THE DATASHEET OF

3KASMC24AHE3/57T

3KASMC10A thru 3KASMC43A

Vishay General Semiconductor

Surface Mount PAR® Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions

DO-214AB (SMC)

FEATURES

- Junction passivation optimized design passivated anisotropic rectifier technology
- T_J = 185 °C capability suitable for high reliability and automotive requirement
- Available in uni-directional polarity only
- 3000 W peak pulse power capability with a 10/1000 µs waveform
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT
HALOGEN FREE

PRIMARY CHARACTERISTICS	
V_{WM}	10 V to 43 V
V_{BR}	11.1 V to 52.8 V
P_{PPM}	3000 W
P_D	6.0 W
I_{FSM}	200 A
T_J max.	185 °C
Polarity	Uni-directional
Package	DO-214AB (SMC)

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive, and telecommunication.

MECHANICAL DATA

Case: DO-214AB (SMC)

Molding compound meets UL 94 V-0 flammability rating
Base P/NHM3 - RoHS-compliant and AEC-Q101 qualified
Base P/NHM3_X - RoHS-compliant and AEC-Q101 qualified
("_X" denotes revision code e.g. A, B, ...)

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
HM3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Peak pulse power dissipation with a 10/1000 µs waveform (1) (fig. 3)	P_{PPM}	3000	W
Peak power pulse current with a 10/1000 µs waveform (1) (fig. 1)	I_{PPM}	See next table	A
Peak forward surge current 8.3 ms single half sine-wave (2)	I_{FSM}	200	A
Power dissipation on infinite heatsink, T_L = 75 °C (fig. 6)	P_D	6.0	W
Maximum instantaneous forward voltage at 100 A (2)	V_F	3.5	V
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 185	°C

Notes

(1) Non-repetitive current pulse, per fig. 3 and derated above T_A = 25 °C per fig. 2.

(2) Measured on 8.3 ms single half sine-wave, or equivalent square wave, duty cycle = 4 pulses per minute maximum

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)									
DEVICE TYPE	**DEVICE MARKING CODE**	**BREAKDOWN VOLTAGE V_{BR} AT I_T (1) (V)**		**TEST CURRENT I_T (mA)**	**STAND-OFF VOLTAGE V_{WM} (V)**	**MAXIMUM REVERSE LEAKAGE AT V_{WM} I_R (µA)**	**MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (µA) T_J = 150 °C**	**MAXIMUM PEAK PULSE SURGE CURRENT I_{PPM} (A) (2)**	**MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)**
		MIN.	**MAX.**						
3KASMC10A	3AX	11.1	12.3	1.0	10	5.0	50	177	17.0
3KASMC11A	3AZ	12.2	13.5	1.0	11	5.0	50	165	18.2
3KASMC12A	3BE	13.3	14.7	1.0	12	2.0	20	151	19.9
3KASMC13A	3BG	14.4	15.9	1.0	13	2.0	20	140	21.5
3KASMC14A	3BK	15.6	17.2	1.0	14	1.0	10	129	23.2
3KASMC15A	3BM	16.7	18.5	1.0	15	1.0	10	123	24.4
3KASMC16A	3BP	17.8	19.7	1.0	16	1.0	10	115	26.0
3KASMC17A	3BR	18.9	20.9	1.0	17	1.0	10	109	27.6
3KASMC18A	3BT	20.0	22.1	1.0	18	1.0	10	103	29.2
3KASMC20A	3BV	22.2	24.5	1.0	20	1.0	10	92.6	32.4
3KASMC22A	3BX	24.4	26.9	1.0	22	1.0	10	84.5	35.5
3KASMC24A	3BZ	26.7	29.5	1.0	24	1.0	10	77.1	38.9
3KASMC26A	3CE	28.9	31.9	1.0	26	1.0	10	71.3	42.1
3KASMC28A	3CG	31.1	34.4	1.0	28	1.0	10	66.1	45.4
3KASMC30A	3CK	33.3	36.8	1.0	30	1.0	15	62.0	48.4
3KASMC33A	3CM	36.7	40.6	1.0	33	1.0	15	56.3	53.3
3KASMC36A	3CP	40.0	44.2	1.0	36	1.0	20	51.6	58.1
3KASMC40A	3CR	44.4	49.1	1.0	40	1.0	20	46.5	64.5
3KASMC43A	3CT	47.8	52.8	1.0	43	1.0	20	43.2	69.4

Notes

(1) Pulse test: $t_p \leq 50$ ms

(2) Surge current waveform per fig. 3 and derate per fig. 2

(3) All terms and symbols are consistent with ANSI/IEEE C62.35

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Typical thermal resistance, junction to ambient air (1)	$R_{\theta JA}$	77.5	°C/ W
Typical thermal resistance, junction to leads	$R_{\theta JL}$	18.3	

Note

(1) Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
3KASMC10AHM3/57T (1)	0.211	57T	850	7" diameter plastic tape and reel
3KASMC10AHM3/9AT (1)	0.211	9AT	3500	13" diameter plastic tape and reel
3KASMC10AHM3_A/H (1)	0.211	H	850	7" diameter plastic tape and reel
3KASMC10AHM3_A/I (1)	0.211	I	3500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

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RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

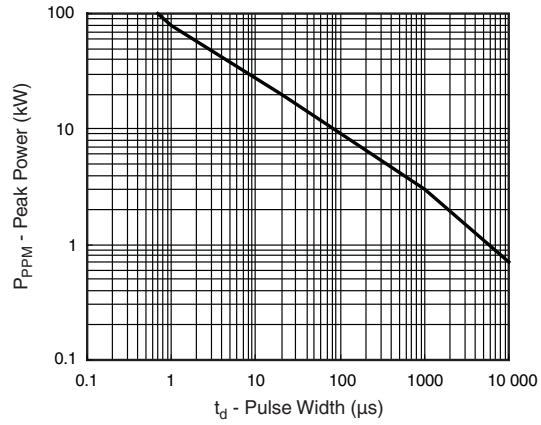

Fig. 1 - Peak Pulse Power Rating Curve

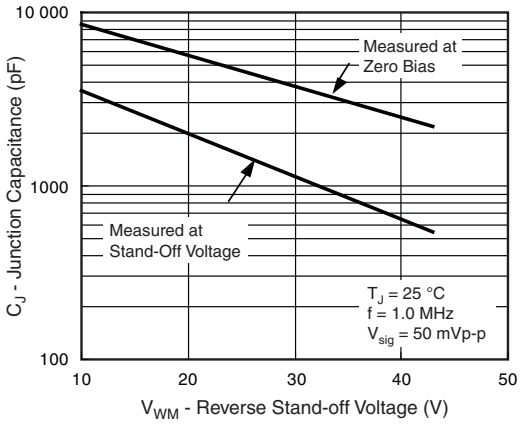

Fig. 4 - Typical Junction Capacitance

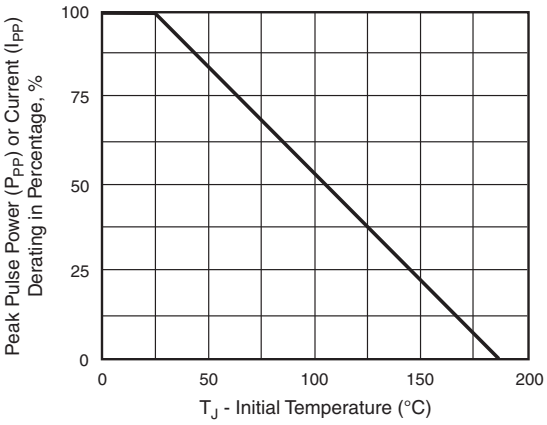

Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

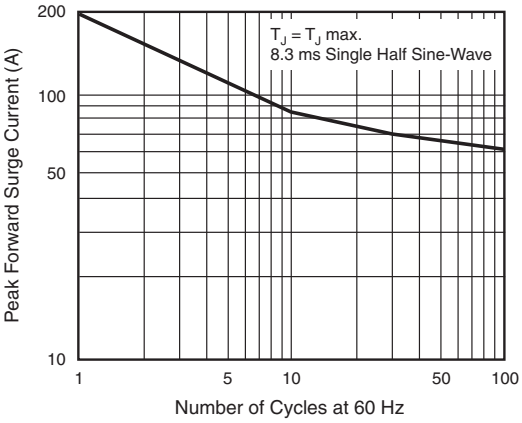

Fig. 5 - Maximum Non-Repetitive/Peak Forward Surge Current

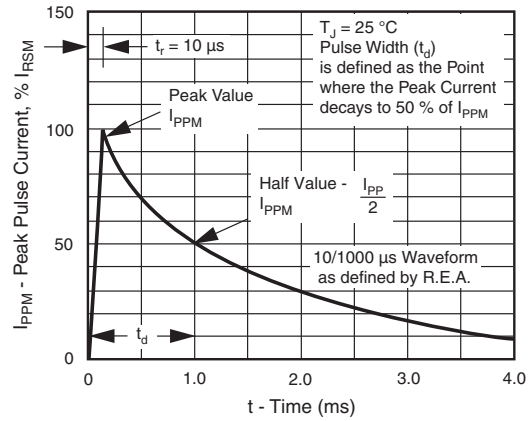

Fig. 3 - Pulse Waveform

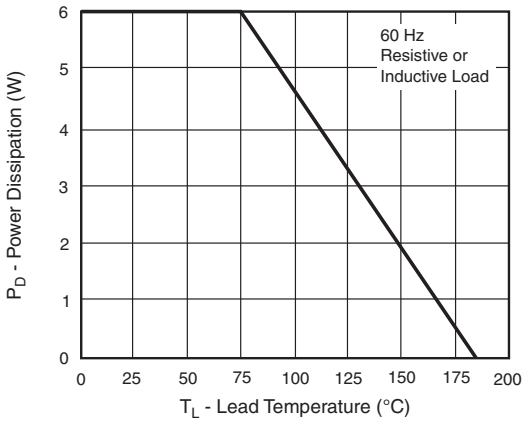

Fig. 6 - Power Derating Curve

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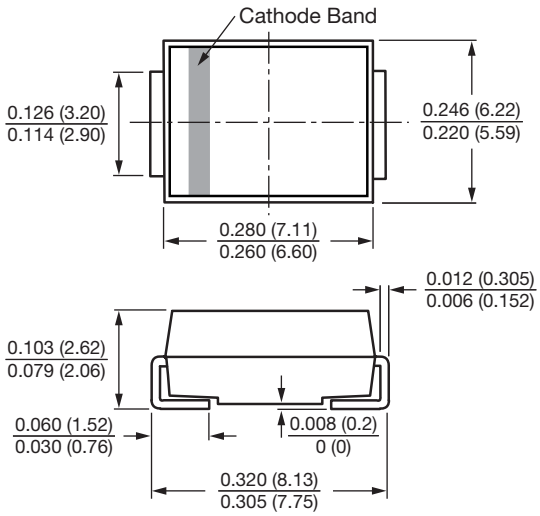
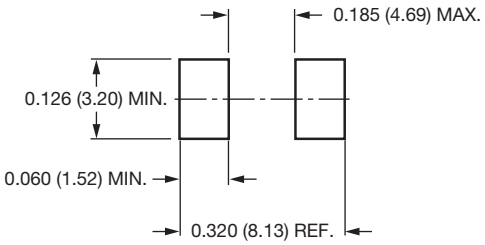
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AB (SMC)



Mounting Pad Layout



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