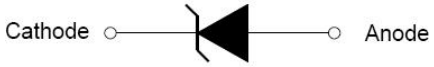
3.0SMC Series 3000W Transient Voltage Suppressor

DESCRIPTION:

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

SMC

Bi-directional



Uni-direction

FEATURES:

- ✧ Glass passivated or planar junction.
- ✧ Excellent clamping capability.
- ✧ Repetition rate (duty cycle): 0.01%.
- ✧ Typical I_R less than 1μA above 10V.
- ✧ Low profile package and low inductance.
- ✧ 3000W Peak Pulse power capability at 10×1000μs waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature soldering: 260℃/10s at terminals.
- ✧ Plastic package has Underwriters Laboratory Flammability 94V-0.
- ✧ For surface mounted applications in order to optimize board space.

ABSOLUTE MAXIMUM RATINGS (T_A=25℃, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{stg}	-55 to +150	℃
Operating junction temperature range	T_j	-55 to +150	℃
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	8.0	W
Peak pulse power dissipation on 10/1000μs waveform	P_{PP}	3000	W
Maximum Instantaneous Forward Voltage at 80A for Unidirectional	V_F	5.0	V

MARKING

A6V8 : Device Marking Code
1409: In ninth week, 2014

ELECTRICAL CHARACTERISTICS (T_A=25℃)

Part Number		Marking		V_R	I_R@ V_R	V_{BR}@I_T		I_T	V_C@ I_{PP}	I_{PP}①
Uni-polar	Bi-polar	Uni	Bi	(V)	μA	min(V)	max(V)	mA	V	A
3.0SMC6.8A	3.0SMC6.8CA	A6V8	C6V8	5.8	150	6.45	7.14	10	10.5	285.7
3.0SMC7.5A	3.0SMC7.5CA	A7V5	C7V5	6.4	100	7.13	7.88	10	11.3	265.5
3.0SMC8.2A	3.0SMC8.2CA	A8V2	C8V2	7.02	50	7.79	8.61	10	12.1	247.9
3.0SMC9.1A	3.0SMC9.1CA	A9V1	C9V1	7.78	20	8.65	9.55	1	13.4	223.9
3.0SMC10A	3.0SMC10CA	A10	C10	8.55	10	9.50	10.50	1	14.5	206.9
3.0SMC11A	3.0SMC11CA	A11	C11	9.4	5	10.50	11.60	1	15.6	192.3
3.0SMC12A	3.0SMC12CA	A12	C12	10.2	2	11.40	12.60	1	16.7	179.6
3.0SMC13A	3.0SMC13CA	A13	C13	11.1	1	12.40	13.70	1	18.2	164.8
3.0SMC15A	3.0SMC15CA	A15	C15	12.8	1	14.30	15.80	1	21.2	141.5
3.0SMC16A	3.0SMC16CA	A16	C16	13.6	1	15.20	16.80	1	22.5	133.3
3.0SMC18A	3.0SMC18CA	A18	C18	15.3	1	17.10	18.90	1	25.2	119.0
3.0SMC20A	3.0SMC20CA	A20	C20	17.1	1	19.00	21.00	1	27.7	108.3
3.0SMC22A	3.0SMC22CA	A22	C22	18.8	1	20.90	23.10	1	30.6	98.0
3.0SMC24A	3.0SMC24CA	A24	C24	20.5	1	22.80	25.20	1	33.2	90.4
3.0SMC27A	3.0SMC27CA	A27	C27	23.1	1	25.70	28.40	1	37.5	80.0
3.0SMC30A	3.0SMC30CA	A30	C30	25.6	1	28.50	31.50	1	41.4	72.5
3.0SMC33A	3.0SMC33CA	A33	C33	28.2	1	31.40	34.70	1	45.7	65.6
3.0SMC36A	3.0SMC36CA	A36	C36	30.8	1	34.20	37.80	1	49.9	60.1
3.0SMC39A	3.0SMC39CA	A39	C39	33.3	1	37.10	41.00	1	53.9	55.7
3.0SMC43A	3.0SMC43CA	A43	C43	36.8	1	40.90	45.20	1	59.3	50.6
3.0SMC47A	3.0SMC47CA	A47	C47	40.2	1	44.70	49.40	1	64.8	46.3
3.0SMC51A	3.0SMC51CA	A51	C51	43.6	1	48.50	53.60	1	70.1	42.8
3.0SMC56A	3.0SMC56CA	A56	C56	47.8	1	53.20	58.80	1	77.0	39.0
3.0SMC62A	3.0SMC62CA	A62	C62	53.0	1	58.90	65.10	1	85.0	35.3
3.0SMC68A	3.0SMC68CA	A68	C68	58.1	1	64.60	71.40	1	92.0	32.6
3.0SMC75A	3.0SMC75CA	A75	C75	64.1	1	71.30	78.80	1	103.0	29.1
3.0SMC82A	3.0SMC82CA	A82	C82	70.1	1	77.90	86.10	1	113.0	26.5
3.0SMC91A	3.0SMC91CA	A91	C91	77.8	1	86.50	95.50	1	125.0	24.0
3.0SMC100A	3.0SMC100CA	A100	C100	85.5	1	95.00	105.0	1	137.0	21.9

ELECTRICAL CHARACTERISTICS (T_A=25℃, continued)

Part Number		Marking		V_R	I_R@ V_R	V_{BR}@I_T		I_T	V_C@ I_{PP}	I_{PP}①
Uni-Polar	Bi-Polar	Uni	Bi	V	μA	min(V)	max(V)	mA	V	A
3.0SMC110A	3.0SMC110CA	A110	C110	94.0	1	105.0	116.0	1	152.0	19.7
3.0SMC120A	3.0SMC120CA	A120	C120	102	1	114.0	126.0	1	165.0	18.2
3.0SMC130A	3.0SMC130CA	A130	C130	111	1	124.0	137.0	1	179.0	16.8
3.0SMC150A	3.0SMC150CA	A150	C150	128	1	143.0	158.0	1	207.0	14.5
3.0SMC160A	3.0SMC160CA	A160	C160	136	1	152.0	168.0	1	219.0	13.7
3.0SMC170A	3.0SMC170CA	A170	C170	145	1	162.0	179.0	1	234.0	12.8
3.0SMC180A	3.0SMC180CA	A180	C180	154	1	171.0	189.0	1	246.0	12.2
3.0SMC200A	3.0SMC200CA	A200	C200	171	1	190.0	210.0	1	274.0	10.9
3.0SMC220A	3.0SMC220CA	A220	C220	185	1	209.0	231.0	1	328.0	9.1
3.0SMC250A	3.0SMC250CA	A250	C250	214	1	237.0	263.0	1	344.0	8.8
3.0SMC300A	3.0SMC300CA	A300	C300	256	1	285.0	315.0	1	414.0	7.3
3.0SMC350A	3.0SMC350CA	A350	C350	300	1	332.0	368.0	1	482.0	6.2
3.0SMC400A	3.0SMC400CA	A400	C400	342	1	380.0	420.0	1	548.0	5.5
3.0SMC440A	3.0SMC440CA	A440	C440	376	1	418.0	462.0	1	602.0	5.0

① Surge waveform: 10/1000μs

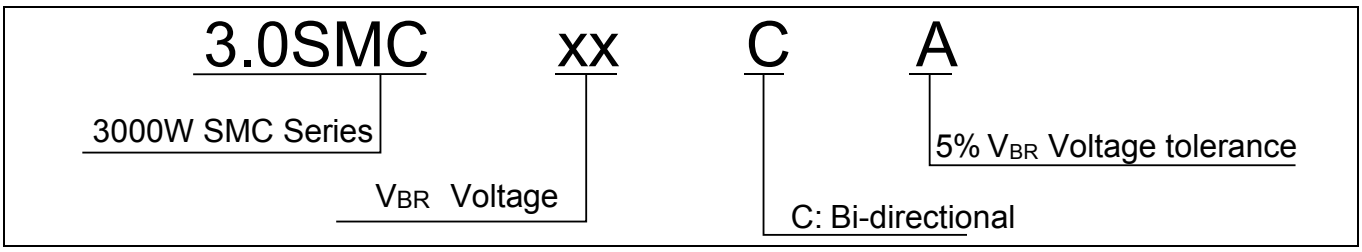
V_R： Stand-off Voltage -- Maximum voltage that can be applied

V_{BR}： Breakdown Voltage

V_C： Clamping Voltage -- Peak voltage measured across the suppressor at a specified Ipp

I_R： Reverse Leakage Current

ORDERING INFORMATION



RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25°C, unless otherwise noted)

FIG.1:V- I curve characteristics (Uni-directional)

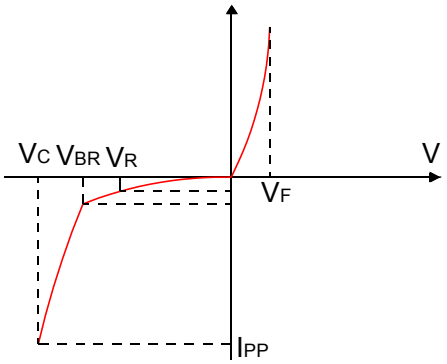


FIG.2:V- I curve characteristics (Bi-directional)

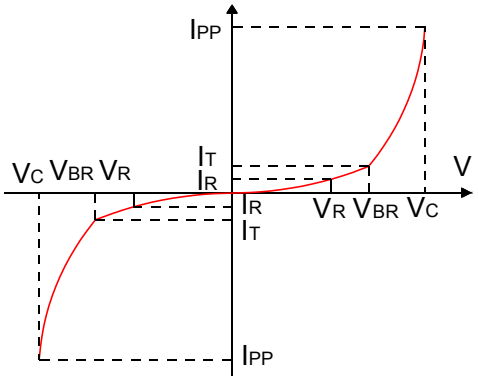


FIG.3: Pulse waveform

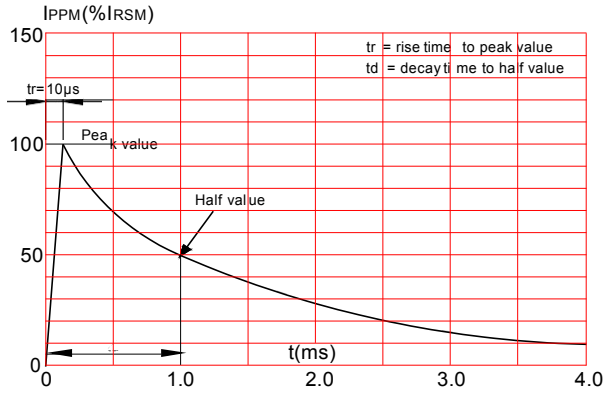
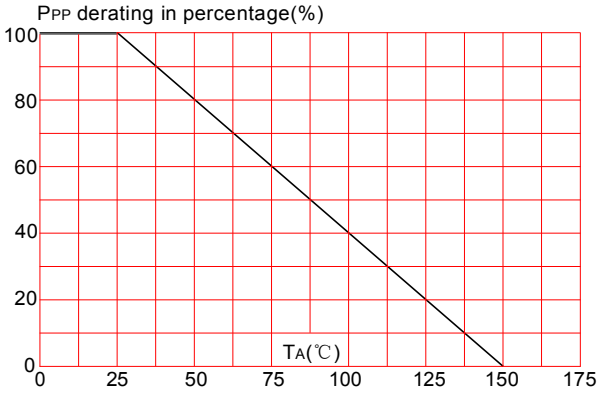


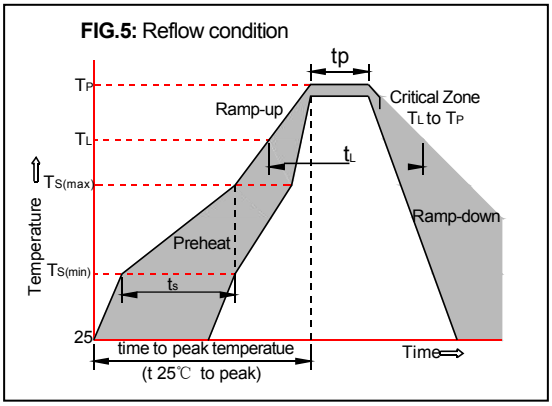
FIG.4: Pulse derating curve



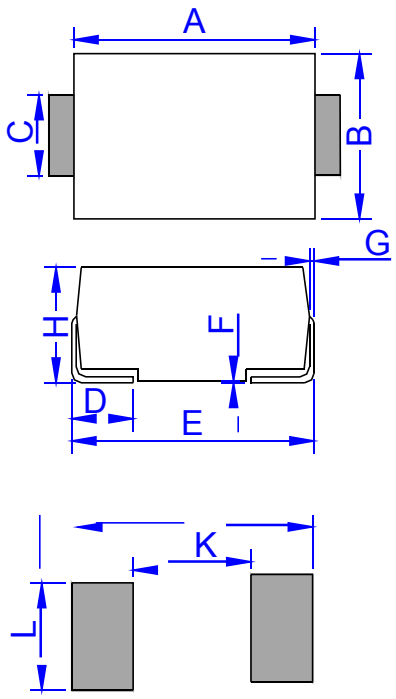
SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.5)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG.5: Reflow condition



PACKAGE MECHANICAL DATA



DO-214AB (SMC)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	6.60	7.11	0.260	0.280
B	5.59	6.20	0.220	0.244
C	2.75	3.20	0.108	0.126
D	0.76	1.52	0.030	0.060
E	7.74	8.13	0.305	0.320
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.15	2.62	0.085	0.103
J	8.12		0.320	
K		4.69		0.185
L	3.07		0.121	

TAPE AND REEL SPECIFICATION-SMC

PART No.	PACKAGE	QUANTITY	TAPE & REEL
3.0SMCxxCA/A	SMC(DO214AB)	3,000	13inch