

Features

- 3000W 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

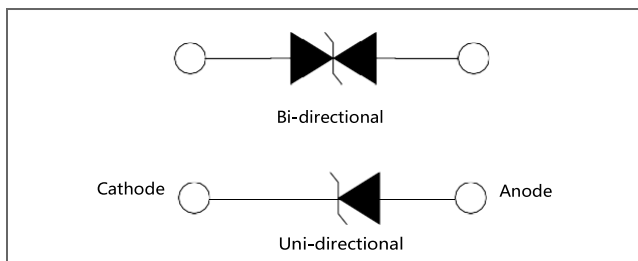
RoHS
Compliant



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 _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}	3000	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}	300	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:

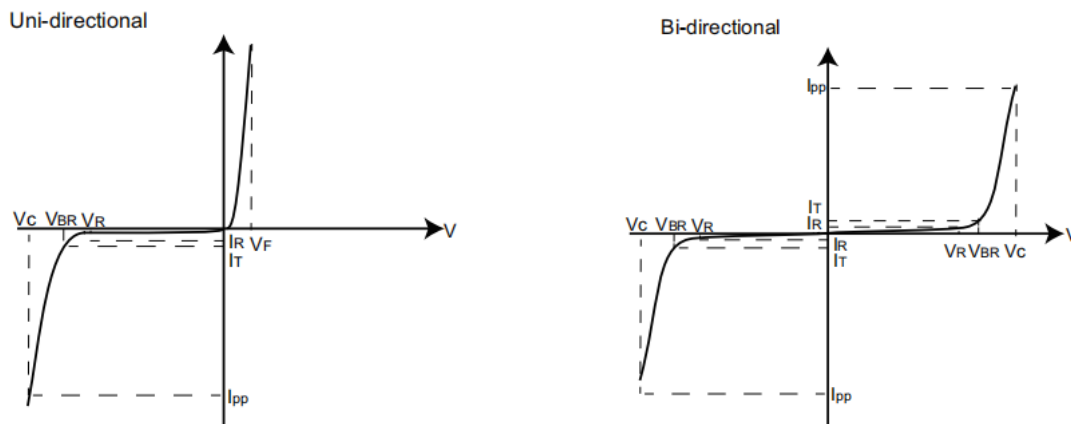
1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.
2. V_F < 3.5V for single die parts and V_F < 5V for stacked-die parts.

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 _{nn} (V)	Maximum Peak Pulse Current I _{pp} (A)	Maximum Reverse Leakage I _R @ V _R (μA)	Agency Approval 
		UNI	BI		MIN	MAX					
SMDJ5.0A	SMDJ5.0CA	005A	005C	5.0	6.40	7.00	10	9.2	326.1	800	
SMDJ6.0A	SMDJ6.0CA	006A	006C	6.0	6.67	7.37	10	10.3	291.3	800	
SMDJ6.5A	SMDJ6.5CA	06FA	06FC	6.5	7.22	7.98	10	11.2	267.9	500	
SMDJ7.0A	SMDJ7.0CA	007A	007C	7.0	7.78	8.60	10	12.0	250.0	200	
SMDJ7.5A	SMDJ7.5CA	07FA	07FC	7.5	8.33	9.21	1	12.9	232.6	100	
SMDJ8.0A	SMDJ8.0CA	008A	008C	8.0	8.89	9.83	1	13.6	220.6	50	
SMDJ8.5A	SMDJ8.5CA	08FA	08FC	8.5	9.44	10.40	1	14.4	208.3	20	
SMDJ9.0A	SMDJ9.0CA	009A	009C	9.0	10.00	11.10	1	15.4	194.8	10	
SMDJ10A	SMDJ10CA	010A	010C	10	11.10	12.30	1	17.0	176.5	5	
SMDJ11A	SMDJ11CA	011A	011C	11	12.20	13.50	1	18.2	164.8	2	
SMDJ12A	SMDJ12CA	012A	012C	12	13.30	14.70	1	19.9	150.8	2	
SMDJ13A	SMDJ13CA	013A	013C	13	14.40	15.90	1	21.5	139.5	2	
SMDJ14A	SMDJ14CA	014A	014C	14	15.60	17.20	1	23.2	129.3	2	
SMDJ15A	SMDJ15CA	015A	015C	15	16.70	18.50	1	24.4	123.0	2	
SMDJ16A	SMDJ16CA	016A	016C	16	17.80	19.70	1	26.0	115.4	2	
SMDJ17A	SMDJ17CA	017A	017C	17	18.90	20.90	1	27.6	108.7	2	
SMDJ18A	SMDJ18CA	018A	018C	18	20.00	22.10	1	29.2	102.7	2	
SMDJ20A	SMDJ20CA	020A	020C	20	22.20	24.50	1	32.4	92.6	2	
SMDJ22A	SMDJ22CA	022A	022C	22	24.40	26.90	1	35.5	84.5	2	
SMDJ24A	SMDJ24CA	024A	024C	24	26.70	29.50	1	38.9	77.1	2	
SMDJ26A	SMDJ26CA	026A	026C	26	28.90	31.90	1	42.1	71.3	2	
SMDJ28A	SMDJ28CA	028A	028C	28	31.10	34.40	1	45.4	66.1	2	
SMDJ30A	SMDJ30CA	030A	030C	30	33.30	36.80	1	48.4	62.0	2	
SMDJ33A	SMDJ33CA	033A	033C	33	36.70	40.60	1	53.3	56.3	2	
SMDJ36A	SMDJ36CA	036A	036C	36	40.00	44.20	1	58.1	51.6	2	
SMDJ40A	SMDJ40CA	040A	040C	40	44.40	49.10	1	64.5	46.5	2	
SMDJ43A	SMDJ43CA	043A	043C	43	47.80	52.80	1	69.4	43.2	2	
SMDJ45A	SMDJ45CA	045A	045C	45	50.00	55.30	1	72.7	41.3	2	
SMDJ48A	SMDJ48CA	048A	048C	48	53.30	58.90	1	77.4	38.8	2	
SMDJ51A	SMDJ51CA	051A	051C	51	56.70	62.70	1	82.4	36.4	2	
SMDJ54A	SMDJ54CA	054A	054C	54	60.00	66.30	1	87.1	34.4	2	
SMDJ58A	SMDJ58CA	058A	058C	58	64.40	71.20	1	93.6	32.1	2	
SMDJ60A	SMDJ60CA	060A	060C	60	66.70	73.70	1	96.8	31.0	2	
SMDJ64A	SMDJ64CA	064A	064C	64	71.10	78.60	1	103.0	29.1	2	
SMDJ70A	SMDJ70CA	070A	070C	70	77.80	86.00	1	113.0	26.5	2	
SMDJ75A	SMDJ75CA	075A	075C	75	83.30	92.10	1	121.0	24.8	2	
SMDJ78A	SMDJ78CA	078A	078C	78	86.70	95.80	1	126.0	23.8	2	
SMDJ85A	SMDJ85CA	085A	085C	85	94.40	104.0	1	137.0	21.9	2	
SMDJ90A	SMDJ90CA	090A	090C	90	100.0	111.0	1	146.0	20.5	2	
SMDJ100A	SMDJ100CA	100A	100C	100	111.0	123.0	1	162.0	18.5	2	
SMDJ110A	SMDJ110CA	110A	110C	110	122.0	135.0	1	177.0	16.9	2	

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_{nn} (V)	Maximum Peak Pulse Current I_{pp} (A)	Maximum Reverse Leakage I_R @ V_R (μ A)	Agency Approval 
		UNI	BI		MIN	MAX					
SMDJ120A	SMDJ120CA	120A	120C	120	133.0	147.0	1	193.0	15.5	2	
SMDJ130A	SMDJ130CA	130A	130C	130	144.0	159.0	1	209.0	14.4	2	
SMDJ150A	SMDJ150CA	150A	150C	150	167.0	185.0	1	243.0	12.3	2	
SMDJ160A	SMDJ160CA	160A	160C	160	178.0	197.0	1	259.0	11.6	2	
SMDJ170A	SMDJ170CA	170A	170C	170	189.0	209.0	1	275.0	10.9	2	
SMDJ180A	SMDJ180CA	180A	180C	180	201.0	222.0	1	292.0	10.3	2	
SMDJ190A	SMDJ190CA	190C	190A	190	211.0	234.0	1	307.0	9.7	2	
SMDJ200A	SMDJ200CA	200A	200C	200	224.0	247.0	1	324.0	9.3	2	
SMDJ220A	SMDJ220CA	220A	220C	220	244.0	270.0	1	356.0	8.4	2	
SMDJ250A	SMDJ250CA	250A	250C	250.0	279.00	309.00	1	405.0	9.9	2	
SMDJ300A	SMDJ300CA	300A	300C	300.0	335.00	371.00	1	486.0	8.3	2	
SMDJ350A	SMDJ350CA	350A	350C	350.0	391.00	432.00	1	567.0	7.1	2	
SMDJ400A	SMDJ400CA	400A	400C	400.0	447.00	494.00	1	648.0	6.2	2	
SMDJ440A	SMDJ440CA	440A	440C	440.0	492.00	543.00	1	713.0	5.7	2	

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 though 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)

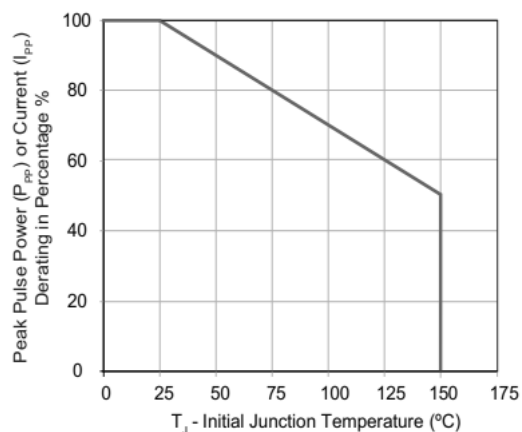


Figure 1. Peak pulse power derating curve

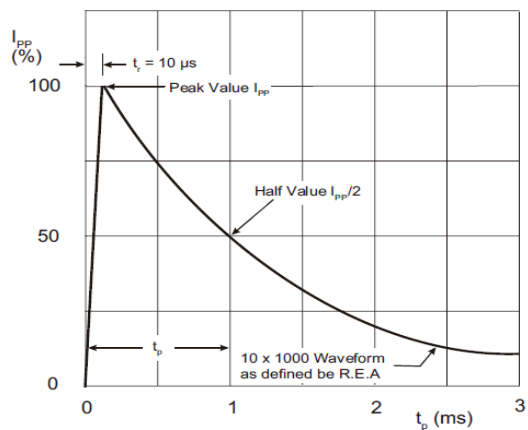


Figure2. Pulse waveform

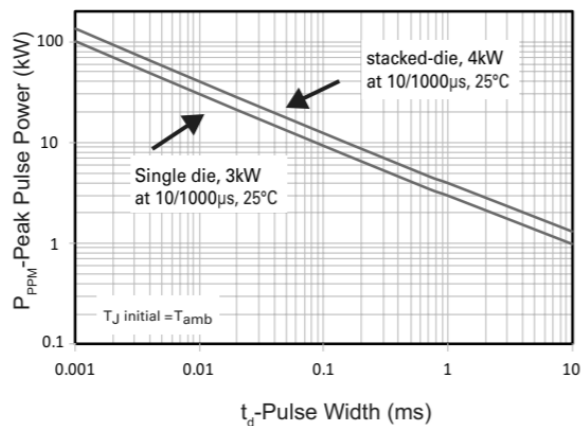


Figure 3. Peak pulse power rating curve

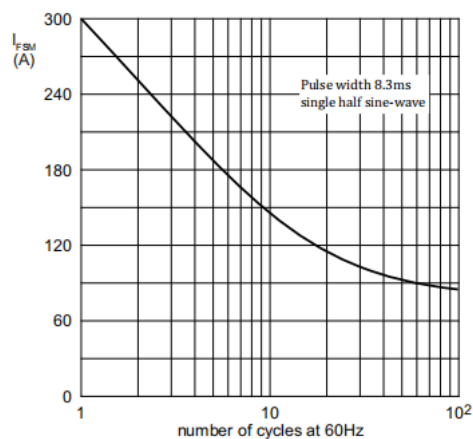
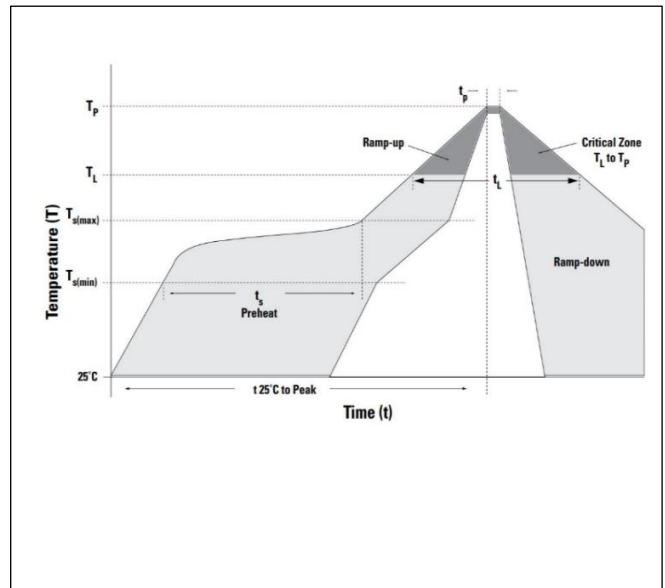


Figure 4. Maximum non-repetitive surge current

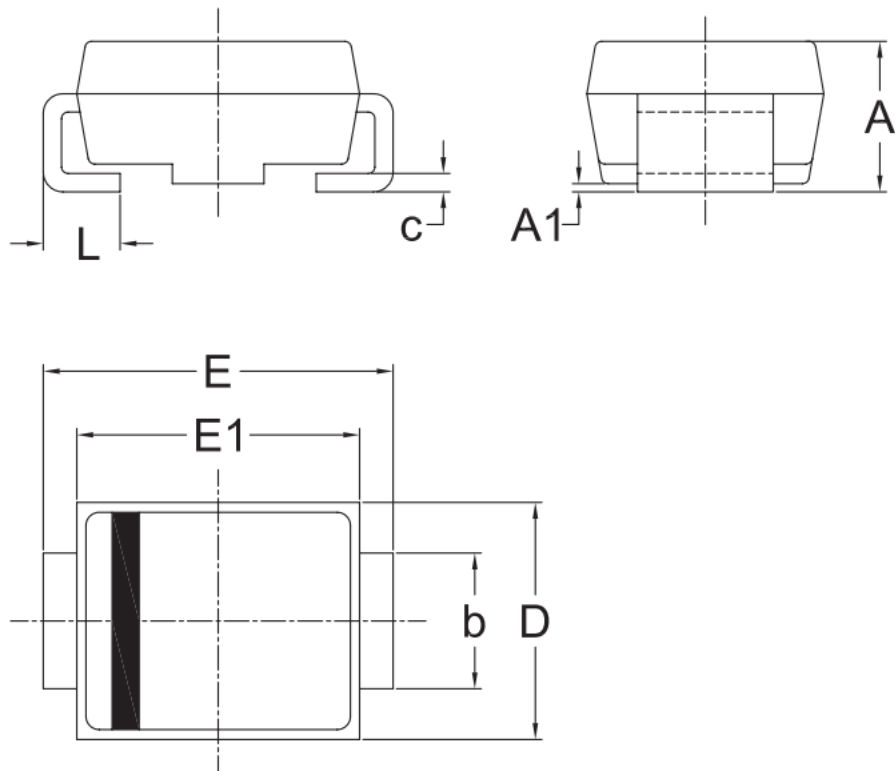
Soldering Parameters

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_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

Soldering profile



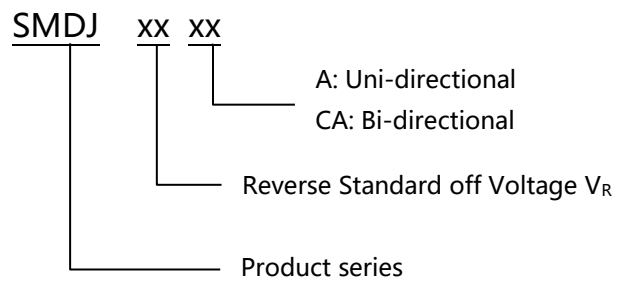
Dimensions



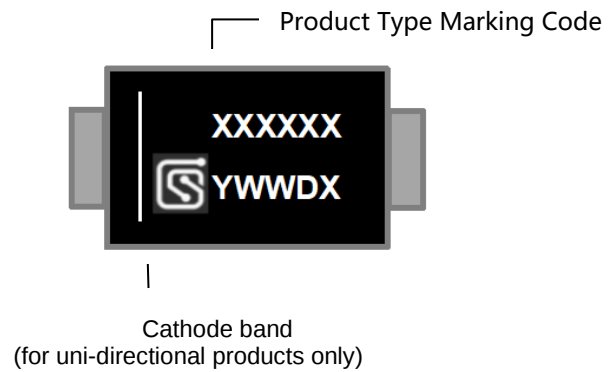
UNIT		A	A1	b	c	D	E	E1	L
mm	Max	2.83	0.30	3.10	0.25	6.15	8.15	7.05	1.60
	Min	2.33	0.00	2.80	0.15	5.85	7.65	6.75	0.90

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

Part Numbering



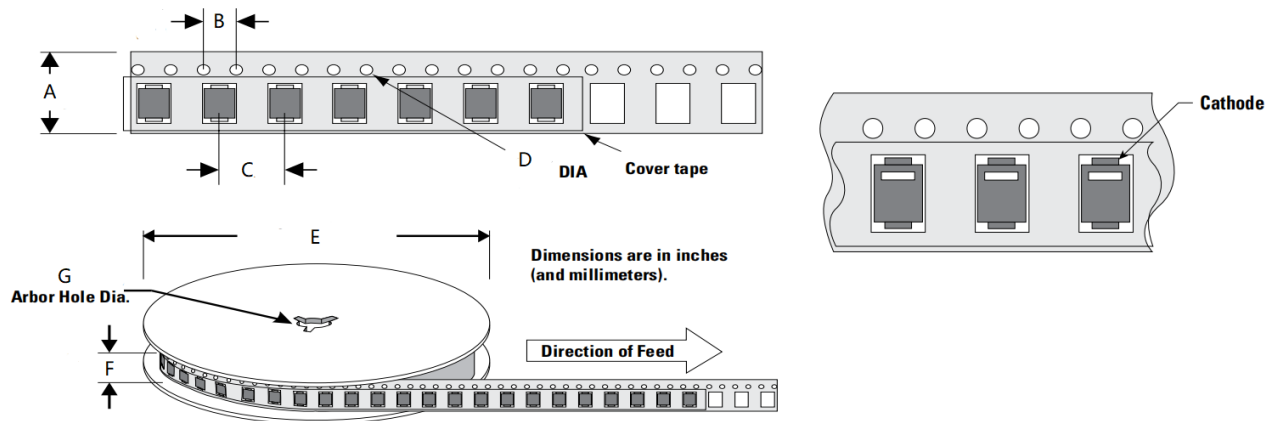
Part Marking



Packing

Part number	Package name	Small packing quantity	Packing method
SMDJXXXX	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&product series	16-August-2021