

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

FEATURES

- Ideal for automated placement
- Glass passivated junction
- Excellent clamping capability
- Fast response time: Typically less than 1.0ps
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Immunization of sensitive devices in automotive, 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
- Part no. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- Moisture sensitivity level: level 1, per J-STD-020
- Terminal : Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity : As marked
- Weight : 0.29 g (approximately)

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	



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, 8.3 ms 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. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2
2. $V_F=3.5\text{V}$ on SMDJ10A - SMDJ90A devices and $V_F=5.0\text{V}$ on SMDJ100A

Devices for bipolar applications

1. For bidirectional use CA suffix for SMDJ10A – SMDJ64A
2. Electrical characteristics apply in both directions

THERMAL PERFORMANCE

PARAMETER	SYMBOL	LIMIT	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)
UNI.	BI.	UNI.	BI.	MIN.	MAX.					
SMDJ10A	SMDJ10CA	PDX	DDX	11.1	12.3	1	10	5	176.5	17.0
SMDJ11A	SMDJ11CA	PDZ	DDZ	12.2	13.5	1	11	1	164.8	18.2
SMDJ12A	SMDJ12CA	PEE	DEE	13.3	14.7	1	12	1	150.8	19.9
SMDJ13A	SMDJ13CA	PEG	DEG	14.4	15.9	1	13	1	139.5	21.5
SMDJ14A	SMDJ14CA	PEK	DEK	15.6	17.2	1	14	1	129.3	23.2
SMDJ15A	SMDJ15CA	PEM	DEM	16.7	18.5	1	15	1	123.0	24.4
SMDJ16A	SMDJ16CA	PEP	DEP	17.8	19.7	1	16	1	115.4	26.0
SMDJ17A	SMDJ17CA	PER	DER	18.9	20.9	1	17	1	108.7	27.6
SMDJ18A	SMDJ18CA	PET	DET	20.0	22.1	1	18	1	102.7	29.2
SMDJ20A	SMDJ20CA	PEV	DEV	22.2	24.5	1	20	1	92.6	32.4
SMDJ22A	SMDJ22CA	PEX	DEX	24.4	26.9	1	22	1	84.5	35.5
SMDJ24A	SMDJ24CA	PEZ	DEZ	26.7	29.5	1	24	1	77.1	38.9
SMDJ26A	SMDJ26CA	PFE	DFE	28.9	31.9	1	26	1	71.3	42.1
SMDJ28A	SMDJ28CA	PFG	DFG	31.1	34.4	1	28	1	66.1	45.4
SMDJ30A	SMDJ30CA	PFK	DFK	33.3	36.8	1	30	1	62.0	48.4
SMDJ33A	SMDJ33CA	PFM	DFM	36.7	40.6	1	33	1	56.3	53.3
SMDJ36A	SMDJ36CA	PFP	DFP	40.0	44.2	1	36	1	51.6	58.1
SMDJ40A	SMDJ40CA	PFR	DFR	44.4	49.1	1	40	1	46.5	64.5
SMDJ43A	SMDJ43CA	PFT	DFT	47.8	52.8	1	43	1	43.2	69.4
SMDJ45A	SMDJ45CA	PFV	DFV	50.0	55.3	1	45	1	41.3	72.7
SMDJ48A	SMDJ48CA	PFX	DFX	53.3	58.9	1	48	1	38.8	77.4
SMDJ51A	SMDJ51CA	PFZ	DFZ	56.7	62.7	1	51	1	36.4	82.4
SMDJ54A	SMDJ54CA	PGE	DGE	60.0	66.3	1	54	1	34.4	87.1
SMDJ58A	SMDJ58CA	PGG	DGG	64.4	71.2	1	58	1	32.1	93.6
SMDJ60A	SMDJ60CA	PGK	DGK	66.7	73.7	1	60	1	31.0	96.8
SMDJ64A	SMDJ64CA	PGM	DGM	71.1	78.6	1	64	1	29.1	103
SMDJ70A		PGP		77.8	86.0	1	70	1	26.5	113
SMDJ75A		PGR		83.3	92.1	1	75	1	24.8	121
SMDJ78A		PGT		86.7	95.8	1	78	1	23.8	126
SMDJ85A		PGV		94.4	104	1	85	1	21.9	137
SMDJ90A		PGX		100	111	1	90	1	20.5	146
SMDJ100A		PGZ		111	123	1	100	1	18.5	162

ORDERING INFORMATION

PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX(*)	PACKAGE	PACKING
SMDJxxxx (Note 1)	H	R7	G	SMC	850 / 7" Plastic reel
		R6		SMC	3,000 / 13" Paper reel
		M6		SMC	3,000 / 13" Plastic reel
		V7		Matrix SMC	850 / 7" Plastic reel
		V6		Matrix SMC	3,000 / 13" Plastic reel

Note :

1. "xxxx" defines voltage from 10V (SMDJ10A) to 100V (SMDJ100A)

*: Optional available

EXAMPLE

EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
SMDJ10AHR7G	SMDJ10A	H	R7	G	AEC-Q101 qualified Green compound

CHARACTERISTICS CURVES

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

Fig.1 Peak Pulse Power Rating Curve

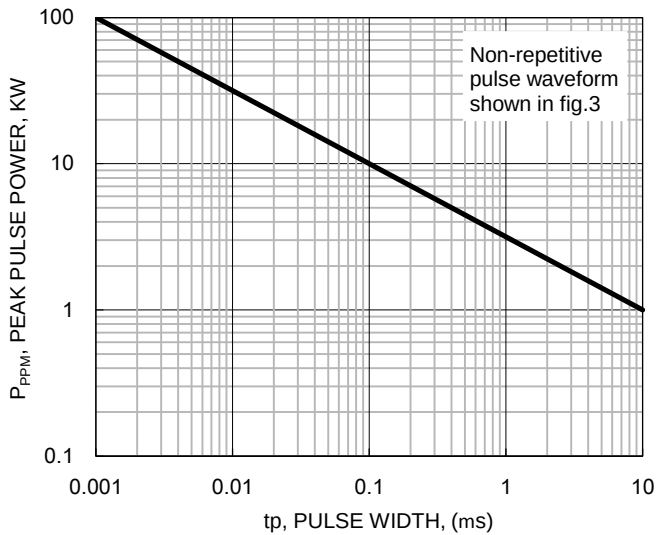


Fig.2 Pulse Derating Curve

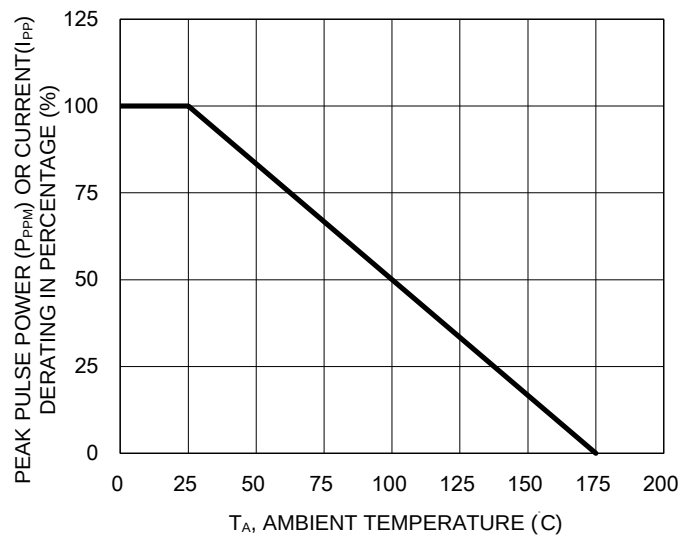


Fig.3 Clamping Power Pulse Waveform

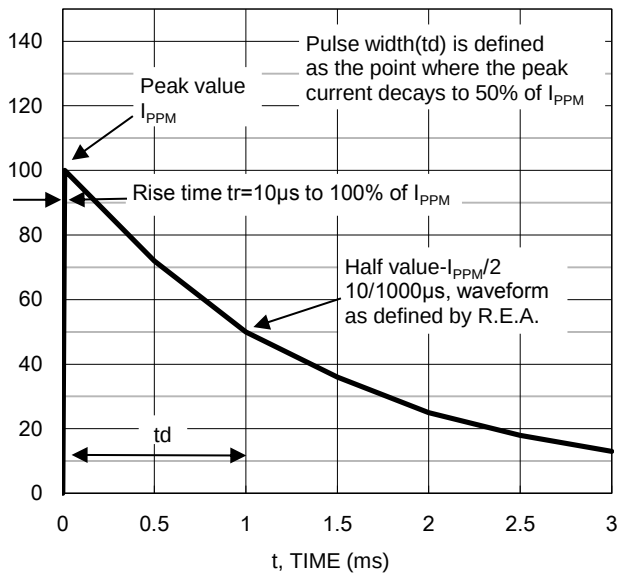
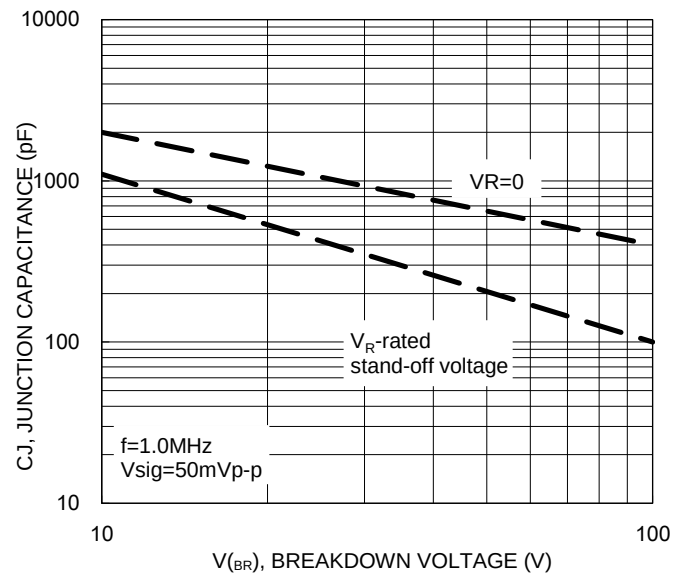


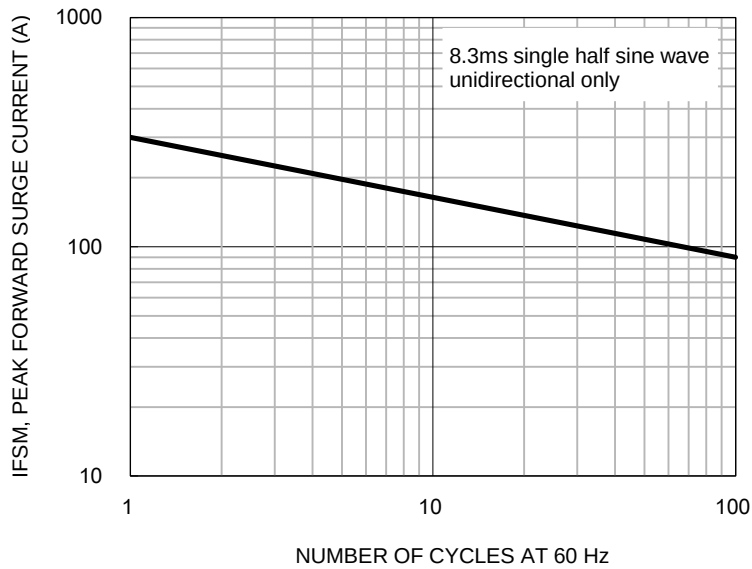
Fig.4 Typical Junction Capacitance



CHARACTERISTICS CURVES

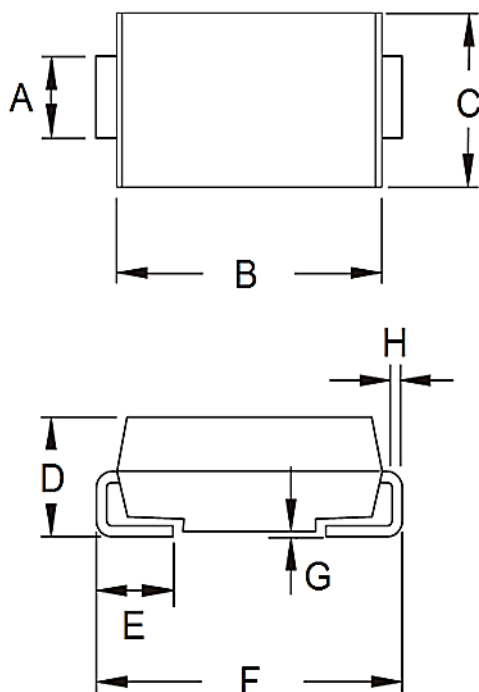
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.5 Maximum Non-repetitive Forward Surge Current



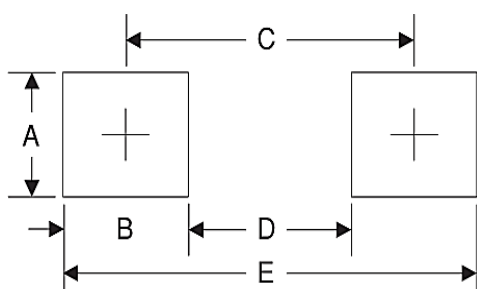
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



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

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.80	0.268
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

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.

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.