

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	Min	Max					
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

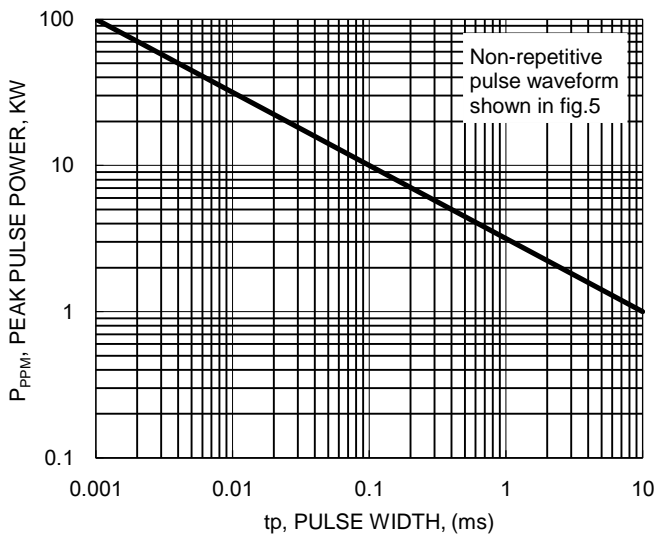


Fig.2 Pulse Derating Curve



Fig.3 Typical Junction Capacitance

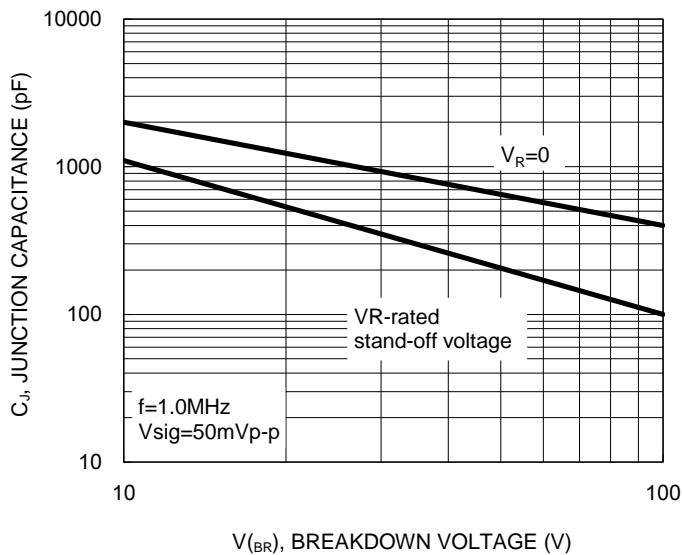
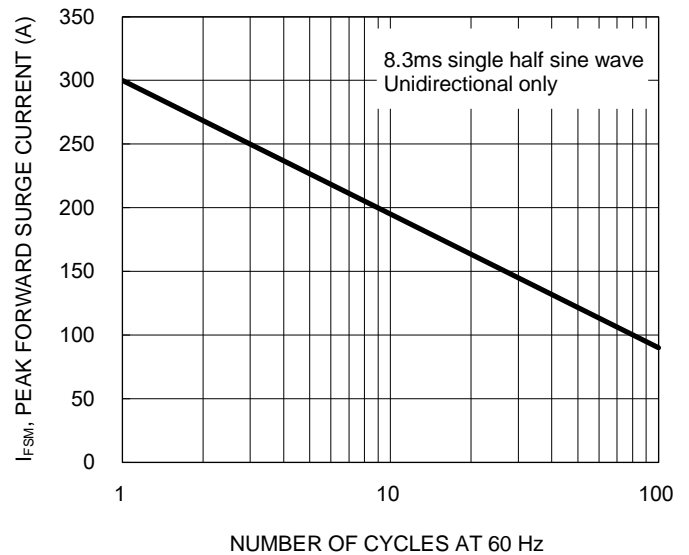


Fig.4 Maximum Non-repetitive Forward Surge Current



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



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

Cathode band for uni-directional products only