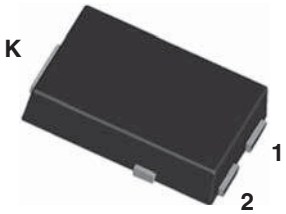
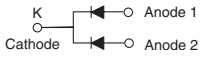
# High Current Density Surface Mount Dual Common-Cathode Schottky Rectifier

eSMP® Series




TO-277A (SMPC)




| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 2 x 3.0 A |
| $V_{RRM}$ | 40 V |
| $I_{FSM}$ | 70 A |
| $E_{AS}$ | 20 mJ |
| $V_F$ at $I_F$ = 3 A | 0.53 V |
| $T_J$ max. | 150 °C |
| Package | TO-277A (SMPC) |
| Diode variations | Dual Common Cathode |

## TYPICAL APPLICATIONS

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

## FEATURES

AUTOMOTIVE GRADE

RoHS COMPLIANT

HALOGEN FREE

- 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
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

## 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)

| PARAMETER | | SYMBOL | SS6P4C | UNIT |
|---|---|---|---|---|
| Device marking code | | | S64C | |
| Maximum repetitive peak reverse voltage | | $V_{RRM}$ | 40 | V |
| Maximum average forward rectified current (fig. 1) | total devive | $I_{F(AV)}$ | 6.0 | A |
| | per diode | | 3.0 | |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | | $I_{FSM}$ | 70 | A |
| Non-repetitive avalanche energy at 25 °C, $I_{AS}$ = 2 A per diode | | $E_{AS}$ | 20 | |
| Operating junction and storage temperature range | | $T_J$, $T_{STG}$ | -55 to +150 | °C |

| **ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | |
|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **TYP.** | **MAX.** | **UNIT** |
| Instantaneous forward voltage per diode | $I_F$ = 1.5 A | $T_A$ = 25 °C | $V_F$ (1) | 0.47 | - | V |
| | $I_F$ = 3.0 A | | | 0.57 | 0.65 | |
| | $I_F$ = 1.5 A | $T_A$ = 125 °C | | 0.40 | - | |
| | $I_F$ = 3.0 A | | | 0.53 | 0.60 | |
| Reverse current per diode | Rated $V_R$ | $T_A$ = 25 °C | $I_R$ (2) | 17 | 200 | µA |
| | | $T_A$ = 125 °C | | 6 | 20 | mA |
| Typical junction capacitance per diode | 4.0 V, 1 MHz | | $C_J$ | 100 | - | 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 specified) | | | |
|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **SS6P4C** | **UNIT** |
| Typical thermal resistance per diode | $R_{\theta JA}$ (1) | 80 | °C/W |
| | $R_{\theta JL}$ | 4 | |

**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** |
| SS6P4C-M3/86A | 0.10 | 86A | 1500 | 7" diameter plastic tape and reel |
| SS6P4C-M3/87A | 0.10 | 87A | 6500 | 13" diameter plastic tape and reel |
| SS6P4CHM3/86A (1) | 0.10 | 86A | 1500 | 7" diameter plastic tape and reel |
| SS6P4CHM3/87A (1) | 0.10 | 87A | 6500 | 13" diameter plastic tape and reel |
| SS6P4CHM3_A/H (1) | 0.10 | H | 1500 | 7" diameter plastic tape and reel |
| SS6P4CHM3_A/I (1) | 0.10 | I | 6500 | 13" diameter plastic tape and reel |

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

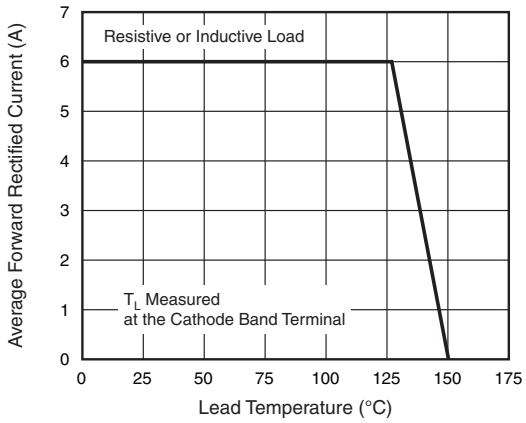



Fig. 1 - Maximum Forward Current Derating Curve

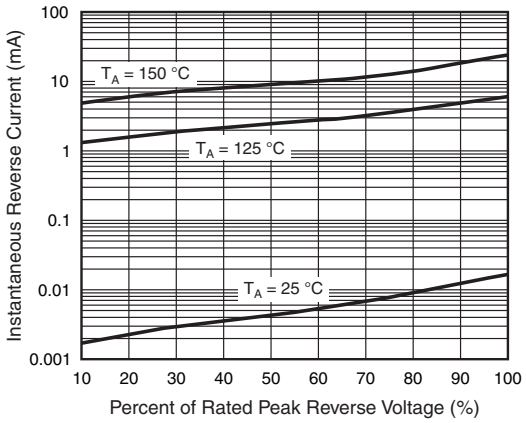



Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

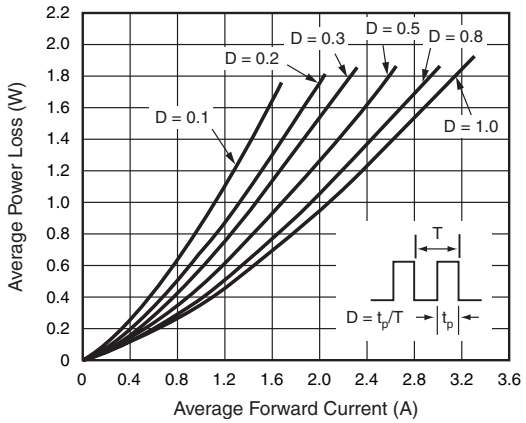



Fig. 2 - Forward Power Loss Characteristics Per Diode

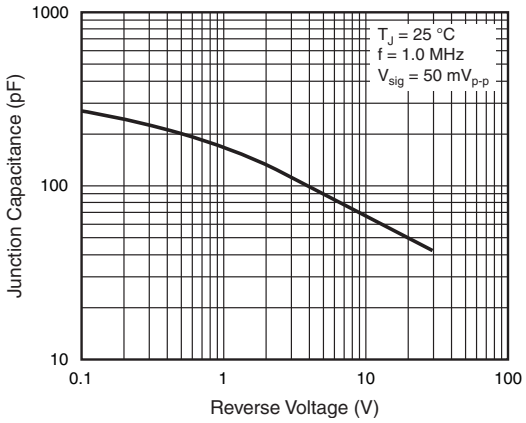



Fig. 5 - Typical Junction Capacitance Per Diode

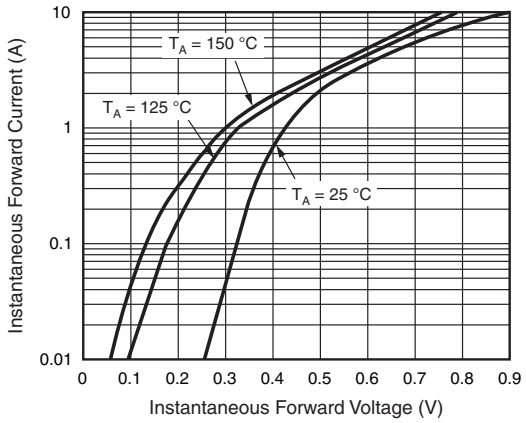
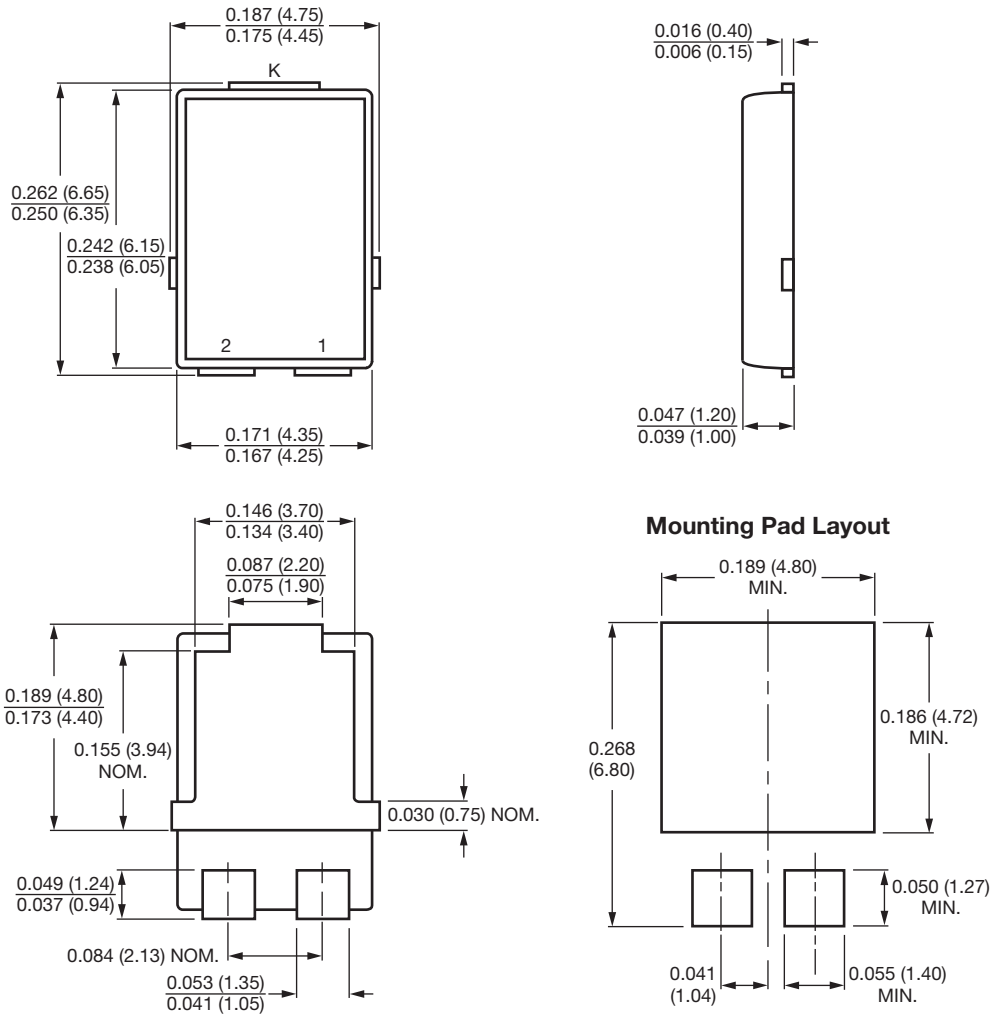



Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

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

**TO-277A (SMPC)**




Conform to JEDEC® TO-277A

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