

**Features**

- 1500W peak pulse power capability at 10/1000µs waveform, repetition rate (duty cycles):0.01%
- Excellent clamping capability
- Typical failure mode is a short circuit condition for current events exceeding component rating
- Plastic package is flammability rated V-0 per UL-94
- Meet MSL level1, per J-STD-020, lead-frame maximum peak of 260°C

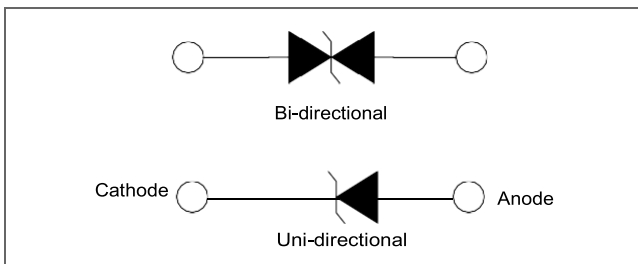
**RoHS**  
Compliant



**Applications**

TVS devices are ideal for the transient voltage clamp protection of I/O Interfaces, DC power line bus and other circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

**Function Diagram**




Maximum Ratings and Thermal Characteristics (T <sub>A</sub> =25°C unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T <sub>A</sub> =25°C by 10/1000µs Waveform (Fig.3)	P <sub>PPM</sub>	1500	W
Power Dissipation on Infinite Heat Sink at T <sub>L</sub> =50°C	P <sub>D</sub>	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 1)	I <sub>FSM</sub>	200	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only(Note 2)	V <sub>F</sub>	3.5/5	V
Operating Temperature Range	T <sub>J</sub>	-55 to 150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to 150	°C

AGENCY	AGENCY FILE NUMBER
	Pending


**Notes:**

1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.
2. V<sub>F</sub> < 3.5V for single die parts and V<sub>F</sub>< 5V for stacked-die parts.

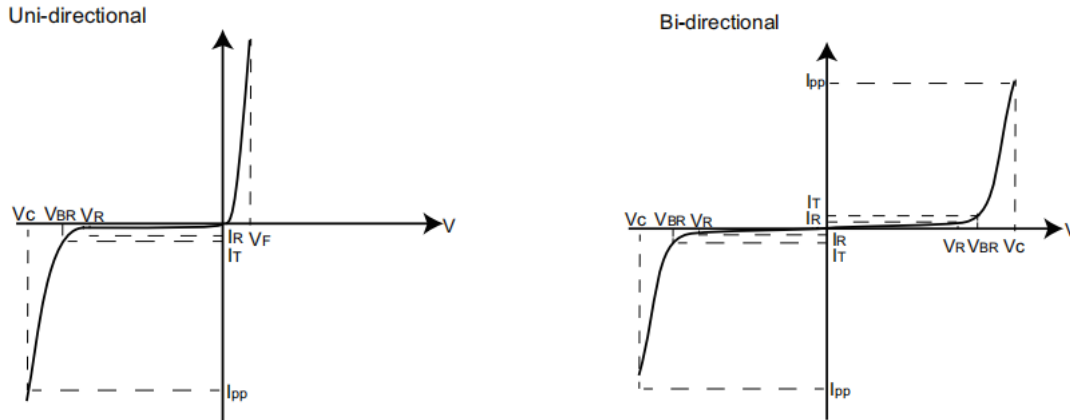
**Characteristics (T =25°C unless otherwise noted)**

Part Number (Uni)	Part Number (Bi)	Key Marking		Reverse Stand off Voltage V <sub>R</sub> (Volts)	Breakdown Voltage V <sub>BR</sub> (Volts) @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> @ I <sub>nn</sub> (V)	Maximum Peak Pulse Current I <sub>pp</sub> (A)	Maximum Reverse Leakage I <sub>R</sub> @ V <sub>R</sub> (μA)	Agency Approval 
		UNI	BI		MIN	MAX					
1.5SMC6.8A	1.5SMC6.8CA	06E	06E	5.80	6.45	7.14	10	10.5	144.8	1000	
1.5SMC7.5A	1.5SMC7.5CA	07F	07F	6.40	7.13	7.88	10	11.3	134.5	500	
1.5SMC8.2A	1.5SMC8.2CA	08T	08T	7.02	7.79	8.61	10	12.1	125.6	200	
1.5SMC9.1A	1.5SMC9.1CA	09O	09O	7.78	8.65	9.50	1	13.4	113.4	50	
1.5SMC10A	1.5SMC10CA	010	010	8.55	9.50	10.50	1	14.5	104.8	10	
1.5SMC11A	1.5SMC11CA	011	011	9.40	10.50	11.60	1	15.6	97.4	5	
1.5SMC12A	1.5SMC12CA	012	012	10.2	11.4	12.60	1	16.7	91.0	5	
1.5SMC13A	1.5SMC13CA	013	013	11.1	12.4	13.70	1	18.2	83.5	1	
1.5SMC15A	1.5SMC15CA	015	015	12.8	14.3	15.80	1	21.2	71.7	1	
1.5SMC16A	1.5SMC16CA	016	016	13.6	15.2	16.80	1	22.5	67.6	1	
1.5SMC18A	1.5SMC18CA	018	018	15.3	17.1	18.90	1	25.2	60.3	1	
1.5SMC20A	1.5SMC20CA	020	020	17.1	19.00	21.00	1	27.7	54.9	1	
1.5SMC22A	1.5SMC22CA	022	022	18.8	20.9	23.10	1	30.6	49.7	1	
1.5SMC24A	1.5SMC24CA	024	024	20.5	22.8	25.20	1	33.2	45.8	1	
1.5SMC27A	1.5SMC27CA	027	027	23.1	25.7	28.40	1	37.5	40.5	1	
1.5SMC30A	1.5SMC30CA	030	030	25.6	28.5	31.50	1	41.4	36.7	1	
1.5SMC33A	1.5SMC33CA	033	033	28.2	31.4	34.70	1	45.7	33.3	1	
1.5SMC36A	1.5SMC36CA	036	036	30.8	34.2	37.80	1	49.9	30.5	1	
1.5SMC39A	1.5SMC39CA	039	039	33.3	37.1	41.00	1	53.9	28.2	1	
1.5SMC43A	1.5SMC43CA	043	043	36.8	40.9	45.20	1	59.3	25.6	1	
1.5SMC47A	1.5SMC47CA	047	047	40.2	44.7	49.40	1	64.8	23.5	1	
1.5SMC51A	1.5SMC51CA	051	051	43.6	48.5	53.60	1	70.1	21.7	1	
1.5SMC56A	1.5SMC56CA	056	056	47.8	53.2	58.80	1	77.0	19.7	1	
1.5SMC62A	1.5SMC62CA	062	062	53.0	58.9	65.10	1	85.0	17.9	1	
1.5SMC68A	1.5SMC68CA	068	068	58.1	64.6	71.40	1	92.0	16.5	1	
1.5SMC75A	1.5SMC75CA	075	075	64.1	71.3	78.80	1	103.0	14.8	1	
1.5SMC82A	1.5SMC82CA	082	082	70.1	77.9	86.10	1	113.0	13.5	1	
1.5SMC91A	1.5SMC91CA	091	091	77.8	86.5	95.50	1	125.0	12.2	1	
1.5SMC100A	1.5SMC100CA	100	100	85.5	95.0	105.0	1	137.0	11.1	1	
1.5SMC110A	1.5SMC110CA	110	110	94.0	105.0	116.0	1	152.0	10.0	1	
1.5SMC120A	1.5SMC120CA	120	120	102.0	114.0	126.0	1	165.0	9.2	1	
1.5SMC130A	1.5SMC130CA	130	130	111.0	124.0	137.0	1	179.0	8.5	1	
1.5SMC150A	1.5SMC150CA	150	150	128.0	143.0	158.0	1	207.0	7.3	1	
1.5SMC160A	1.5SMC160CA	160	160	136.0	152.0	168.0	1	219.0	6.9	1	
1.5SMC170A	1.5SMC170CA	170	170	145.0	162.0	179.0	1	234.0	6.5	1	
1.5SMC180A	1.5SMC180CA	180	180	154.0	171.0	189.0	1	246.0	6.2	1	
1.5SMC200A	1.5SMC200CA	200	200	171.0	190.0	210.0	1	274.0	5.5	1	
1.5SMC220A	1.5SMC220CA	220	220	185.0	209.0	231.0	1	328.0	4.6	1	
1.5SMC250A	1.5SMC250CA	250	250	214.0	237.0	263.0	1	344.0	4.4	1	
1.5SMC300A	1.5SMC300CA	300	300	256.0	285.0	315.0	1	414.0	3.7	1	
1.5SMC350A	1.5SMC350CA	350	350	299.3	332.5	367.5	1	482.0	3.1	1	
1.5SMC380A	1.5SMC380CA	380	380	324.9	361.0	399.0	1	524.4	2.9	1	



Part Number (Uni)	Part Number (Bi)	Key Marking		Reverse Stand off Voltage $V_R$ (Volts)	Breakdown Voltage $V_{BR}$ (Volts) @ $I_T$		Test Current $I_T$ (mA)	Maximum Clamping Voltage $V_C$ @ $I_{DD}$ (V)	Maximum Peak Pulse Current $I_{pp}$ (A)	Maximum Reverse Leakage $I_R$ @ $V_R$ ( $\mu$ A)	Agency Approval 
		UNI	BI		MIN	MAX					
1.5SMC400A	1.5SMC400CA	400	400	342.0	380.0	420.0	1	548.0	2.7	1	
1.5SMC440A	1.5SMC440CA	440	440	376.2	418.0	462.0	1	602.0	2.5	1	
1.5SMC500A	1.5SMC500CA	500	500	427.5	475.0	525.0	1	690.0	2.2	1	
1.5SMC520A	1.5SMC520CA	520	520	444.6	494.0	546.0	1	717.6	2.1	1	
1.5SMC540A	1.5SMC540CA	540	540	460.0	513.0	567.0	1	740.0	2.0	1	
1.5SMC550A	1.5SMC550CA	550	550	470.3	522.5	577.5	1	759.0	2.0	1	
1.5SMC600A	1.5SMC600CA	600	600	513.0	570.0	630.0	1	828.0	1.8	1	

### I-V Curve Characteristics



$P_{PPM}$  Peak Pulse Power Dissipation -- Max power dissipation

$V_R$  Stand-off Voltage -- Maximum voltage that can be applied to the TVS without operation

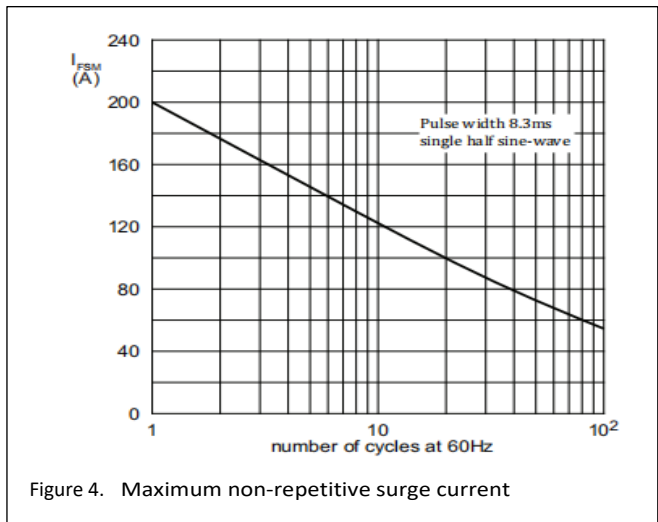
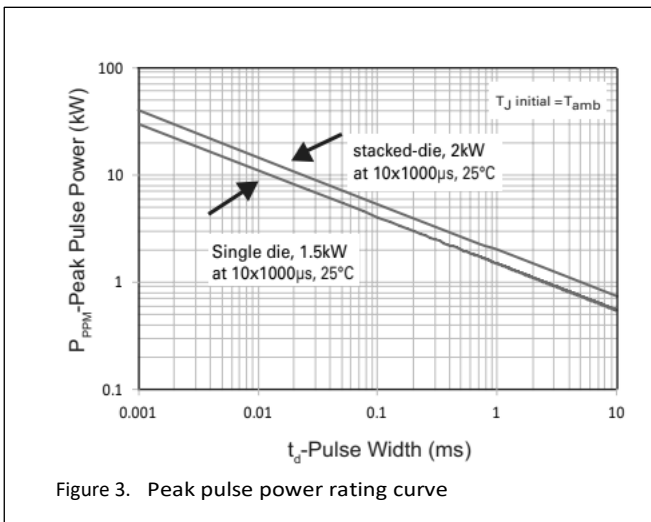
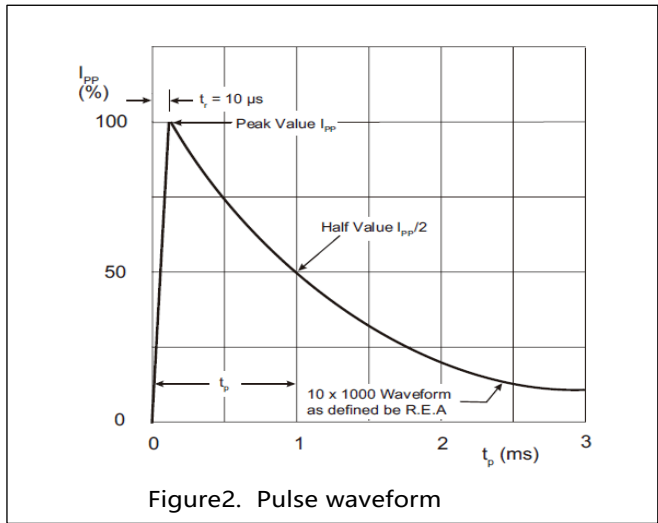
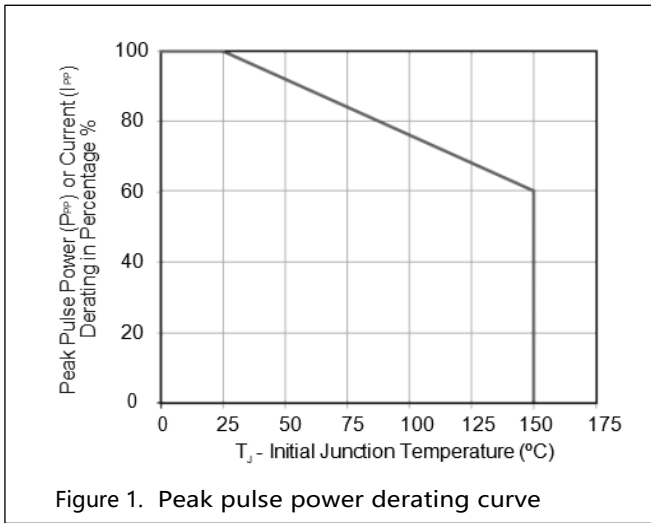
$V_{BR}$  Breakdown Voltage -- Maximum voltage that flows through the TVS at a specified test current ( $I_T$ )

$V_C$  Clamping Voltage -- Peak voltage measured across the TVS at a specified  $I_{PPM}$  (peak impulse current)

$I_R$  Reverse Leakage Current -- Current measured at  $V_R$

$V_F$  Forward Voltage Drop for Uni-directional

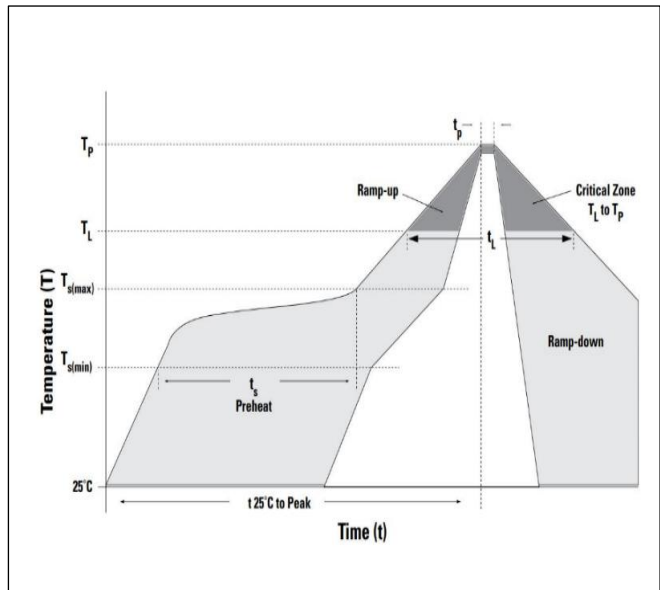
**Ratings and Characteristic Curves (T = 25°C unless otherwise noted)**



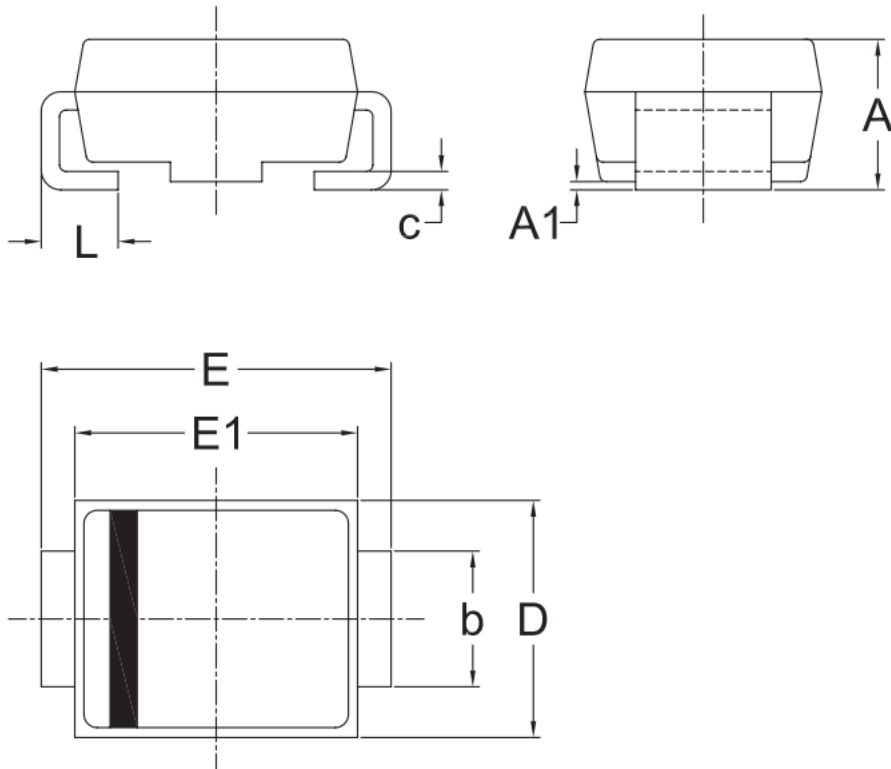
Soldering Parameters

Soldering profile

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 ( $T_A$ ) to peak)		3°C/second max
$T_{s(max)}$ to $T_A$ - Ramp-up Rate		3°C/second max
Reflow	- Temperature ( $T_A$ ) (Liquidus)	217°C
	- Time (min to max) ( $t_s$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		260 <sup>+0/-5</sup> °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		260°C



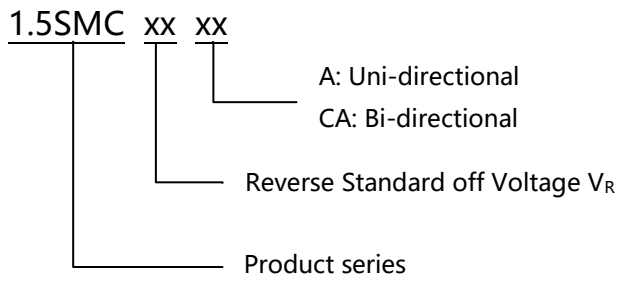
Dimensions



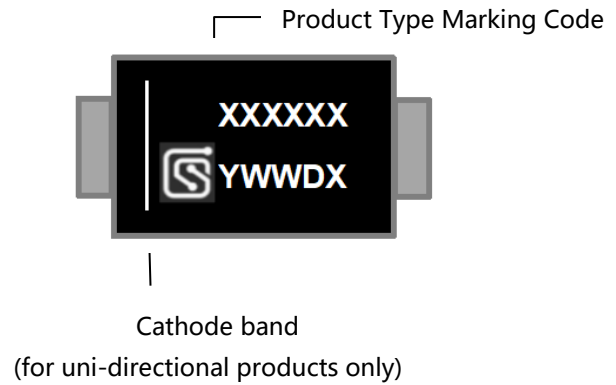
UNIT	A	A1	b	c	D	E	E1	L	
mm	Max	2.83	0.30	3.10	0.25	6.15	8.15	7.05	1.60
	Min	2.33	0.00	2.80	0.15	5.85	7.65	6.75	0.90

Remark: Dimensions D and E1 do not include mold flash & gate remain.

Part Numbering



Part Marking

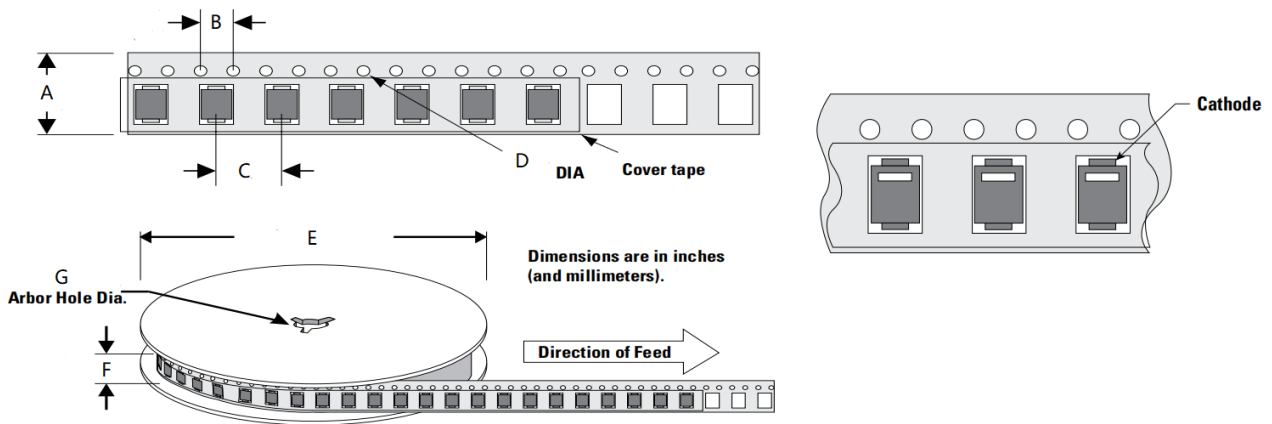


Packing

Part number	Package name	Small packing quantity	Packing method
1.5SMCXXXX	DO-214AB	3000	Tape & Reel



Tape and Reel Specification



Symbol	Millimeter
A	16.00±0.10
B	4.00±0.10
C	8.00±0.10
D	1.55±0.05
E	330.20±2.00
F	19.70±2.00
G	13.30±0.30

Revision history of Specification

Version	Change Items	Effective Date
1.0	Initial Release	13-Aug-2021

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