

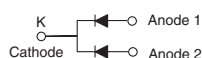


High Current Density Surface Mount Dual Common-Cathode Schottky Rectifiers

eSMP™ Series



TO-277A (SMPC)



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
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition

AUTOMOTIVE
GRADE
Available



RoHS
COMPLIANT
HALOGEN
FREE

| PRIMARY CHARACTERISTICS | |
|-------------------------|------------|
| $I_{F(AV)}$ | 2 x 5.0 A |
| V_{RRM} | 20 V, 30 V |
| I_{FSM} | 200 A |
| E_{AS} | 20 mJ |
| V_F at $I_F = 5$ A | 0.338 V |
| T_J max. | 150 °C |

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 automotive grade

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

M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters and polarity protection application.

| MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) | | | | |
|---|----------------|---------------|----------|------|
| PARAMETER | SYMBOL | SS10P2CL | SS10P3CL | UNIT |
| Device marking code | | S102CL | S103CL | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 20 | 30 | V |
| Maximum average forward rectified current (fig. 1) | total device | 10 | | A |
| | per diode | 5.0 | | |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I_{FSM} | 200 | | A |
| Non-repetitive avalanche energy at 25 °C, $I_{AS} = 2$ A per diode | E_{AS} | 20 | | mJ |
| Operating junction and storage temperature range | T_J, T_{STG} | - 55 to + 150 | | °C |

SS10P2CL, SS10P3CL



Vishay General Semiconductor

| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|--|------------------------|-------------------------|-------------------------------|-------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Instantaneous forward voltage per diode | I _F = 2.5 A | T _A = 25 °C | V _F ⁽¹⁾ | 0.391 | - | V |
| | I _F = 5.0 A | | | 0.440 | 0.52 | |
| | I _F = 2.5 A | T _A = 125 °C | | 0.272 | - | |
| | I _F = 5.0 A | | | 0.338 | 0.42 | |
| Reverse current per diode | Rated V _R | T _A = 25 °C | I _R ⁽²⁾ | 95 | 850 | μA |
| | | T _A = 125 °C | | 37 | 55 | mA |
| Typical junction capacitance per diode | 4.0 V, 1 MHz | | C _J | 560 | - | 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 | SS10P2CL | SS10P3CL | UNIT |
| Typical thermal resistance per diode | R _{θJA} ⁽¹⁾ | 60 | | °C/W |
| | R _{θJL} | 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 |
| SS103CL-M3/86A | 0.10 | 86A | 1500 | 7" diameter plastic tape and reel |
| SS103CL-M3/87A | 0.10 | 87A | 6500 | 13" diameter plastic tape and reel |
| SS103CLHM3/86A ⁽¹⁾ | 0.10 | 86A | 1500 | 7" diameter plastic tape and reel |
| SS103CLHM3/87A ⁽¹⁾ | 0.10 | 87A | 6500 | 13" diameter plastic tape and reel |

Note

(1) Automotive grade

RATINGS AND CHARACTERISTICS CURVES

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

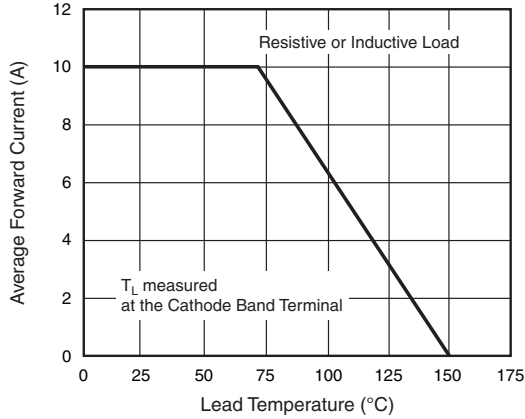


Fig. 1 - Maximum Forward Current Derating Curve

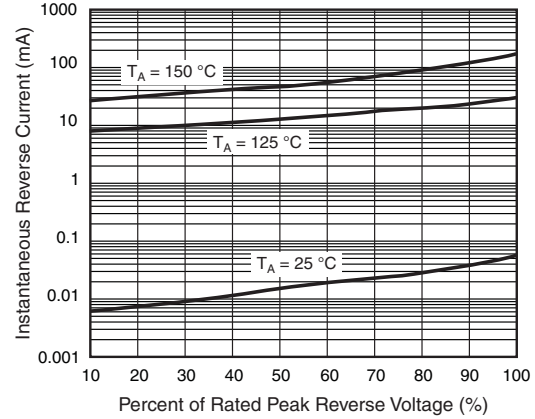


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

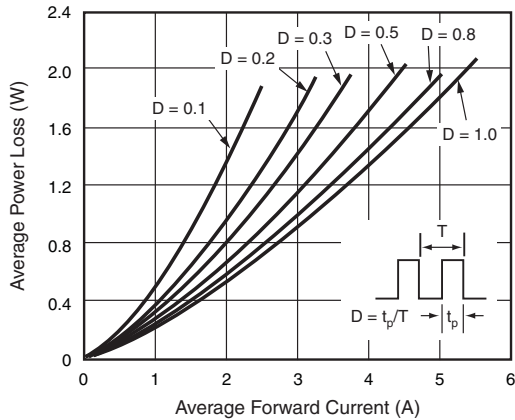


Fig. 2 - Forward Power Loss Characteristics Per Diode

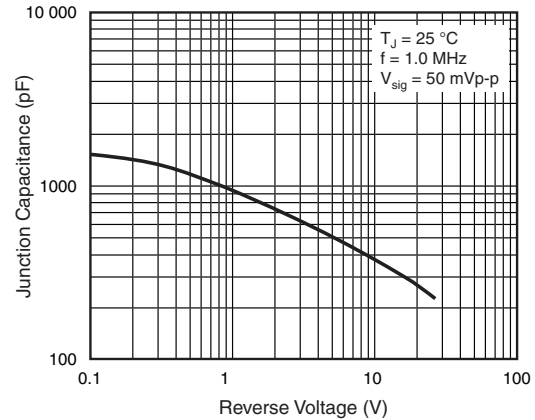


Fig. 5 - Typical Junction Capacitance Per Diode

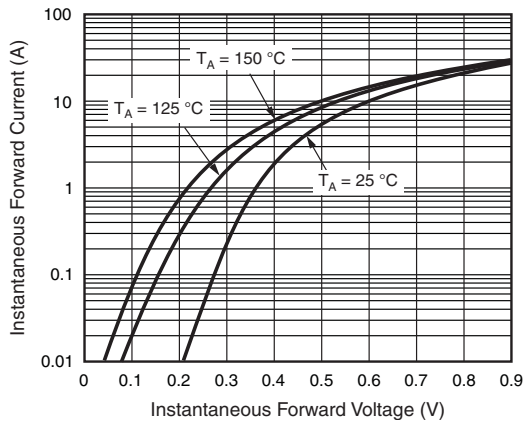


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

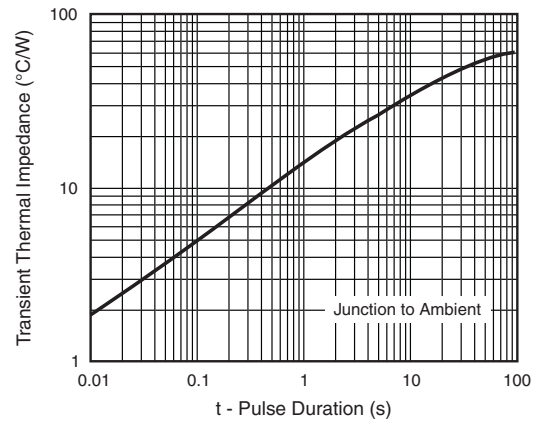


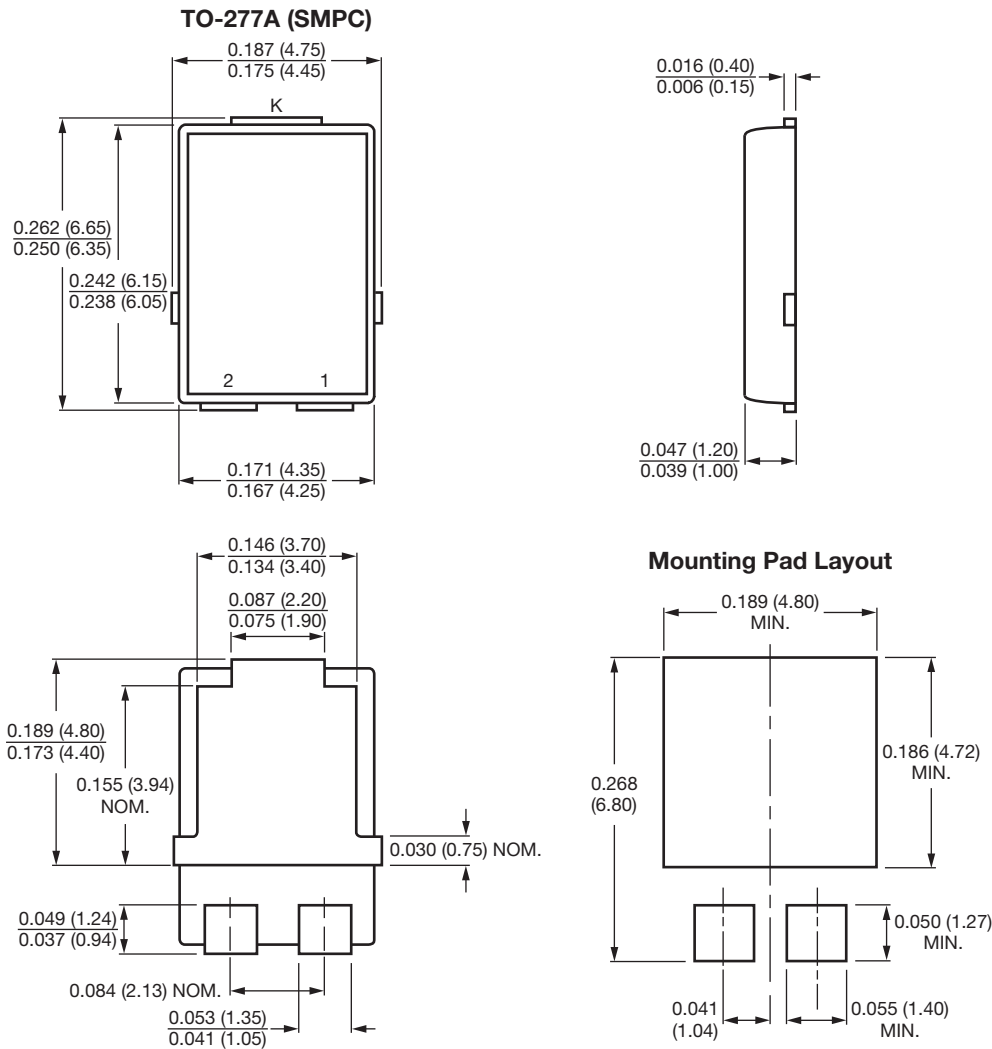
Fig. 6 - Typical Transient Thermal Impedance Per Diode

SS10P2CL, SS10P3CL

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC TO-277A



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