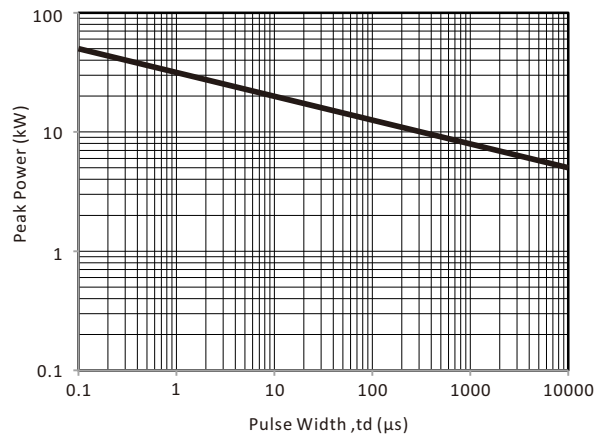


Fig. 4 - Peak Pulse Power Rating Curve

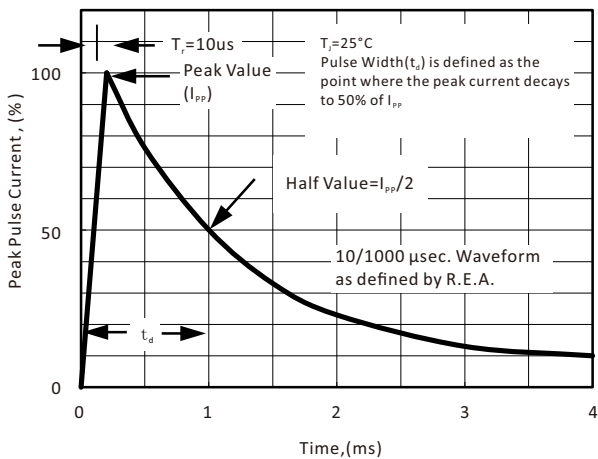


Fig. 5 - Pulse Waveform

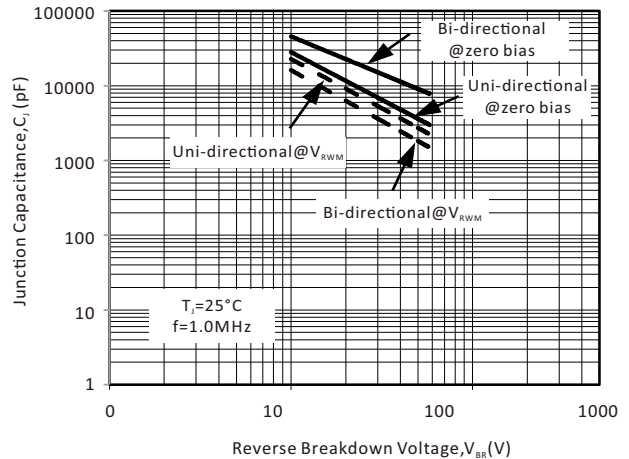


Fig. 6 - Typical Junction Capacitance



DO-214AB(SMC) PACKAGE DIMENSIONS

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

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.

