

Surface Mount Trench MOS Barrier Schottky Rectifier


DO-214AC (SMA)
TMBS®
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
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-214AC (SMA)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade

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

E3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes the cathode end

| PRIMARY CHARACTERISTICS | |
|-------------------------|--------|
| $I_{F(AV)}$ | 2.0 A |
| V_{RRM} | 100 V |
| I_{FSM} | 60 A |
| E_{AS} | 24 mJ |
| V_F at $I_F = 2.0$ A | 0.56 V |
| T_J max. | 150 °C |

| MAXIMUM RATINGS (TA = 25 °C unless otherwise noted) | | | |
|---|----------------|---------------|------|
| PARAMETER | SYMBOL | VSSA210 | UNIT |
| Device marking code | | V2B | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 100 | V |
| Maximum DC forward current | $I_F^{(1)}$ | 2.0 | A |
| | $I_F^{(2)}$ | 1.7 | |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I_{FSM} | 60 | A |
| Non-repetitive avalanche energy at $T_J = 25$ °C, $L = 60$ mH | E_{AS} | 24 | mJ |
| Peak repetitive reverse current at $t_p = 2$ μs, 1 kHz, $T_J = 38$ °C ± 2 °C | I_{RRM} | 1.0 | A |
| Operating junction and storage temperature range | T_J, T_{STG} | - 40 to + 150 | °C |

Notes

(1) Mounted on 8 mm x 8 mm pad areas, 1 oz. FR4 P.C.B.

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

| ELECTRICAL CHARACTERISTICS (TA = 25 °C unless otherwise noted) | | | | | | |
|---|-----------------|-------------|--------|---------------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Breakdown voltage | IR = 1.0 mA | TA = 25 °C | VBR | 100 (minimum) | - | V |
| Instantaneous forward voltage | IF = 2.0 A | TA = 25 °C | VF (1) | 0.61 | 0.70 | |
| | | TA = 125 °C | | 0.56 | 0.65 | |
| Reverse current | VR = 70 V | TA = 25 °C | IR (2) | 1.0 | - | μA |
| | | TA = 125 °C | | 0.95 | - | mA |
| | VR = 100 V | TA = 25 °C | | 3.5 | 150 | μA |
| | | TA = 125 °C | | 2.2 | 15 | mA |
| Typical junction capacitance | 4.0 V, 1 MHz | | CJ | 175 | - | pF |

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
 (2) Pulse test: Pulse width ≤ 40 ms

| THERMAL CHARACTERISTICS (TA = 25 °C unless otherwise noted) | | | |
|--|----------|---------|------|
| PARAMETER | SYMBOL | VSSA210 | UNIT |
| Typical thermal resistance | RθJA (1) | 135 | °C/W |
| | RθJM (2) | 25 | |

Notes

- (1) Free air, mounted on recommended P.C.B. 1 oz. pad area. Thermal resistance RθJA - junction to ambient
 (2) Units mounted on P.C.B. with 8 mm x 8 mm copper pad areas. RθJM - junction to mount

| ORDERING INFORMATION (Example) | | | | |
|---------------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| VSSA210-E3/61T | 0.064 | 61T | 1800 | 7" diameter plastic tape and reel |
| VSSA210-E3/5AT | 0.064 | 5AT | 7500 | 13" diameter plastic tape and reel |

RATINGS AND CHARACTERISTICS CURVES

(TA = 25 °C unless otherwise noted)

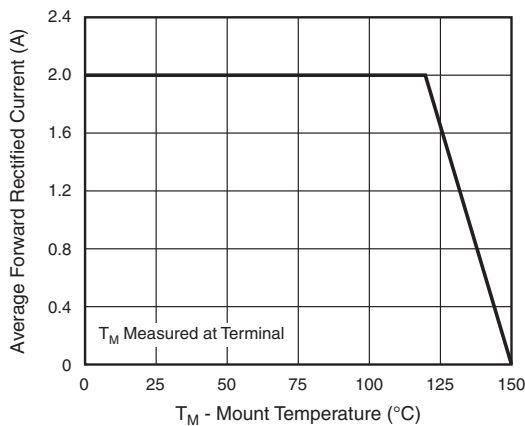


Fig. 1 - Maximum Forward Current Derating Curve

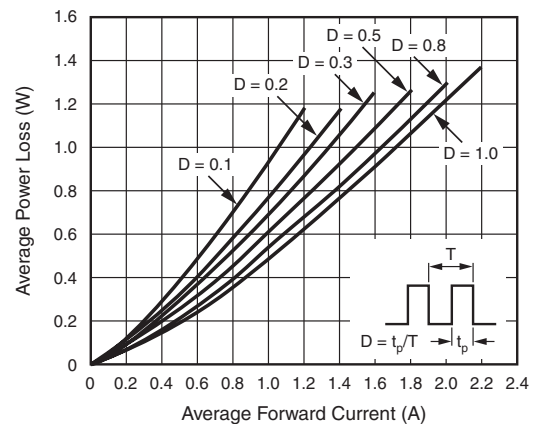


Fig. 2 - Forward Power Loss Characteristics

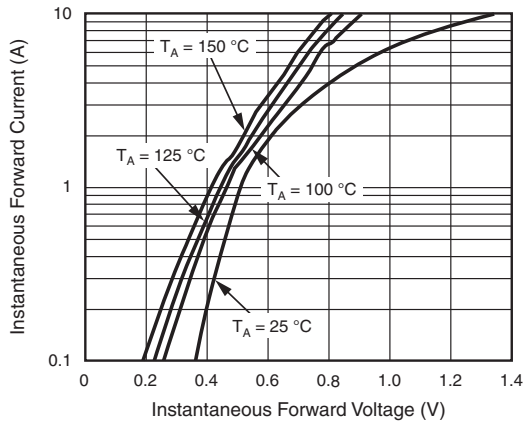


Fig. 3 - Typical Instantaneous Forward Characteristics

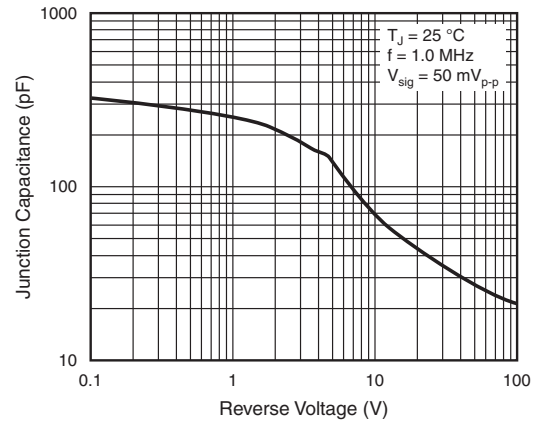


Fig. 5 - Typical Junction Capacitance

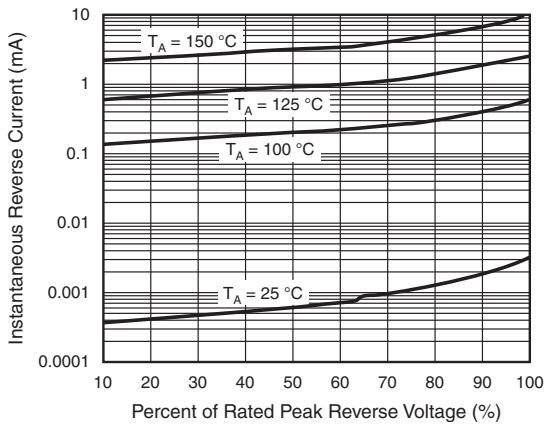


Fig. 4 - Typical Reverse Characteristics

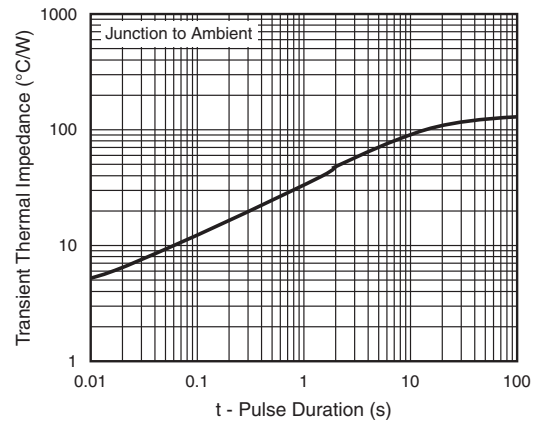
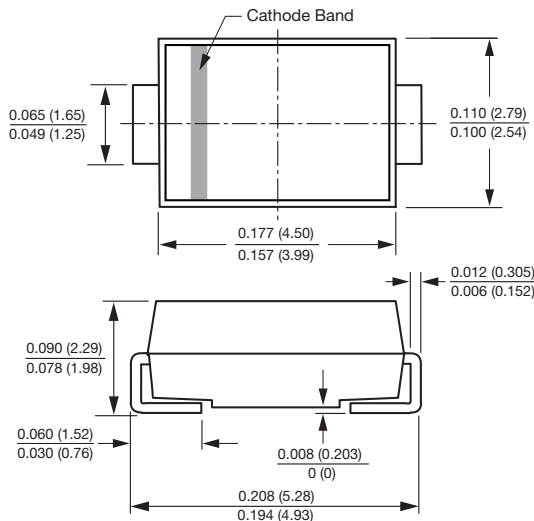


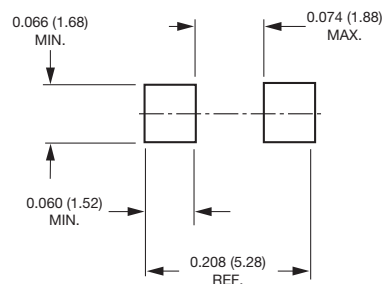
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout





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