SOCAY

HF RoHS

Surface Mount Transient Voltage Suppressors (TVS)

8.0SMDJ Series 14 To 85 V 8000W

Description

The 8.0SMDJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

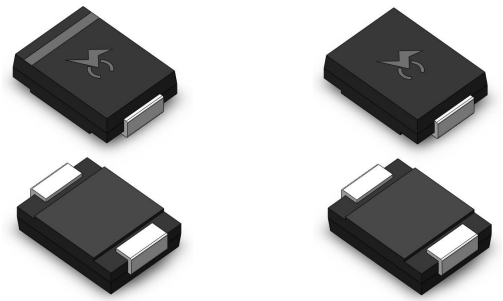
Features

- Glass passivated chip
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- 8000W Peak power capability at 10 × 1000μs waveform
  Repetition rate (duty cycle):0.01%
- Very fast response time
- RoHS compliant

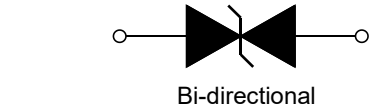
Applications

TVS devices are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

Uni-directional Bi-directional

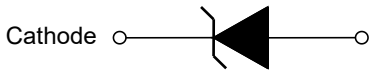


Functional Diagram



Bi-directional

Cathode Anode



Uni-direction

Maximum Ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000μs waveform (Fig.1)(Note 1), (Note 2)	P_{PPM}	8000	Watts
Peak Pulse Current with a 10/1000μs waveform.(Note1,Fig.3)	I_{PP}	See Next Table	Amps
Power Dissipation on Infinite Heat Sink at T_L=75°C	$P_{M(AV)}$	6.5	Watt
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	300	Amps
Maximum Instantaneous Forward Voltage at 25A for Unidirectional Only (Note 4)	V_F	3.5/5.0	Voltage
Operating junction and Storage Temperature Range.	T_J , T_{STG}	-55 to +150	°C

Notes: 1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.

2. Mounted on 5.0mm x 5.0mm (0.03mm thick) Copper Pads to each terminal.

3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

4. V_F < 3.5V for V_{BR} < 200V and V_F< 6.5V for V_{BR} > 201V.

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Part Number		Marking		Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) @I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @V_{RWM} (μA)
Uni	Bi	Uni	Bi		MIN	MAX				
8.0SMDJ14A	8.0SMDJ14CA	8PEG	8BEG	14	15.60	17.20	10	23.2	348.28	200
8.0SMDJ15A	8.0SMDJ15CA	8PEK	8BEK	15	16.70	18.50	1	24.4	331.15	100
8.0SMDJ16A	8.0SMDJ16CA	8PEM	8BEM	16	17.80	19.70	1	26.0	310.77	50
8.0SMDJ17A	8.0SMDJ17CA	8PEP	8BEP	17	18.90	20.90	1	27.6	292.75	20
8.0SMDJ18A	8.0SMDJ18CA	8PER	8BER	18	20.00	22.10	1	29.2	276.71	10
8.0SMDJ19A	8.0SMDJ19CA	8PET	8BET	19	21.10	23.30	1	30.8	262.51	10

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Electrical Characteristics (T_A=25℃ unless otherwise noted) (Continue)

Part Number		Marking		Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) @I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @V_{RWM} (μA)
Uni	Bi	Uni	Bi		MIN	MAX				
8.0SMDJ20A	8.0SMDJ20CA	8PEV	8BEV	20	22.20	24.50	1	32.4	249.38	5
8.0SMDJ22A	8.0SMDJ22CA	8PEX	8BEX	22	24.40	26.90	1	35.5	227.61	5
8.0SMDJ24A	8.0SMDJ24CA	8PEZ	8BEZ	24	26.70	29.50	1	38.9	207.71	5
8.0SMDJ26A	8.0SMDJ26CA	8PFE	8BFE	26	28.90	31.90	1	42.1	191.92	5
8.0SMDJ28A	8.0SMDJ28CA	8PFG	8BFG	28	31.10	34.40	1	45.4	177.97	5
8.0SMDJ30A	8.0SMDJ30CA	8PFK	8BFK	30	33.30	36.80	1	48.4	166.94	5
8.0SMDJ33A	8.0SMDJ33CA	8PFM	8BFM	33	36.70	40.60	1	53.3	151.59	5
8.0SMDJ36A	8.0SMDJ36CA	8PFP	8BFP	36	40.00	44.20	1	58.1	139.07	5
8.0SMDJ40A	8.0SMDJ40CA	8PFR	8BFR	40	44.40	49.10	1	64.5	125.27	5
8.0SMDJ43A	8.0SMDJ43CA	8PFT	8BFT	43	47.80	52.80	1	69.4	116.43	5
8.0SMDJ45A	8.0SMDJ45CA	8PFV	8BFV	45	50.00	55.30	1	72.7	111.14	5
8.0SMDJ48A	8.0SMDJ48CA	8PFX	8BFX	48	53.30	58.90	1	77.4	104.39	5
8.0SMDJ51A	8.0SMDJ51CA	8PFZ	8BFZ	51	56.70	62.70	1	82.4	98.06	5
8.0SMDJ54A	8.0SMDJ54CA	8PGE	8BGE	54	60.00	66.30	1	87.1	92.77	5
8.0SMDJ58A	8.0SMDJ58CA	8PGG	8BGG	58	64.40	71.20	1	93.6	86.32	5
8.0SMDJ60A	8.0SMDJ60CA	8PGK	8BGK	60	66.70	73.70	1	96.8	83.47	5
8.0SMDJ64A	8.0SMDJ64CA	8PGM	8BGM	64	71.10	78.60	1	103.0	78.45	5
8.0SMDJ70A	8.0SMDJ70CA	8PGP	8BGP	70	77.80	86.00	1	113.0	71.50	5
8.0SMDJ75A	8.0SMDJ75CA	8PGR	8BGR	75	83.30	92.10	1	121.0	66.78	5
8.0SMDJ78A	8.0SMDJ78CA	8PGT	8BGT	78	86.70	95.80	1	126.0	64.13	5
8.0SMDJ80A	8.0SMDJ80CA	8PGB	8BGB	80	88.80	97.60	1	129.6	62.35	5
8.0SMDJ85A	8.0SMDJ85CA	8PGV	8BGV	85	94.40	104.00	1	137.0	58.98	5

Ratings and Characteristics Curves (TA=25℃ unless otherwise noted)

Fig. 1 - Pulse Derating Curve

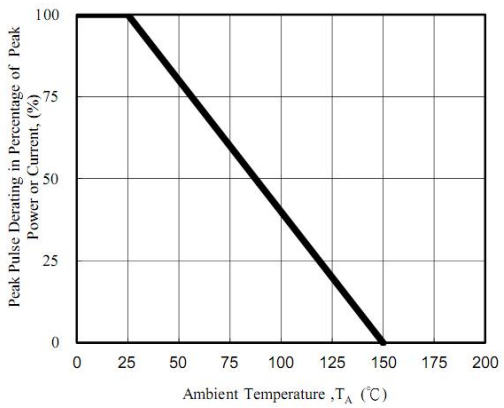

Fig. 2 - Maximum Non-Repetitive Surge Current

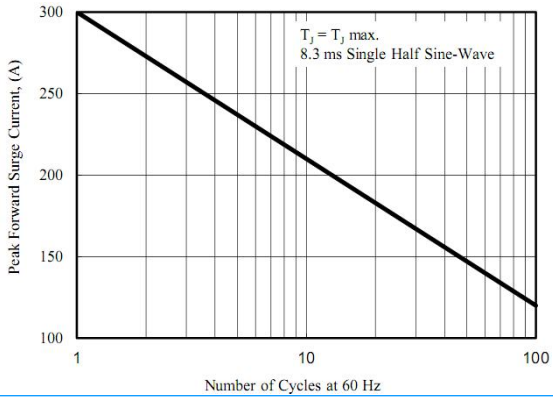

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Fig. 3 - Steady State Power Derating Curve

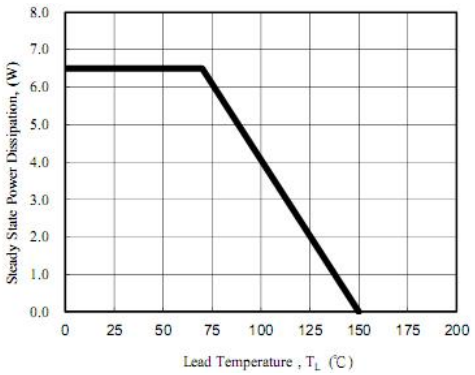


Fig. 4 - Peak Pulse Power Rating Curve

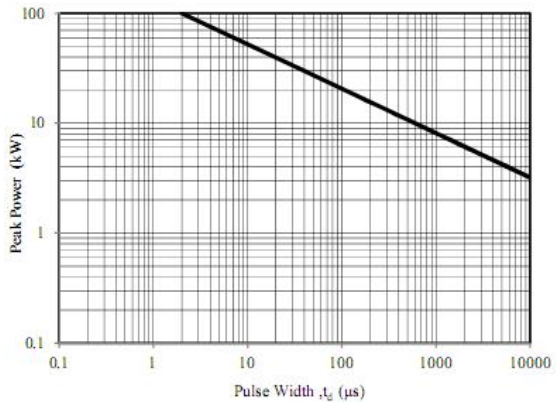


Fig. 5 - Pulse Waveform

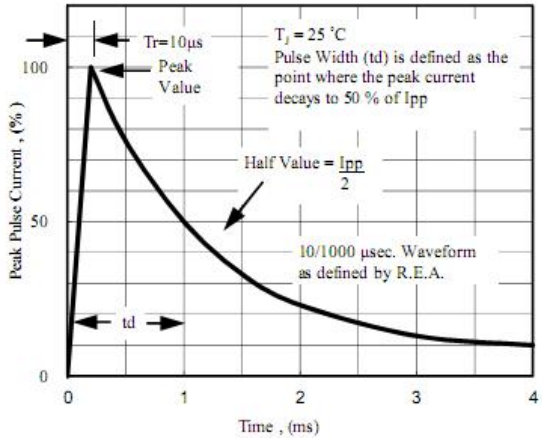
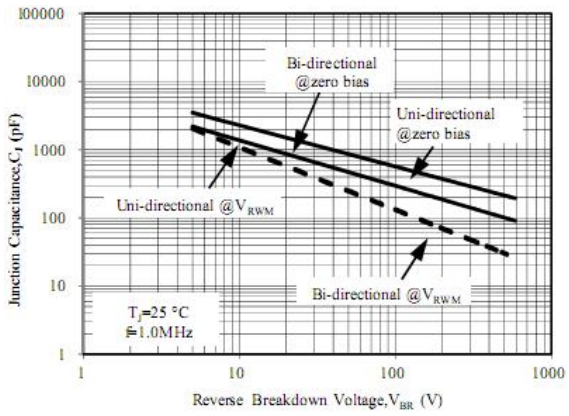
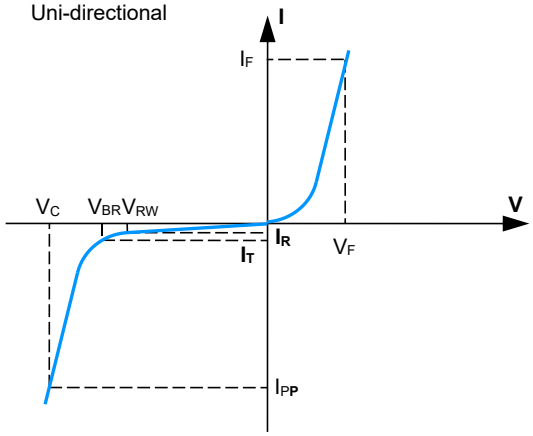
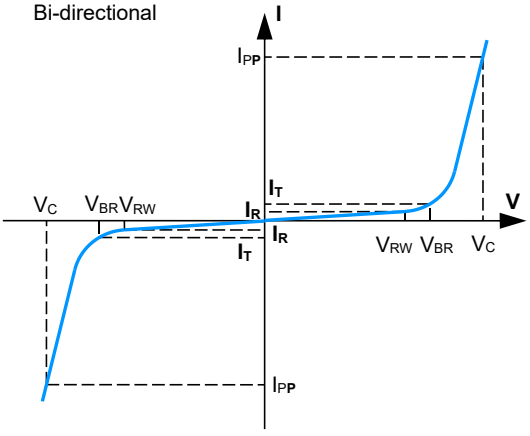


Fig. 6 - Typical Junction Capacitance



I-V Curve Characteristics





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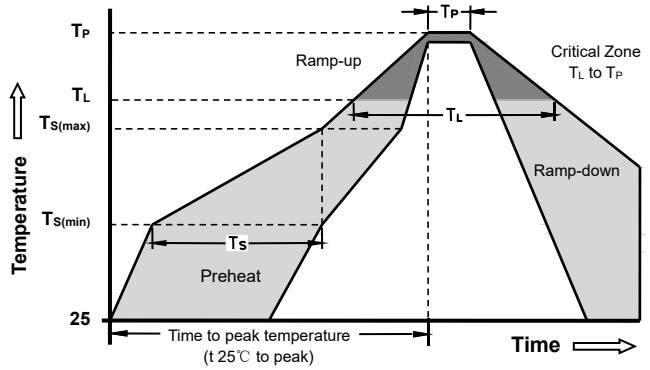
Physical Specifications

Weight	0.007 ounce, 0.21 gram
Case	JEDEC DO-214AB Molded Plastic over glass passivated junction
Polarity	Color band denotes cathode except Bipolar
Terminal	Matte Tin-plated leads, Solderable per JESD22-B102D

Environmental Specifications

Temperature Cycle	JESD22-A104
Pressure Cooker	JESD22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

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 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{S(max)}$ to TL - Ramp-up Rate		3°C/second max
Reflow	**- Temperature (T_L) (Liquidus)**	217°C
	- Time (min to max) (T_L)	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		280°C

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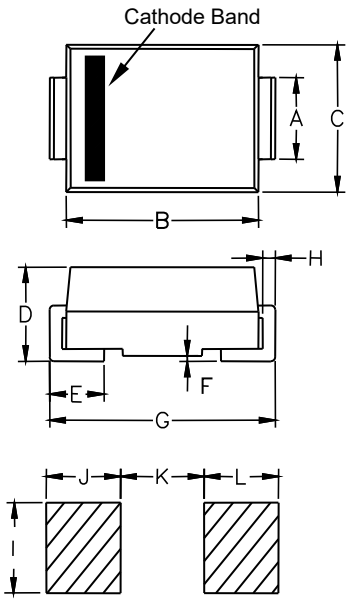
Dimensions

DO-214AB (SMC)



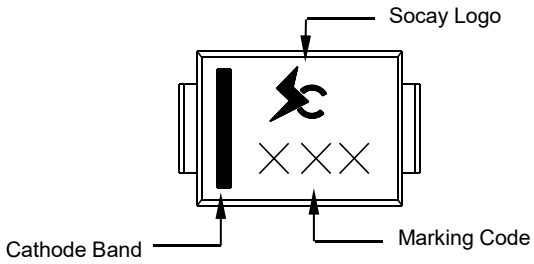
Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.108	0.126	2.750	3.200
B	0.260	0.280	6.520	7.110
C	0.217	0.244	5.520	6.220
D	0.080	0.112	2.050	2.850
E	0.030	0.060	0.750	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.640	8.130
H	0.006	0.012	0.150	0.310
I	0.121	-	3.070	-
J	0.068	-	1.715	-
K	-	0.185	-	4.690
L	0.068	-	1.715	-

Part Numbering

8 . 0 S M D J × × × C A

- 5% V_{BR} VOLTAGE TOLERANCE
- BI-DIRECTIONAL
- V_R VOLTAGE
- SERIES

Part Marking



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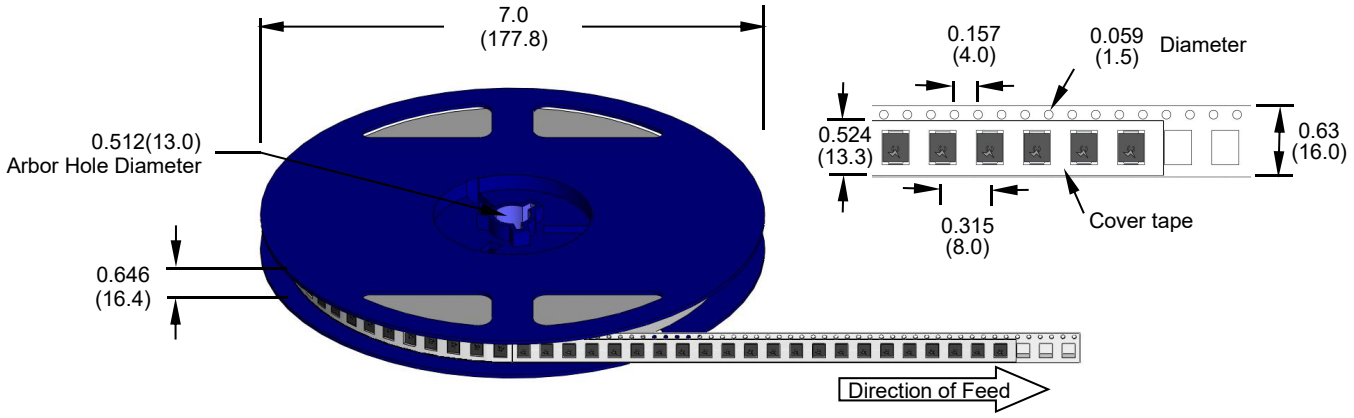
Packaging

Part Number	Component Package	Quantity	Packaging Option	Packaging Specification
8.0SMDJXXXXX	DO-214AB	500	Tape & Reel -16mm/7"tape	EIA STD RS-481

Tape and Reel Specifications



Dimensions are in inches
(and millimeters)