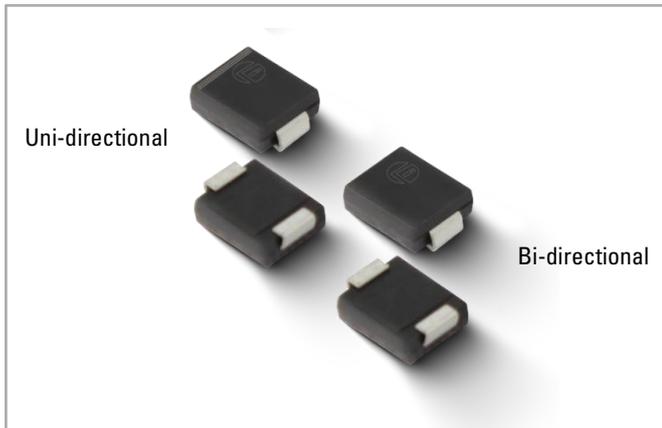


# 8.0SMDJ Series

## Surface Mount – 8000W



### Additional Information



Resources



Accessories



Samples

### Maximum Ratings and Thermal Characteristics

( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation by 10/1000 $\mu\text{s}$ Waveform(Fig.1)(Note1)(Note2) -Single Die Parts	$P_{PPM}$	8000	W
Power Dissipation on Infinite Heat Sink at $T_L=50^{\circ}\text{C}$	$P_D$	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	$I_{FSM}$	300	A
Maximum Instantaneous Forward Voltage at 100A for Unidirectional Only	$V_F$	5	V
Operating Temperature Range	$T_J$	-55 to 150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to 150	$^{\circ}\text{C}$
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	15	$^{\circ}\text{C}/\text{W}$
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	75	$^{\circ}\text{C}/\text{W}$

#### Notes:

- Non-repetitive current pulse, per Fig.3 and derated above  $T_J$  (initial)  $=25^{\circ}\text{C}$  per Fig.2.
- Mounted on copper pad area of 0.31x0.31" (8.0 x 8.0mm) to each terminal.
- Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

### Description

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

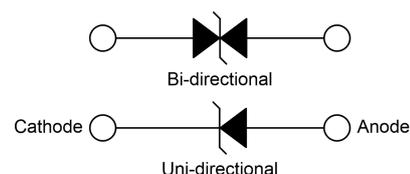
### Features

- 8000W peak pulse power capability at 10/1000 $\mu\text{s}$  waveform, repetition rate (duty cycles):0.01%
- Excellent clamping capability
- Low incremental surge resistance
- Typical  $I_R$  less than 5 $\mu\text{A}$  when  $V_B \text{ min}>22\text{V}$
- For surface mounted applications to optimize board space
- Low profile package
- Built-in strain relief
- Typical failure mode is short from over-specified voltage or current
- Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c
- ESD protection of data lines in accordance with IEC 61000-4-2, 30kV(Air), 30kV (Contact)
- EFT protection of data lines in accordance with IEC 61000-4-4
- Fast response time: typically less than 1.0ps from 0V to  $V_B \text{ min}$
- Compact size with high power density in DO-214AB Package
- Glass passivated chip junction
- High temperature to reflow soldering guaranteed: 260 $^{\circ}\text{C}/20\sim 40\text{sec}$ .
- $V_B @ T_J = V_B @ 25^{\circ}\text{C} \times (1 + \alpha T_J - 25)$  ( $\alpha$  T:Temperature Coefficient, typical value is 0.1%)
- Meet MSL level1, per J-STD-020, LF maximum peak of 260 $^{\circ}\text{C}$
- Matte tin lead-free plated
- Halogen free and RoHS compliant
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD-609A.01)

### 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.

### Functional Diagram



# 8.0SMDJ Series

## Surface Mount – 8000W

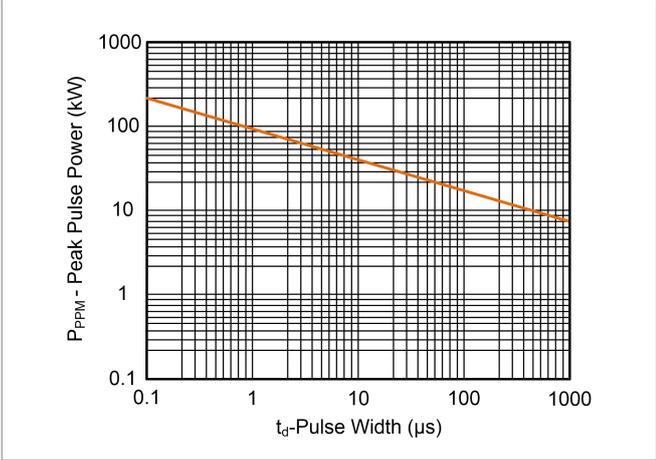
### Electrical Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @ $I_T$		Test Current	Maximum Clamping Voltage @ $I_{PP}$	Peak Pulse Current	Reverse Leakage @ $V_R$
Uni.	Bi.	Uni.	Bi.	$V_R(V)$	$V_B \text{ Min.}(V)$	$V_B \text{ Max.}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
8.0SMDJ22A	8.0SMDJ22CA	8PEX	8BEX	22.0	24.40	26.90	1	35.5	225.4	5
8.0SMDJ24A	8.0SMDJ24CA	8PEZ	8BEZ	24.0	26.70	29.50	1	38.9	205.7	5
8.0SMDJ26A	8.0SMDJ26CA	8PFE	8BFE	26.0	28.90	31.90	1	42.1	190.1	5
8.0SMDJ28A	8.0SMDJ28CA	8PFG	8BFG	28.0	31.10	34.40	1	45.4	176.2	5
8.0SMDJ30A	8.0SMDJ30CA	8PFK	8BFK	30.0	33.30	36.80	1	48.4	165.3	5
8.0SMDJ33A	8.0SMDJ33CA	8PFM	8BFM	33.0	36.70	40.60	1	53.3	150.1	5
8.0SMDJ36A	8.0SMDJ36CA	8PFP	8BFP	36.0	40.00	44.20	1	58.1	137.8	5
8.0SMDJ40A	8.0SMDJ40CA	8PFR	8BFR	40.0	44.40	49.10	1	64.5	124.2	5
8.0SMDJ43A	8.0SMDJ43CA	8PFT	8BFT	43.0	47.80	52.80	1	69.4	115.4	5
8.0SMDJ45A	8.0SMDJ45CA	8PFV	8BFV	45.0	50.00	55.30	1	72.7	110.1	5
8.0SMDJ48A	-	8PFX	-	48.0	53.30	58.90	1	77.4	103.6	5
8.0SMDJ51A	-	8PFZ	-	51.0	56.70	62.70	1	82.4	97.0	5
8.0SMDJ54A	-	8PGE	-	54.0	60.00	66.30	1	87.1	92.0	5
8.0SMDJ58A	-	8PGG	-	58.0	64.40	71.20	1	93.6	85.6	5
8.0SMDJ60A	-	8PGK	-	60.0	66.70	73.70	1	96.8	82.8	5
8.0SMDJ64A	-	8PGM	-	64.0	71.10	78.60	1	103.0	77.8	5
8.0SMDJ70A	-	8PGP	-	70.0	77.80	86.00	1	113.0	70.9	5
8.0SMDJ75A	-	8PGR	-	75.0	83.30	92.10	1	121.0	66.3	5
8.0SMDJ78A	-	8PGT	-	78.0	86.70	95.80	1	126.0	63.6	5
8.0SMDJ85A	-	8PGV	-	85.0	94.40	104.00	1	137.0	58.4	5
8.0SMDJ90A	-	8PGX	-	90.0	100.00	111.00	1	146.0	54.9	5
8.0SMDJ100A	-	8PGZ	-	100.0	111.00	123.00	1	162.0	49.4	5

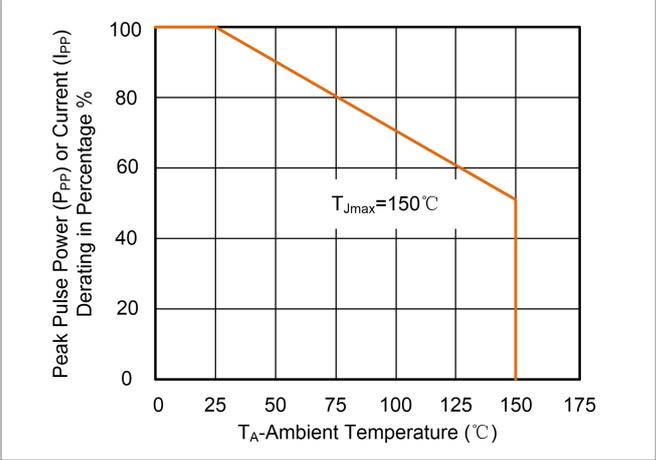
**8.0SMDJ Series**  
Surface Mount – 8000W

**Ratings and Characteristic Curves** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

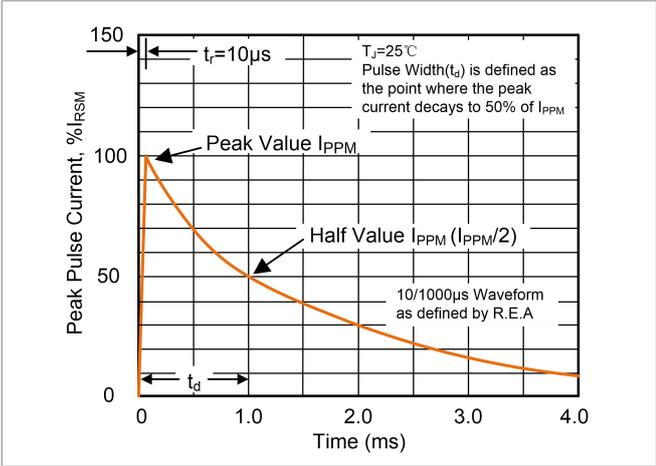
**Figure 1:**  
Peak Pulse Power Rating Curve



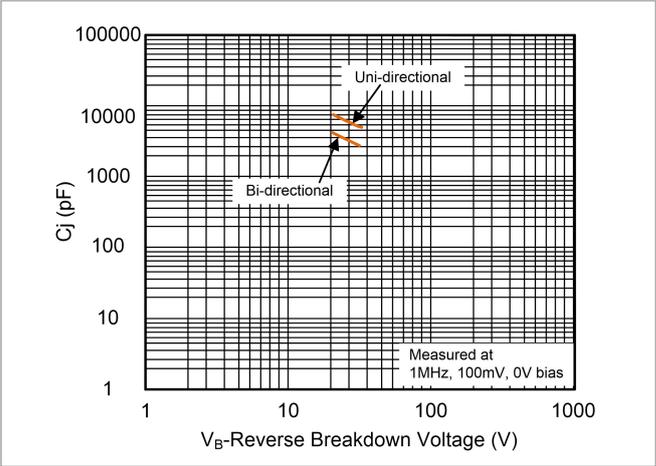
**Figure 2:**  
Pulse Derating Curve



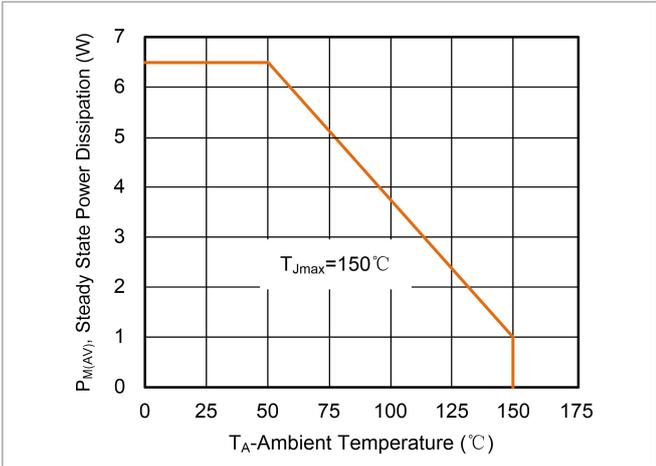
**Figure 3:**  
Pulse Waveform



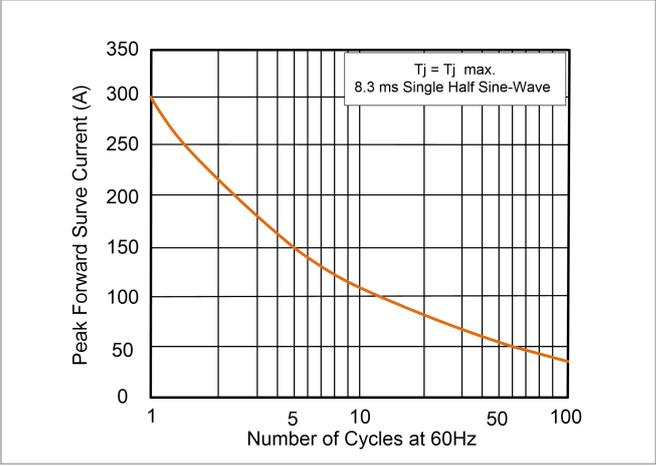
**Figure 4:**  
Typical Junction Capacitance



**Figure 5:**  
Steady State Power Dissipation Derating Curve



**Figure 6:**  
Maximum Non-Repetitive Forward Surge Current Uni-Directional

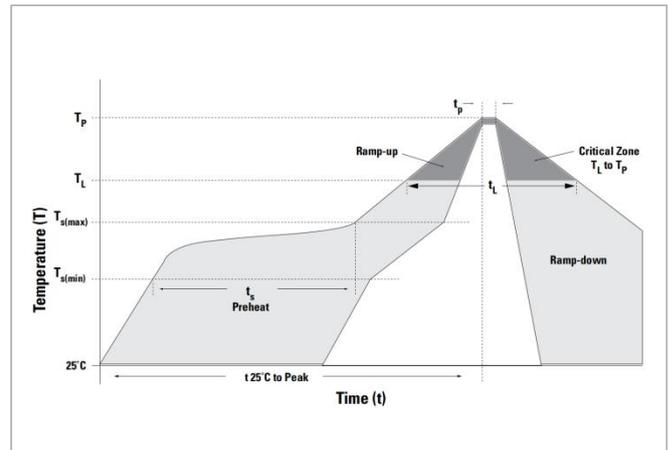


# 8.0SMDJ Series

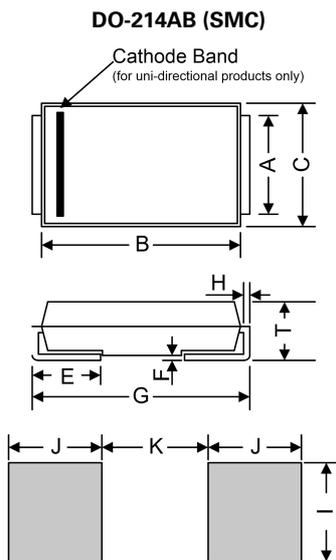
## Surface Mount – 8000W

### Soldering Parameters

<b>Reflow Condition</b>		Lead-free assembly
<b>Pre Heat</b>	-Temperature Min ( $T_{S\ min}$ )	150°C
	-Temperature Max ( $T_{S\ max}$ )	200°C
	-Time (min to max) ( $t_s$ )	60 – 180 secs
<b>Average ramp-up rate(Liquidus Temp (<math>T_L</math>) to peak)</b>		3°C/second max.
<b><math>T_{S\ (max)}</math> to <math>T_L</math>-Ramp-up Rate</b>		3°C/second max.
<b>Reflow</b>	-Temperature ( $T_L$ ) (Liquidus)	217°C
	-Time (min to max) ( $t_L$ )	60-150 seconds
<b>Peak Temperature (<math>T_P</math>)</b>		260°C
<b>Time within 5°C of actual Peak Temperature (<math>t_p</math>)</b>		20-40 seconds
<b>Ramp-down Rate</b>		6°C/second max.
<b>Time 25°C to Peak Temperature</b>		8 minutes max.
<b>Do not exceed</b>		260°C

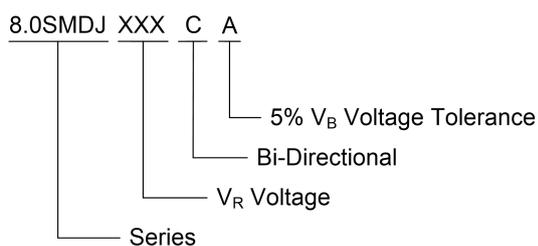


### Dimensions

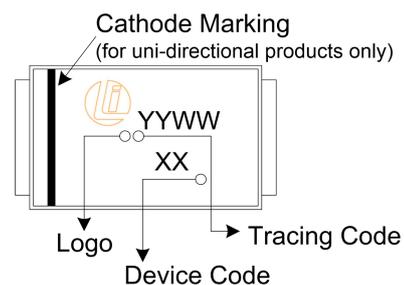


Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.900	3.200	0.114	0.126
B	6.600	7.110	0.260	0.280
C	5.590	6.220	0.220	0.245
E	0.760	1.520	0.030	0.060
F	-	0.203	-	0.008
G	7.750	8.130	0.305	0.320
H	0.152	0.305	0.006	0.012
T	2.200	2.750	0.087	0.108
I	3.300	-	0.129	-
J	2.400	-	0.094	-
K	-	4.200	-	0.165

### Part Numbering System



### Part Marking System



# 8.0SMDJ Series

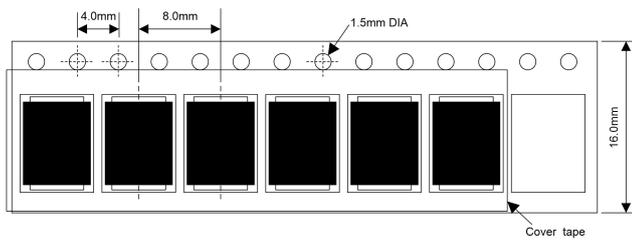
## Surface Mount – 8000W

### Packaging

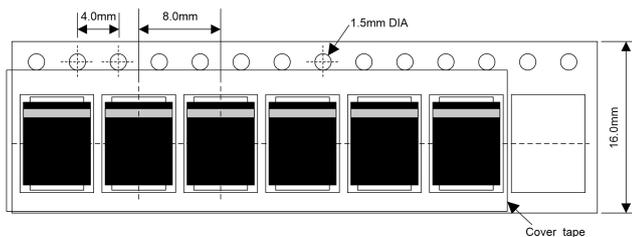
Part number	Component Package	Quantity	Packaging Option	Packaging Specification
8.0SMDJxxxXX	DO-214AB	3000	Tape & Reel - 16mm tape/13" reel	EIA STD RS-481

### Tape and Reel Specification

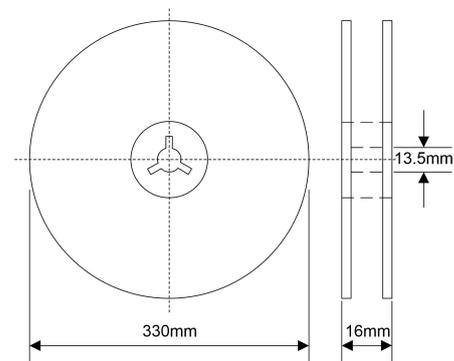
#### Tape



#### For Uni-Devices



#### 13 Inches Reel



Quantity: 3000pcs/reel