

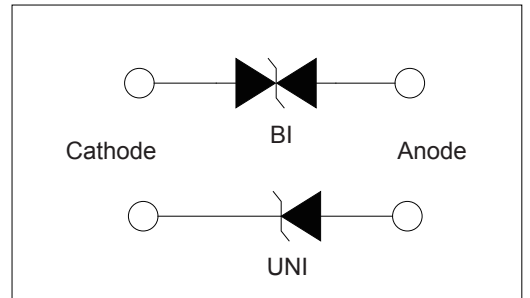
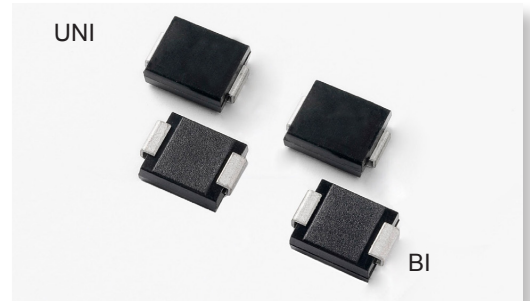
Transient Voltage Suppressors

3.0SMC Series

Transient Voltage Suppressors - 3.0SMC Series

Features

1. Halogen-free
2. Rohs compliant
3. Typical maximum temperature coefficient
4. $\Delta V_{BR} = 0.1\% \times V_{BR@25^{\circ}C} \times \Delta T$
5. Glass passivated Chip junction in DO-214AB package
6. 3000W peak pulse capability at 10x1000µs waveform, repetition rate (duty cycles):0.01%
7. Fast response time:typically less than 1.0ps from 0 Volts to BV min
8. Excellent clamping capability
9. Low incremental surge resistance
10. Typical IR less than 5µA above 12V
11. High temperature soldering guaranteed:260°C/40seconds/0.375", (9.5 mm) lead length, 5lbs., (2.3kg) tension
12. Plastic package has underwriters laboratory flammability classification 94v-0



Applications

TVS devices are ideal for the protection of I/O interfaces, VCC bus and other vulnerable circuits used in telecom, computer, industrial and consumer electronic applications.

Mechanical Characteristics

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation by 10x1000µs test waveform (Fig.1)(Note 1)	P_{PPM}	3000	Watts
Steady State Power Dissipation on infinite heat sink at TL=75°C (Fig. 5)	P_D	6.5	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional only (Note 2)	I_{FSM}	300	Amps
Maximum Instantaneous Forward Voltage at 25A for Unidirectional only (Note 3)	V_F	3.5	V
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55°C to 175°C	°C
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	15	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	75	°C/W

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A = 25^{\circ}C$ per Fig. 2.
2. Mounted on copper pad area of 0.31x0.31" (8.0 x 8.0mm) to each terminal.
3. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

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Electrical Characteristics

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage@I _T		Test Current	Maximum Clamping Voltage@I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
(UNI)	(BI)		V _{RWM} (V)	V _{BR} MIN.(V)				
3.0SMC6.8A	3.0SMC6.8CA	5.80	6.40	7.25	10	9.2	326.1	800
3.0SMC7.5A	3.0SMC7.5CA	6.40	7.22	8.30	10	11.2	267.3	800
3.0SMC8.2A	3.0SMC8.2CA	7.02	7.78	8.95	10	12.0	250.0	200
3.0SMC9.1A	3.0SMC9.1CA	7.78	8.33	9.58	1	12.9	232.6	100
3.0SMC10A	3.0SMC10CA	8.55	9.44	10.82	1	13.6	220.6	50
3.0SMC11A	3.0SMC11CA	9.40	10.00	11.50	1	18.2	164.8	5
3.0SMC12A	3.0SMC12CA	10.20	11.10	12.80	1	19.9	150.8	5
3.0SMC13A	3.0SMC13CA	11.10	12.20	14.00	1	21.5	139.5	5
3.0SMC15A	3.0SMC15CA	12.80	14.40	16.50	1	24.4	123.0	5
3.0SMC16A	3.0SMC16CA	13.60	15.60	17.90	1	26.0	115.4	5
3.0SMC18A	3.0SMC18CA	15.30	16.70	19.20	1	29.2	102.7	5
3.0SMC20A	3.0SMC20CA	17.10	18.90	21.70	1	32.4	92.6	5
3.0SMC22A	3.0SMC22CA	18.80	20.00	23.30	1	35.5	84.5	5
3.0SMC24A	3.0SMC24CA	20.50	22.20	25.50	1	38.9	77.1	5
3.0SMC27A	3.0SMC27CA	23.10	24.40	28.00	1	42.1	71.3	5
3.0SMC30A	3.0SMC30CA	25.60	28.90	33.20	1	48.4	62.0	5
3.0SMC33A	3.0SMC33CA	28.20	31.10	35.80	1	53.3	56.3	5
3.0SMC36A	3.0SMC36CA	20.80	33.30	38.30	1	58.1	51.6	5
3.0SMC39A	3.0SMC39CA	33.30	36.70	42.20	1	64.5	46.5	5
3.0SMC43A	3.0SMC43CA	36.80	40.00	46.00	1	69.4	43.2	5
3.0SMC47A	3.0SMC47CA	40.20	44.40	51.10	1	72.7	41.3	5
3.0SMC51A	3.0SMC51CA	43.60	47.80	54.90	1	82.4	36.4	5
3.0SMC56A	3.0SMC56CA	47.80	50.00	57.50	1	87.1	34.4	5
3.0SMC62A	3.0SMC62CA	53.00	56.70	65.20	1	96.8	31.0	5
3.0SMC68A	3.0SMC68CA	58.10	64.40	74.10	1	103.0	29.1	5
3.0SMC75A	3.0SMC75CA	64.10	71.10	81.80	1	121.0	24.8	5
3.0SMC82A	3.0SMC82CA	70.10	77.80	89.50	1	137.0	20.8	5
3.0SMC91A	3.0SMC91CA	77.80	86.70	99.70	1	146.0	20.6	5
3.0SMC100A	3.0SMC100CA	85.50	94.40	108.20	1	162.0	18.6	5
3.0SMC110A	3.0SMC110CA	94.00	100.00	115.50	1	177.0	16.8	5
3.0SMC120A	3.0SMC120CA	102.00	111.00	128.00	1	193.0	15.6	5
3.0SMC130A	3.0SMC130CA	111.00	122.00	140.50	1	209.0	14.4	5
3.0SMC150A	3.0SMC150CA	128.00	144.00	165.50	1	243.0	12.4	5
3.0SMC180A	3.0SMC180CA	154.00	167.00	192.60	1	292.0	10.3	5
3.0SMC200A	3.0SMC200CA	171.00	189.00	217.50	1	324.0	9.3	5
3.0SMC220A	3.0SMC220CA	185.00	209.00	243.20	1	356.0	8.4	5

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Ratings and Characteristic Curves

Figure 1 - Peak Pulse Power Rating Curve

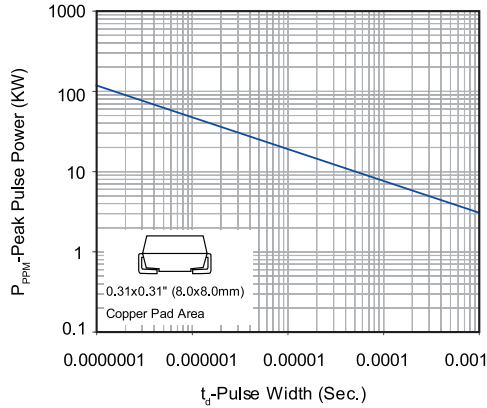


Figure 2 - Pulse Derating Curve

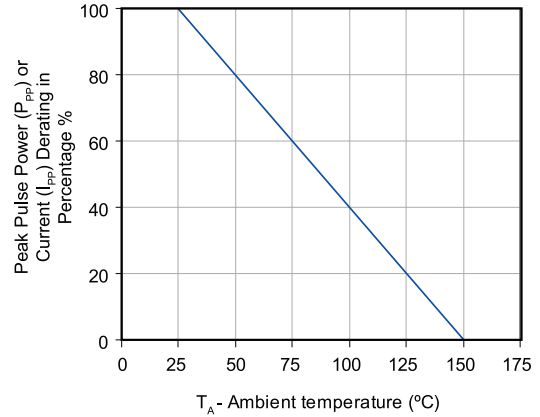


Figure 3 - Pulse Waveform

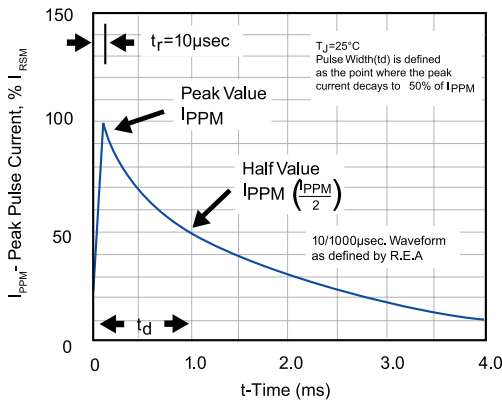


Figure 4 - Typical Junction Capacitance

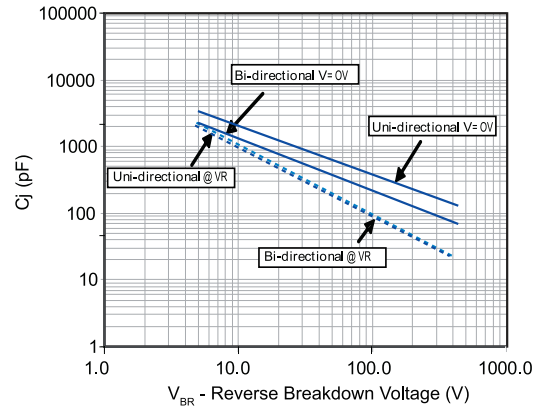


Figure 5 - Steady State Power Derating Curve

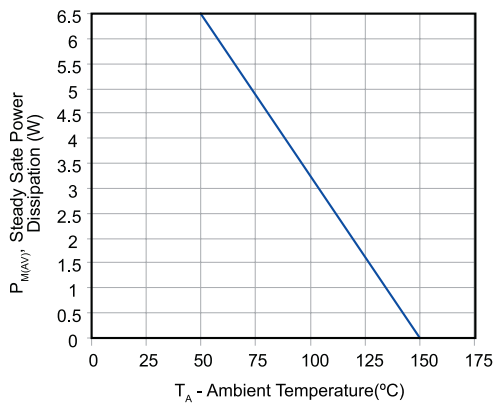
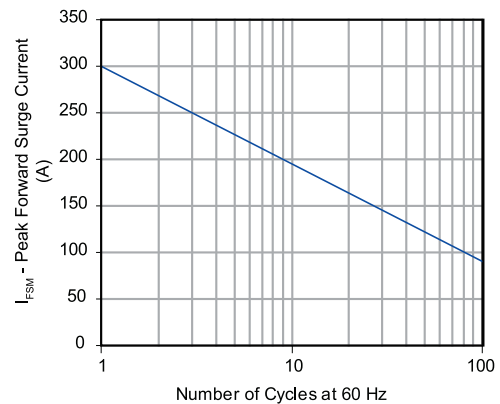


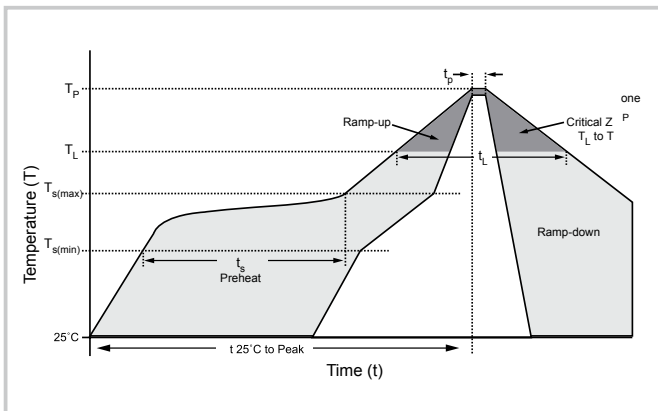
Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only



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Soldering Parameters

	Reflow Condition	Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60-180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (t_s)	60-150 seconds
Peak Temperature (T_p)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20-40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes Max.
Do not exceed		280°C



Physical Specifications

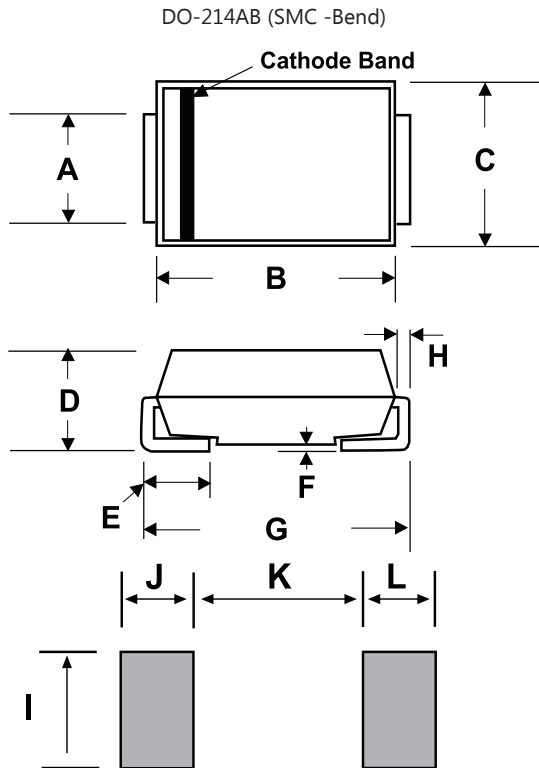
Weight	0.007 ounce, 0.21 grams
Case	JEDEC DO214AB. Molded plastic body over glass passivated junction
Polarity	Color band denotes cathode except Bidirectional.
Terminals	Matte Tin-plated leads, Solderable per JESD22-B102D

Environmental Specifications

Temperature Cycle	JESD22-A104
Pressure Cooker	JESD 22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

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Dimensions



Unit:mm

DIM	Inches		Millimeters	
	Min	Max	Min	Max
A	0.114	0.126	2.900	3.200
B	0.260	0.280	6.600	7.110
C	0.220	0.245	5.590	6.220
D	0.079	0.103	2.060	2.620
E	0.030	0.060	0.760	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.750	8.130
H	0.006	0.012	0.152	0.305
I	0.129	-	3.300	-
J	0.094	-	2.400	-
K	-	0.165	-	4.200
L	0.094	-	2.400	-

Warehouse Storage Conditions of Products

- Storage Conditions:
 1. Storage Temperature: -10°C~+40°C
 2. Relative Humidity:≤75%RH
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year

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