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SE80PWB, SE80PWD, SE80PWG, SE80PWJ

Vishay General Semiconductor

Surface-Mount ESD Capability Rectifier



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DESIGN SUPPORT TOOLS



PRIMARY CHARACTERISTICS					
I _{F(AV)}	8 A				
V _{RRM}	100 V, 200 V, 400 V, 600 V				
I _{FSM}	110 A				
V_F at I_F = 8 A (T_A = 125 °C)	0.92 V				
T _J 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 <u>www.vishay.com/doc?99912</u>

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 ($T_A = 25 \text{ °C}$ 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 _{F(AV)} ⁽¹⁾	8.0				A	
Maximum average forward rectified current (Fig. 1)	I _{F(AV)} ⁽²⁾	3.5					
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	110				A	
Operating junction and storage temperature range	T _J , T _{STG}	-40 to +175			°C		

Notes

⁽¹⁾ With infinite heatsink

⁽²⁾ Free air, mounted on recommended copper pad area



COMPLIANT HALOGEN

FREE



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Maximum Instantaneous forward voltage	I _F = 4.0 A	T _A = 25 °C	V _F (1)	0.93	-	v	
	I _F = 8.0 A			1.10	1.12		
	I _F = 4.0 A	- T _A = 125 °C		0.82	-		
	I _F = 8.0 A			0.92	1.07		
Reverse current	Patod V-	Rated V _R $T_A = 25 °C$ $T_A = 125 °C$	I _R ⁽²⁾	-	15	μA	
nevelse current	naleu v _R			19	150		
Typical reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$		t _{rr}	2400	-	ns	
Typical junction capacitance	4.0 V, 1 MHz		CJ	58	-	pF	

Notes

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

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

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL SE80PWB SE80PWD SE80PWG SE80PWJ				UNIT	
Typical thermal resistance	R _{0JA} (1)(2)	60				°C/W
Typical thermal resistance	R _{0JM} ⁽³⁾	2.2				0/10

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

 $^{(3)}$ 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 °C unless otherwise noted)						
STANDARD	IDARD TEST TYPE TEST CONDITIONS SYMBOL			CLASS	VALUE	
AEC-Q101-001	Human body model (contact mode)	C = 100 pF, R = 1.5 k Ω	V _C	H3B	> 8 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	l	4500	13" diameter plastic tape and reel		

Note

(1) AEC-Q101 qualified



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

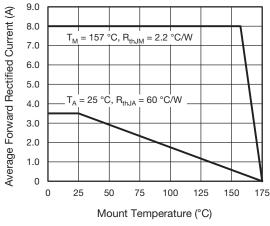


Fig. 1 - Maximum Forward Current Derating Curve

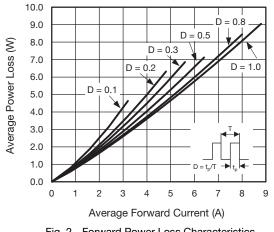
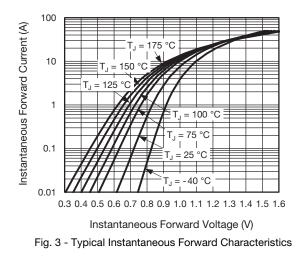


Fig. 2 - Forward Power Loss Characteristics



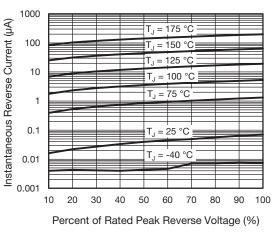
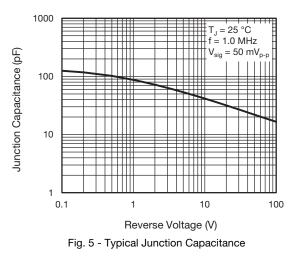
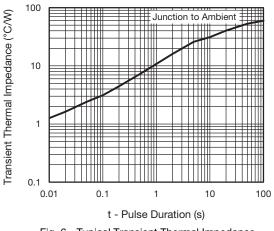


Fig. 4 - Typical Reverse Leakage Characteristics







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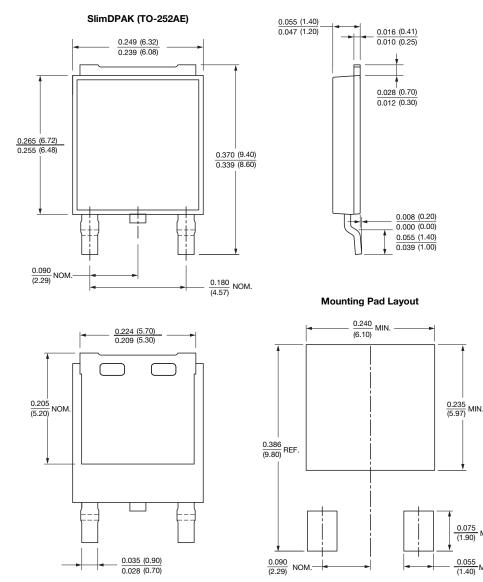
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0.075 (1.90) MIN.

0.055 (1.40) MIN.

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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