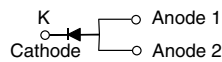


## Low $V_F$ High Current Density Surface-Mount Schottky Barrier Rectifiers

### eSMP® Series



### SMPC (TO-277A)



### LINKS TO ADDITIONAL RESOURCES


[3D Models](#)

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 3.0 A          |
| $V_{RRM}$               | 50 V, 60 V     |
| $I_{FSM}$               | 150 A          |
| $E_{AS}$                | 20 mJ          |
| $V_F$ at $I_F = 3.0$ A  | 0.478 V        |
| $T_J$ max.              | 150 °C         |
| Package                 | SMPC (TO-277A) |
| Circuit configuration   | Single         |

### FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Low forward voltage drop, low power losses
- High efficiency
- Low thermal resistance
- 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**

### TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

### MECHANICAL DATA

#### Case: SMPC (TO-277A)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Base P/NHM3\_X - halogen-free, RoHS-compliant and AEC-Q101 qualified

("\_X" denotes revision code e.g. A, B,.....)

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                           |                |             |        |      |
|---|----------------|-------------|--------|------|
| PARAMETER   | SYMBOL         | SS3P5L      | SS3P6L | UNIT |
| Device marking code   |                | S35         | S36    |      |
| Maximum repetitive peak reverse voltage   | $V_{RRM}$      | 50          | 60     | V    |
| Maximum average forward rectified current (fig. 1)                                | $I_{F(AV)}$    | 3.0         |        | A    |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 150         |        | A    |
| Non-repetitive avalanche energy at $I_{AS} = 2.0$ A, $T_J = 25$ °C                | $E_{AS}$       | 20          |        | mJ   |
| Operating junction and storage temperature range                                  | $T_J, T_{STG}$ | -55 to +150 |        | °C   |



| ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                      |                                   |             |       |      |               |
|---|----------------------|-----------------------------------|-------------|-------|------|---------------|
| PARAMETER   | TEST CONDITIONS      |                                   | SYMBOL      | TYP.  | MAX. | UNIT          |
| Maximum instantaneous forward voltage   | $I_F = 1.5\text{ A}$ | $T_A = 25\text{ }^\circ\text{C}$  | $V_F^{(1)}$ | 0.464 | -    | V             |
|   | $I_F = 3.0\text{ A}$ |                                   |             | 0.542 | 0.60 |               |
|   | $I_F = 1.5\text{ A}$ | $T_A = 125\text{ }^\circ\text{C}$ |             | 0.379 | -    |               |
|   | $I_F = 3.0\text{ A}$ |                                   |             | 0.478 | 0.54 |               |
| Maximum reverse current   | Rated $V_R$          | $T_A = 25\text{ }^\circ\text{C}$  | $I_R^{(2)}$ | 8.4   | 150  | $\mu\text{A}$ |
|   |                      | $T_A = 125\text{ }^\circ\text{C}$ |             | 3.4   | 15   | mA            |
| Typical junction capacitance  | 4.0 V, 1 MHz         |                                   | $C_J$       | 200   | -    | pF            |

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width  $\leq 40\text{ ms}$ 

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise specified) |                       |        |        |                    |
|--|-----------------------|--------|--------|--------------------|
| PARAMETER  | SYMBOL                | SS3P5L | SS3P6L | UNIT               |
| Typical thermal resistance   | $R_{\theta JA}^{(1)}$ | 65     |        | $^\circ\text{C/W}$ |
|  | $R_{\theta JL}$       | 3      |        |                    |

**Note**

(1) Units mounted on recommended PCB 1 oz. pad layout

| ORDERING INFORMATION (Example) |                 |              |               |                                    |
|--------------------------------|-----------------|--------------|---------------|------------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| SS3P5L-M3/86A                  | 0.10            | 86A          | 1500          | 7" diameter plastic tape and reel  |
| SS3P5L-M3/87A                  | 0.10            | 87A          | 6500          | 13" diameter plastic tape and reel |
| SS3P5LHM3_A/H <sup>(1)</sup>   | 0.10            | H            | 1500          | 7" diameter plastic tape and reel  |
| SS3P5LHM3_A/I <sup>(1)</sup>   | 0.10            | I            | 6500          | 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)

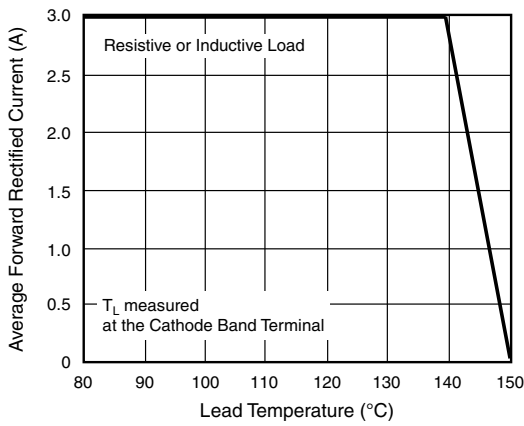


Fig. 1 - Maximum Forward Current Derating Curve

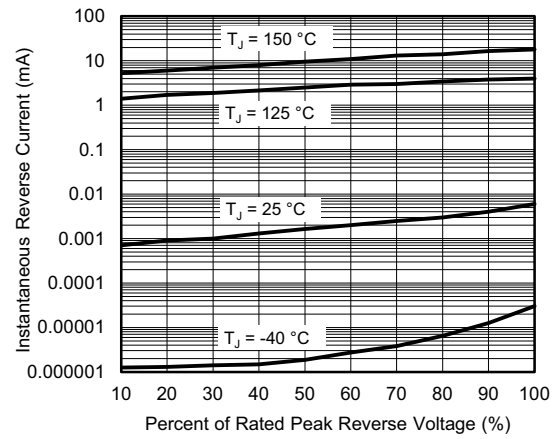


Fig. 4 - Typical Reverse Characteristics

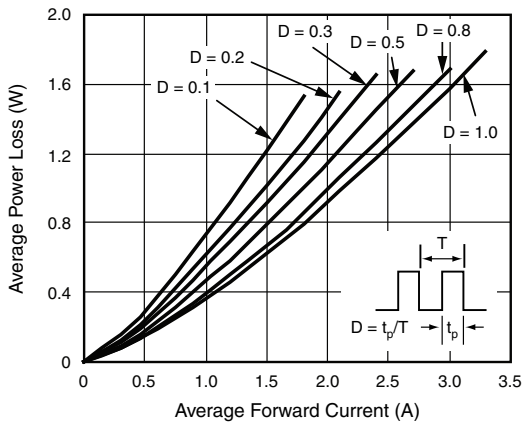


Fig. 2 - Forward Power Loss Characteristics

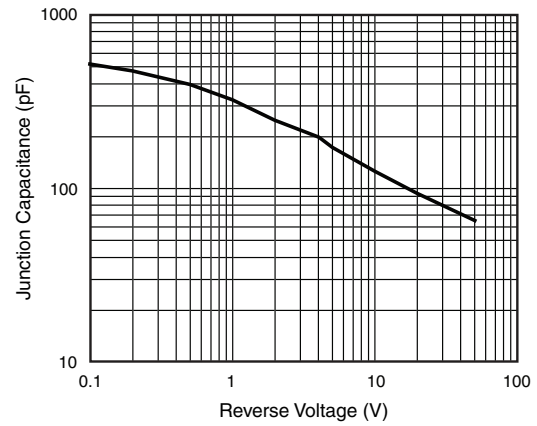


Fig. 5 - Typical Junction Capacitance

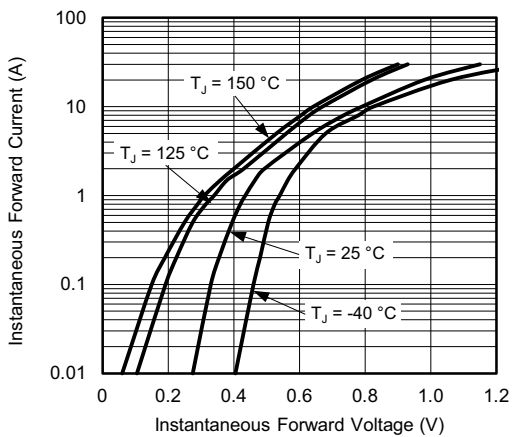


Fig. 3 - Typical Instantaneous Forward Characteristics

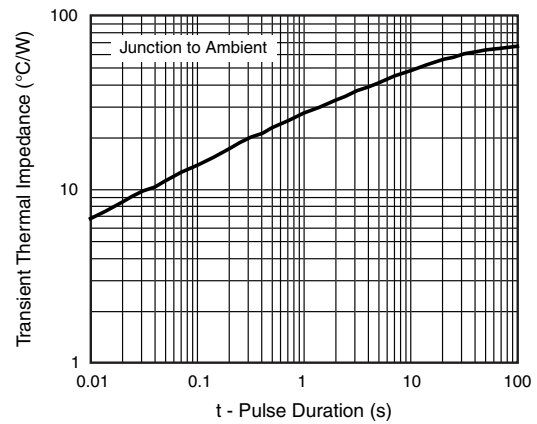
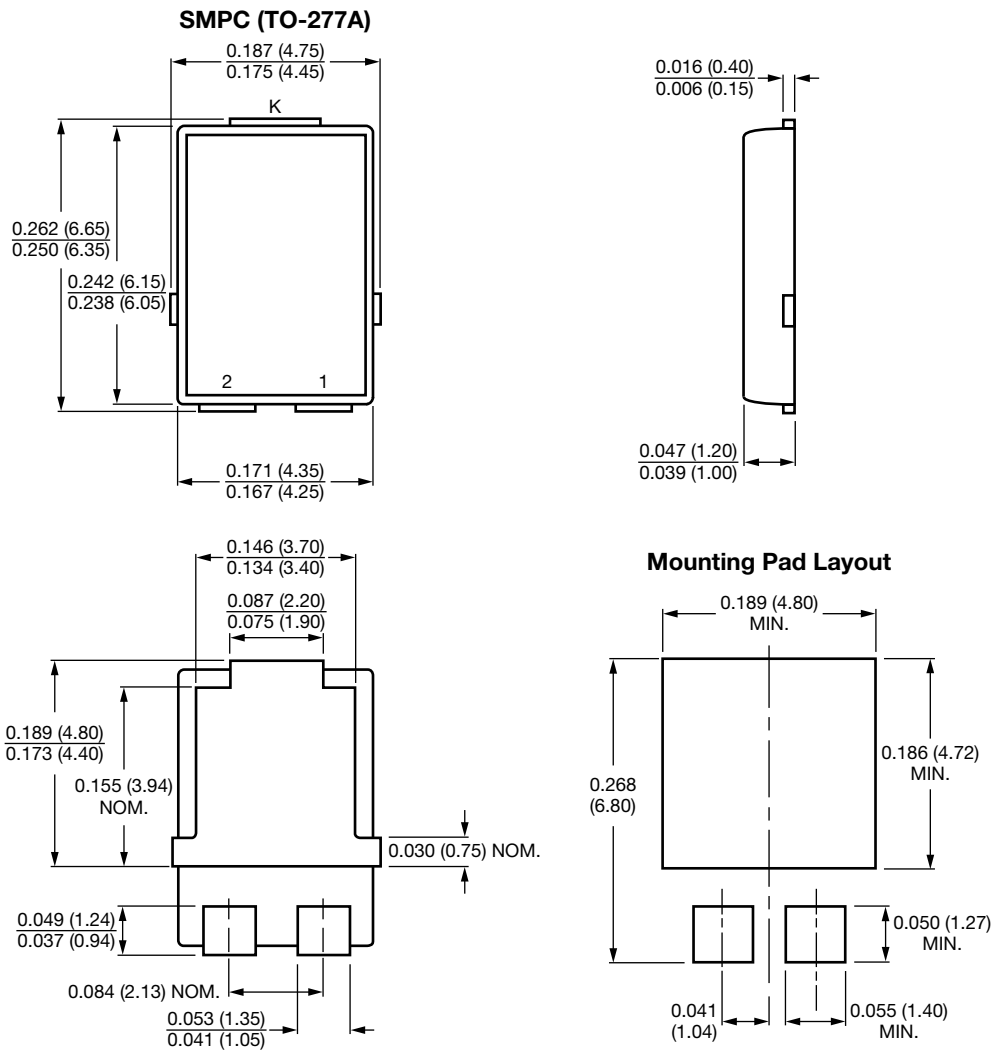


Fig. 6 - Typical Transient Thermal Impedance



### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC® TO-277A



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