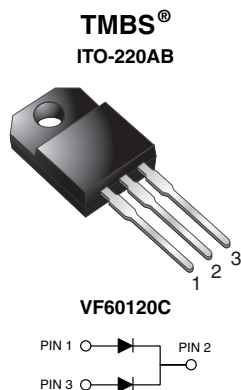


Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.41\text{ V}$ at $I_F = 5\text{ A}$



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- 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 converters, switching power supplies, freewheeling diodes, OR-ing diode, DC/DC converters and reverse battery protection.

PRIMARY CHARACTERISTICS

| | |
|------------------------------|----------------|
| $I_{F(AV)}$ | 2 x 30 A |
| V_{RRM} | 120 V |
| I_{FSM} | 300 A |
| V_F at $I_F = 30\text{ A}$ | 0.71 V |
| T_J max. | 150 °C |
| Package | ITO-220AB |
| Circuit configuration | Common cathode |

MECHANICAL DATA

Case: ITO-220AB

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

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)

| PARAMETER | SYMBOL | VF60120C | UNIT |
|--|----------------|-------------|------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 120 | V |
| Maximum average forward rectified current (fig. 1) | $I_{F(AV)}$ | 60 | A |
| | | 30 | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 300 | A |
| Isolation voltage from terminal to heatsink $t = 1\text{ min}$ | V_{AC} | 1500 | V |
| 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 |

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ 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⁾ | 0.48 | - | V |
| | I _F = 15 A | | | 0.66 | - | |
| | I _F = 30 A | | | 0.88 | 0.95 | |
| | I _F = 5 A | T _A = 125 °C | | 0.41 | - | |
| | I _F = 15 A | | | 0.58 | - | |
| | I _F = 30 A | | | 0.71 | 0.75 | |
| Reverse current at rated V _R per diode | V _R = 90 V | T _A = 25 °C | I _R ⁽²⁾ | 14 | - | μA |
| | | T _A = 125 °C | | 11 | - | mA |
| | V _R = 120 V | T _A = 25 °C | | 40 | 500 | μA |
| | | T _A = 125 °C | | 15 | 45 | mA |

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 noted)

| PARAMETER | | SYMBOL | VF60120C | UNIT |
|----------------------------|------------|-----------------|----------|----------------------|
| Typical thermal resistance | per diode | $R_{\theta JC}$ | 5.0 | $^{\circ}\text{C/W}$ |
| | per device | | 3.8 | |

ORDERING INFORMATION (Example)

| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-----------|----------------|-----------------|--------------|---------------|---------------|
| ITO-220AB | VF60120C-M3/4W | 1.76 | 4W | 50/tube | Tube |

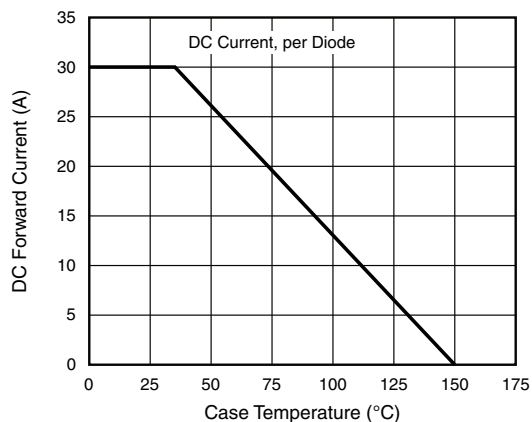
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

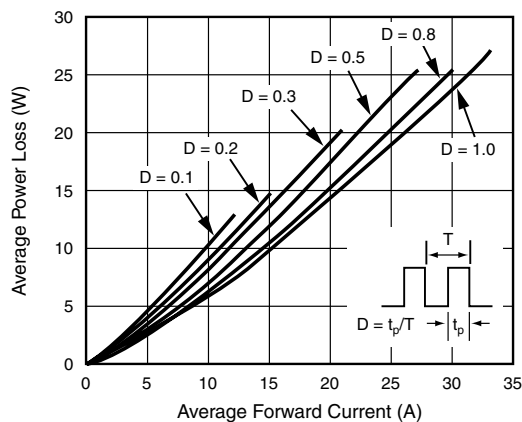


Fig. 2 - Forward Power Loss Characteristics Per Diode

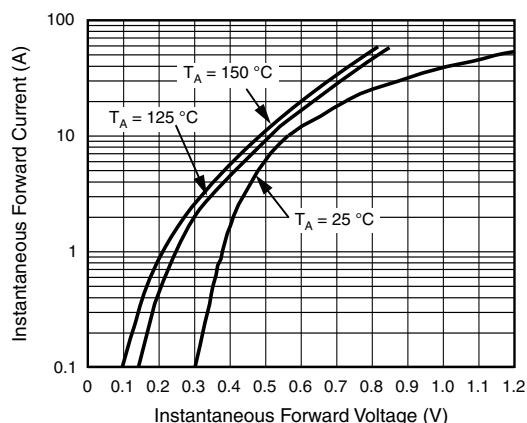


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

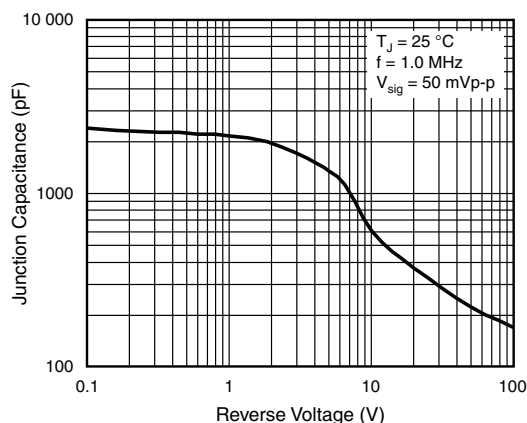


Fig. 5 - Typical Junction Capacitance Per Diode

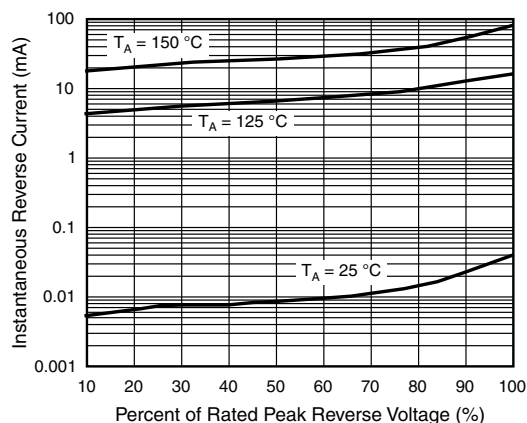
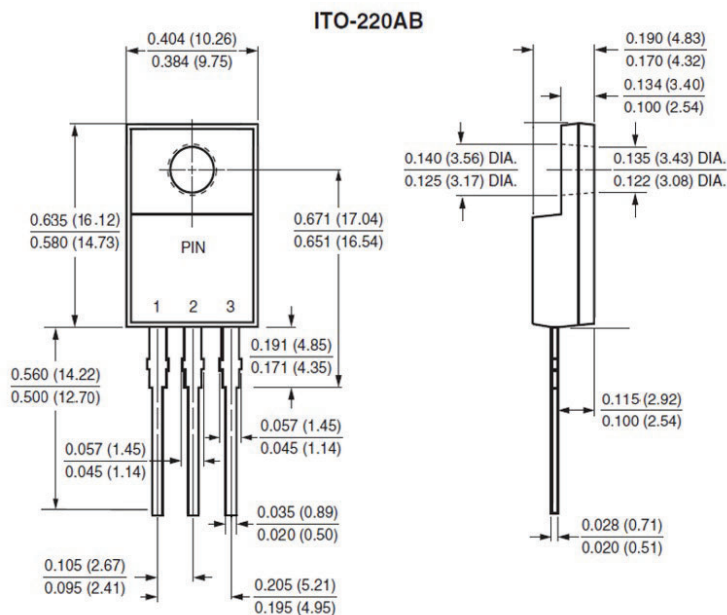


Fig. 4 - Typical Reverse Characteristics Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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