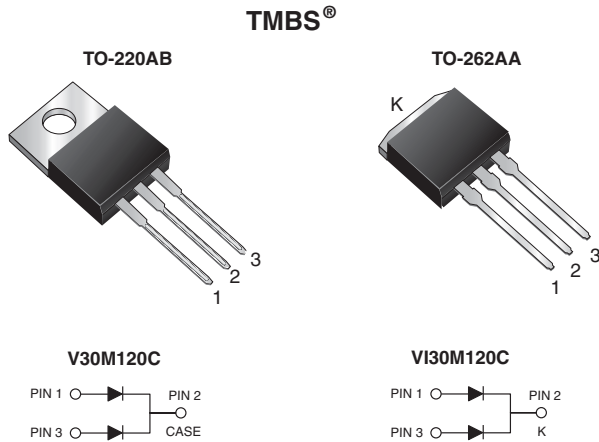




**THE DATASHEET OF
V30M120C-M3/4W**



Dual High-Voltage Trench MOS Barrier Schottky Rectifier

 Ultra Low $V_F = 0.52 \text{ V}$ at $I_F = 5 \text{ A}$


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 DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection.

MECHANICAL DATA

Case: TO-220AB and TO-262AA

 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: as marked

Mounting Torque: 10 in-lbs maximum

| PRIMARY CHARACTERISTICS | |
|-------------------------------|--------------------|
| $I_{F(AV)}$ | 2 x 15 A |
| V_{RRM} | 120 V |
| I_{FSM} | 150 A |
| V_F at $I_F = 15 \text{ A}$ | 0.68 V |
| T_J max. | 175 °C |
| Package | TO-220AB, TO-262AA |
| Diode variations | Common cathode |

| MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted) | | | | |
|--|----------------|-------------|-----------|------------|
| PARAMETER | SYMBOL | V30M120C | VI30M120C | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 120 | | V |
| Maximum average forward rectified current (fig. 1) | $I_{F(AV)}$ | per device | 30 | A |
| | | per diode | 15 | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 150 | | |
| 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 +175 | | °C |



ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
|---|------------------------|-------------------------|-------------------------------|------|------|------|
| Instantaneous forward voltage per diode | I _F = 5 A | T _A = 25 °C | V _F ⁽¹⁾ | 0.60 | - | V |
| | I _F = 7.5 A | | | 0.67 | - | |
| | I _F = 15 A | | | 0.87 | 0.98 | |
| | I _F = 5 A | T _A = 125 °C | | 0.52 | - | |
| | I _F = 7.5 A | | | 0.57 | - | |
| | I _F = 15 A | | | 0.68 | 0.76 | |
| Reverse current per diode | V _R = 90 V | T _A = 25 °C | I _R ⁽²⁾ | 3.5 | - | μA |
| | | T _A = 125 °C | | 2 | - | mA |
| | V _R = 120 V | T _A = 25 °C | | - | 800 | μA |
| | | T _A = 125 °C | | 5 | 27 | mA |

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

| PARAMETER | SYMBOL | V30M120C | VI30M120C | UNIT |
|---|---------------------------------|------------------|-----------|------|
| Typical thermal resistance ⁽¹⁾ | per diode | 2.2 | | °C/W |
| | per device | 1.3 | | |
| | per device | R _{θJC} | 45 | |
| | R _{θJA} ⁽²⁾ | | | |

Notes

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient dP_D/dT_J < 1/R_{θJA}
- (2) Free air, without heatsink

ORDERING INFORMATION (Example)

| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|----------|-----------------|-----------------|--------------|---------------|---------------|
| TO-220AB | V30M120C-M3/4W | 1.89 | 4W | 50/tube | Tube |
| TO-262AA | VI30M120C-M3/4W | 1.45 | 4W | 50/tube | Tube |



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

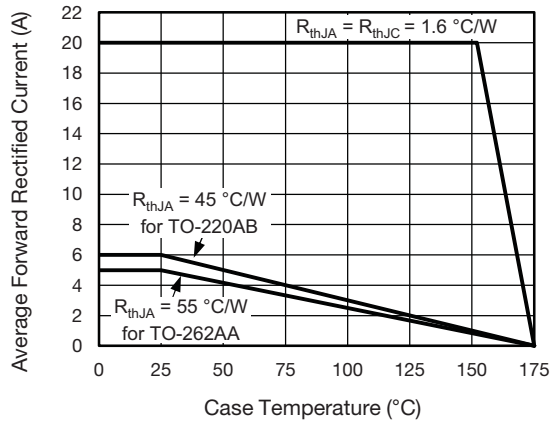


Fig. 1 - Maximum Forward Current Derating Curve

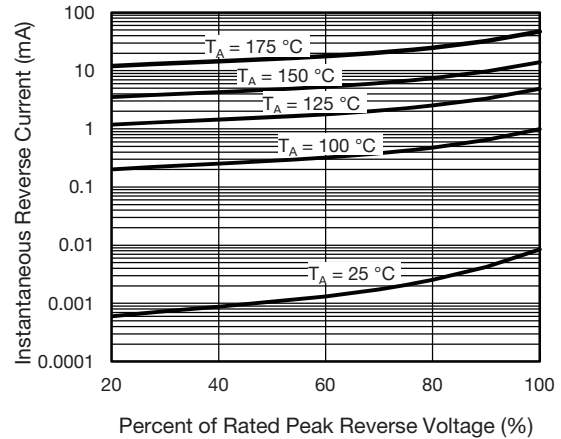


Fig. 4 - Typical Reverse Characteristics Per Diode

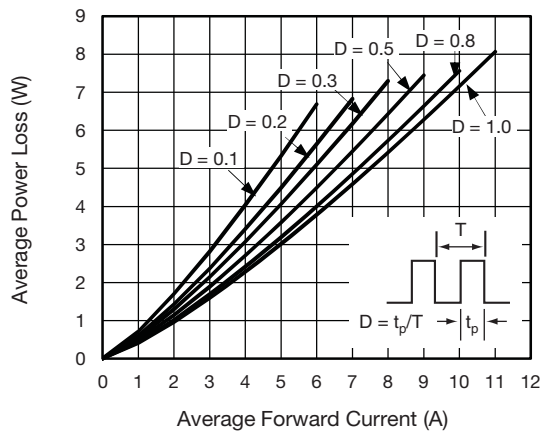


Fig. 2 - Forward Power Loss Characteristics Per Diode

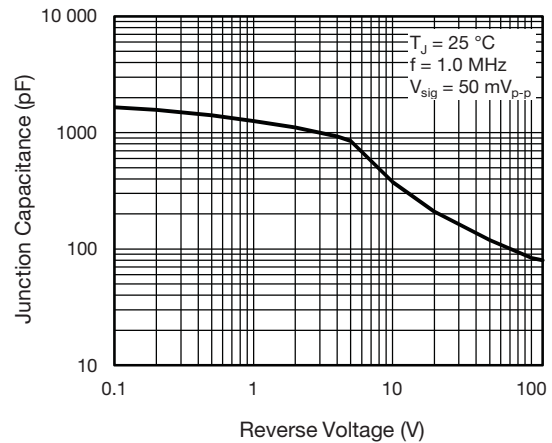


Fig. 5 - Typical Junction Capacitance Per Diode

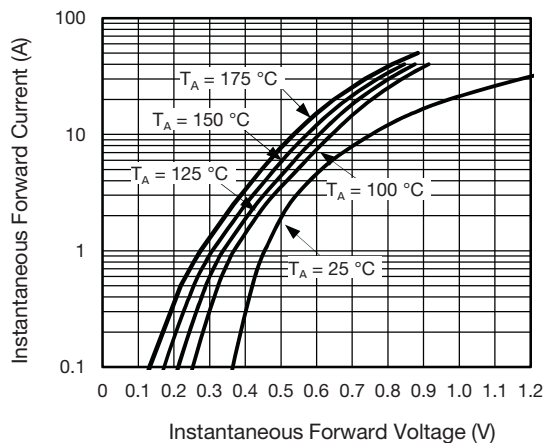


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

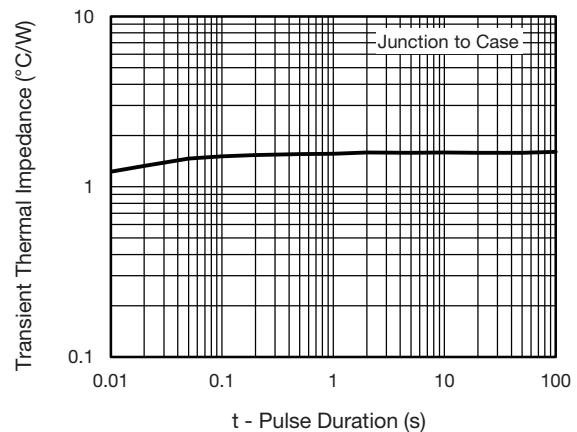
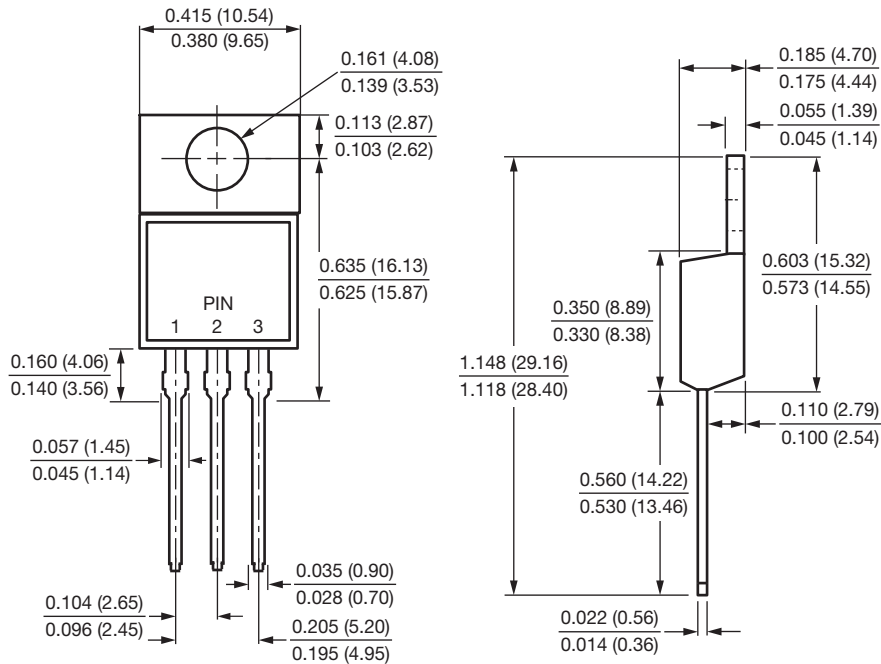


Fig. 6 - Typical Transient Thermal Impedance Per Diode

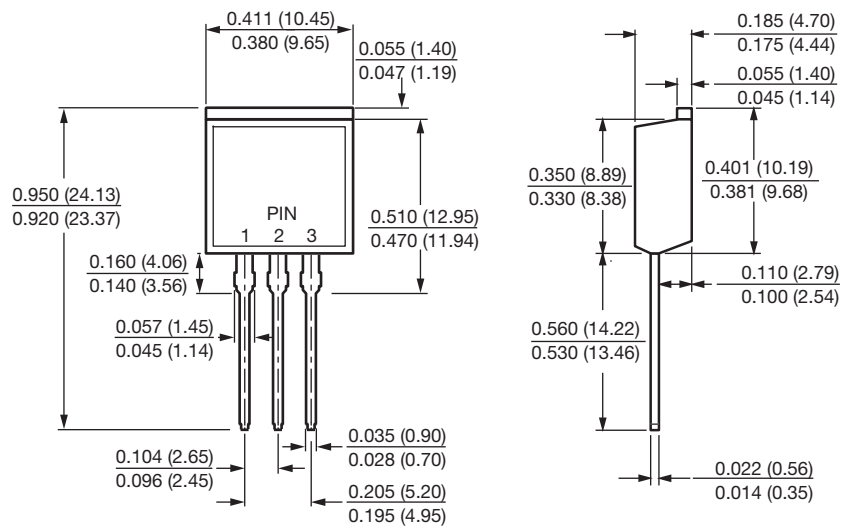


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



TO-262AA





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