



**THE DATASHEET OF  
SS2PH5HM3/85A**





## High Current Density Surface-Mount Schottky Barrier Rectifier

High Barrier Technology for Improved High Temperature Performance

eSMP® Series



SMP (DO-220AA)



### FEATURES

- Very low profile - typical height of 1.0 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)



RoHS COMPLIANT HALOGEN FREE

### LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS                  |                |
|--|----------------|
| $I_{F(AV)}$                              | 2.0 A          |
| $V_{RRM}$                                | 50 V, 60 V     |
| $I_{FSM}$                                | 50 A           |
| $V_F$ at $I_F = 2.0$ A ( $T_A = 125$ °C) | 0.59 V         |
| $T_J$ max.                               | 175 °C         |
| Package                                  | SMP (DO-220AA) |
| Circuit configuration                    | Single         |

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** SMP (DO-220AA)

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

**Polarity:** color band denotes the cathode end

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                            |                            |             |        |      |
|--|----------------------------|-------------|--------|------|
| PARAMETER  | SYMBOL                     | SS2PH5      | SS2PH6 | UNIT |
| Device marking code  |                            | 2H5         | 2H6    |      |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$                  | 50          | 60     | V    |
| Maximum average forward rectified current (fig. 1)                                 | $I_{F(AV)}$ <sup>(1)</sup> | 2.0         |        | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$                  | 50          |        | A    |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$             | -55 to +175 |        | °C   |

#### Note

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



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                      |                                   |             |      |      |               |
|--|----------------------|-----------------------------------|-------------|------|------|---------------|
| PARAMETER  | TEST CONDITIONS      |                                   | SYMBOL      | TYP. | MAX. | UNIT          |
| Instantaneous forward voltage  | $I_F = 1.0\text{ A}$ | $T_A = 25\text{ }^\circ\text{C}$  | $V_F^{(1)}$ | 0.63 | -    | V             |
|  | $I_F = 2.0\text{ A}$ |                                   |             | 0.72 | 0.80 |               |
|  | $I_F = 1.0\text{ A}$ | $T_A = 125\text{ }^\circ\text{C}$ |             | 0.52 | -    |               |
|  | $I_F = 2.0\text{ A}$ |                                   |             | 0.59 | 0.70 |               |
| Reverse current at rated $V_R$   |                      |                                   | $I_R^{(2)}$ | 0.2  | 2.0  | $\mu\text{A}$ |
|  |                      |                                   |             | 0.13 | 1.0  | mA            |
| Typical junction capacitance   | 4.0 V, 1 MHz         |                                   | $C_J$       | 93   | -    | pF            |

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width  $\leq 5\text{ ms}$ 

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |        |        |                    |
|---|-----------------------|--------|--------|--------------------|
| PARAMETER   | SYMBOL                | SS2PH5 | SS2PH6 | UNIT               |
| Typical thermal resistance  | $R_{\theta JA}^{(1)}$ | 130    |        | $^\circ\text{C/W}$ |
|   | $R_{\theta JM}^{(1)}$ | 20     |        |                    |

**Note**(1) Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance  $R_{\theta JA}$  - junction to ambient,  $R_{\theta JM}$  - junction to mount

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                    |
|---------------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
| SS2PH6-M3/84A                         | 0.024           | 84A                    | 3000          | 7" diameter plastic tape and reel  |
| SS2PH6-M3/85A                         | 0.024           | 85A                    | 10 000        | 13" diameter plastic tape and reel |
| SS2PH6HM3/84A <sup>(1)</sup>          | 0.024           | 84A                    | 3000          | 7" diameter plastic tape and reel  |
| SS2PH6HM3/85A <sup>(1)</sup>          | 0.024           | 85A                    | 10 000        | 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)

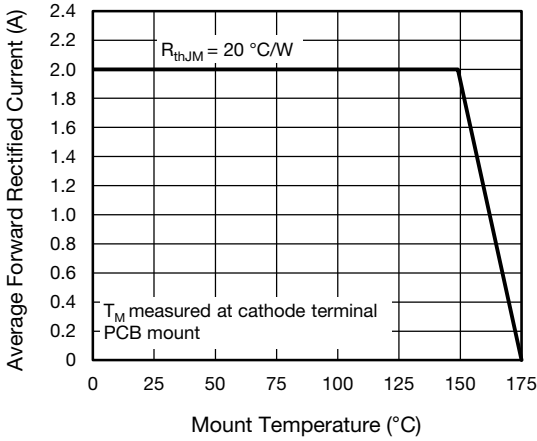


Fig. 1 - Typical Forward Current Derating Curve

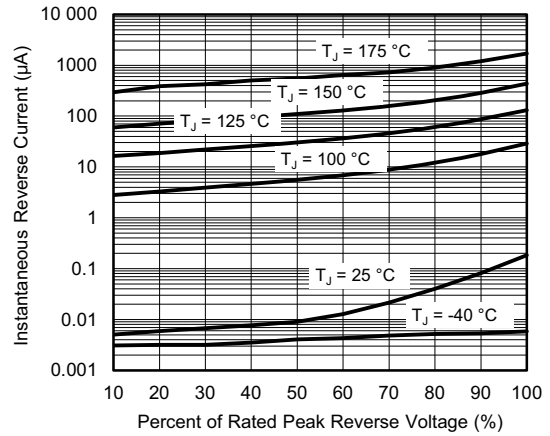


Fig. 4 - Typical Reverse Leakage Characteristics

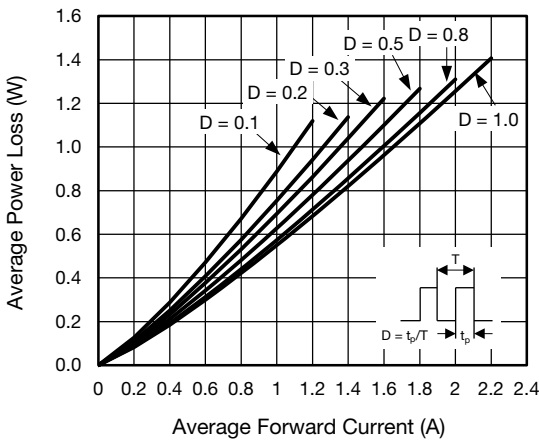


Fig. 2 - Forward Power Loss Characteristics

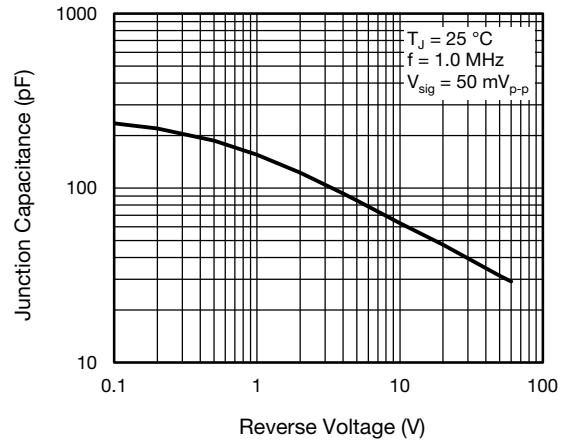


Fig. 5 - Typical Junction Capacitance

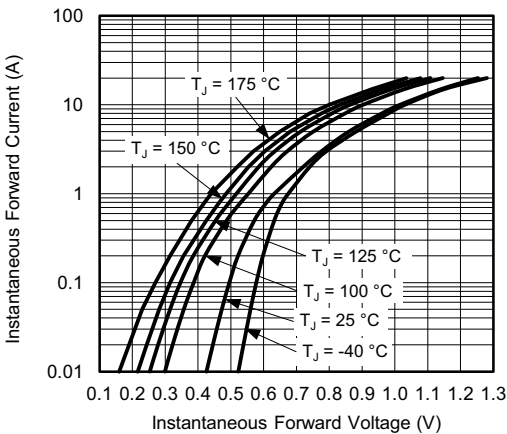


Fig. 3 - Typical Instantaneous Forward Characteristics

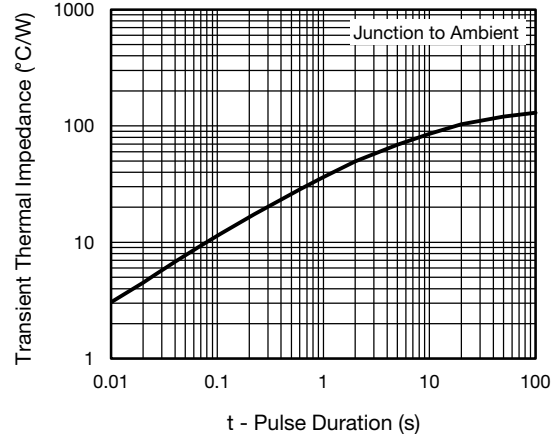
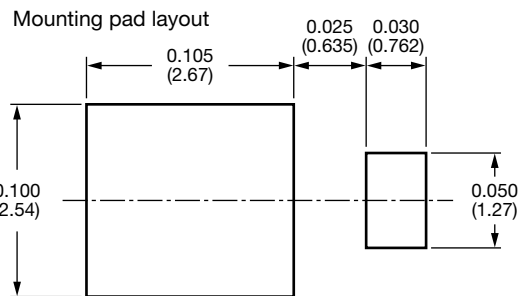
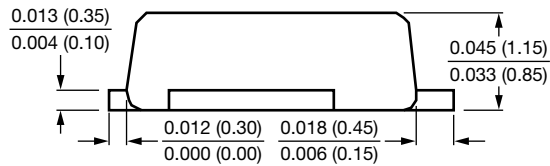
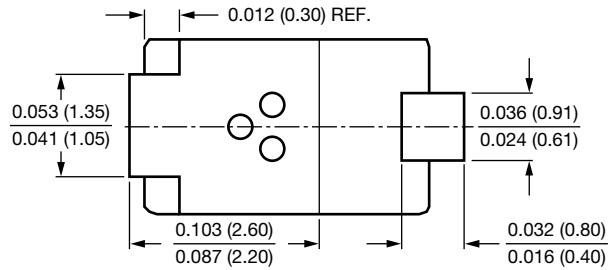
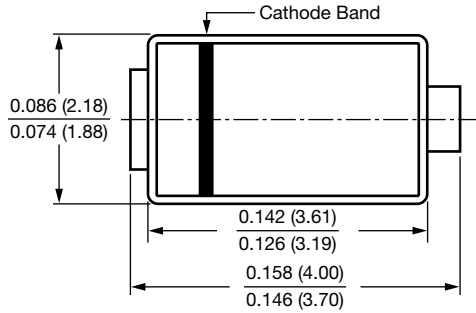


Fig. 6 - Typical Transient Thermal Impedance



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### SMP (DO-220AA)





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