

Surface-Mount Standard Rectifier

eSMP® Series



Top View

Bottom View

SlimSAW (DO-221AD)

Cathode Anode

LINKS TO ADDITIONAL RESOURCES



FEATURES

- Low-profile package
- 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


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	
$I_{F(AV)}$	2 A
V_{RRM}	200 V to 600 V
I_{FSM}	35 A
V_F at $I_F = 2$ 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	SE8D20D	SE8D20G	SE8D20J	UNIT
Device marking code		SD2D	SD2G	SD2J	
Maximum repetitive peak reverse voltage	V_{RRM}	200	400	600	V
Maximum average forward rectified current (fig.1)	$I_{F(AV)}^{(1)}$	2			A
	$I_{F(AV)}^{(2)}$	1.4			
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	35			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 ($T_J = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 1\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.91	-	V
	$I_F = 2\text{ A}$			0.96	1.10	
	$I_F = 1\text{ A}$	$T_J = 125\text{ }^\circ\text{C}$		0.79	-	
	$I_F = 2\text{ A}$			0.86	0.98	
Reverse current	Rated V_R	$T_J = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	-	5	μA
		$T_J = 125\text{ }^\circ\text{C}$		8	100	
Typical reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 0.1\text{ A}$, $I_{rr} = 0.25\text{ A}$		t_{rr}	1200	-	ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	12	-	pF

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
(2) Pulse test: pulse width $\leq 5\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise specified)				
PARAMETER	SYMBOL	TYP.	MAX.	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)(2)}$	120	150	$^\circ\text{C/W}$
	$R_{\theta JM}^{(3)}$	12	15	

Notes

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$
(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
SE8D20J-M3/H	0.033	H	3500	7" diameter plastic tape and reel
SE8D20J-M3/I	0.033	I	14 000	13" diameter plastic tape and reel
SE8D20JHM3/H ⁽¹⁾	0.033	H	3500	7" diameter plastic tape and reel
SE8D20JHM3/I ⁽¹⁾	0.033	I	14 000	13" diameter plastic tape and reel

Note

- (1) AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

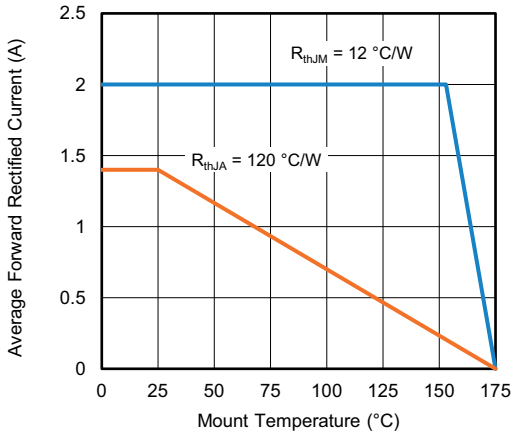


Fig. 1 - Maximum Forward Current Derating Curve

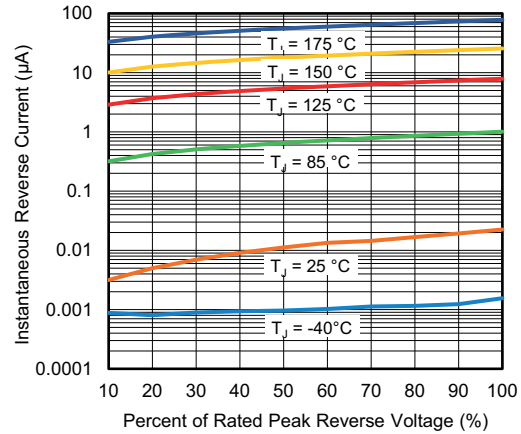


Fig. 4 - Typical Reverse Leakage Characteristics

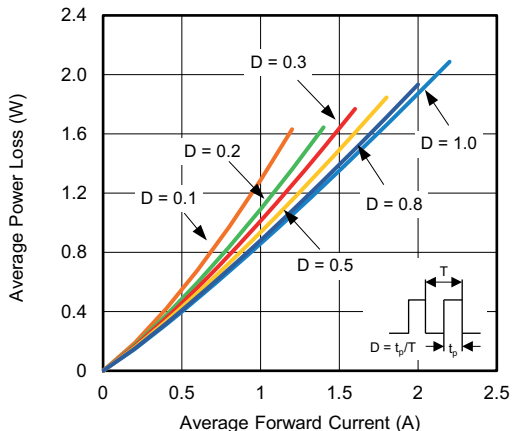


Fig. 2 - Forward Power Loss Characteristics

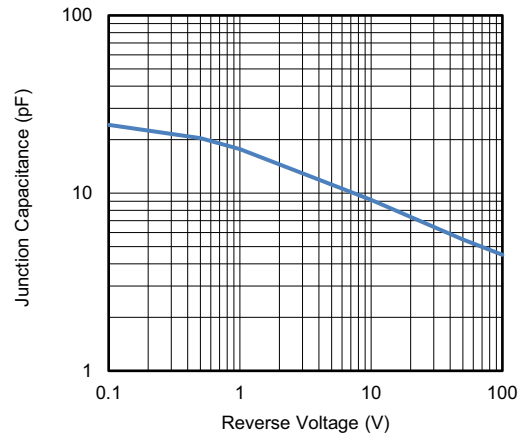


Fig. 5 - Typical Junction Capacitance

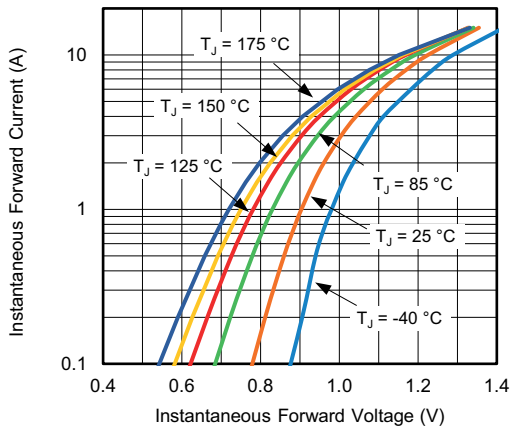


Fig. 3 - Typical Instantaneous Forward Characteristics

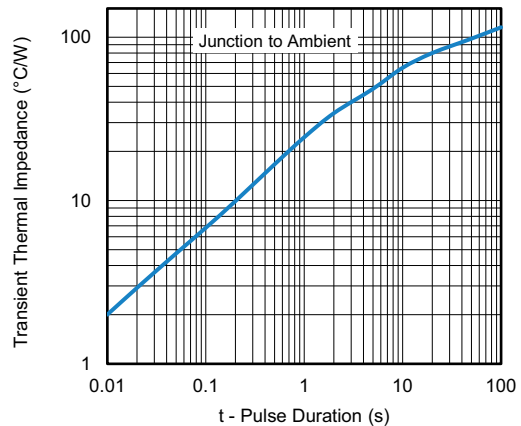
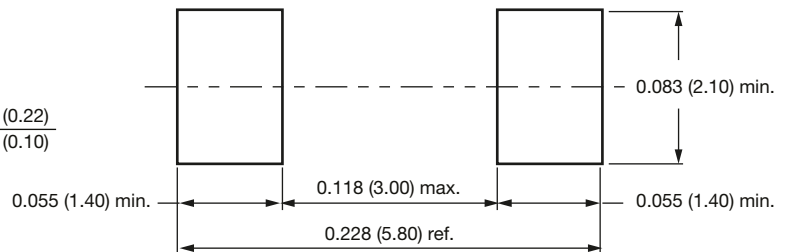
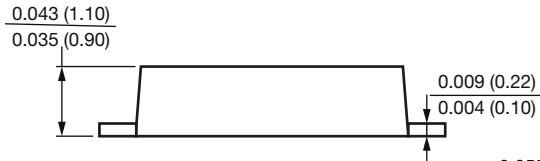
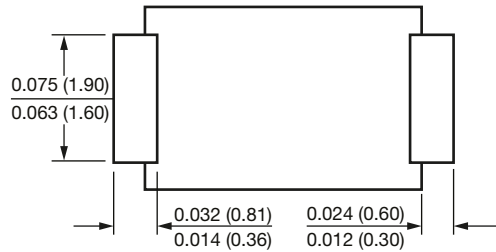
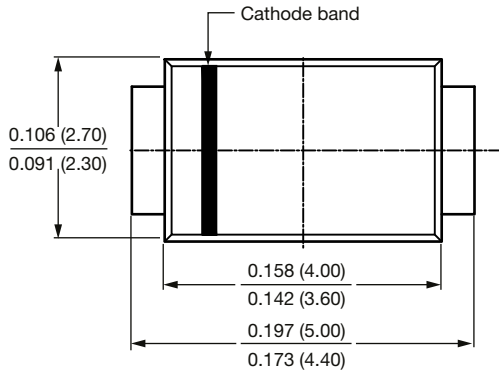


Fig. 6 - Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SlimSMAW (DO-221AD)



Mounting pad layout



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