Features

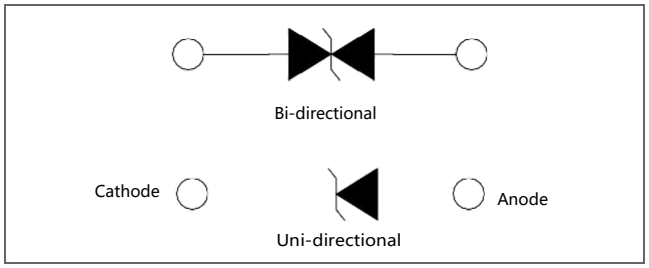


- 8000W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycles):0.01%
- Excellent clamping capability
- Typical failure mode is a short circuit condition for current events exceeding component rating
- Plastic package is flammability rated V-0 per UL-94
- Meet MSL level1, per 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}	8000	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 100A for Unidirectional Only	V_F	5	V
Operating Temperature Range	T_J	-55 to 150	°C
Storage Temperature Range	T_{STG}	-55 to 150	°C

AGENCY	AGENCY FILE NUMBER
®RU	Pending

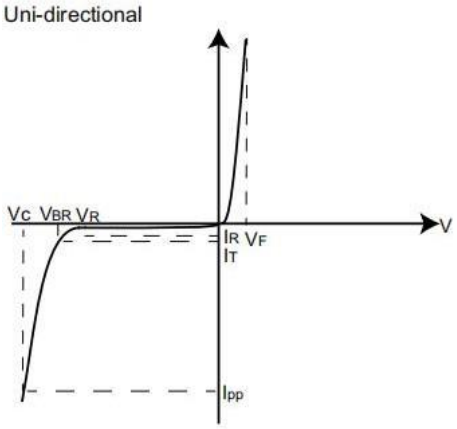
Notes:

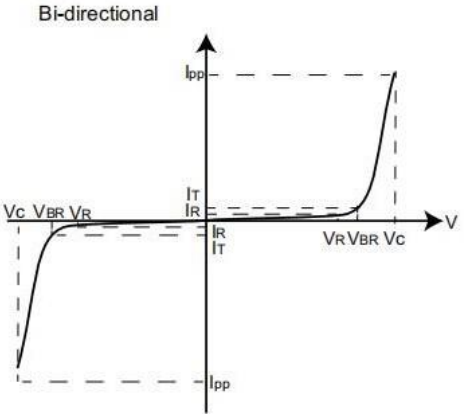
1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

Characteristics (T =25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Key Marking UNI	Key Marking BI	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T MIN	Breakdown Voltage V_{BR} (Volts) @ I_T MAX	Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{pp} (V)	Maximum Peak Pulse Current I_{pp} (A) 10/1000uS	Maximum Clamping Voltage V_C @ I_{pp} (V)	Maximum Peak Pulse Current I_{pp} (A) 8/20uS	Maximum Reverse Leakage I_R @ V_R (μA)
8.0SMDJ12A	8.0SMDJ12CA	8D012	8D012	12	13.3	14.7	10	19.9	402.1	25.7	2613.7	800
8.0SMDJ13A	8.0SMDJ13CA	8D013	8D013	13	14.4	15.9	10	21.5	372.1	27.8	2418.7	500
8.0SMDJ14A	8.0SMDJ14CA	8D014	8D014	14	15.6	17.2	10	23.2	344.9	30.0	2241.9	200
8.0SMDJ15A	8.0SMDJ15CA	8D015	8D015	15	16.7	18.5	1	24.4	327.9	31.5	2131.4	100
8.0SMDJ16A	8.0SMDJ16CA	8D016	8D016	16	17.8	19.7	1	26.0	307.7	33.6	2000.1	50
8.0SMDJ17A	8.0SMDJ17CA	8D017	8D017	17	18.9	20.9	1	27.6	290.0	35.7	1885.0	20
8.0SMDJ18A	8.0SMDJ18CA	8D018	8D018	18	20.0	22.1	1	29.2	274.0	37.7	1781.0	10
8.0SMDJ20A	8.0SMDJ20CA	8D020	8D020	20	22.2	24.5	1	32.4	247.0	41.9	1605.5	5
8.0SMDJ22A	8.0SMDJ22CA	8D022	8D022	22	24.4	26.9	1	35.5	225.4	45.9	1464.8	5
8.0SMDJ24A	8.0SMDJ24CA	8D024	8D024	24	26.7	29.5	1	38.9	205.7	50.3	1336.8	5
8.0SMDJ26A	8.0SMDJ26CA	8D026	8D026	26	28.9	31.9	1	42.1	190.1	54.4	1235.7	5
8.0SMDJ28A	8.0SMDJ28CA	8D028	8D028	28	31.1	34.4	1	45.4	176.2	58.7	1145.4	5
8.0SMDJ30A	8.0SMDJ30CA	8D030	8D030	30	33.3	36.8	1	48.4	165.3	62.5	1074.5	5
8.0SMDJ33A	8.0SMDJ33CA	8D033	8D033	33	36.7	40.6	1	53.3	150.1	68.9	975.7	5
8.0SMDJ36A	8.0SMDJ36CA	8D036	8D036	36	40.0	44.2	1	58.1	137.8	75.1	895.7	5
8.0SMDJ40A	8.0SMDJ40CA	8D040	8D040	40	44.4	49.1	1	64.5	124.1	83.3	806.7	5
8.0SMDJ43A	8.0SMDJ43CA	8D043	8D043	43	47.8	52.8	1	69.4	115.3	89.7	749.5	5
8.0SMDJ45A	8.0SMDJ45CA	8D045	8D045	45	50.0	55.3	1	72.7	110.1	93.9	715.7	5
8.0SMDJ48A	8.0SMDJ48CA	8D048	8D048	48	53.3	58.9	1	77.4	103.4	100.0	671.8	5
8.0SMDJ51A	8.0SMDJ51CA	8D051	8D051	51	56.7	62.7	1	82.4	97.1	106.5	631.2	5
8.0SMDJ54A	8.0SMDJ54CA	8D054	8D054	54	60.0	66.3	1	87.1	92.0	112.5	598.0	5
8.0SMDJ58A	8.0SMDJ58CA	8D058	8D058	58	64.4	71.2	1	93.6	85.5	120.9	555.8	5
8.0SMDJ60A	8.0SMDJ60CA	8D060	8D060	60	66.7	73.7	1	96.8	82.7	125.1	537.2	5
8.0SMDJ64A	8.0SMDJ64CA	8D064	8D064	64	71.1	78.6	1	103.0	77.7	133.1	504.9	5
8.0SMDJ70A	8.0SMDJ70CA	8D070	8D070	70	77.8	86.0	1	113.0	71.0	146.0	461.5	5
8.0SMDJ75A	8.0SMDJ75CA	8D075	8D075	75	83.3	92.1	1	121.0	66.2	156.3	430.3	5
8.0SMDJ78A	8.0SMDJ78CA	8D078	8D078	78	86.7	95.8	1	126.0	63.5	162.8	412.8	5
8.0SMDJ85A	8.0SMDJ85CA	8D085	8D085	85	94.4	104.0	1	137.0	58.4	177.0	379.6	5
8.0SMDJ90A	8.0SMDJ90CA	8D090	8D090	90	100.0	111.0	1	146.0	55.0	188.6	357.5	5
8.0SMDJ100A	8.0SMDJ100CA	8D100	8D100	100	111.0	123.0	1	162.0	49.4	209.3	321.1	5
8.0SMDJ110A	8.0SMDJ110CA	8D110	8D110	110	122.0	135.0	1	177.0	45.2	228.7	293.8	5

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)

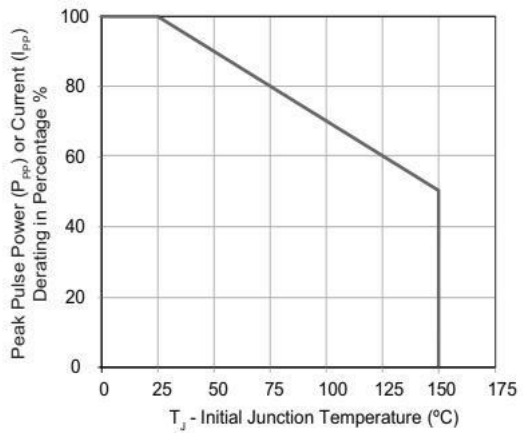


Figure 1. Peak pulse power derating curve

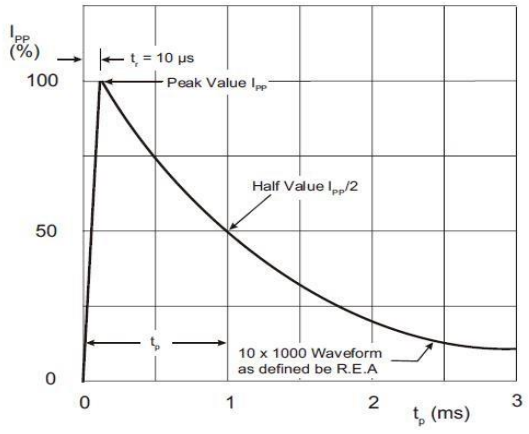


Figure2. Pulse waveform

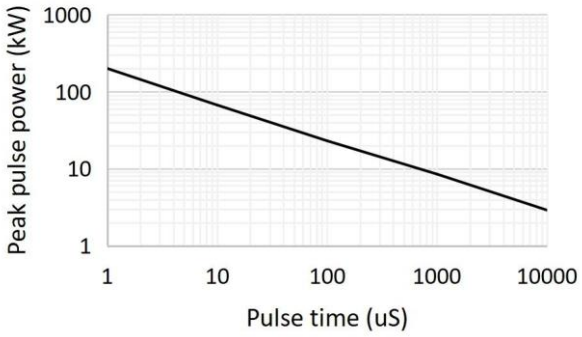


Figure 3. Peak pulse power rating curve

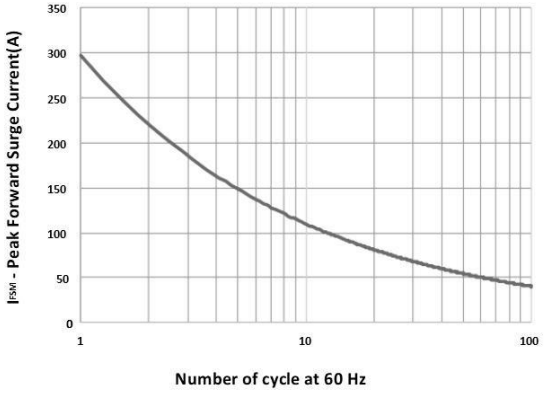
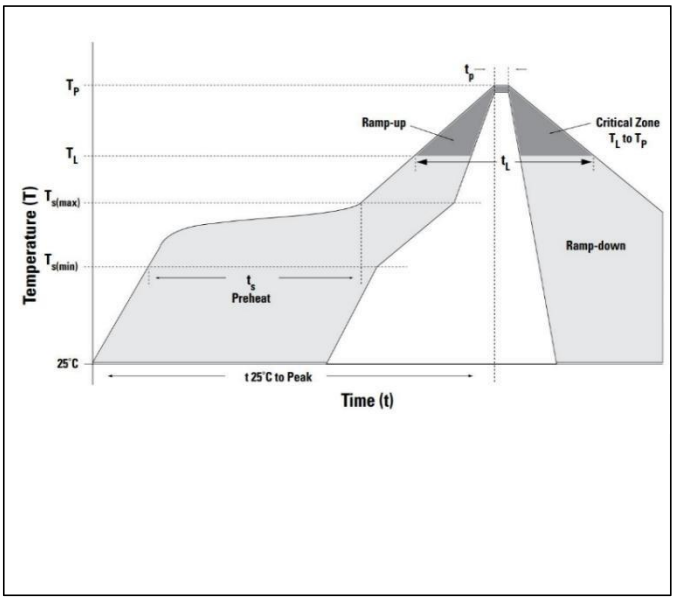


Figure 4. Maximum non-repetitive surge current

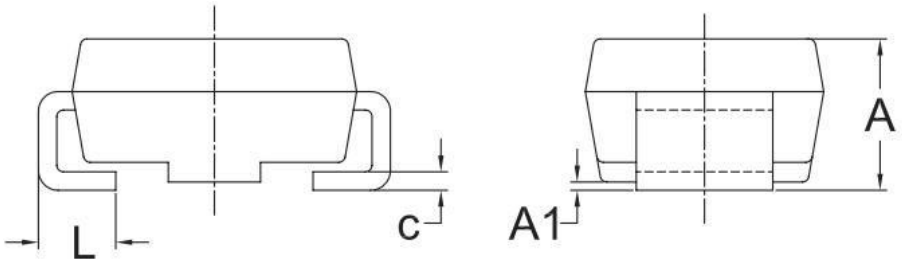
Soldering Parameters

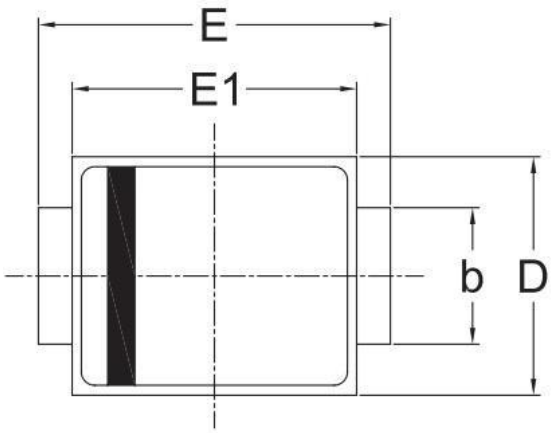
Reflow Condition		Lead–free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_A) to peak		3°C/second max
$T_{S(max)}$ to T_A - Ramp-up Rate		3°C/second max
Reflow	- Temperature (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

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

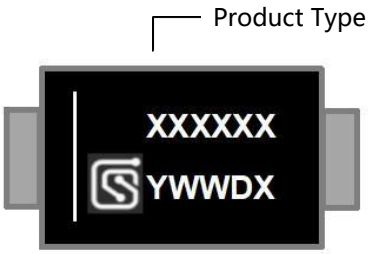
Remark: Dimensions D and E1 do not include mold flash & gate remain.

Part Numbering

8.0SMDJ xx xx

- A: Uni-directional
  CA: Bi-directional
- Reverse Standard off Voltage V_R
- Product series

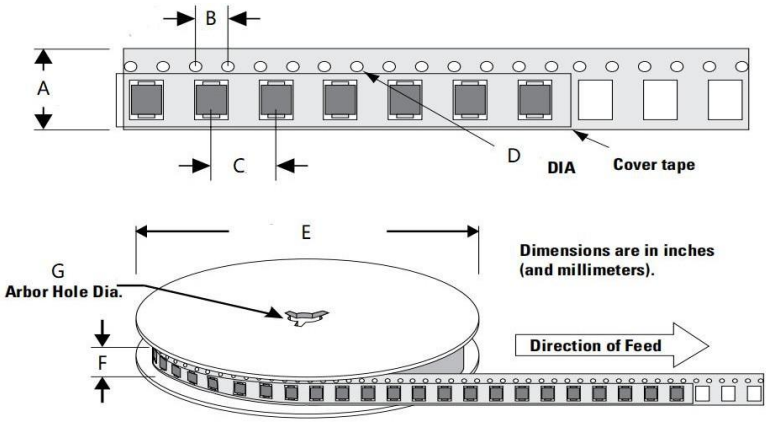
Part Marking

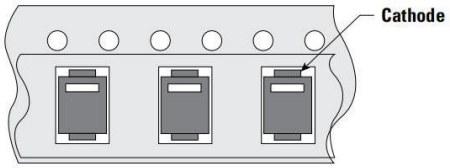


Packing

Part number	Package name	Small packing quantity	Packing method
8.0SMDJXXXX	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	3-Aug-2022