

## SE80PWB, SE80PWD, SE80PWG, SE80PWJ

Vishay General Semiconductor

COMPLIANT

HALOGEN

**FREE** 

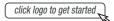
# **Surface-Mount ESD Capability Rectifier**



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HEATSINK







PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	8 A			
V <sub>RRM</sub>	100 V, 200 V, 400 V, 600 V			
I <sub>FSM</sub>	110 A			
V <sub>F</sub> at I <sub>F</sub> = 8 A (T <sub>A</sub> = 125 °C)	0.92 V			
T <sub>J</sub> max.	175 °C			
Package	SlimDPAK (TO-252AE)			
Circuit configurations	Single			

#### **FEATURES**

- Very low profile typical height of 1.3 mm
- Ideal for automated placement
- Oxide planar chip junction
- Low forward voltage drop
- ESD capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

#### **TYPICAL APPLICATIONS**

General purpose, power line polarity protection, in both industry and automotive applications.

#### **MECHANICAL DATA**

Case: SlimDPAK (TO-252AE)

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 meets JESD 201 class 2 whisker test

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	SE80PWB	SE80PWD	SE80PWG	SE80PWJ	UNIT
Device marking code		SE80PWB	SE80PWD	SE80PWG	SE80PWJ	
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	200	400	600	V
Maximum average forward rectified current (Fig. 1)	I <sub>F(AV)</sub> (1)	8.0				А
Maximum average forward rectified current (rig. 1)	I <sub>F(AV)</sub> (2)	3.5				
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	110			А	
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-40 to +175				°C

#### Notes

- (1) With infinite heatsink
- (2) Free air, mounted on recommended copper pad area



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum Instantaneous forward voltage	I <sub>F</sub> = 4.0 A	- T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.93	-	V
	I <sub>F</sub> = 8.0 A			1.10	1.12	
	I <sub>F</sub> = 4.0 A	T <sub>A</sub> = 125 °C		0.82	-	
	I <sub>F</sub> = 8.0 A			0.92	1.07	
Reverse current	Rated V <sub>R</sub>	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	15	μΑ
	nated V <sub>R</sub>	T <sub>A</sub> = 125 °C		19	150	
Typical reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	2400	-	ns
Typical junction capacitance	4.0 V, 1 MHz		CJ	58	-	pF

#### Notes

 $^{(1)}$  Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

(2) Pulse test: pulse width  $\leq$  40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL SE80PWB SE80PWD SE80PWG SE80PWJ UNIT					UNIT
Typical thermal resistance	R <sub>θJA</sub> (1)(2)	60				°C/W
Typical thermal resistance	R <sub>0JM</sub> (3)	2.2				C/ VV

#### **Notes**

- (1) The heat generated must be less than thermal conductivity from junction-to-ambient:  $dP_D/dT_J < 1/R_{\theta JA}$
- $^{(2)}$  Free air, mounted on recommended copper pad area; thermal resistance  $R_{\theta JA}$  junction to ambient
- <sup>(3)</sup> Mounted on infinite heat sink; thermal resistance  $R_{\theta JM}$  junction-to-mount

IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS ( $T_A = 25~^{\circ}\text{C}$ unless otherwise noted)						
STANDARD	STANDARD TEST TYPE TEST CONDITIONS SYMBOL CLASS VAL					
AEC-Q101-001	EC-Q101-001 Human body model (contact mode) $C = 100 \text{ pF}, R = 1.5 \text{ k}\Omega$ $V_C$ H3B $> 8 \text{ kV}$					

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
SE80PWJ-M3/I	0.20	I	4500	13" diameter plastic tape and reel	
SE80PWJHM3/I (1)	0.20		4500	13" diameter plastic tape and reel	

#### Note

(1) AEC-Q101 qualified



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

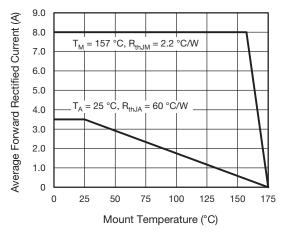


Fig. 1 - Maximum Forward Current Derating Curve

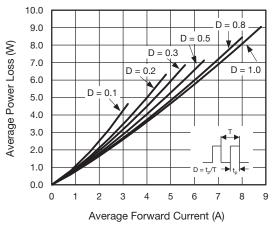


Fig. 2 - Forward Power Loss Characteristics

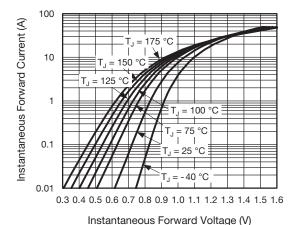


Fig. 3 - Typical Instantaneous Forward Characteristics

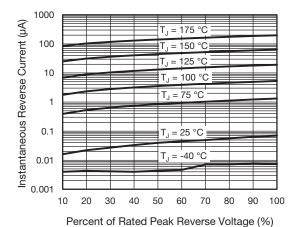


Fig. 4 - Typical Reverse Leakage Characteristics

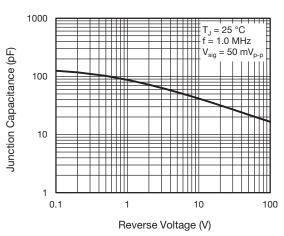


Fig. 5 - Typical Junction Capacitance

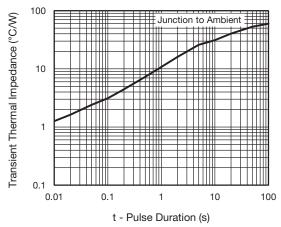


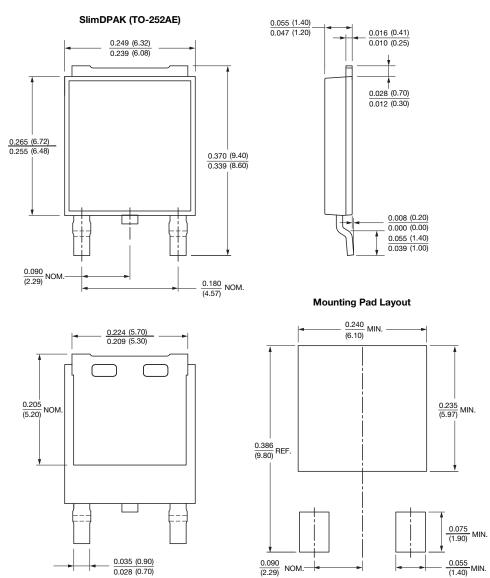
Fig. 6 - Typical Transient Thermal Impedance



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### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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