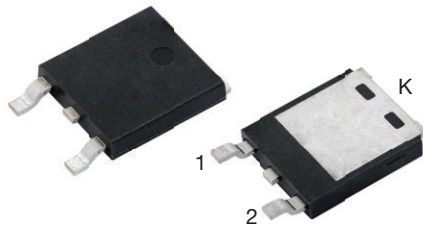
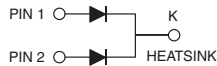


## Surface-Mount ESD Capability Rectifier

### eSMP® Series


**SlimDPAK (TO-252AE)**


### 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 [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

 AUTOMOTIVE  
GRADE  
Available

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

### LINKS TO ADDITIONAL RESOURCES



3D Models

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 2 A
$V_{RRM}$	100 V, 200 V, 400 V, 600 V
$I_{FSM}$	36 A
$V_F$ at $I_F = 2$ A ( $T_A = 125$ °C)	0.92 V
$T_J$ max.	175 °C
Package	SlimDPAK (TO-252AE)
Circuit configuration	Common cathode

### 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 ( $T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	SE40PWBC	SE40PWDC	SE40PWGC	SE40PWJC	UNIT
Device marking code		SE40PWBC	SE40PWDC	SE40PWGC	SE40PWJC	
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	200	400	600	V
Maximum average forward rectified current (fig. 1)	per device $I_{F(AV)}$ (1)	4				A
		2				
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	36				A
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +175				°C

#### Note

(1) With infinite heatsink



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum Instantaneous forward voltage	I <sub>F</sub> = 1.0 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.94	-	V
	I <sub>F</sub> = 2.0 A			1.01	1.10	
	I <sub>F</sub> = 1.0 A	T <sub>A</sub> = 125 °C		0.84	-	
	I <sub>F</sub> = 2.0 A			0.92	1.01	
Reverse current	Rated V <sub>R</sub>	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	10	μA
		T <sub>A</sub> = 125 °C		12	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>	1500	-	ns
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	14	-	pF

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	SE40PWBC	SE40PWDC	SE40PWGC	SE40PWJC	UNIT
Typical thermal resistance per device	R <sub>θJA</sub> <sup>(1)(2)</sup>	63				°C/W
	R <sub>θJM</sub> <sup>(3)</sup>	2.5				

Notes

- (1) The heat generated must be less than thermal conductivity from junction-to-ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/R<sub>θJA</sub>
- (2) Free air, mounted on recommended copper pad area; thermal resistance R<sub>θJA</sub> - junction to ambient
- (3) Mounted on infinite heat sink; thermal resistance R<sub>θJM</sub> - junction-to-mount

IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS (T <sub>A</sub> = 25 °C unless otherwise noted)					
STANDARD	TEST TYPE	TEST CONDITIONS	SYMBOL	CLASS	VALUE
AEC-Q101-001	Human body model (contact mode)	C = 100 pF, R = 1.5 kΩ	V <sub>C</sub>	H3B	> 8 kV

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SE40PWJC-M3/I	0.20	I	4500	13" diameter plastic tape and reel
SE40PWJCHM3/I <sup>(1)</sup>	0.20	I	4500	13" diameter plastic tape and reel

Note

- (1) AEC-Q101 qualified



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

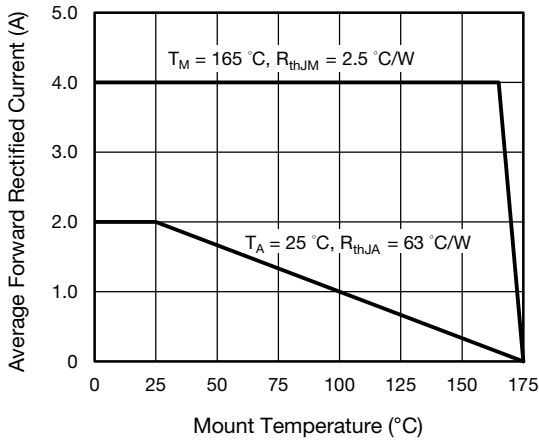


Fig. 1 - Maximum Forward Current Derating Curve

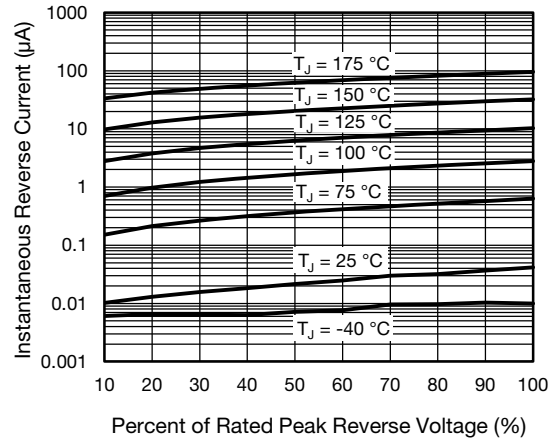


Fig. 4 - Typical Reverse Leakage Characteristics

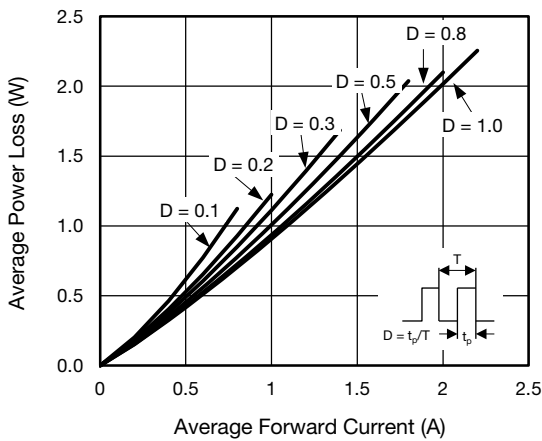


Fig. 2 - Forward Power Loss Characteristics

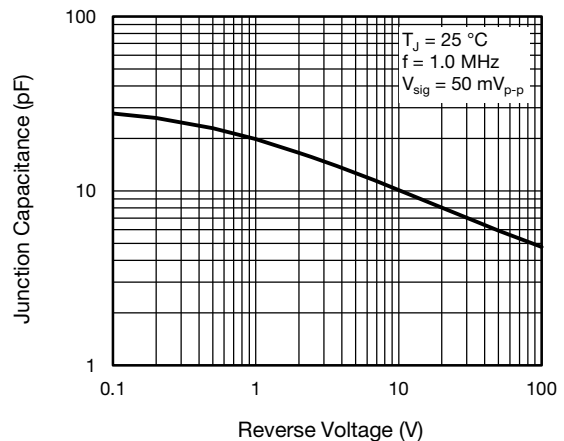


Fig. 5 - Typical Junction Capacitance

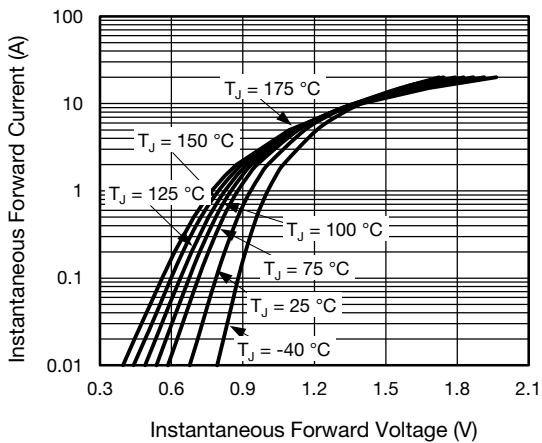


Fig. 3 - Typical Instantaneous Forward Characteristics

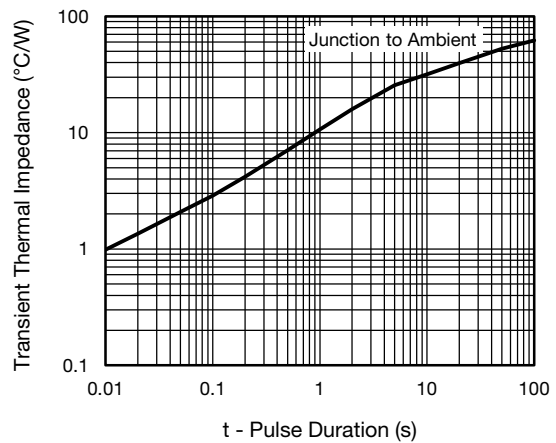
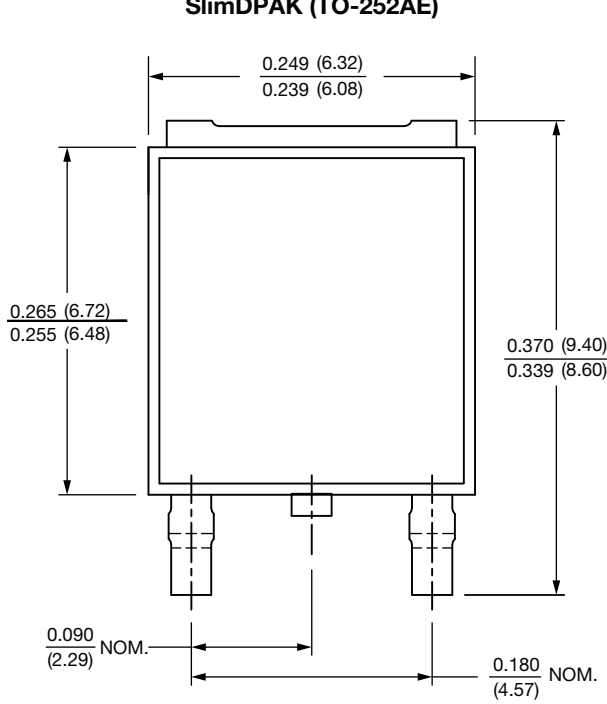


Fig. 6 - Typical Transient Thermal Impedance

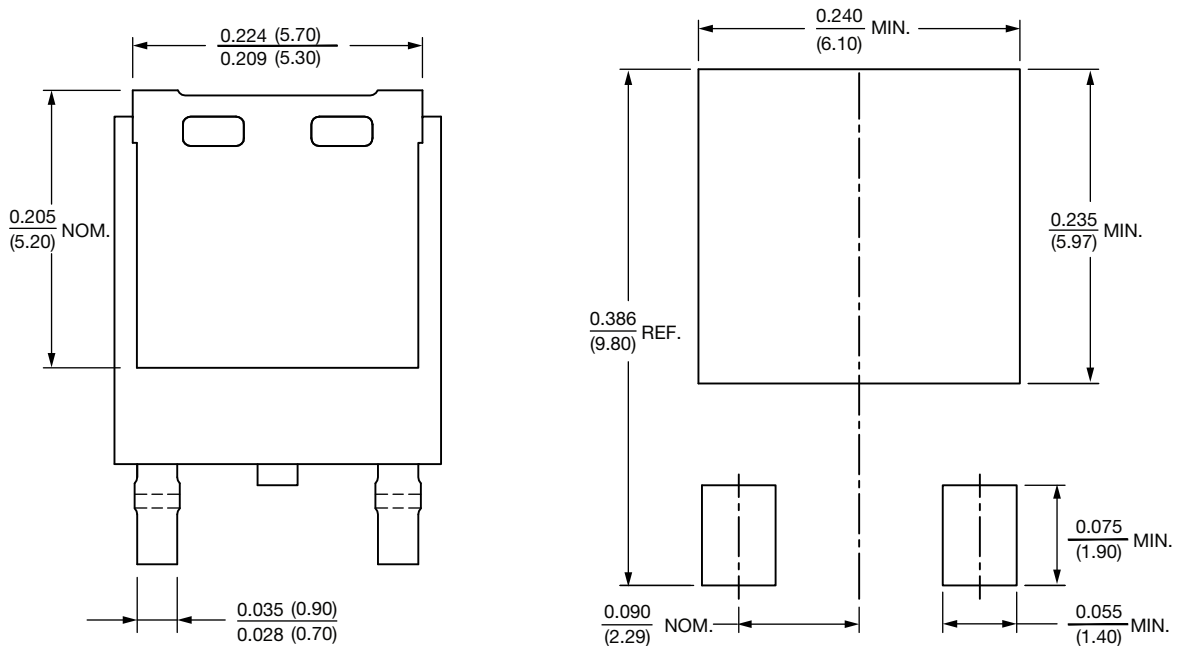


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### SlimDPAK (TO-252AE)



### Mounting Pad Layout





## Disclaimer

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