

Features

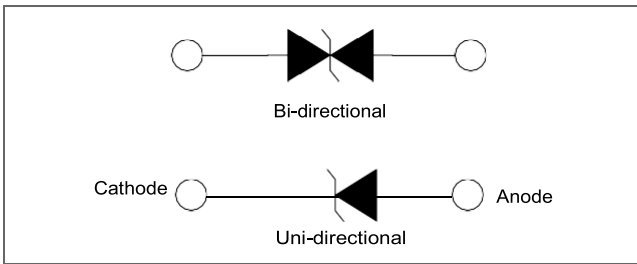
- 1500W peak pulse power capability at 10/1000µs waveform, repetition rate (duty cycles):0.01%
- Excellent clamping capability
- Typical failure mode is a short circuit condition for current events exceeding component rating
- Plastic package is flammability rated V-0 per UL-94
- Meet MSL level1, per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



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 _A =25°C unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T _A =25°C by 10/1000µs Waveform (Fig.3)	P _{PPM}	1500	W
Power Dissipation on Infinite Heat Sink at T _L =50°C	P _D	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 1)	I _{FSM}	200	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only(Note 2)	V _F	3.5/5	V
Operating Temperature Range	T _J	-55 to 150	°C
Storage Temperature Range	T _{STG}	-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_F < 3.5V for single die parts and V_F < 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 _R (Volts)	Breakdown Voltage V _{BR} (Volts) @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{RM} (V)	Maximum Peak Pulse Current I _{pp} (A)	Maximum Reverse Leakage I _R @ V _R (μA)	Agency Approval 
		UNI	BI		MIN	MAX					
SMCJ5.0A	SMCJ5.0CA	005A	005C	5.0	6.40	7.00	10	9.2	163.0	800	
SMCJ6.0A	SMCJ6.0CA	006A	006C	6.0	6.67	7.37	10	10.3	145.6	800	
SMCJ6.5A	SMCJ6.5CA	06FA	06FC	6.5	7.22	7.98	10	11.2	134.0	500	
SMCJ7.0A	SMCJ7.0CA	007A	007C	7.0	7.78	8.60	10	12.0	125.0	200	
SMCJ7.5A	SMCJ7.5CA	07FA	07FC	7.5	8.33	9.21	1	12.9	116.3	100	
SMCJ8.0A	SMCJ8.0CA	008A	008C	8.0	8.89	9.83	1	13.6	110.3	50	
SMCJ8.5A	SMCJ8.5CA	08FA	08FC	8.5	9.44	10.40	1	14.4	104.2	20	
SMCJ9.0A	SMCJ9.0CA	009A	009C	9.0	10.00	11.10	1	15.4	97.4	10	
SMCJ10A	SMCJ10CA	010A	010C	10	11.10	12.30	1	17.0	88.2	5	
SMCJ11A	SMCJ11CA	011A	011C	11	12.20	13.50	1	18.2	82.4	1	
SMCJ12A	SMCJ12CA	012A	012C	12	13.30	14.70	1	19.9	75.4	1	
SMCJ13A	SMCJ13CA	013A	013C	13	14.40	15.90	1	21.5	69.8	1	
SMCJ14A	SMCJ14CA	014A	014C	14	15.60	17.20	1	23.2	64.7	1	
SMCJ15A	SMCJ15CA	015A	015C	15	16.70	18.50	1	24.4	61.5	1	
SMCJ16A	SMCJ16CA	016A	016C	16	17.80	19.70	1	26.0	57.7	1	
SMCJ17A	SMCJ17CA	017A	017C	17	18.90	20.90	1	27.6	54.4	1	
SMCJ18A	SMCJ18CA	018A	018C	18	20.00	22.10	1	29.2	51.4	1	
SMCJ20A	SMCJ20CA	020A	020C	20	22.20	24.50	1	32.4	46.3	1	
SMCJ22A	SMCJ22CA	022A	022C	22	24.40	26.90	1	35.5	42.3	1	
SMCJ24A	SMCJ24CA	024A	024C	24	26.70	29.50	1	38.9	38.6	1	
SMCJ26A	SMCJ26CA	026A	026C	26	28.90	31.90	1	42.1	35.6	1	
SMCJ28A	SMCJ28CA	028A	028C	28	31.10	34.40	1	45.4	33.1	1	
SMCJ30A	SMCJ30CA	030A	030C	30	33.30	36.80	1	48.4	31.0	1	
SMCJ33A	SMCJ33CA	033A	033C	33	36.70	40.60	1	53.3	28.2	1	
SMCJ36A	SMCJ36CA	036A	036C	36	40.00	44.20	1	58.1	25.8	1	
SMCJ40A	SMCJ40CA	040A	040C	40	44.40	49.10	1	64.5	23.3	1	
SMCJ43A	SMCJ43CA	043A	043C	43	47.80	52.80	1	69.4	21.6	1	
SMCJ45A	SMCJ45CA	045A	045C	45	50.00	55.30	1	72.7	20.6	1	
SMCJ48A	SMCJ48CA	048A	048C	48	53.30	58.90	1	77.4	19.4	1	
SMCJ51A	SMCJ51CA	051A	051C	51	56.70	62.70	1	82.4	18.2	1	
SMCJ54A	SMCJ54CA	054A	054C	54	60.00	66.30	1	87.1	17.2	1	
SMCJ58A	SMCJ58CA	058A	058C	58	64.40	71.20	1	93.6	16.1	1	
SMCJ60A	SMCJ60CA	060A	060C	60	66.70	73.70	1	96.8	15.5	1	
SMCJ64A	SMCJ64CA	064A	064C	64	71.10	78.60	1	103.0	14.6	1	
SMCJ70A	SMCJ70CA	070A	070C	70	77.80	86.00	1	113.0	13.3	1	
SMCJ75A	SMCJ75CA	075A	075C	75	83.30	92.10	1	121.0	12.4	1	
SMCJ78A	SMCJ78CA	078A	078C	78	86.70	95.80	1	126.0	11.9	1	
SMCJ85A	SMCJ85CA	085A	085C	85	94.40	104.0	1	137.0	11.0	1	
SMCJ90A	SMCJ90CA	090A	090C	90	100.0	111.0	1	146.0	10.3	1	
SMCJ100A	SMCJ100CA	100A	100C	100	111.0	123.0	1	162.0	9.3	1	
SMCJ110A	SMCJ110CA	110A	110C	110	122.0	135.0	1	177.0	8.5	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 (μ A)	Agency Approval 
		UNI	BI		MIN	MAX					
SMCJ120A	SMCJ120CA	120A	120C	120	133.0	147.0	1	193.0	7.8	1	
SMCJ130A	SMCJ130CA	130A	130C	130	144.0	159.0	1	209.0	7.2	1	
SMCJ150A	SMCJ150CA	150A	150C	150	167.0	185.0	1	243.0	6.2	1	
SMCJ160A	SMCJ160CA	160A	160C	160	178.0	197.0	1	259.0	5.8	1	
SMCJ170A	SMCJ170CA	170A	170C	170	189.0	209.0	1	275.0	5.5	1	
SMCJ180A	SMCJ180CA	180A	180C	180	201.0	222.0	1	292.0	5.2	1	
SMCJ190A	SMCJ190CA	190C	190A	190	211.0	234.0	1	307.0	4.9	1	
SMCJ200A	SMCJ200CA	200A	200C	200	224.0	247.0	1	324.0	4.7	1	
SMCJ220A	SMCJ220CA	220A	220C	220	246.0	272.0	1	356.0	4.2	1	
SMCJ250A	SMCJ250CA	250A	250C	250	279.0	309.0	1	405.0	3.7	1	
SMCJ300A	SMCJ300CA	300A	300C	300	335.0	371.0	1	486.0	3.1	1	
SMCJ350A	SMCJ350CA	350A	350C	350	391.0	432.0	1	567.0	2.7	1	
SMCJ400A	SMCJ400CA	400A	400C	400	447.0	494.0	1	648.0	2.3	1	
SMCJ440A	SMCJ440CA	440A	440C	440	492.0	543.0	1	713.0	2.1	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

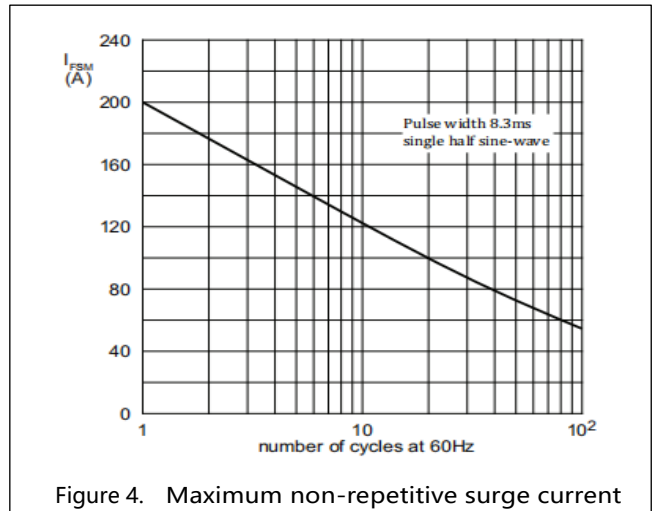
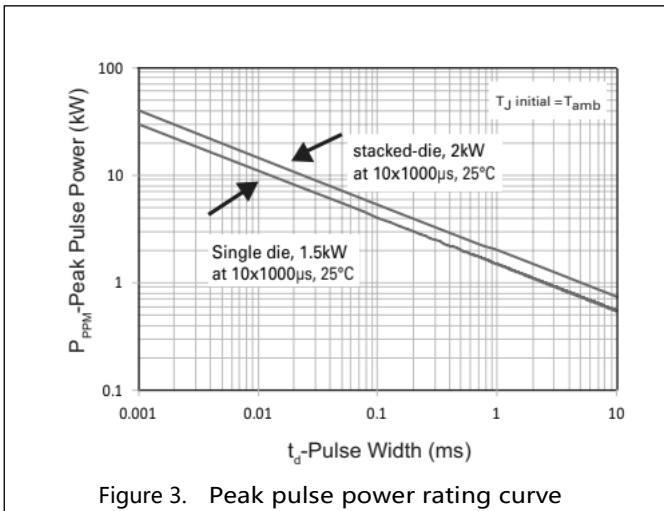
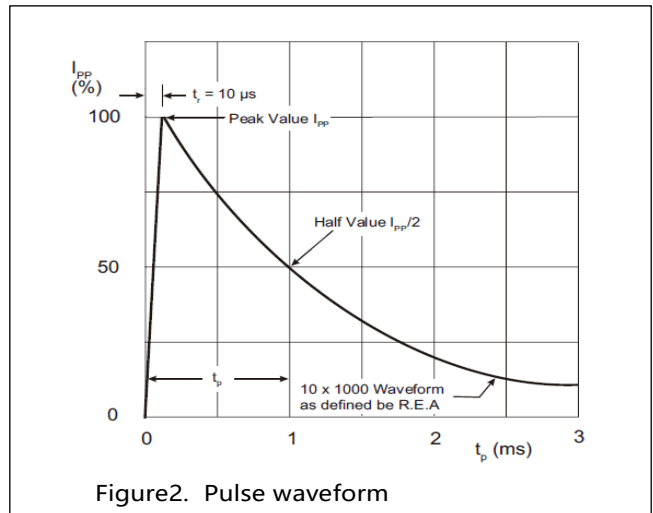
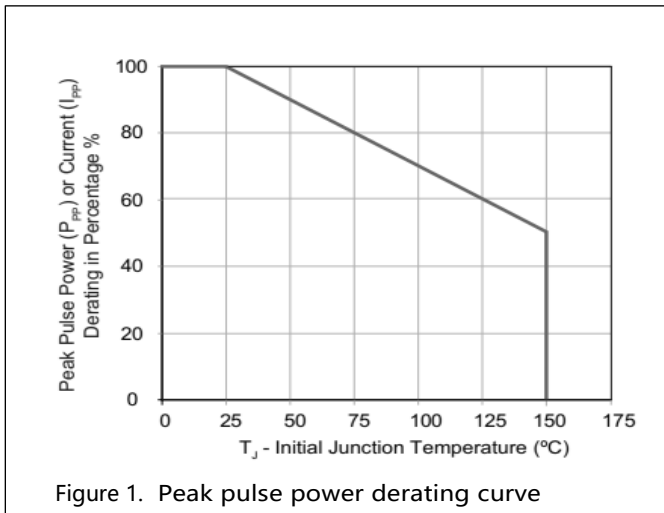
V_{BR} Breakdown Voltage -- Maximum voltage that flows through the TVS at a specified test current (I_T)

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

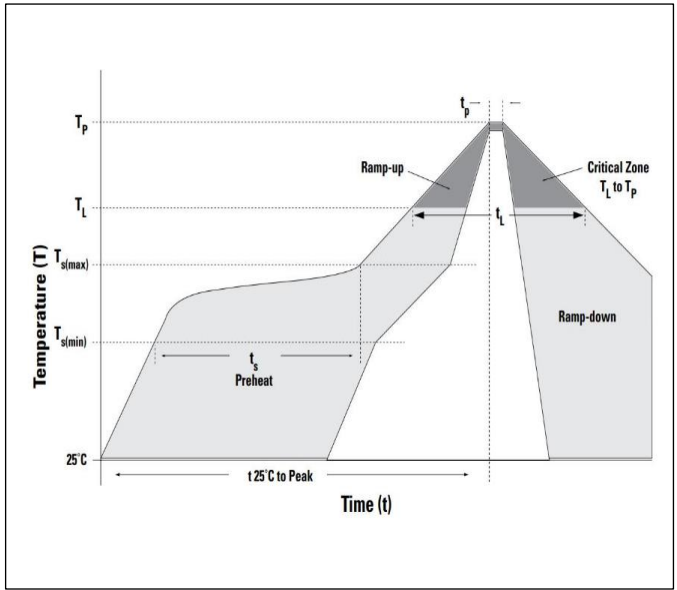
Ratings and Characteristic Curves (T = 25°C unless otherwise noted)



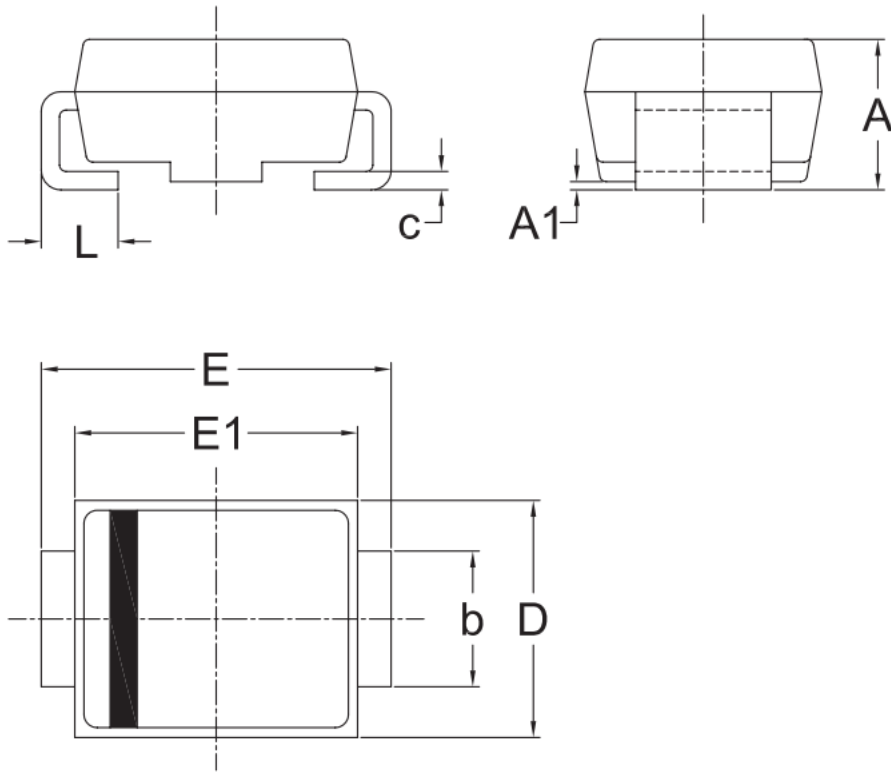
Soldering Parameters

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 ^{+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		260°C



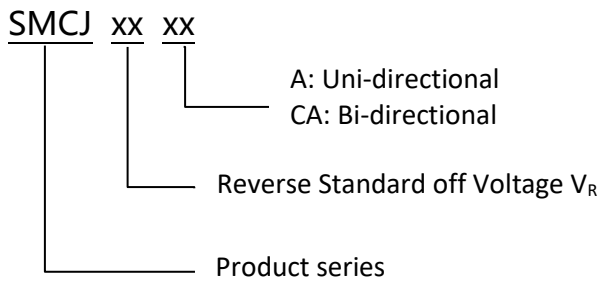
Dimensions



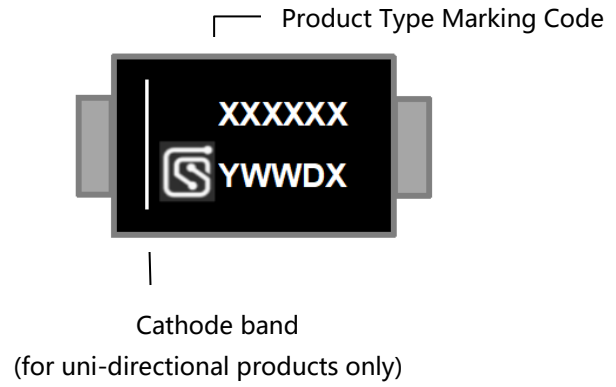
UNIT		A	A1	b	c	D	E	E1	L
mm	Max	2.83	0.30	3.10	0.25	6.15	8.15	7.05	1.60
	Min	2.33	0.00	2.80	0.15	5.85	7.65	6.75	0.90

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

Part Numbering



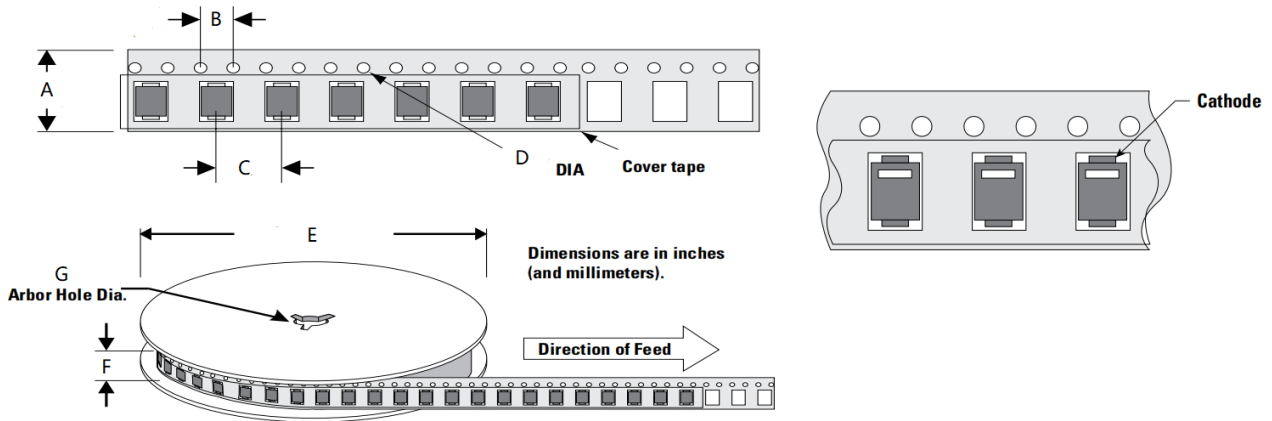
Part Marking



Packing

Part number	Package name	Small packing quantity	Packing method
SMCJXXXX	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-July-2021
1.1	Modified Temperature Range	16-August-2021