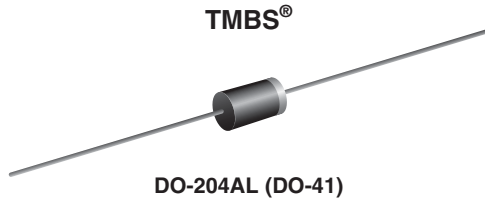


High Voltage Trench MOS Barrier Schottky Rectifier



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-204AL (DO-41)

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

| PRIMARY CHARACTERISTICS | |
|-------------------------|------------------|
| $I_{F(AV)}$ | 2.0 A |
| V_{RRM} | 200 V |
| I_{FSM} | 40 A |
| V_F at $I_F = 2.0$ A | 0.65 V |
| T_J max. | 150 °C |
| Package | DO-204AL (DO-41) |
| Diode variations | Single |

| MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) | | | |
|--|----------------|---------------|------------|
| PARAMETER | SYMBOL | VSB2200S | UNIT |
| Max. repetitive peak reverse voltage | V_{RRM} | 200 | V |
| Max. average forward rectified current (fig. 1) (1) | $I_{F(AV)}$ | 2.0 | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 40 | 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} | - 40 to + 150 | °C |

Note

(1) Units mounted on PCB with 2 mm x 2 mm copper pad areas 0.375" (9.5 mm) lead length, free air

| ELECTRICAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise noted) | | | | | | |
|--|-----------------|----------------|----------|------------|------|---------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Breakdown voltage | $I_R = 1.0$ mA | $T_A = 25$ °C | V_{BR} | 200 (min.) | - | V |
| Instantaneous forward voltage (1) | $I_F = 2.0$ A | $T_A = 25$ °C | V_F | 0.97 | 1.23 | |
| | | $T_A = 125$ °C | | 0.65 | 0.73 | |
| Reverse current per diode (2) | $V_R = 200$ V | $T_A = 25$ °C | I_R | 0.8 | 40 | μ A |
| | | $T_A = 125$ °C | | 0.6 | 4 | mA |
| Typical junction capacitance | 4.0 V, 1 MHz | | C_J | 110 | - | pF |

Notes

(1) Pulse test: 300 μ s pulse width, 1 % duty cycle

(2) Pulse test: Pulse width \leq 40 ms



| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | |
|---|-----------------|---------|--------------------|
| PARAMETER | SYMBOL | VS2200S | UNIT |
| Typical thermal resistance ⁽¹⁾ | $R_{\theta JA}$ | 88 | $^\circ\text{C/W}$ |
| | $R_{\theta JL}$ | 20 | |

Note

⁽¹⁾ Units mounted on PCB with 2 mm x 2 mm copper pad areas 0.375" (9.5 mm) lead length, free air

| ORDERING INFORMATION (Example) | | | | |
|---------------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| VS2200S-M3/54 | 0.34 | 54 | 5500 | 13" diameter paper tape and reel |
| VS2200S-M3/73 | 0.34 | 73 | 3000 | Ammo pack packaging |

RATINGS AND CHARACTERISTICS CURVES

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

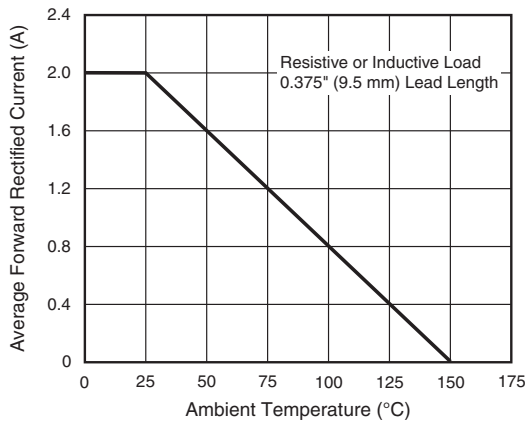


Fig. 1 - Maximum Forward Current Derating Curve

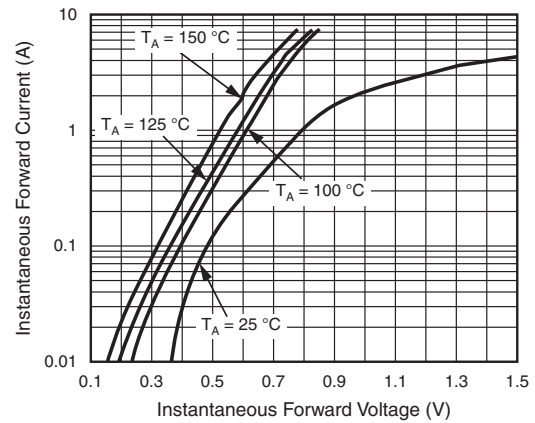


Fig. 3 - Typical Instantaneous Forward Characteristics

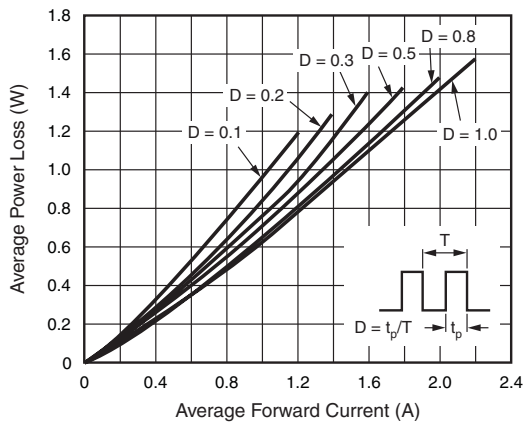


Fig. 2 - Forward Power Loss Characteristics

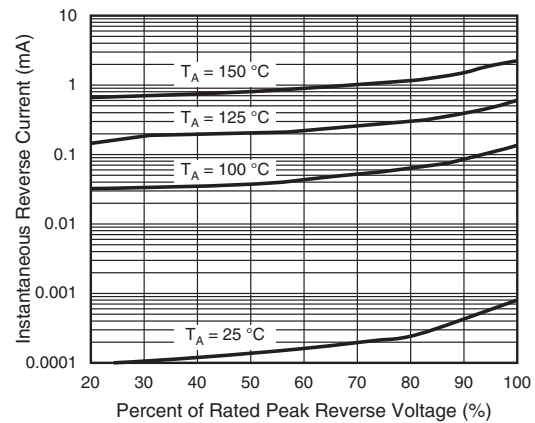


Fig. 4 - Typical Reverse Characteristics

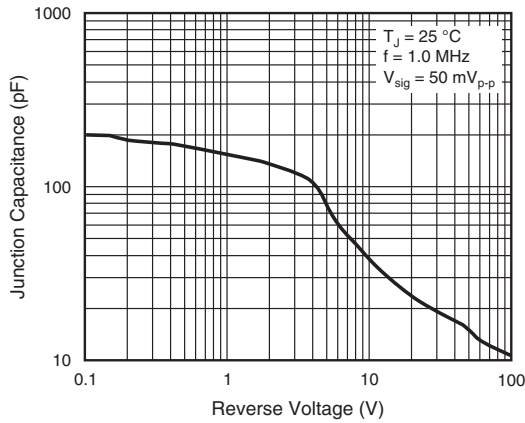


Fig. 5 - Typical Junction Capacitance

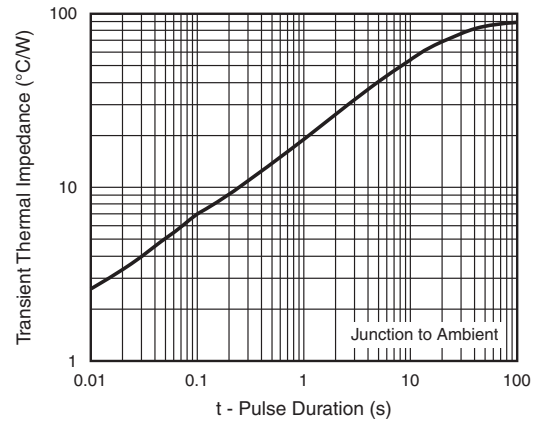
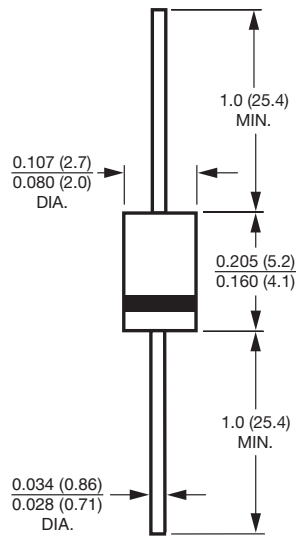


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)





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