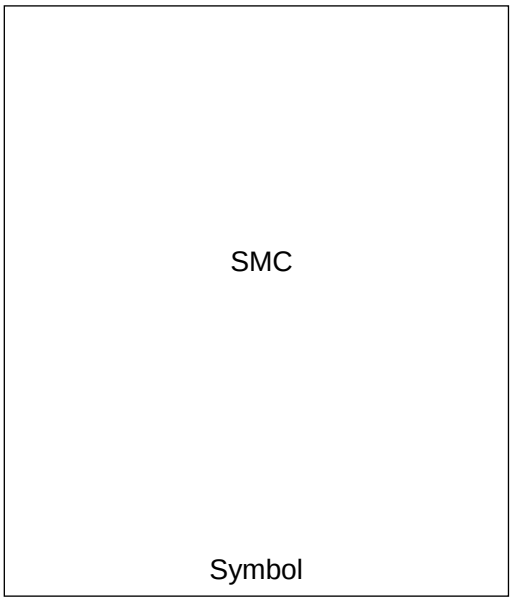
1.5SMC Series 1500W Transient Voltage Suppressor

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.



FEATURES

- Glass passivated or planar junction
- Excellent clamping capability
- Repetition rate (duty cycle): 0.01%
- Typical I_R less than 1 A above 10V.
- Low profile package and low inductance
- 1500W Peak Pulse power capability at 10×1000 s 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=25ºC, 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 10/1000 s waveform	P_{PP}	1500	W
Maximum Instantaneous Forward Voltage at 60A for Unidirectional	V_F	5.0	V

MARKING

6V8A : 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}[D]
Uni-polar	Bi-polar	Uni	Bi	(V)	$	min(V)	max(V)	mA	V	A
1.5SMC6.8A	1.5SMC6.8CA	6V8A	6V8C	5.8	150	6.45	7.14	10	10.5	144.8
1.5SMC7.5A	1.5SMC7.5CA	7V5A	7V5C	6.4	100	7.13	7.88	10	11.3	132.8
1.5SMC8.2A	1.5SMC8.2CA	8V2A	8V2C	7.02	50	7.79	8.61	10	12.1	124.0
1.5SMC9.1A	1.5SMC9.1CA	9V1A	9V1C	7.78	20	8.65	9.55	1	13.4	112.0
1.5SMC10A	1.5SMC10CA	10A	10C	8.55	10	9.50	10.50	1	14.5	103.5
1.5SMC11A	1.5SMC11CA	11A	11C	9.4	5	10.50	11.60	1	15.6	96.2
1.5SMC12A	1.5SMC12CA	12A	12C	10.2	2	11.40	12.60	1	16.7	89.8
1.5SMC13A	1.5SMC13CA	13A	13C	11.1	1	12.40	13.70	1	18.2	82.5
1.5SMC15A	1.5SMC15CA	15A	15C	12.8	1	14.30	15.80	1	21.2	70.8
1.5SMC16A	1.5SMC16CA	16A	16C	13.6	1	15.20	16.80	1	22.5	66.7
1.5SMC18A	1.5SMC18CA	18A	18C	15.3	1	17.10	18.90	1	25.2	59.6
1.5SMC20A	1.5SMC20CA	20A	20C	17.1	1	19.00	21.00	1	27.7	54.2
1.5SMC22A	1.5SMC22CA	22A	22C	18.8	1	20.90	23.10	1	30.6	49.1
1.5SMC24A	1.5SMC24CA	24A	24C	20.5	1	22.80	25.20	1	33.2	45.2
1.5SMC27A	1.5SMC27CA	27A	27C	23.1	1	25.70	28.40	1	37.5	40.0
1.5SMC30A	1.5SMC30CA	30A	30C	25.6	1	28.50	31.50	1	41.4	36.3
1.5SMC33A	1.5SMC33CA	33A	33C	28.2	1	31.40	34.70	1	45.7	32.9
1.5SMC36A	1.5SMC36CA	36A	36C	30.8	1	34.20	37.80	1	49.9	30.1
1.5SMC39A	1.5SMC39CA	39A	39C	33.3	1	37.10	41.00	1	53.9	27.9
1.5SMC43A	1.5SMC43CA	43A	43C	36.8	1	40.90	45.20	1	59.3	25.3
1.5SMC47A	1.5SMC47CA	47A	47C	40.2	1	44.70	49.40	1	64.8	23.2
1.5SMC51A	1.5SMC51CA	51A	51C	43.6	1	48.50	53.60	1	70.1	21.4
1.5SMC56A	1.5SMC56CA	56A	56C	47.8	1	53.20	58.80	1	77.0	19.5
1.5SMC62A	1.5SMC62CA	62A	62C	53.0	1	58.90	65.10	1	85.0	17.7
1.5SMC68A	1.5SMC68CA	68A	68C	58.1	1	64.60	71.40	1	92.0	16.4
1.5SMC75A	1.5SMC75CA	75A	75C	64.1	1	71.30	78.80	1	103.0	14.6
1.5SMC82A	1.5SMC82CA	82A	82C	70.1	1	77.90	86.10	1	113.0	13.3
1.5SMC91A	1.5SMC91CA	91A	91C	77.8	1	86.50	95.50	1	125.0	12.0
1.5SMC100A	1.5SMC100CA	100A	100C	85.5	1	95.00	105.0	1	137.0	11.0

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}[D]
Uni-Polar	Bi-Polar	Uni	Bi	V	A	min(V)	max(V)	mA	V	A
1.5SMC110A	1.5SMC110CA	110A	110C	94.0	1	105.0	116.0	1	152.0	10.0
1.5SMC120A	1.5SMC120CA	120A	120C	102	1	114.0	126.0	1	165.0	9.1
1.5SMC130A	1.5SMC130CA	130A	130C	111	1	124.0	137.0	1	179.0	8.4
1.5SMC150A	1.5SMC150CA	150A	150C	128	1	143.0	158.0	1	207.0	7.3
1.5SMC160A	1.5SMC160CA	160A	160C	136	1	152.0	168.0	1	219.0	6.9
1.5SMC170A	1.5SMC170CA	170A	170C	145	1	162.0	179.0	1	234.0	6.5
1.5SMC180A	1.5SMC180CA	180A	180C	154	1	171.0	189.0	1	246.0	6.1
1.5SMC200A	1.5SMC200CA	200A	200C	171	1	190.0	210.0	1	274.0	5.5
1.5SMC220A	1.5SMC220CA	220A	220C	185	1	209.0	231.0	1	328.0	4.6
1.5SMC250A	1.5SMC250CA	250A	250C	214	1	237.0	263.0	1	344.0	4.4
1.5SMC300A	1.5SMC300CA	300A	300C	256	1	285.0	315.0	1	414.0	3.7
1.5SMC350A	1.5SMC350CA	350A	350C	300	1	332.0	368.0	1	482.0	3.2
1.5SMC400A	1.5SMC400CA	400A	400C	342	1	380.0	420.0	1	548.0	2.8
1.5SMC440A	1.5SMC440CA	440A	440C	376	1	418.0	462.0	1	602.0	2.5

D Surge waveform: 10/1000 s

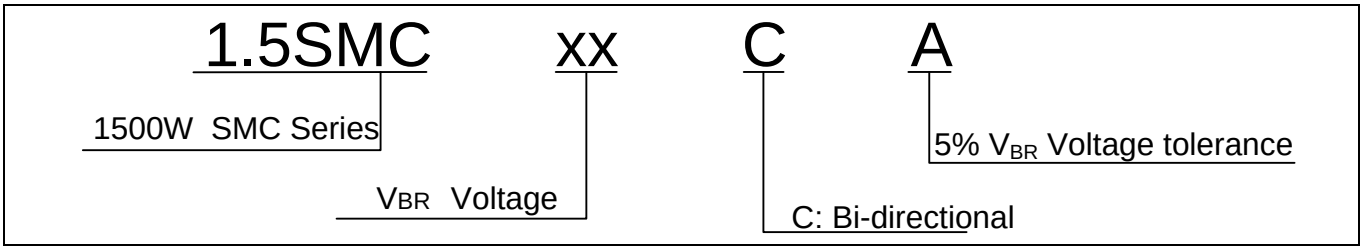
V_R ÖStand-off Voltage -- Maximum voltage that can be applied

V_{BR} Ö Breakdown Voltage

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

I_R Ö Reverse Leakage Current

ORDERING INFORMATION



RATINGS AND CHARACTERISTICS CURVES (T_A=25℃, unless otherwise noted)

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

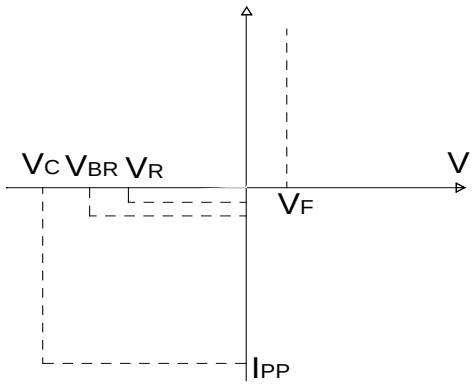


FIG.2:V- I curve characteristics (Bi-directional)

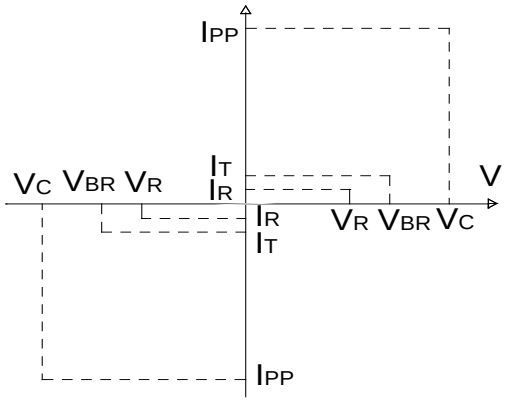


FIG.3: Pulse waveform

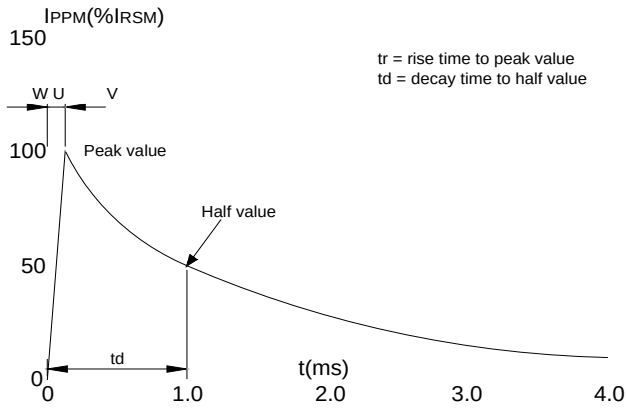
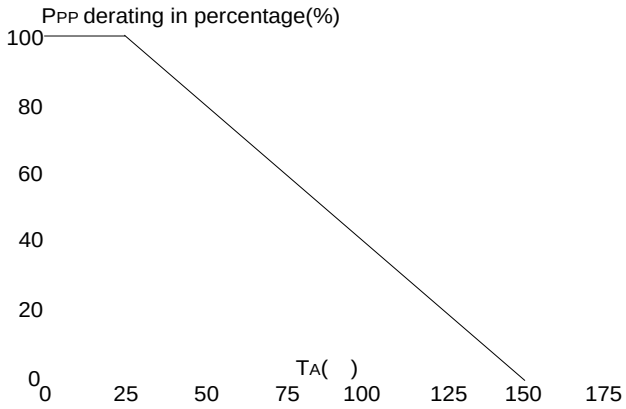


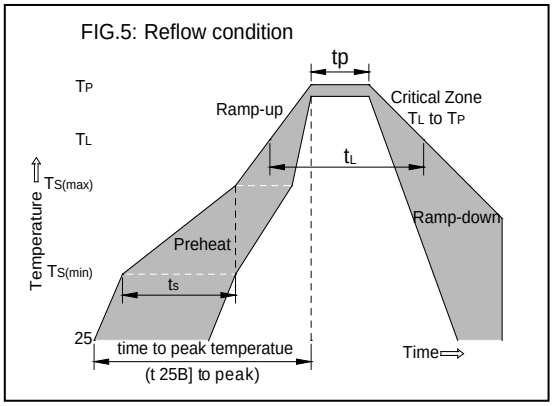
FIG.4: Pulse derating curve



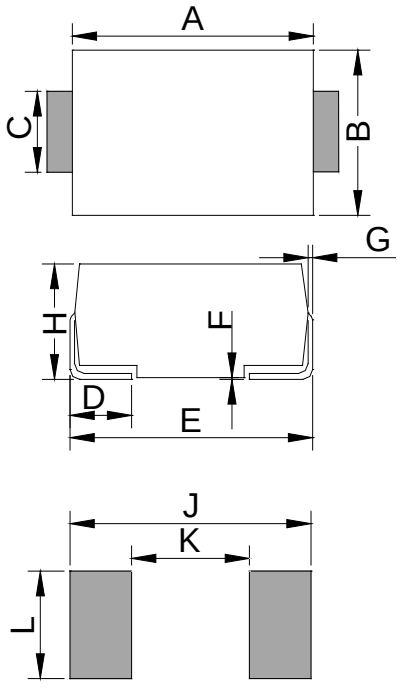
SOLDERING PARAMETERS

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
xTime 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

PART No.	PACKAGE	QUANTITY	TAPE & REEL
1.5SMCxxCA/A	SMC(DO214AB)	3,000	13inch