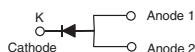


## High Current Density Surface Mount Schottky Barrier Rectifiers

### eSMP® Series



TO-277A (SMPC)



### PRIMARY CHARACTERISTICS

|                        |                |
|------------------------|----------------|
| $I_{F(AV)}$            | 8.0 A          |
| $V_{RRM}$              | 20 V, 30 V     |
| $I_{FSM}$              | 150 A          |
| $E_{AS}$               | 20 mJ          |
| $V_F$ at $I_F = 8.0$ A | 0.472 V        |
| $T_J$ max.             | 150 °C         |
| Package                | TO-277A (SMPC) |
| Diode variations       | Single         |

### FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Low forward voltage drop
- Low power loss, 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/doc299912](http://www.vishay.com/doc299912)



**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:** TO-277A (SMPC)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

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

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)

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)                   |                                   |             |        |      |
|-----------------------------------------------------------------------------------|-----------------------------------|-------------|--------|------|
| PARAMETER                                                                         | SYMBOL                            | SS8P2L      | SS8P3L | UNIT |
| Device marking code                                                               |                                   | S82         | S83    |      |
| Maximum repetitive peak reverse voltage                                           | V <sub>RRM</sub>                  | 20          | 30     | V    |
| Maximum average forward rectified current (fig. 1)                                | I <sub>F(AV)</sub>                | 8.0         |        | A    |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I <sub>FSM</sub>                  | 150         |        |      |
| Non-repetitive avalanche energy at I <sub>AS</sub> = 2 A, T <sub>J</sub> = 25 °C  | E <sub>AS</sub>                   | 20          |        | mJ   |
| Operating junction and storage temperature range                                  | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 |        | °C   |



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                               |                        |                         |       |      |      |
|----------------------------------------------------------------------------|-------------------------------|------------------------|-------------------------|-------|------|------|
| PARAMETER                                                                  | SYMBOL                        | TEST CONDITIONS        |                         | TYP.  | MAX. | UNIT |
| Maximum instantaneous forward voltage                                      | V <sub>F</sub> <sup>(1)</sup> | I <sub>F</sub> = 4.0 A | T <sub>A</sub> = 25 °C  | 0.447 | -    | V    |
|                                                                            |                               | I <sub>F</sub> = 8.0 A |                         | 0.533 | 0.57 |      |
|                                                                            |                               | I <sub>F</sub> = 4.0 A | T <sub>A</sub> = 125 °C | 0.357 | -    |      |
|                                                                            |                               | I <sub>F</sub> = 8.0 A |                         | 0.472 | 0.49 |      |
| Maximum reverse current                                                    | I <sub>R</sub> <sup>(2)</sup> | V <sub>R</sub> = 30 V  | T <sub>A</sub> = 25 °C  | 55    | 200  | μA   |
|                                                                            |                               |                        | T <sub>A</sub> = 125 °C | 24    | 35   | mA   |
| Typical junction capacitance                                               | C <sub>J</sub>                | 4.0 V, 1 MHz           |                         | 330   | -    | 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 <sub>A</sub> = 25 °C unless otherwise noted) |                                 |        |        |      |
|-------------------------------------------------------------------------|---------------------------------|--------|--------|------|
| PARAMETER                                                               | SYMBOL                          | SS8P2L | SS8P3L | UNIT |
| Typical thermal resistance                                              | R <sub>θJA</sub> <sup>(1)</sup> | 60     |        | °C/W |
|                                                                         | R <sub>θJL</sub>                | 3.5    |        |      |

**Note**

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

| ORDERING INFORMATION (Example) |                 |                        |               |                                    |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| SS8P3L-M3/86A                  | 0.1             | 86A                    | 1500          | 7" diameter plastic tape and reel  |
| SS8P3L-M3/87A                  | 0.1             | 87A                    | 6500          | 13" diameter plastic tape and reel |
| SS8P3LHM3/86A <sup>(1)</sup>   | 0.1             | 86A                    | 1500          | 7" diameter plastic tape and reel  |
| SS8P3LHM3/87A <sup>(1)</sup>   | 0.1             | 87A                    | 6500          | 13" diameter plastic tape and reel |
| SS8P3LHM3_A/H <sup>(1)</sup>   | 0.1             | H                      | 1500          | 7" diameter plastic tape and reel  |
| SS8P3LHM3_A/I <sup>(1)</sup>   | 0.1             | I                      | 6500          | 13" diameter plastic tape and reel |

**Note**

(1) AEC-Q101 qualified



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

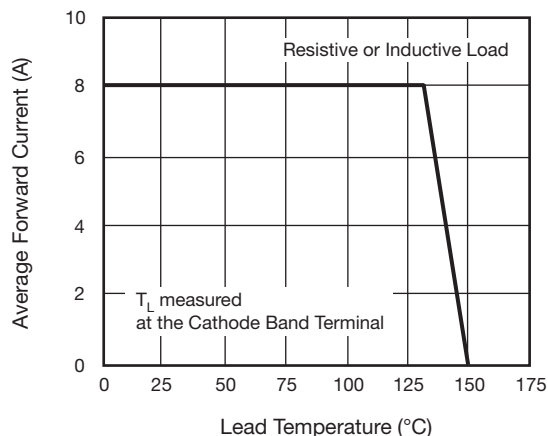


Fig. 1 - Maximum Forward Current Derating Curve

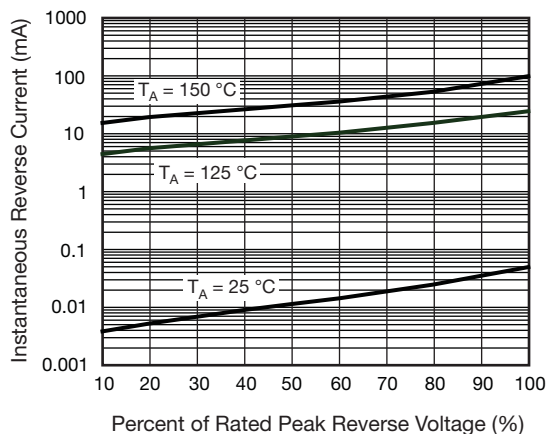


Fig. 4 - Typical Reverse Leakage Characteristics

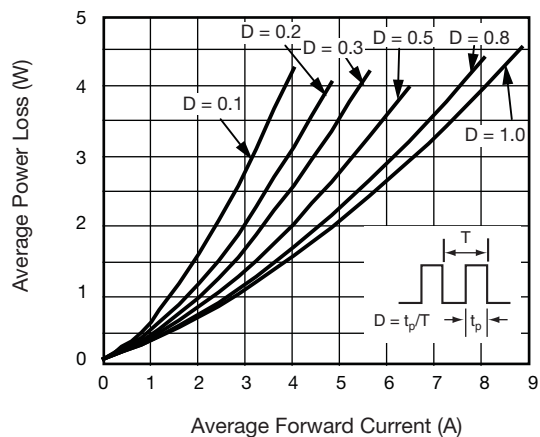


Fig. 2 - Forward Power Loss Characteristics

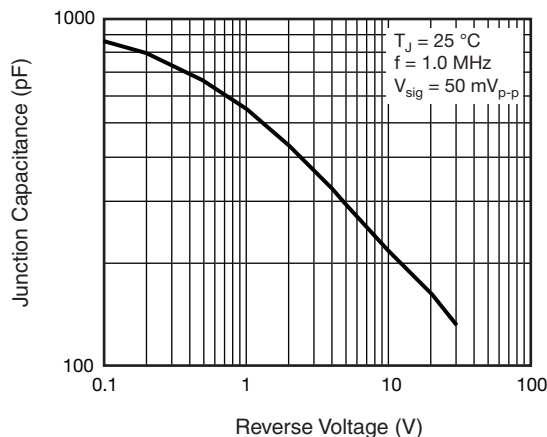


Fig. 5 - Typical Junction Capacitance

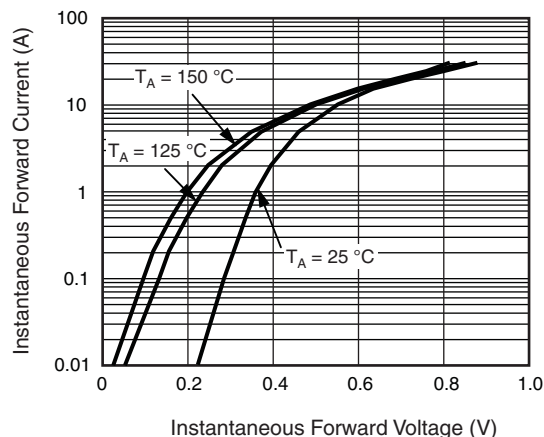


Fig. 3 - Typical Instantaneous Forward Characteristics

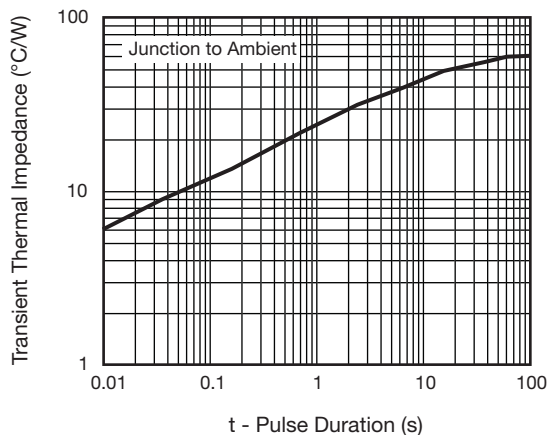
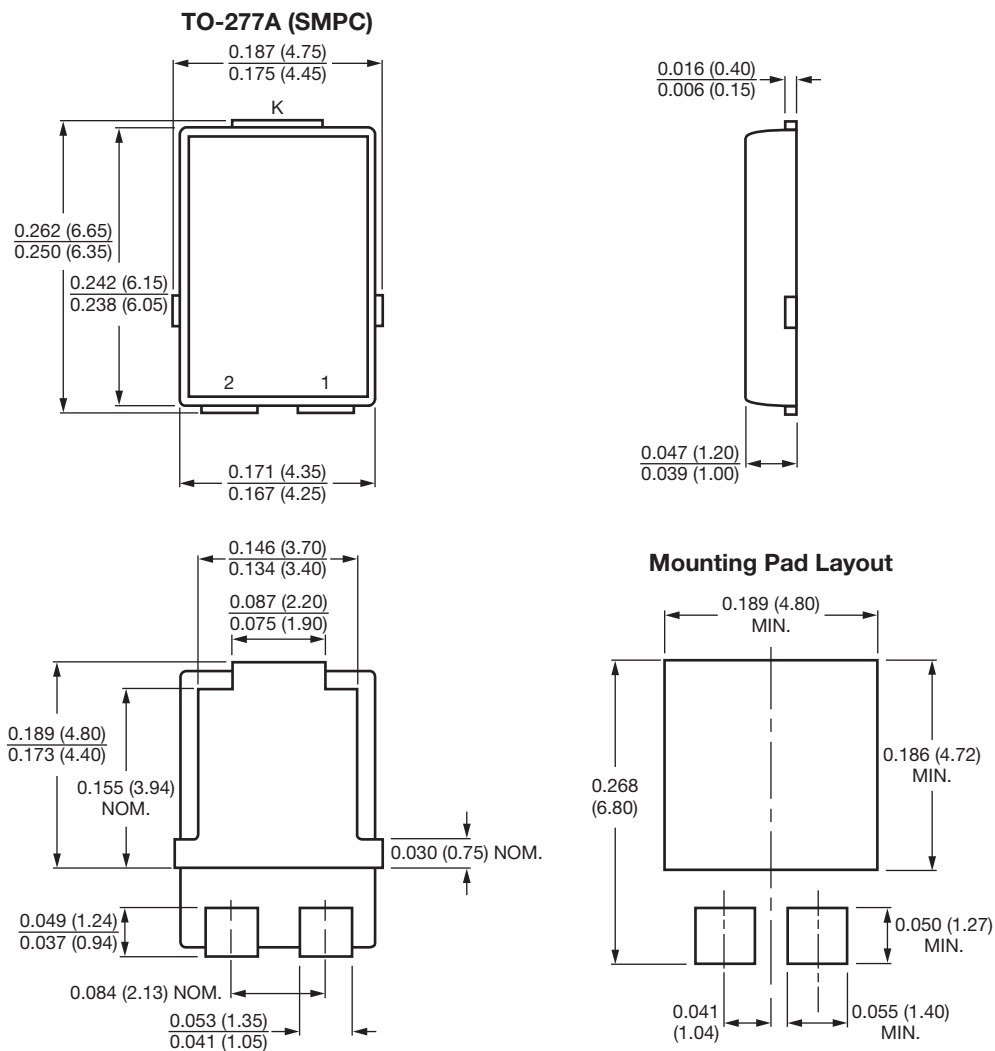


Fig. 6 - Typical Transient Thermal Impedance



**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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