



Surface Mount Trench MOS Barrier Schottky Rectifier

TMBS®



DO-214AC (SMA)

PRIMARY CHARACTERISTICS

| | |
|------------------------|--------|
| $I_{F(AV)}$ | 3.0 A |
| V_{RRM} | 60 V |
| I_{FSM} | 80 A |
| V_F at $I_F = 3.0$ A | 0.41 V |
| T_J max. | 150 °C |

TYPICAL APPLICATIONS

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

FEATURES

- Low profile package
- Ideal for automated placement
- Trench MOS Schottky technology
- Low power losses, high efficiency
- Low forward voltage drop
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Not recommended for PCB bottom side wave mounting
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS
COMPLIANT
HALOGEN
FREE

MECHANICAL DATA

Case: DO-214AC (SMA)

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

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

M3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes the cathode end

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

| PARAMETER | SYMBOL | VSSA3L6S | UNIT |
|---|----------------|---------------|------------|
| Device marking code | | 3L6 | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 60 | V |
| Maximum DC forward current | $I_F^{(1)}$ | 3.0 | A |
| | $I_F^{(2)}$ | 2.5 | |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I_{FSM} | 80 | A |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | V/ μ s |
| Operating junction and storage temperature range | T_J, T_{STG} | - 55 to + 150 | °C |

Notes

(1) Mounted on 10 mm x 10 mm pad areas, 1 oz. FR4 PCB

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

VSSA3L6S

Vishay General Semiconductor

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

| PARAMETER | TEST CONDITIONS | SYMBOL | TYP. | MAX. | UNIT |
|-------------------------------|----------------------|-------------------------------------|------|------|---------------|
| Instantaneous forward voltage | $I_F = 3.0\text{ A}$ | $T_A = 25\text{ }^{\circ}\text{C}$ | 0.49 | 0.58 | V |
| | | $T_A = 125\text{ }^{\circ}\text{C}$ | 0.41 | 0.50 | |
| Reverse current | $V_R = 60\text{ V}$ | $T_A = 25\text{ }^{\circ}\text{C}$ | - | 1500 | μA |
| | | $T_A = 125\text{ }^{\circ}\text{C}$ | 6.0 | 30 | mA |
| Typical junction capacitance | 4.0 V, 1 MHz | C_J | 395 | - | pF |

Notes(1) Pulse test: 300 μs 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 | VSSA3L6S | UNIT |
|----------------------------|---------------------|----------|----------------------|
| Typical thermal resistance | $R_{\theta JA}$ (1) | 115 | $^{\circ}\text{C/W}$ |
| | $R_{\theta JM}$ (2) | 15 | |

Notes(1) Free air, mounted on recommended PCB, 1 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient(2) Mounted on 10 mm x 10 mm pad areas, 1 oz. FR4 PCB; $R_{\theta JM}$ - junction to mount**ORDERING INFORMATION** (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-----------------|-----------------|------------------------|---------------|------------------------------------|
| VSSA3L6S-M3/61T | 0.064 | 61T | 1800 | 7" diameter plastic tape and reel |
| VSSA3L6S-M3/5AT | 0.064 | 5AT | 7500 | 13" diameter plastic tape and reel |

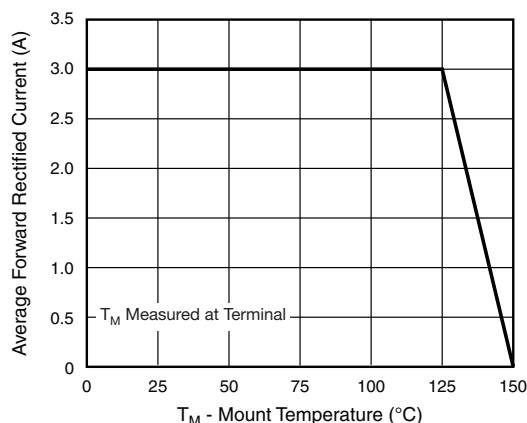
RATINGS AND CHARACTERISTICS CURVES($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

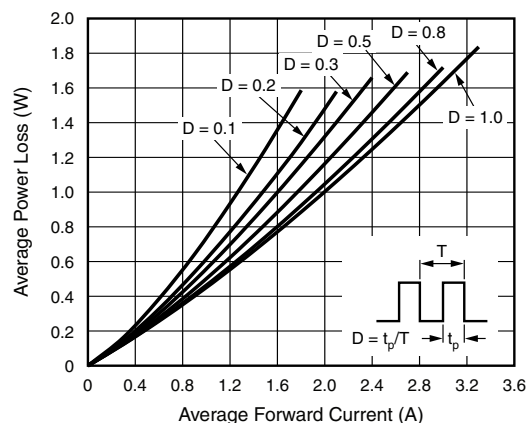


Fig. 2 - Forward Power Loss Characteristics

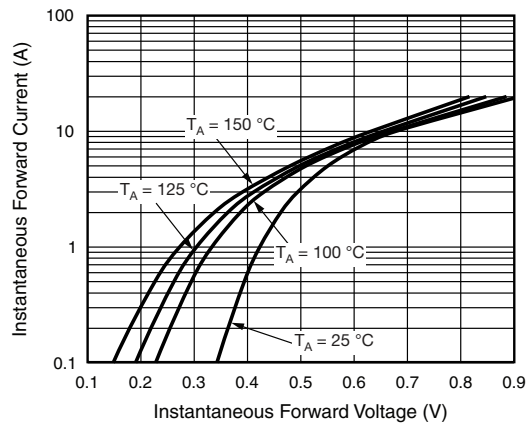


Fig. 3 - Typical Instantaneous Forward Characteristics

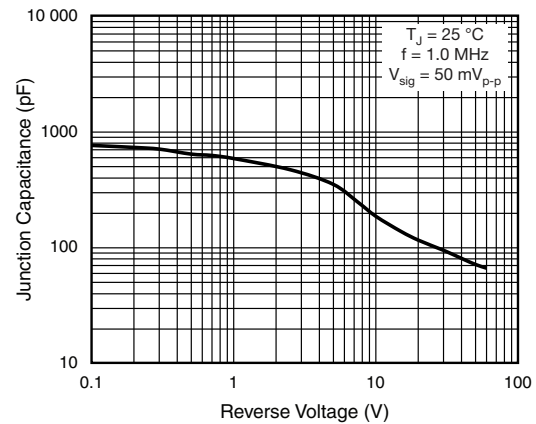


Fig. 5 - Typical Junction Capacitance

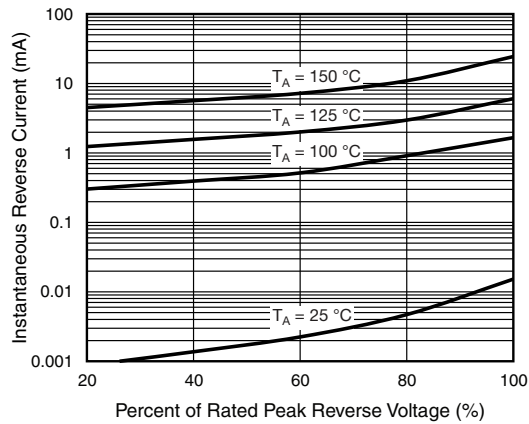


Fig. 4 - Typical Reverse Characteristics

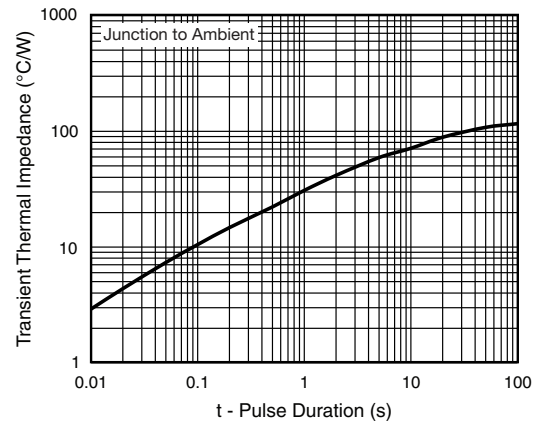
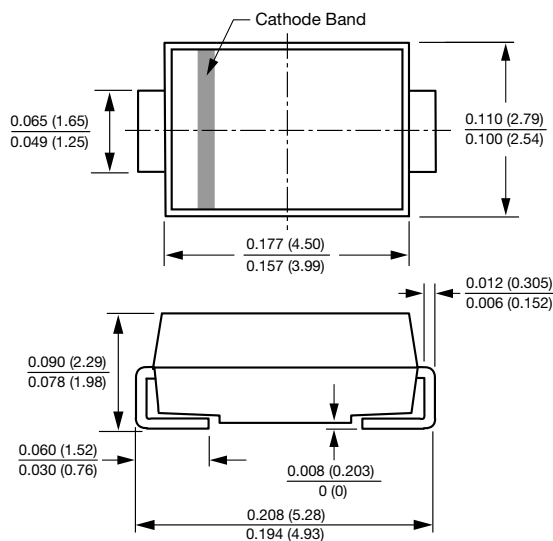
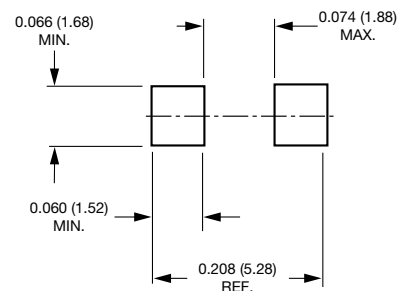


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)**DO-214AC (SMA)****Mounting Pad Layout**



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