

## Surface-Mount Standard Rectifier

### eSMP® Series



Top View

Bottom View

### SlimSAW (DO-221AD)

Cathode Anode

### LINKS TO ADDITIONAL RESOURCES



### FEATURES

- Low-profile package
- Oxide planar chip junction
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHM3
- Compatible to SOD-128 package case outline
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
 COMPLIANT  
 HALOGEN  
**FREE**

### TYPICAL APPLICATIONS

General purpose, power line polarity protection and rail-to-rail protection in consumer, industrial, and automotive applications.

### MECHANICAL DATA

**Case:** SlimSAW (DO-221AD)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant  
 Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 and HM3 suffix meet JESD 201 class 2 whisker test

**Polarity:** color band denotes cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3 A
$V_{RRM}$	200 V to 600 V
$I_{FSM}$	40 A
$V_F$ at $I_F = 3$ A ( $T_J = 125$ °C)	0.86 V
$T_J$ max.	175 °C
Package	SlimSAW (DO-221AD)
Circuit configuration	Single

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)					
PARAMETER	SYMBOL	SE8D30D	SE8D30G	SE8D30J	UNIT
Device marking code		SD3D	SD3G	SD3J	
Maximum repetitive peak reverse voltage	$V_{RRM}$	200	400	600	V
Maximum average forward rectified current (fig.1)	$I_{F(AV)}^{(1)}$	3			A
	$I_{F(AV)}^{(2)}$	1.5			
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	40			A
Operating junction temperature range	$T_J^{(3)}$	-55 to +175			°C
Storage temperature range	$T_{STG}$	-55 to +175			

### Notes

- (1) Mounted on 30 mm x 30 mm pad areas aluminum PCB
- (2) Free air, mounted on recommended copper pad area
- (3) The heat generated must be less than the thermal conductivity from junction-to-ambient:  $dP_D/dT_J < 1/R_{\theta JA}$



ELECTRICAL CHARACTERISTICS (T <sub>J</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I <sub>F</sub> = 1.5 A	T <sub>J</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.91	-	V
	I <sub>F</sub> = 3 A			0.97	1.1	
	I <sub>F</sub> = 1.5 A	T <sub>J</sub> = 125 °C		0.79	-	
	I <sub>F</sub> = 3 A			0.86	0.98	
Reverse current	Rated V <sub>R</sub>	T <sub>J</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	10	μA
		T <sub>J</sub> = 125 °C		13	100	
Typical reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 01 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	1500	-	ns
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	19	-	pF

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise specified)				
PARAMETER	SYMBOL	TYP.	MAX.	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)(2)</sup>	120	150	°C/W
	R <sub>θJM</sub> <sup>(3)</sup>	12	15	

Notes

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/R<sub>θJA</sub>
- (2) Thermal resistance junction-to-ambient to follow JEDEC® 51-2A, device mounted on FR4 PCB, 2 oz., standard footprint
- (3) Thermal resistance junction-to-mount to follow JEDEC 51-14 transient dual interface test method (TDIM)

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SE8D30J-M3/H	0.033	H	3500	7" diameter plastic tape and reel
SE8D30J-M3/I	0.033	I	14 000	13" diameter plastic tape and reel
SE8D30JHM3/H <sup>(1)</sup>	0.033	H	3500	7" diameter plastic tape and reel
SE8D30JHM3/I <sup>(1)</sup>	0.033	I	14 000	13" diameter plastic tape and reel

Note

- (1) AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

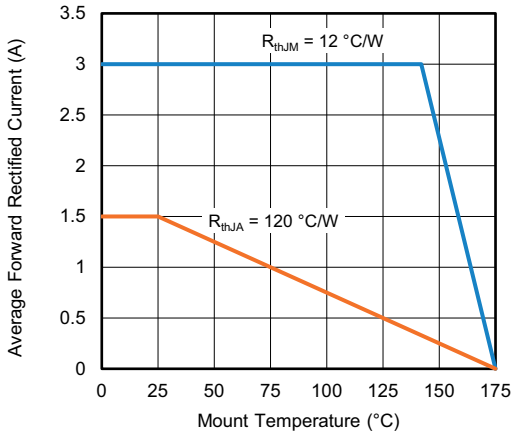


Fig. 1 - Maximum Forward Current Derating Curve

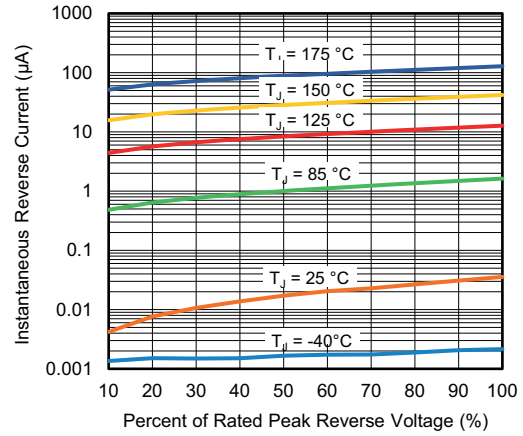


Fig. 4 - Typical Reverse Leakage Characteristics

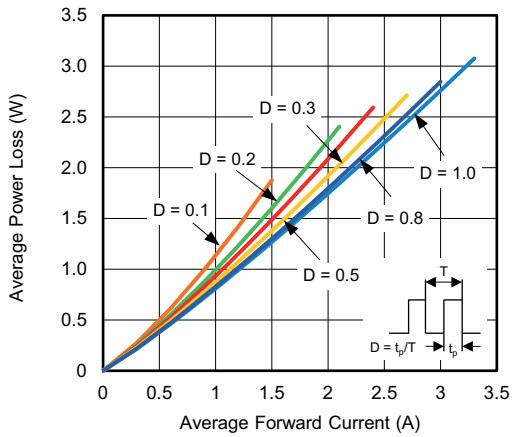


Fig. 2 - Forward Power Loss Characteristics

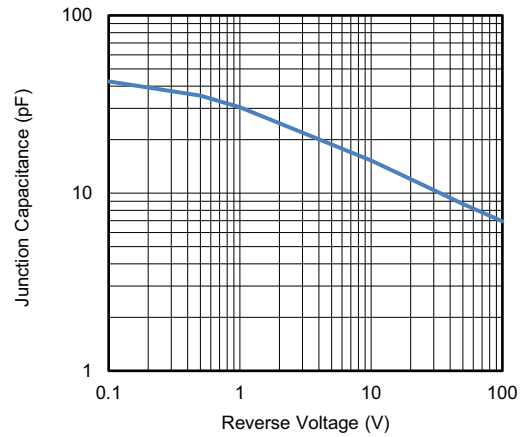


Fig. 5 - Typical Junction Capacitance

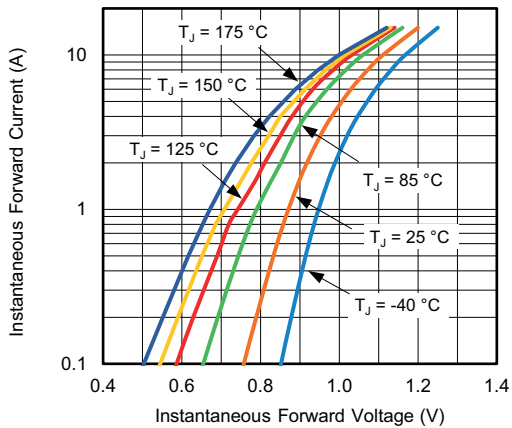


Fig. 3 - Typical Instantaneous Forward Characteristics

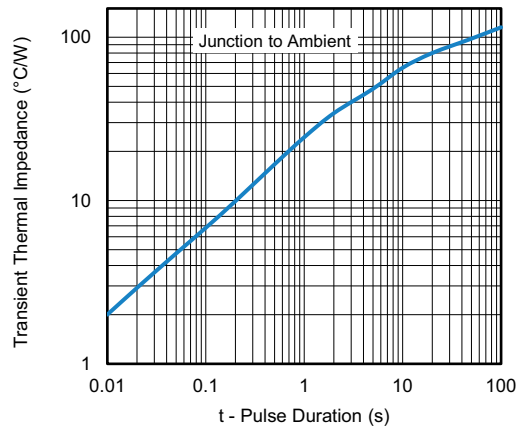
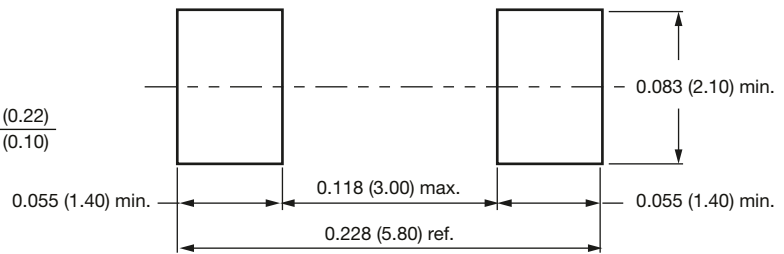
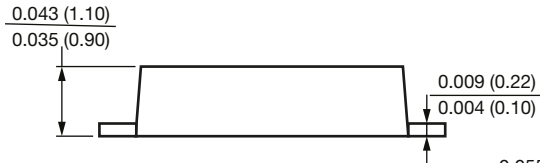
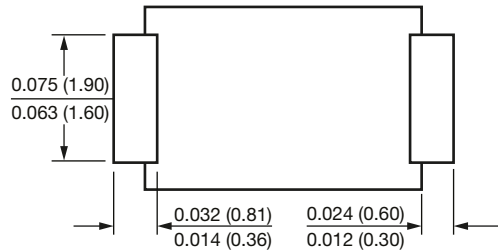
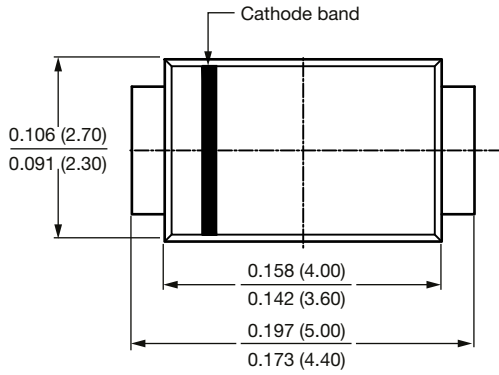


Fig. 6 - Typical Transient Thermal Impedance



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### SlimSMAW (DO-221AD)



Mounting pad layout



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