5000W, 16V - 100V Surface Mount Transient Voltage Suppressor

FEATURES

- 5000 watts peak pulse power capability at 10/1000μs waveform
- Ideal for automated placement
- Photo glass passivated junction
- Excellent clamping capability
- Fast response time: Typically less than 1.0ps
- Moisture sensitivity level: level 1, per J-STD-020
- AEC-Q101 qualified available:
  ordering code with suffix "H"
- Compliant to RoHS Directive 2011/65/EU and
  in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
V_{WM}	16 - 100	V
V_{BR} (uni-directional)	17.8 - 123	V
P_{PPSM}	5000	W
$T_{J\ MAX}$	175	°C
Package	DO-214AB (SMC)	
Configuration	Stacked die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

DO-214AB (SMC)

APPLICATIONS

- I/O interface
- AC/DC power supply
- Automotive

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: 0.30 g (approximately)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Non-repetitive peak impulse power dissipation with 10/1000us waveform (1)	P_{PK}	5000	W
Steady state power dissipation at T_L=75°C (2)	P_D	6.25	W
Forward Voltage @ I_F=100A for Uni-directional only (3)	V_F	5	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°C Per Fig. 1
2. Units mounted on PCB (16mm x 16mm Cu pad test board)
3. Pulse test with PW=0.3 ms

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance per diode	$R_{\Theta JL}$	16	°C/W
Junction-to-ambient thermal resistance per diode	$R_{\Theta JA}$	61	°C/W
Junction-to-case thermal resistance per diode	$R_{\Theta JC}$	17	°C/W

Thermal Performance Note: Units mounted on PCB (16mm x 16mm Cu pad test board)

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)									
Part number	**Marking code**	**Breakdown voltage** V_{BR}@I_T (V) (Note 1)		**Test current** I_T (mA)	**Working stand-off voltage** V_{WM} (V)	**Maximum blocking leakage current** I_{IB}@V_{WM} (μA) (Note 1)	**Maximum peak impulse current** I_{PP} (A)	**Maximum clamping voltage** V_C@I_{PP} (V)	**Maximum Temp. coefficient of V_{BR}** αV_{BR}@I_T (mV/°C)
Uni	Uni	Min.	Max.						
5.0SMDJ16A	5PET	17.8	19.7	1	16	50	193	26.0	0.096
5.0SMDJ17A	5PEU	18.9	20.9	1	17	20	181	27.6	0.097
5.0SMDJ18A	5PEV	20.0	22.1	1	18	10	172	29.2	0.098
5.0SMDJ20A	5PEW	22.2	24.5	1	20	5	155	32.4	0.099
5.0SMDJ22A	5PEX	24.4	26.9	1	22	5	141	35.5	0.100
5.0SMDJ24A	5PEZ	26.7	29.5	1	24	2	129	38.9	0.101
5.0SMDJ26A	5PFE	28.9	31.9	1	26	2	119	42.1	0.101
5.0SMDJ28A	5PFG	31.1	34.4	1	28	2	110	45.4	0.102
5.0SMDJ30A	5PFK	33.3	36.8	1	30	2	103	48.4	0.103
5.0SMDJ33A	5PFM	36.7	40.6	1	33	2	93.9	53.3	0.104
5.0SMDJ36A	5PFP	40.0	44.2	1	36	2	86.1	58.1	0.104
5.0SMDJ40A	5PFR	44.4	49.1	1	40	2	77.6	64.5	0.105
5.0SMDJ43A	5PFT	47.8	52.8	1	43	2	72.1	69.4	0.105
5.0SMDJ45A	5PFV	50.0	55.3	1	45	2	68.8	72.7	0.106
5.0SMDJ48A	5PFX	53.3	58.9	1	48	2	64.7	77.4	0.106
5.0SMDJ51A	5PFZ	56.7	62.7	1	51	2	60.7	82.4	0.107
5.0SMDJ54A	5PGE	60.0	66.3	1	54	2	57.5	87.1	0.107
5.0SMDJ58A	5PGG	64.4	71.2	1	58	2	53.5	93.6	0.107
5.0SMDJ60A	5PGK	66.7	73.7	1	60	2	51.7	96.8	0.108
5.0SMDJ64A	5PGM	71.1	78.6	1	64	2	48.6	103	0.108
5.0SMDJ70A	5PGP	77.8	86.0	1	70	2	44.3	113	0.108
5.0SMDJ75A	5PGR	83.3	92.1	1	75	2	41.4	121	0.108
5.0SMDJ78A	5PGT	86.7	95.8	1	78	2	39.7	126	0.108
5.0SMDJ85A	5PGV	94.4	104	1	85	2	36.5	137	0.110
5.0SMDJ90A	5PGX	100	111	1	90	2	34.3	146	0.110
5.0SMDJ100A	5PGZ	111	123	1	100	2	30.9	162	0.110

Note:

1. Pulse test with PW=30 ms

ORDERING INFORMATION

ORDERING CODE (Note 1, 2)	PACKAGE	PACKING
5.0SMDJxxxxHR7G	SMC	850 / 7" Plastic reel
5.0SMDJxxxxHR6G	SMC	3,000 / 13" Paper reel
5.0SMDJxxxxHM6G	SMC	3,000 / 13" Plastic reel
5.0SMDJxxxx R7G	SMC	850 / 7" Plastic reel
5.0SMDJxxxx R6G	SMC	3,000 / 13" Paper reel
5.0SMDJxxxx M6G	SMC	3,000 / 13" Plastic reel

Note 1:
"xxxx" defines voltage from 16V (5.0SMDJ16A) to 100V (5.0SMDJ100A)
Note 2:
"H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Pulse Power or Current vs. Initial Junction Temperature

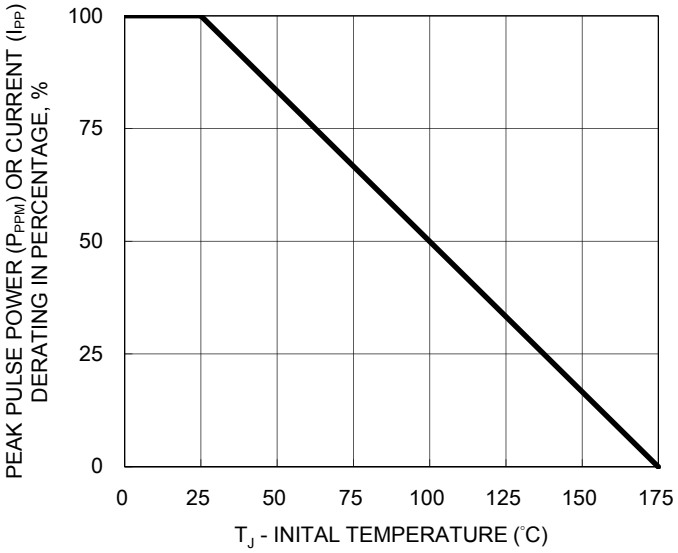


Fig.2 Power Derating Curve

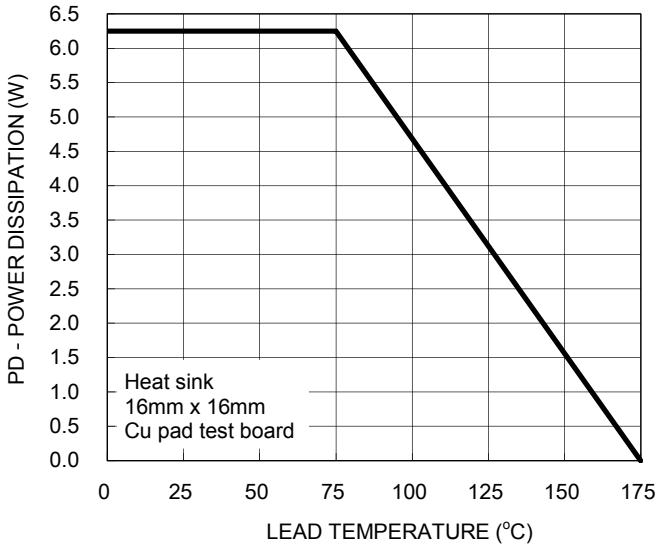


Fig.3 Pulse Waveform

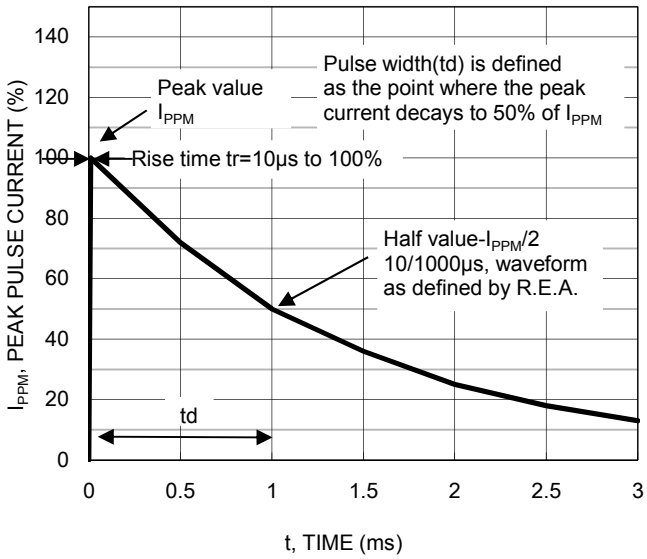
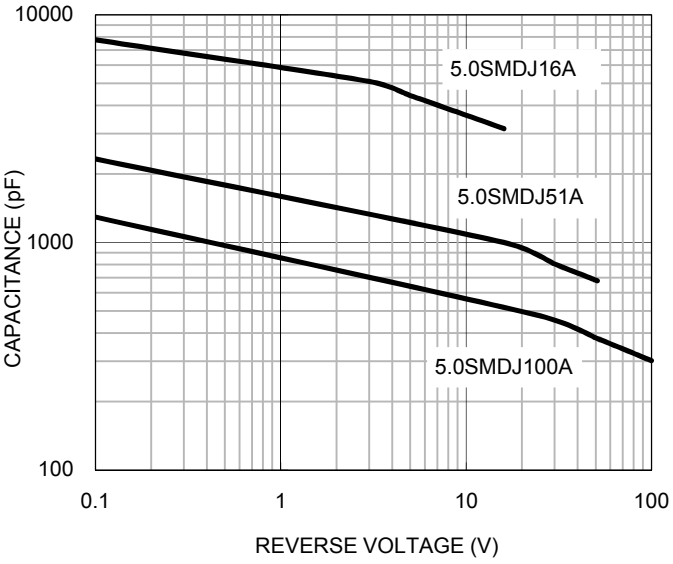
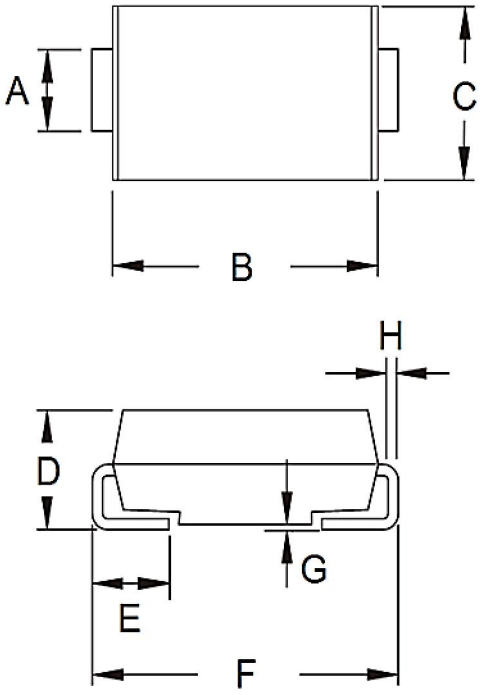


Fig.4 Typical Junction Capacitance



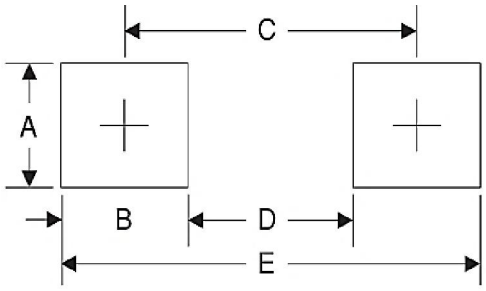
PACKAGE OUTLINE DIMENSIONS

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

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