



# 5.0SMDJ-A SERIES

Surface Mount Transient Voltage Suppressor

## Features

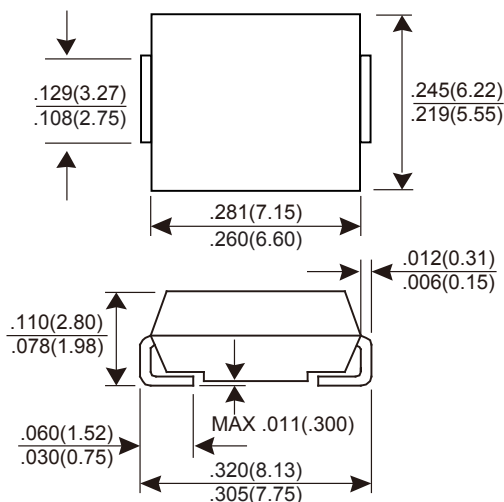
- ★ High reliability application and automotive grade AEC-Q101 qualified
- ★ 5000W peak pulse power capability at 10/1000 $\mu$ s waveform, repetition rate (duty cycles):0.01%
- ★ Low leakage
- ★ Excellent clamping capability
- ★ Very fast response time
- ★ RoHS compliant
- ★ IEC-61000-4-2 ESD 30kV(Air), 30kV(Contact)
- ★ ESD protection of data lines in accordance with IEC 61000-4-2
- ★  $V_{BR}@T_J = V_{BR}@25^{\circ}C \times (1 + \alpha T \times (T_J - 25))$   
( $\alpha T$ : Temperature Coefficient, typical value is 0.1%)

## Mechanical Data

- ★ Case: Molded plastic, SMC/DO-214AB
- ★ Epoxy: UL 94V-0 rate flame retardant
- ★ Terminals: Solderable per MIL-STD-750, method 2026
- ★ Polarity: Color band denotes cathode end
- ★ Part no. with suffix "-A" means AEC-Q101 qualified

**Working Voltage 11 to 58 V**  
**Peak Pulse Power 5000W**

## SMC/DO-214AB



Dimensions in inches and (millimeters)

## MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

$T_A = 25^{\circ}C$  unless otherwise noted

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 $\mu$ s waveform (Note 1,2)	$P_{PPM}$	5000	W
Peak forward surge current, 8.3 ms single half sine-wave (Note 3)	$I_{FSM}$	300	A
Power dissipation on infinite heatsink at $T_L=50^{\circ}C$	$P_D$	6.5	W
Maximum instantaneous forward voltage at 100A for unidirectional only	$V_F$	3.5	V
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	$^{\circ}C/W$
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	$^{\circ}C/W$
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +150	$^{\circ}C$

Notes : (1) Non-repetitive current pulse, per Fig. 3 and derated above  $T_A=25^{\circ}C$  per Fig. 2

(2) Mounted on copper pad area of 0.31" x 0.31" (8.0 x 8.0mm) to each terminal

(3) Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

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Electrical Characteristics( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R@V_{RWM}$ ( $\mu\text{A}$ )	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)				
5.0SMDJ11A-A	5.0SMDJ11CA-A	5PDX	5BDX	12.2	13.5	10	800	11	274.73	18.2
5.0SMDJ12A-A	5.0SMDJ12CA-A	5PDZ	5BDZ	13.3	14.7	10	800	12	251.26	19.9
5.0SMDJ13A-A	5.0SMDJ13CA-A	5PEE	5BEE	14.4	15.9	10	500	13	232.56	21.5
5.0SMDJ14A-A	5.0SMDJ14CA-A	5PEG	5BEG	15.6	17.2	10	200	14	215.52	23.2
5.0SMDJ15A-A	5.0SMDJ15CA-A	5PEK	5BEK	16.7	18.5	1	100	15	204.92	24.4
5.0SMDJ16A-A	5.0SMDJ16CA-A	5PEM	5BEM	17.8	19.7	1	50	16	192.31	26.0
5.0SMDJ17A-A	5.0SMDJ17CA-A	5PEP	5BEP	18.9	20.9	1	20	17	181.16	27.6
5.0SMDJ18A-A	5.0SMDJ18CA-A	5PER	5BER	20.0	22.1	1	10	18	171.23	29.2
5.0SMDJ19A-A	5.0SMDJ19CA-A	5PET	5BET	21.1	23.3	1	10	19	162.34	30.8
5.0SMDJ20A-A	5.0SMDJ20CA-A	5PEV	5BEV	22.2	24.5	1	5	20	154.32	32.4
5.0SMDJ22A-A	5.0SMDJ22CA-A	5PEX	5BEX	24.4	26.9	1	5	22	140.85	35.5
5.0SMDJ24A-A	5.0SMDJ24CA-A	5PEZ	5BEZ	26.7	29.5	1	2	24	128.53	38.9
5.0SMDJ26A-A	5.0SMDJ26CA-A	5PFE	5BFE	28.9	31.9	1	2	26	118.76	42.1
5.0SMDJ28A-A	5.0SMDJ28CA-A	5PFG	5BFG	31.1	34.4	1	2	28	110.13	45.4
5.0SMDJ30A-A	5.0SMDJ30CA-A	5PFK	5BFK	33.3	36.8	1	2	30	103.31	48.4
5.0SMDJ33A-A	5.0SMDJ33CA-A	5PFM	5BFM	36.7	40.6	1	2	33	93.81	53.3
5.0SMDJ36A-A	5.0SMDJ36CA-A	5PFP	5BFP	40.0	44.2	1	2	36	86.06	58.1
5.0SMDJ40A-A	5.0SMDJ40CA-A	5PFR	5BFR	44.4	49.1	1	2	40	77.52	64.5
5.0SMDJ43A-A	5.0SMDJ43CA-A	5PFT	5BFT	47.8	52.8	1	2	43	72.05	69.4
5.0SMDJ45A-A	5.0SMDJ45CA-A	5PFV	5BFV	50.0	55.3	1	2	45	68.78	72.7
5.0SMDJ48A-A	5.0SMDJ48CA-A	5PFX	5BFX	53.3	58.9	1	2	48	64.60	77.4
5.0SMDJ51A-A	5.0SMDJ51CA-A	5PFZ	5BFZ	56.7	62.7	1	2	51	60.68	82.4
5.0SMDJ54A-A	5.0SMDJ54CA-A	5PGE	5BGE	60.0	66.3	1	2	54	57.41	87.1
5.0SMDJ58A-A	5.0SMDJ58CA-A	5PGG	5BGG	64.4	71.2	1	2	58	53.42	93.6

Suffix "A" denotes 5% tolerance device.

Add suffix "CA" after part number to specify Bi-directional devices.

For Bi-directional type having  $V_R$  of 20 volts and less, the  $I_R$  limit is double.

# RATINGS AND CHARACTERISTICS CURVES 5.0SMDJ-A SERIES

Fig.1 - Peak Pulse Power Rating Curve

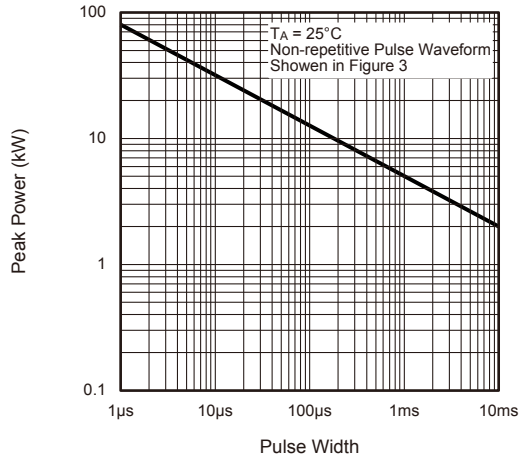


Fig.2 - Pulse Derating Curve

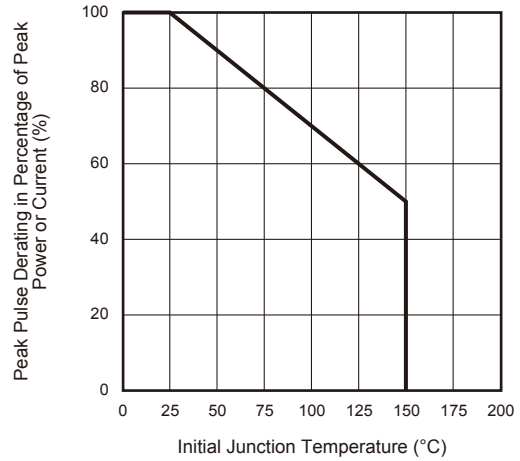


Fig.3 - Pulse Waveform

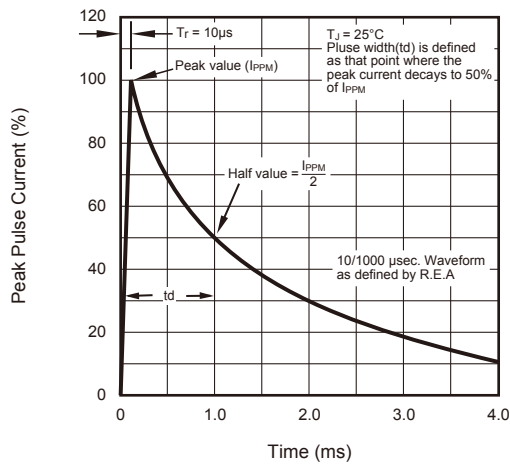


Fig.4 - Typical Junction Capacitance

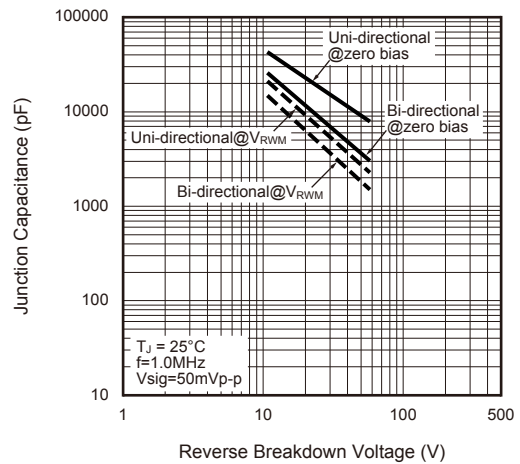


Fig.5 - Steady State Power Derating Curve

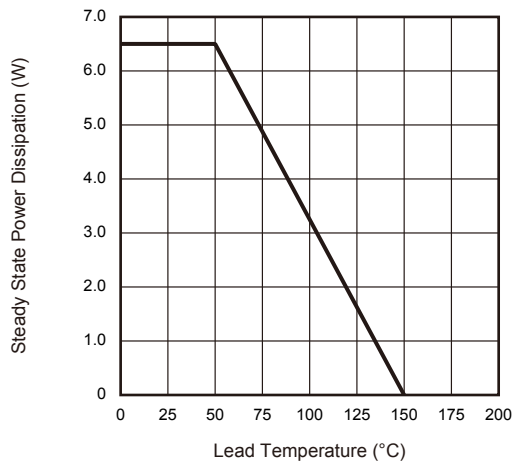


Fig.6 - Maximum Non-Repetitive Surge Current

