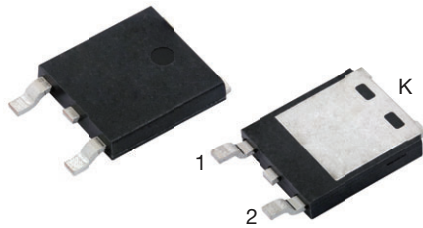
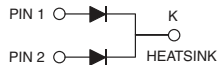


Surface-Mount ESD Capability Rectifier

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


RoHS
 COMPLIANT
 HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



3D Models

| PRIMARY CHARACTERISTICS | |
|--|----------------------------|
| $I_{F(AV)}$ | 2 x 3 A |
| V_{RRM} | 100 V, 200 V, 400 V, 600 V |
| I_{FSM} | 42 A |
| V_F at $I_F = 3$ A ($T_A = 125$ °C) | 0.94 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 | SE60PWBC | SE60PWDC | SE60PWGC | SE60PWJC | UNIT |
| Device marking code | | SE60PWBC | SE60PWDC | SE60PWGC | SE60PWJC | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 100 | 200 | 400 | 600 | V |
| Maximum average forward rectified current (fig. 1) | $I_{F(AV)}$ ⁽¹⁾ | per device | | | | A |
| | | per diode | | | | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 42 | | | | A |
| Peak forward surge current 1 ms square wave on rated load | | 80 | | | | A |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +175 | | | | °C |

Note

⁽¹⁾ With infinite heatsink



| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|--|--|-------------------------|-------------------------------|------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Maximum Instantaneous forward voltage | I _F = 1.5 A | T _A = 25 °C | V _F ⁽¹⁾ | 0.94 | - | V |
| | I _F = 3.0 A | | | 1.03 | 1.1 | |
| | I _F = 1.5 A | T _A = 125 °C | | 0.84 | - | |
| | I _F = 3.0 A | | | 0.94 | 1.01 | |
| Reverse current | Rated V _R | T _A = 25 °C | I _R ⁽²⁾ | - | 10 | μA |
| | | T _A = 125 °C | | 12 | 150 | |
| Typical reverse recovery time | I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A | | t _{rr} | 1200 | - | ns |
| Typical junction capacitance | 4.0 V, 1 MHz | | C _J | 22 | - | pF |

Notes

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

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|---|------------------------------------|----------|----------|----------|----------|------|
| PARAMETER | SYMBOL | SE60PWBC | SE60PWDC | SE60PWGC | SE60PWJC | UNIT |
| Typical thermal resistance per device | R _{θJA} ⁽¹⁾⁽²⁾ | 63 | | | | °C/W |
| | R _{θJM} ⁽³⁾ | 2.3 | | | | |

Notes

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

| IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS | | | | | |
|--|---------------------------------|------------------------|----------------|-------|--------|
| (T _A = 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 _C | H3B | > 8 kV |

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| SE60PWJC-M3/I | 0.20 | I | 4500 | 13" diameter plastic tape and reel |
| SE60PWJCHM3/I ⁽¹⁾ | 0.20 | I | 4500 | 13" diameter plastic tape and reel |

Note

- (1) AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

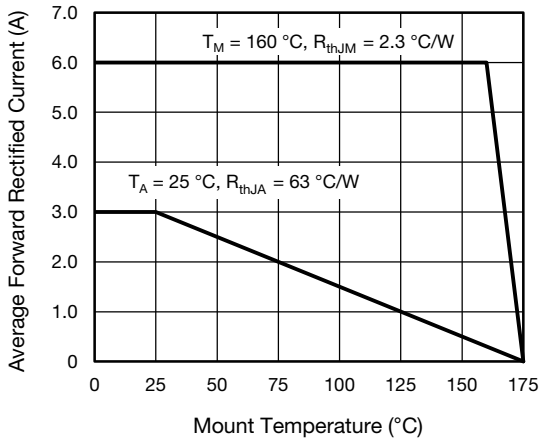


Fig. 1 - Maximum Forward Current Derating Curve

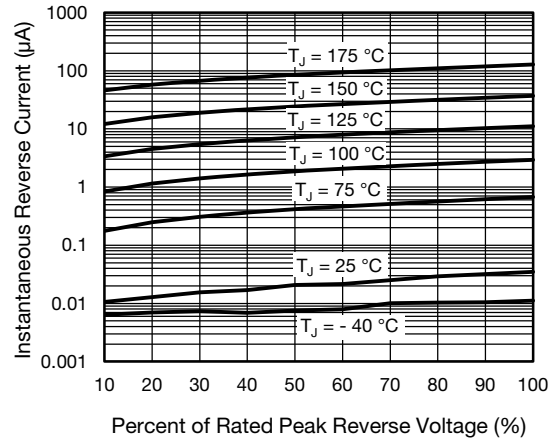


Fig. 4 - Typical Reverse Leakage Characteristics

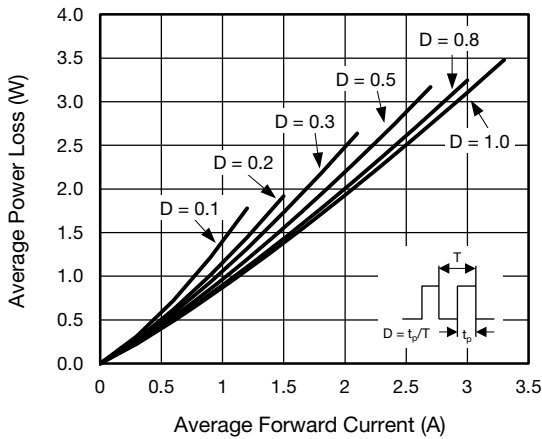


Fig. 2 - Forward Power Loss Characteristics

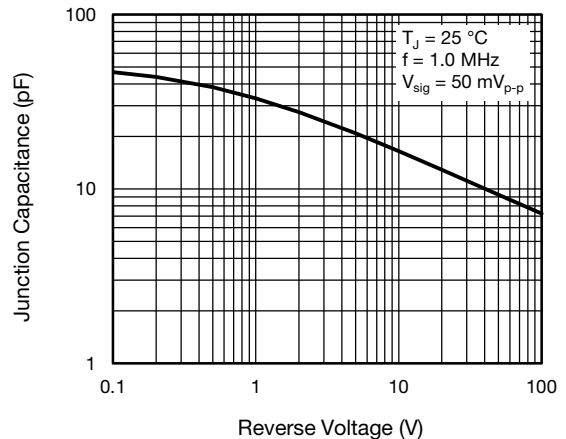


Fig. 5 - Typical Junction Capacitance

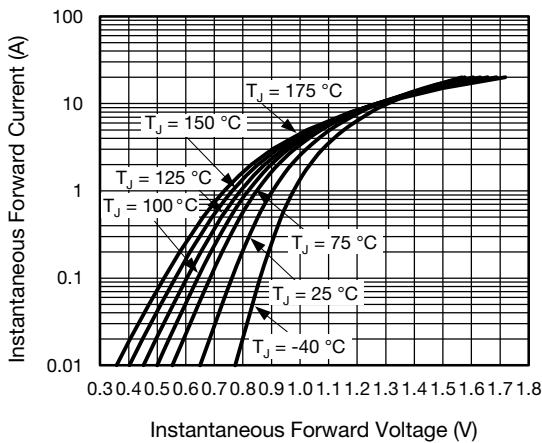


Fig. 3 - Typical Instantaneous Forward Characteristics

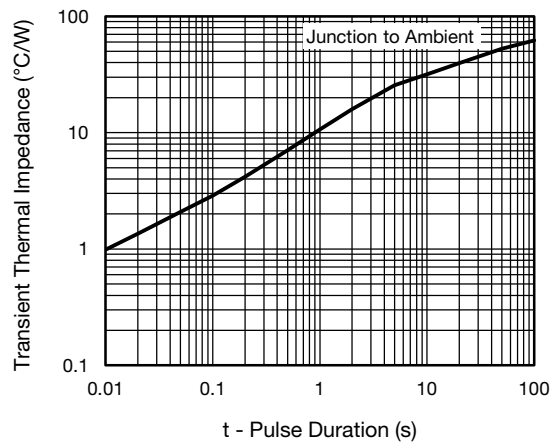
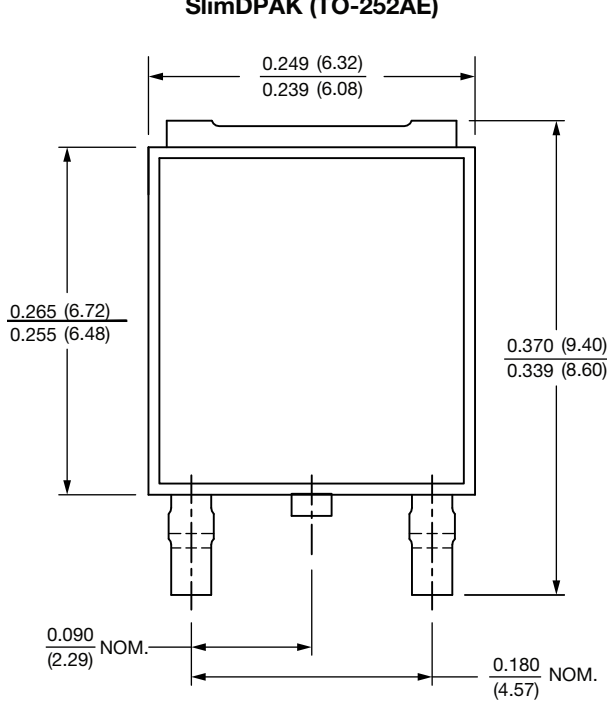


Fig. 6 - Typical Transient Thermal Impedance

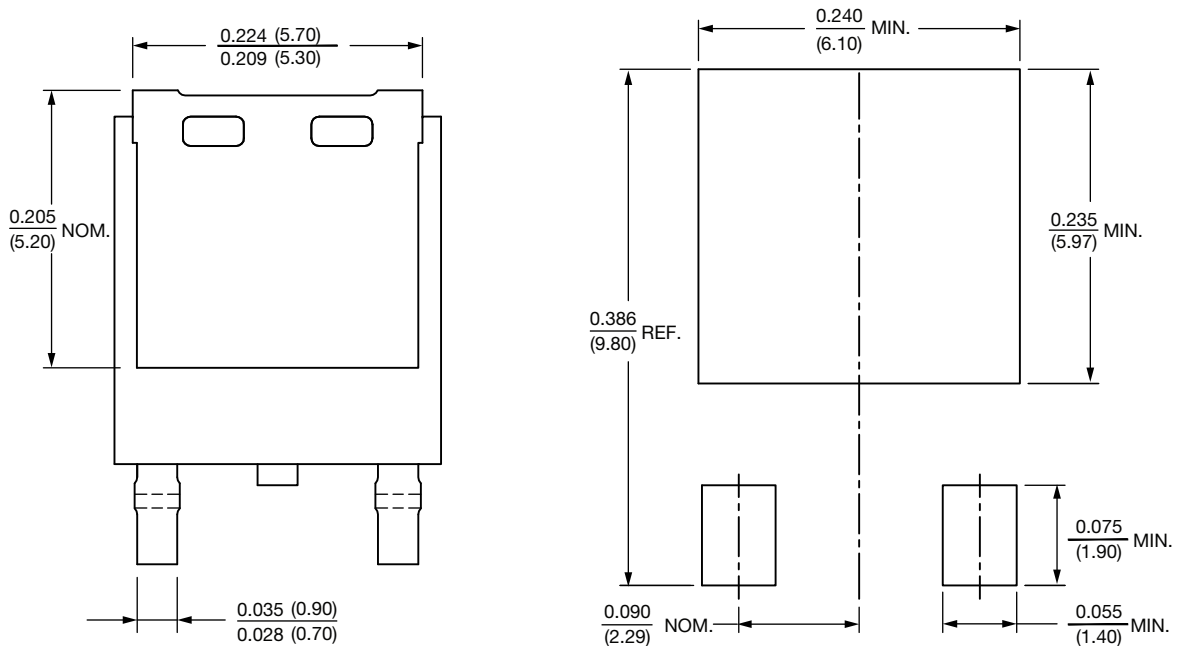


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SlimDPAK (TO-252AE)



Mounting Pad Layout





Disclaimer

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