

3000W, 10V - 100V Surface Mount Transient Voltage Suppressor

FEATURES

- AEC-Q101 qualified
- Ideal for automated placement
- Glass passivated chip junction
- Excellent clamping capability
- Meets ISO 7637-2 (Pulse 1/2a/2b/3a/3b)
- Fast response time: Typically less than 1.0ps
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_{WM}	10 - 100	V
V_{BR}	11.1 - 123	V
P_{PK}	3000	W
$T_{J MAX}$	175	°C
Package	DO-214AB (SMC)	
Configuration	Single die	

APPLICATIONS

- Immunization of sensitive devices in telecommunications, consumer electronics, and industrial equipment from electrostatic discharge (ESD) and transient voltages induced by load switching and lightning.



MECHANICAL DATA

- Case: DO-214AB (SMC)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.290g (approximately)



DO-214AB (SMC)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation at $T_A = 25^\circ\text{C}$, $t_p = 1\text{ms}^{(1)}$	P_{PK}	3000	W
Steady state power dissipation at $T_A = 25^\circ\text{C}$	P_D	6.5	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	300	A
Forward Voltage @ $I_F = 100\text{A}$ for Unidirectional only ⁽²⁾	V_F	3.5 / 5.0	V
Junction temperature	T_J	-55 to +175	°C
Storage temperature	T_{STG}	-55 to +175	°C

Notes:

1. Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ per Fig.2
2. $V_F = 3.5\text{V}$ on SMDJ10AH - SMDJ90AH devices and $V_F = 5.0\text{V}$ on SMDJ100AH

Devices for bipolar applications

1. For bidirectional use CAH suffix for SMDJ10AH – SMDJ64AH
2. Electrical characteristics apply in both directions

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	75	°C/W
Junction-to-lead thermal resistance	$R_{\theta JL}$	15	°C/W

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

Part number		Marking code		Breakdown voltage $V_{BR}@I_T$ (V)		Test current I_T (mA)	Working stand-off voltage V_{WM} (V)	Maximum Reverse Leakage $I_R@V_{WM}$ (μA)	Maximum peak impulse current I_{PPM} (A)	Maximum clamping voltage $V_C@I_{PPM}$ (V)
				Min	Max					
Uni	Bi	Uni	Bi							
SMDJ10AH	SMDJ10CAH	PDX	DDX	11.1	12.3	1	10	5	176.5	17.0
SMDJ11AH	SMDJ11CAH	PDZ	DDZ	12.2	13.5	1	11	1	164.8	18.2
SMDJ12AH	SMDJ12CAH	PEE	DEE	13.3	14.7	1	12	1	150.8	19.9
SMDJ13AH	SMDJ13CAH	PEG	DEG	14.4	15.9	1	13	1	139.5	21.5
SMDJ14AH	SMDJ14CAH	PEK	DEK	15.6	17.2	1	14	1	129.3	23.2
SMDJ15AH	SMDJ15CAH	PEM	DEM	16.7	18.5	1	15	1	123.0	24.4
SMDJ16AH	SMDJ16CAH	PEP	DEP	17.8	19.7	1	16	1	115.4	26.0
SMDJ17AH	SMDJ17CAH	PER	DER	18.9	20.9	1	17	1	108.7	27.6
SMDJ18AH	SMDJ18CAH	PET	DET	20.0	22.1	1	18	1	102.7	29.2
SMDJ20AH	SMDJ20CAH	PEV	DEV	22.2	24.5	1	20	1	92.6	32.4
SMDJ22AH	SMDJ22CAH	PEX	DEX	24.4	26.9	1	22	1	84.5	35.5
SMDJ24AH	SMDJ24CAH	PEZ	DEZ	26.7	29.5	1	24	1	77.1	38.9
SMDJ26AH	SMDJ26CAH	PFE	DFE	28.9	31.9	1	26	1	71.3	42.1
SMDJ28AH	SMDJ28CAH	PFG	DFG	31.1	34.4	1	28	1	66.1	45.4
SMDJ30AH	SMDJ30CAH	PFK	DFK	33.3	36.8	1	30	1	62.0	48.4
SMDJ33AH	SMDJ33CAH	PFM	DFM	36.7	40.6	1	33	1	56.3	53.3
SMDJ36AH	SMDJ36CAH	PFV	DFV	40.0	44.2	1	36	1	51.6	58.1
SMDJ40AH	SMDJ40CAH	PFR	DFR	44.4	49.1	1	40	1	46.5	64.5
SMDJ43AH	SMDJ43CAH	PFT	DFT	47.8	52.8	1	43	1	43.2	69.4
SMDJ45AH	SMDJ45CAH	PFV	DFV	50.0	55.3	1	45	1	41.3	72.7
SMDJ48AH	SMDJ48CAH	PFX	DFX	53.3	58.9	1	48	1	38.8	77.4
SMDJ51AH	SMDJ51CAH	PFZ	DFZ	56.7	62.7	1	51	1	36.4	82.4
SMDJ54AH	SMDJ54CAH	PGE	DGE	60.0	66.3	1	54	1	34.4	87.1
SMDJ58AH	SMDJ58CAH	PGG	DGG	64.4	71.2	1	58	1	32.1	93.6
SMDJ60AH	SMDJ60CAH	PGK	DGK	66.7	73.7	1	60	1	31.0	96.8
SMDJ64AH	SMDJ64CAH	PGM	DGM	71.1	78.6	1	64	1	29.1	103
SMDJ70AH		PGP		77.8	86.0	1	70	1	26.5	113
SMDJ75AH		PGR		83.3	92.1	1	75	1	24.8	121
SMDJ78AH		PGT		86.7	95.8	1	78	1	23.8	126
SMDJ85AH		PGV		94.4	104	1	85	1	21.9	137
SMDJ90AH		PGX		100	111	1	90	1	20.5	146
SMDJ100AH		PGZ		111	123	1	100	1	18.5	162

ORDERING INFORMATION

ORDERING CODE⁽¹⁾	PACKAGE	PACKING
SMDJxH	DO-214AB (SMC)	3,000 / Tape & Reel

Notes:

- “x” defines voltage from 10V(SMDJ10AH) to 100V(SMDJ100AH)
 “x” defines voltage from 10V(SMDJ10CAH) to 64V(SMDJ64CAH)

CHARACTERISTICS CURVES

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

Fig.1 Peak Pulse Power Rating Curve

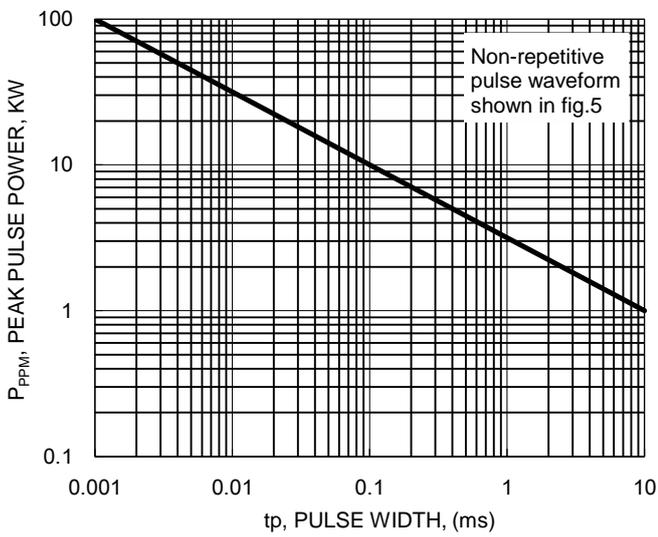


Fig.2 Pulse Derating Curve

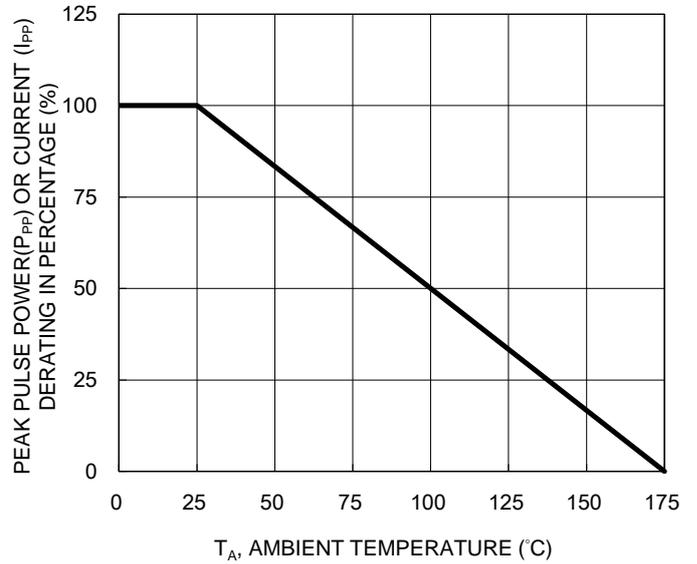


Fig.3 Typical Junction Capacitance

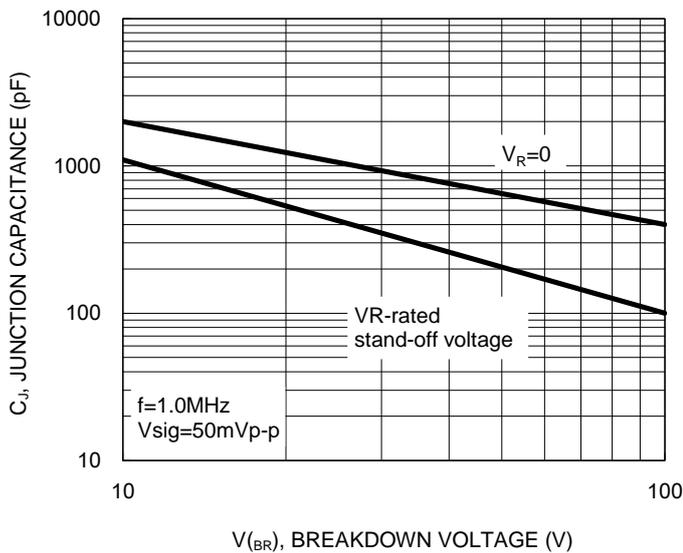
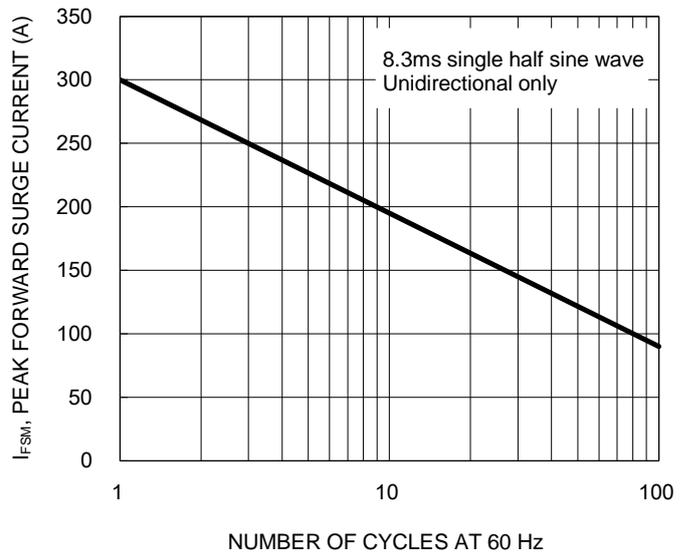


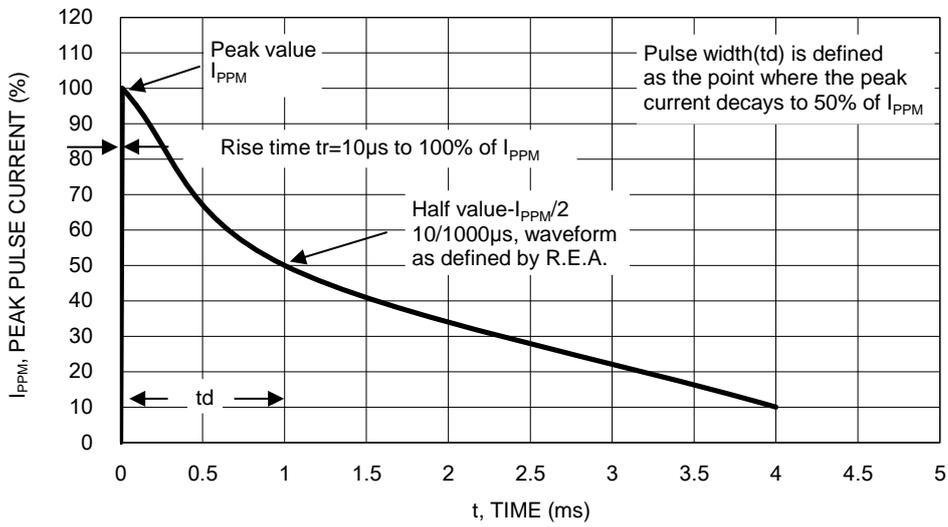
Fig.4 Maximum Non-repetitive Forward Surge Current



CHARACTERISTICS CURVES

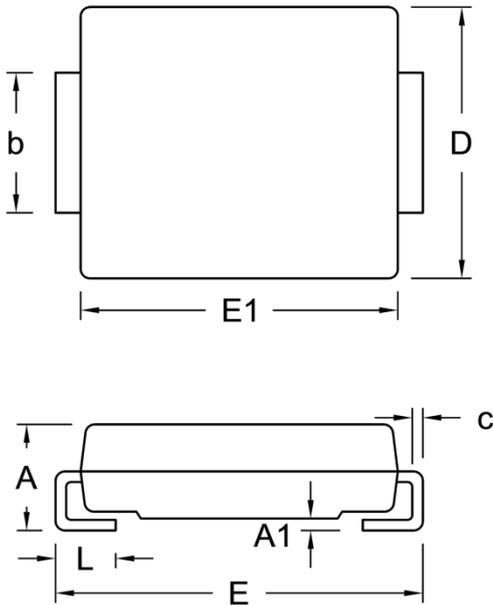
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.5 Clamping Power Pulse Waveform



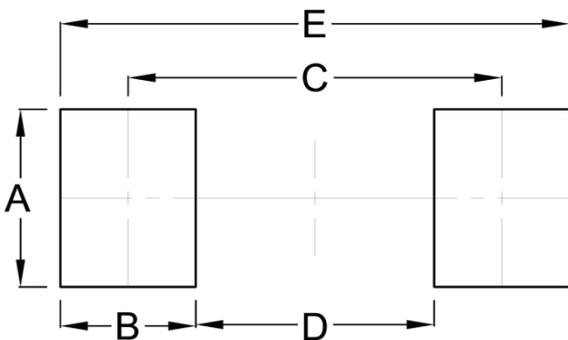
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.10	0.20	0.004	0.008
b	2.90	3.20	0.114	0.126
c	0.15	0.31	0.006	0.012
D	5.59	6.22	0.220	0.245
E	7.75	8.13	0.305	0.320
E1	6.60	7.11	0.260	0.280
L	1.00	1.60	0.039	0.063

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.90	0.272
D	4.40	0.173
E	9.40	0.370

MARKING DIAGRAM



Cathode band for uni-directional products only

- P/N = Marking Code
- G = Green Compound
- YW = Date Code
- F = Factory Code

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.