

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

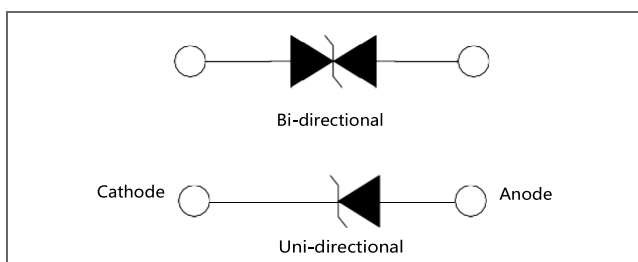
RoHS
Compliant



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:

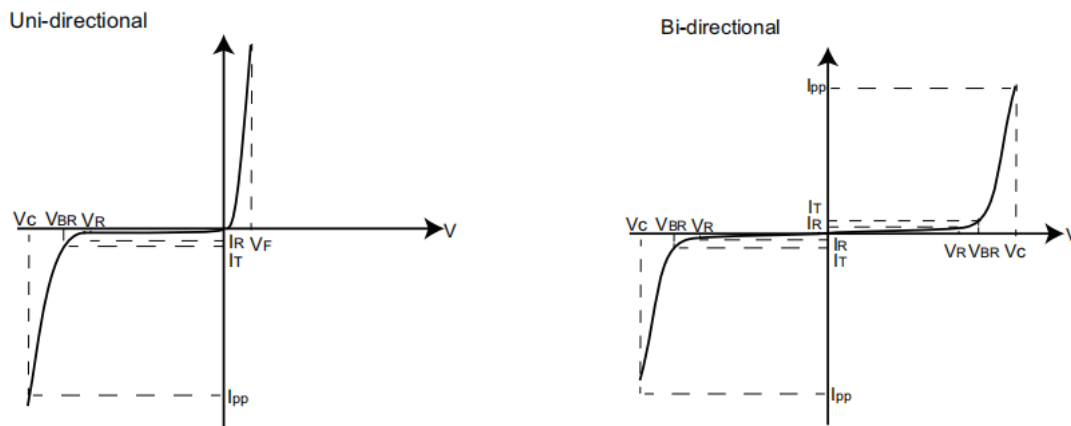
1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.
2. V_F < 3.5V for single die parts and V_F < 5V for stacked-die parts.

Characteristics (T =25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Key Marking UNI BI		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 _{DN} (V)	Maximum Peak Pulse Current I _{pp} (A)	Maximum Reverse Leakage I _R @ V _R (μA)	Agency Approval 
					MIN	MAX					
SMDJ5.0A	SMDJ5.0CA	D005A	D005C	5.0	6.40	7.00	10	9.2	326.1	800	
SMDJ6.0A	SMDJ6.0CA	D006A	D006C	6.0	6.67	7.37	10	10.3	291.3	800	
SMDJ6.5A	SMDJ6.5CA	D06FA	D06FC	6.5	7.22	7.98	10	11.2	267.9	500	
SMDJ7.0A	SMDJ7.0CA	D007A	D007C	7.0	7.78	8.60	10	12.0	250.0	200	
SMDJ7.5A	SMDJ7.5CA	D07FA	D07FC	7.5	8.33	9.21	1	12.9	232.6	100	
SMDJ8.0A	SMDJ8.0CA	D008A	D008C	8.0	8.89	9.83	1	13.6	220.6	50	
SMDJ8.5A	SMDJ8.5CA	D08FA	D08FC	8.5	9.44	10.40	1	14.4	208.3	20	
SMDJ9.0A	SMDJ9.0CA	D009A	D009C	9.0	10.00	11.10	1	15.4	194.8	10	
SMDJ10A	SMDJ10CA	D010A	D010C	10	11.10	12.30	1	17.0	176.5	5	
SMDJ11A	SMDJ11CA	D011A	D011C	11	12.20	13.50	1	18.2	164.8	2	
SMDJ12A	SMDJ12CA	D012A	D012C	12	13.30	14.70	1	19.9	150.8	2	
SMDJ13A	SMDJ13CA	D013A	D013C	13	14.40	15.90	1	21.5	139.5	2	
SMDJ14A	SMDJ14CA	D014A	D014C	14	15.60	17.20	1	23.2	129.3	2	
SMDJ15A	SMDJ15CA	D015A	D015C	15	16.70	18.50	1	24.4	123.0	2	
SMDJ16A	SMDJ16CA	D016A	D016C	16	17.80	19.70	1	26.0	115.4	2	
SMDJ17A	SMDJ17CA	D017A	D017C	17	18.90	20.90	1	27.6	108.7	2	
SMDJ18A	SMDJ18CA	D018A	D018C	18	20.00	22.10	1	29.2	102.7	2	
SMDJ20A	SMDJ20CA	D020A	D020C	20	22.20	24.50	1	32.4	92.6	2	
SMDJ22A	SMDJ22CA	D022A	D022C	22	24.40	26.90	1	35.5	84.5	2	
SMDJ24A	SMDJ24CA	D024A	D024C	24	26.70	29.50	1	38.9	77.1	2	
SMDJ26A	SMDJ26CA	D026A	D026C	26	28.90	31.90	1	42.1	71.3	2	
SMDJ28A	SMDJ28CA	D028A	D028C	28	31.10	34.40	1	45.4	66.1	2	
SMDJ30A	SMDJ30CA	D030A	D030C	30	33.30	36.80	1	48.4	62.0	2	
SMDJ33A	SMDJ33CA	D033A	D033C	33	36.70	40.60	1	53.3	56.3	2	
SMDJ36A	SMDJ36CA	D036A	D036C	36	40.00	44.20	1	58.1	51.6	2	
SMDJ40A	SMDJ40CA	D040A	D040C	40	44.40	49.10	1	64.5	46.5	2	
SMDJ43A	SMDJ43CA	D043A	D043C	43	47.80	52.80	1	69.4	43.2	2	
SMDJ45A	SMDJ45CA	D045A	D045C	45	50.00	55.30	1	72.7	41.3	2	
SMDJ48A	SMDJ48CA	D048A	D048C	48	53.30	58.90	1	77.4	38.8	2	
SMDJ51A	SMDJ51CA	D051A	D051C	51	56.70	62.70	1	82.4	36.4	2	
SMDJ54A	SMDJ54CA	D054A	D054C	54	60.00	66.30	1	87.1	34.4	2	
SMDJ58A	SMDJ58CA	D058A	D058C	58	64.40	71.20	1	93.6	32.1	2	
SMDJ60A	SMDJ60CA	D060A	D060C	60	66.70	73.70	1	96.8	31.0	2	
SMDJ64A	SMDJ64CA	D064A	D064C	64	71.10	78.60	1	103.0	29.1	2	
SMDJ70A	SMDJ70CA	D070A	D070C	70	77.80	86.00	1	113.0	26.5	2	
SMDJ75A	SMDJ75CA	D075A	D075C	75	83.30	92.10	1	121.0	24.8	2	
SMDJ78A	SMDJ78CA	D078A	D078C	78	86.70	95.80	1	126.0	23.8	2	
SMDJ85A	SMDJ85CA	D085A	D085C	85	94.40	104.0	1	137.0	21.9	2	
SMDJ90A	SMDJ90CA	D090A	D090C	90	100.0	111.0	1	146.0	20.5	2	
SMDJ100A	SMDJ100CA	D100A	D100C	100	111.0	123.0	1	162.0	18.5	2	
SMDJ110A	SMDJ110CA	D110A	D110C	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	D120A	D120C	120	133.0	147.0	1	193.0	15.5	2	
SMDJ130A	SMDJ130CA	D130A	D130C	130	144.0	159.0	1	209.0	14.4	2	
SMDJ150A	SMDJ150CA	D150A	D150C	150	167.0	185.0	1	243.0	12.3	2	
SMDJ160A	SMDJ160CA	D160A	D160C	160	178.0	197.0	1	259.0	11.6	2	
SMDJ170A	SMDJ170CA	D170A	D170C	170	189.0	209.0	1	275.0	10.9	2	
SMDJ180A	SMDJ180CA	D180A	D180C	180	201.0	222.0	1	292.0	10.3	2	
SMDJ190A	SMDJ190CA	D190A	D190C	190	211.0	234.0	1	307.0	9.7	2	
SMDJ200A	SMDJ200CA	D200A	D200C	200	224.0	247.0	1	324.0	9.3	2	
SMDJ220A	SMDJ220CA	D220A	D220C	220	244.0	270.0	1	356.0	8.4	2	
SMDJ250A	SMDJ250CA	D250A	D250C	250.0	279.00	309.00	1	405.0	9.9	2	
SMDJ300A	SMDJ300CA	D300A	D300C	300.0	335.00	371.00	1	486.0	8.3	2	
SMDJ350A	SMDJ350CA	D350A	D350C	350.0	391.00	432.00	1	567.0	7.1	2	
SMDJ400A	SMDJ400CA	D400A	D400C	400.0	447.00	494.00	1	648.0	6.2	2	
SMDJ440A	SMDJ440CA	D440A	D440C	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)

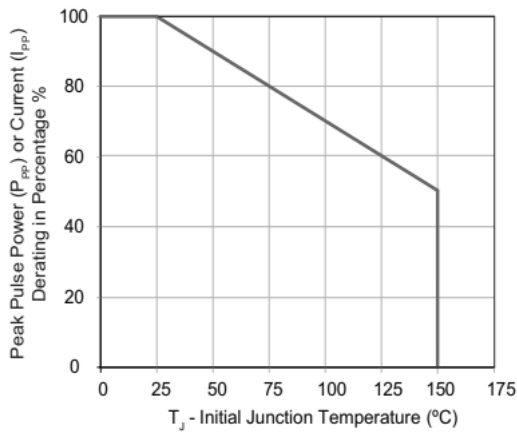


Figure 1. Peak pulse power derating curve

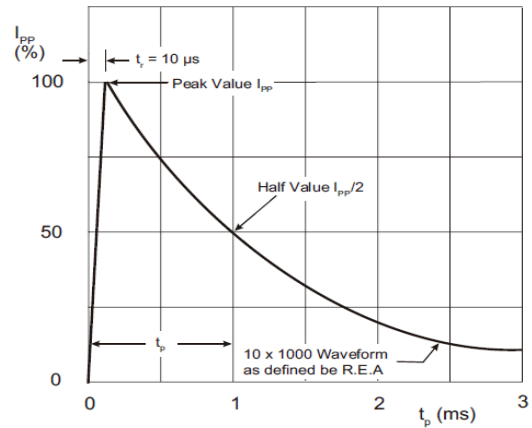


Figure2. Pulse waveform

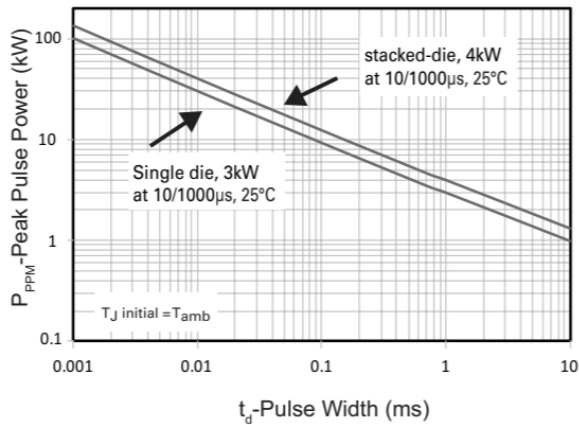


Figure 3. Peak pulse power rating curve

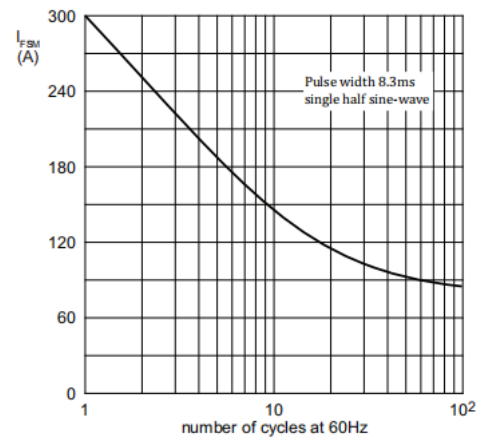
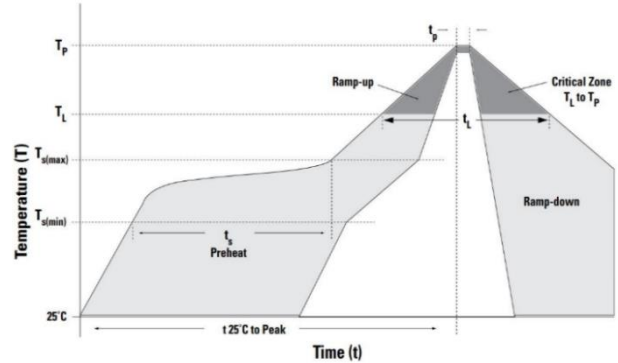


Figure 4. Maximum non-repetitive surge current

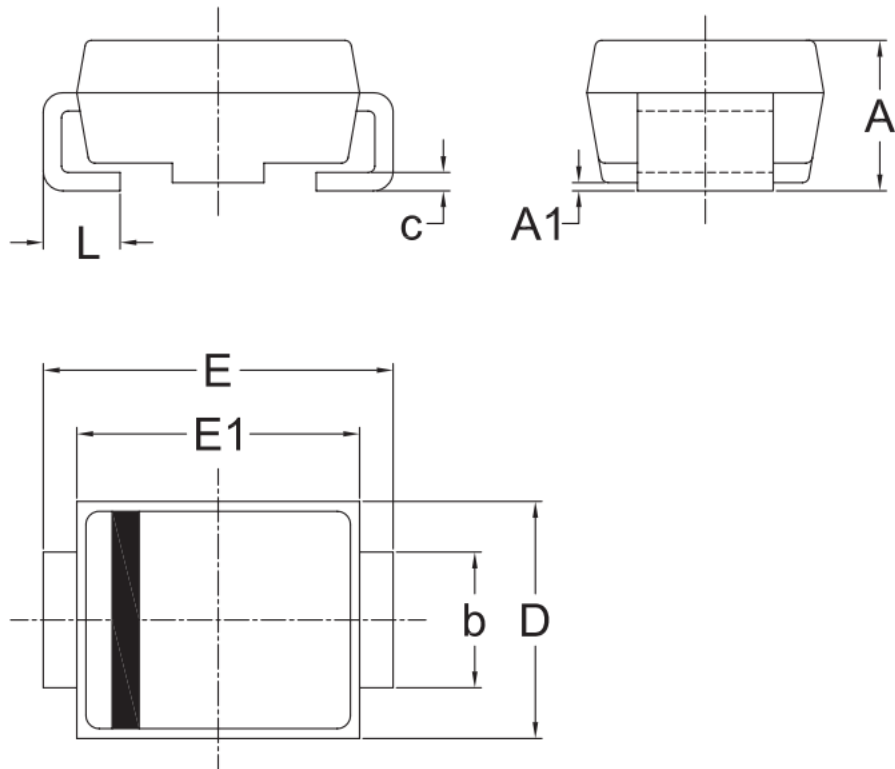
Soldering Parameters

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

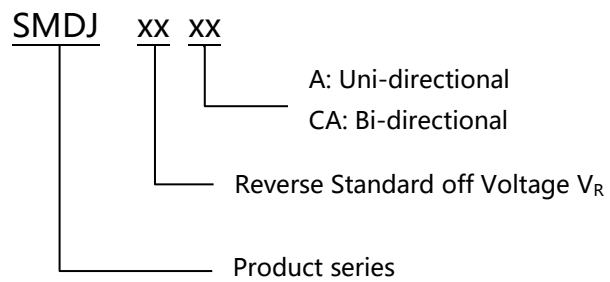


Dimensions

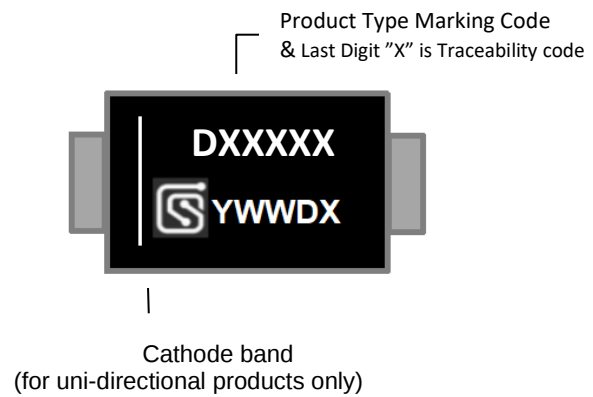


unit		A	A1	b	c	D	E	E1	L
max	mm	2.95	0.30	3.30	0.30	6.22	8.40	7.11	1.60
min		1.99	0.01	2.70	0.00	5.50	7.40	6.50	0.76

Part Numbering



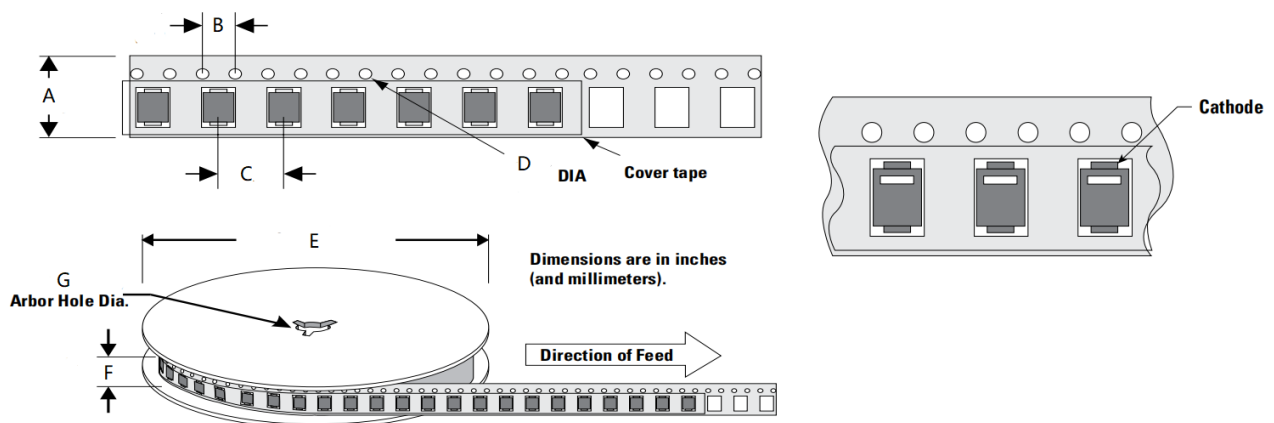
Part Marking



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-Jul-2021
1.1	Modified Temperature Range&product series	16-Aug-2021
1.2	Add Remark For Marking Last Digit	31-Mar-2024