New Product Vishay General Semiconductor

Surface Mount Automotive Transient Voltage Suppressors

High Temperature Stability & High Reliability Conditions



* Patent #'s
4,980,315
5,166,769
5,278,094

DO-214AB (SMC)

FEATURES

- Patented PAR® construction
- Available in Unidirectional 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
- Typical I_D less than 1.0 µA above 13 V rating
- Meets MSL level 1, per J-STD-020C, LF max peak of 260 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

MAJOR RATINGS AND CHARACTERISTICS	
V_{WM}	10 V to 43 V
P_{PPM}	3000 W
P_D	6.0 W
I_{FSM}	200 A
T_j max.	185 °C

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)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D
HE3 suffix for high reliability grade (AEC Q101 qualified)

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}	Minimum 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 at 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

Note:

(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

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)									
DEVICE TYPE	**DEVICE MARKING CODE**	**BREAKDOWN VOLTAGE $V_{(BR)}$ (1) AT I_T (V)**		**TEST CURRENT I_T (mA)**	**STAND-OFF VOLTAGE V_{WM} (V)**	**MAXIMUM REVERSE LEAKAGE AT V_{WM} I_R (µA)**	**T_J = 150 °C MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (µA)**	**MAXIMUM PEAK PULSE SURGE CURRENT I_{PPM} (2) (A)**	**MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)**
		MIN	**MAX**						
3KASMC10	3AW	11.1	13.6	1.0	10	5.0	50	160	18.8
3KASMC10A	3AX	11.1	12.3	1.0	10	5.0	50	177	17.0
3KASMC11	3AY	12.2	14.9	1.0	11	5.0	50	149	20.1
3KASMC11A	3AZ	12.2	13.5	1.0	11	5.0	50	165	18.2
3KASMC12	3BD	13.3	16.3	1.0	12	2.0	20	136	22.0
3KASMC12A	3BE	13.3	14.7	1.0	12	2.0	20	151	19.9
3KASMC13	3BF	14.4	17.6	1.0	13	2.0	20	126	23.8
3KASMC13A	3BG	14.4	15.9	1.0	13	2.0	20	140	21.5
3KASMC14	3BH	15.6	19.1	1.0	14	1.0	10	116	25.8
3KASMC14A	3BK	15.6	17.2	1.0	14	1.0	10	129	23.2
3KASMC15	3BL	16.7	20.4	1.0	15	1.0	10	112	26.9
3KASMC15A	3BM	16.7	18.5	1.0	15	1.0	10	123	24.4
3KASMC16	3BN	17.8	21.8	1.0	16	1.0	10	104	28.8
3KASMC16A	3BP	17.8	19.7	1.0	16	1.0	10	115	26.0
3KASMC17	3BQ	18.9	23.1	1.0	17	1.0	10	98.4	30.5
3KASMC17A	3BR	18.9	20.9	1.0	17	1.0	10	109	27.6
3KASMC18	3BS	20.0	24.4	1.0	18	1.0	10	93.2	32.2
3KASMC18A	3BT	20.0	22.1	1.0	18	1.0	10	103	29.2
3KASMC20	3BU	22.2	27.1	1.0	20	1.0	10	83.8	35.8
3KASMC20A	3BV	22.2	24.5	1.0	20	1.0	10	92.6	32.4
3KASMC22	3BW	24.4	29.8	1.0	22	1.0	10	76.1	39.4
3KASMC22A	3BX	24.4	26.9	1.0	22	1.0	10	84.5	35.5
3KASMC24	3BY	26.7	32.6	1.0	24	1.0	10	69.8	43.0
3KASMC24A	3BZ	26.7	29.5	1.0	24	1.0	10	77.1	38.9
3KASMC26	3CD	28.9	35.3	1.0	26	1.0	10	64.4	46.6
3KASMC26A	3CE	28.9	31.9	1.0	26	1.0	10	71.3	42.1
3KASMC28	3CF	31.1	38.0	1.0	28	1.0	10	60.0	50.0
3KASMC28A	3CG	31.1	34.4	1.0	28	1.0	10	66.1	45.4
3KASMC30	3CH	33.3	40.7	1.0	30	1.0	15	56.1	53.5
3KASMC30A	3CK	33.3	36.8	1.0	30	1.0	15	62.0	48.4
3KASMC33	3CL	36.7	44.9	1.0	33	1.0	15	50.8	59.0
3KASMC33A	3CM	36.7	40.6	1.0	33	1.0	15	56.3	53.3
3KASMC36	3CN	40.0	48.9	1.0	36	1.0	20	46.7	64.3
3KASMC36A	3CP	40.0	44.2	1.0	36	1.0	20	51.6	58.1
3KASMC40	3CQ	44.4	54.3	1.0	40	1.0	20	42.0	71.4
3KASMC40A	3CR	44.4	49.1	1.0	40	1.0	20	46.5	64.5
3KASMC43	3CS	47.8	58.4	1.0	43	1.0	20	39.1	76.7
3KASMC43A	3CT	47.8	52.8	1.0	43	1.0	20	43.2	69.4

Note:

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

(2) Surge current waveform per Fig. 3 and derated 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**
Thermal resistance junction to ambient air (1)	$R_{\theta JA}$	77.5	°C/W
Thermal resistance Junction to leads	$R_{\theta JL}$	18.3	

Note:

(1) Mounted on minimum recommended pad layout

ORDERING INFORMATION				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
3KASMC10AHE3/57T	0.211	57T	850	7" Diameter Plastic Tape & Reel
3KASMC10AHE3/9AT	0.211	9AT	3500	13" Diameter Plastic Tape & Reel

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

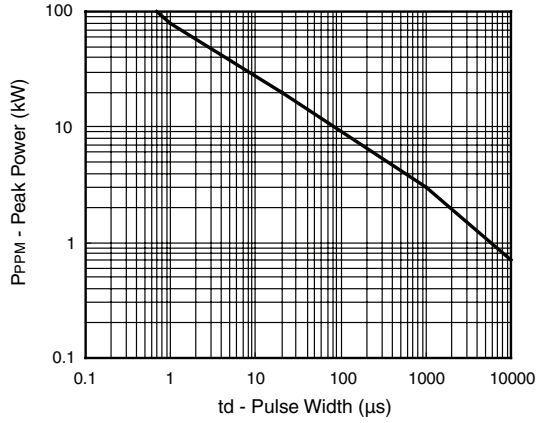


Figure 1. Peak Pulse Power Rating Curve

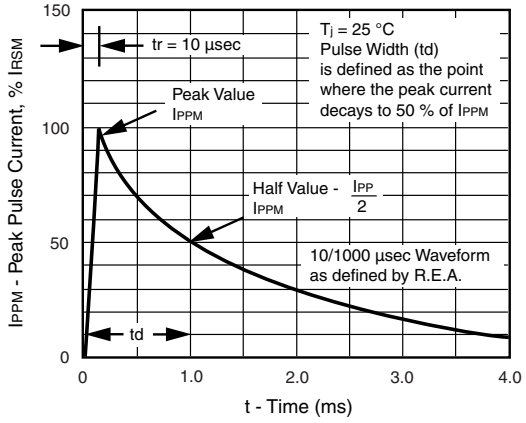


Figure 3. Pulse Waveform

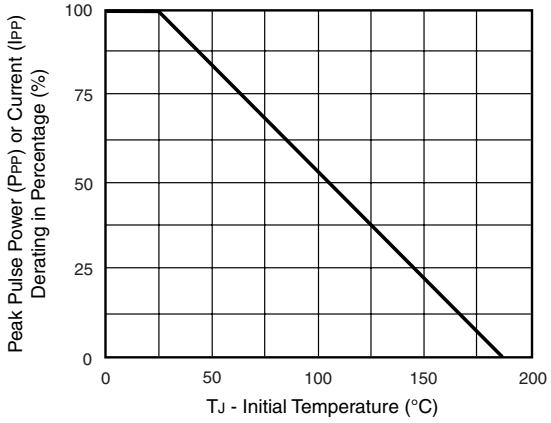


Figure 2. Pulse Power or Current versus Initial Junction Temperature

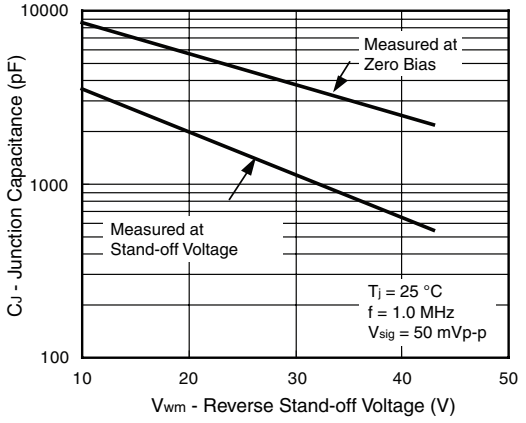


Figure 4. Typical Junction Capacitance

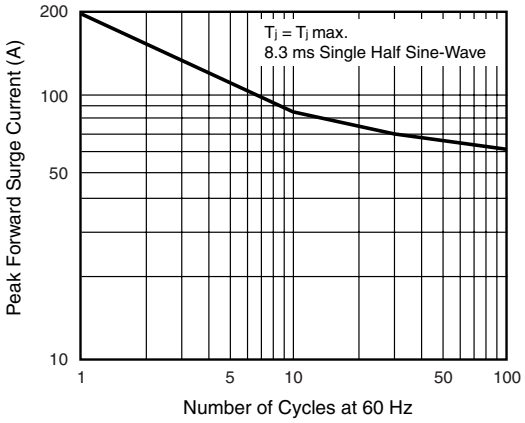


Figure 5. Maximum Non-Repetitive/Peak Forward Surge Current

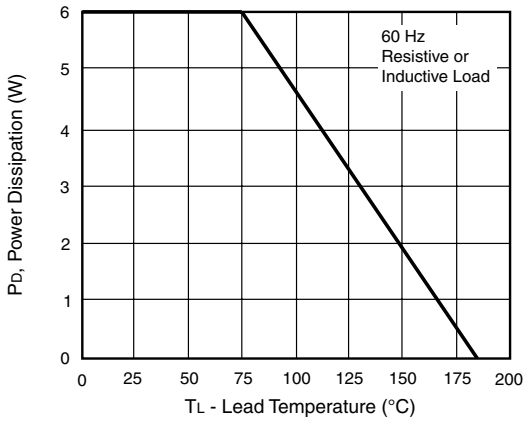
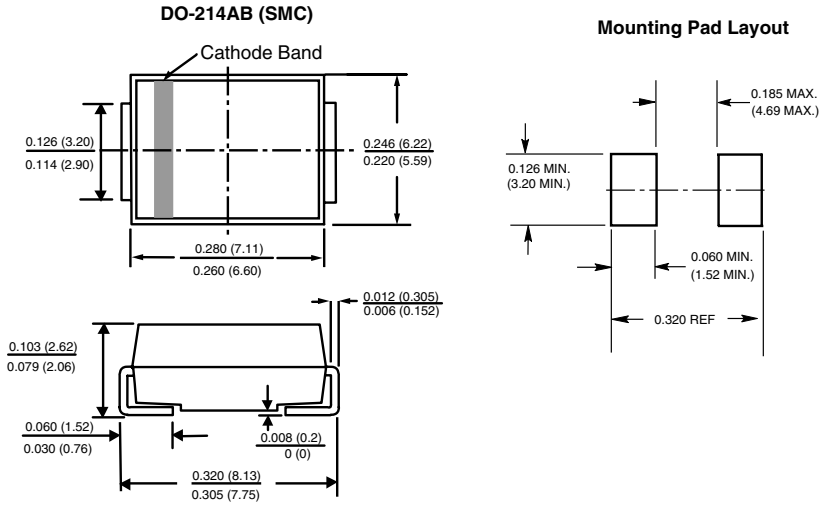


Figure 6. Power Derating Curve

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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