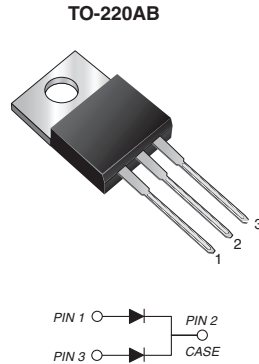


Dual Common Cathode Schottky Rectifier


RoHS
COMPLIANT

FEATURES

- Power pack
- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-220AB

Epoxy meets UL 94V-0 flammability rating

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

E3 suffix for consumer grade, 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} | 45 V |
| E_{AS} | 20 mJ |
| I_{FSM} | 280 A |
| V_F at $I_F = 15 A$ | 0.46 V |
| T_J max. | 150 °C |
| Package | TO-220AB |
| Circuit configuration | Common cathode |

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | |
|--|----------------|--------------|------|
| PARAMETER | SYMBOL | M30L45C | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 45 | V |
| Maximum average forward rectified current (fig.1) | $I_{F(AV)}$ | total device | 30 |
| | | per diode | 15 |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 280 | A |
| Peak repetitive reverse current per diode at $t_p = 2\ \mu s$, 1 kHz | I_{RRM} | 1.0 | A |
| Non-repetitive avalanche energy at 25 °C, $I_{AS} = 2 A$, per diode | E_{AS} | 20 | mJ |
| Operating junction and storage temperature range | T_J, T_{STG} | -65 to +150 | °C |

| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | |
|--|--------|-----------------------------------|-----------------------------------|------|------|---------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | TYP. | MAX. | UNIT | |
| Instantaneous forward voltage per diode ⁽¹⁾ | V_F | $T_A = 25\text{ }^\circ\text{C}$ | $I_F = 8\text{ A}$ | 0.45 | - | V |
| | | | $I_F = 15\text{ A}$ | 0.52 | 0.60 | |
| | | | $I_F = 30\text{ A}$ | 0.67 | - | |
| | | $T_A = 125\text{ }^\circ\text{C}$ | $I_F = 8\text{ A}$ | 0.36 | - | |
| | | | $I_F = 15\text{ A}$ | 0.46 | 0.50 | |
| | | | $I_F = 30\text{ A}$ | 0.63 | - | |
| Reverse current per diode ⁽²⁾ | I_R | $V_R = 45\text{ V}$ | $T_A = 25\text{ }^\circ\text{C}$ | 210 | 1000 | μA |
| | | | $T_A = 125\text{ }^\circ\text{C}$ | 60 | 120 | mA |
| Typical junction capacitance per diode | C_J | 4.0 V, 1 MHz | 750 | - | pF | |

Note
⁽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 | M30L45C | UNIT |
| Typical thermal resistance per diode | $R_{\theta JC}$ | 2.0 | $^\circ\text{C/W}$ |

| ORDERING INFORMATION (Example) | | | | |
|---------------------------------------|-----------------|------------------------|---------------|---------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| M30L45C-E3/4W | 2.07 | 4W | 50/tube | Tube |

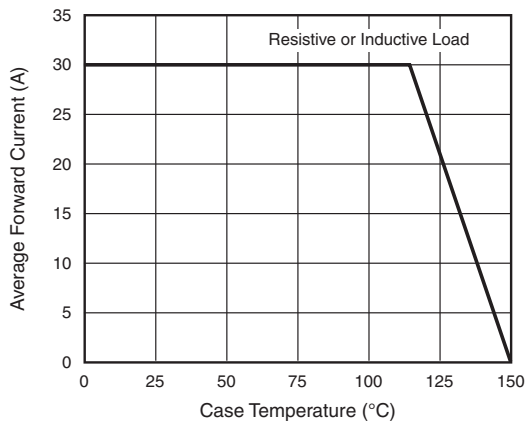
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

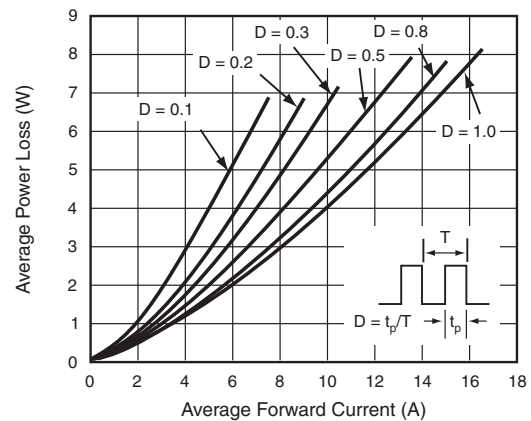


Fig. 2 - Forward Power Loss Characteristics Per Diode

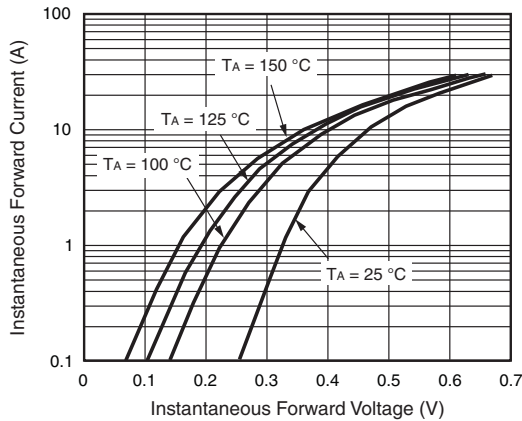


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

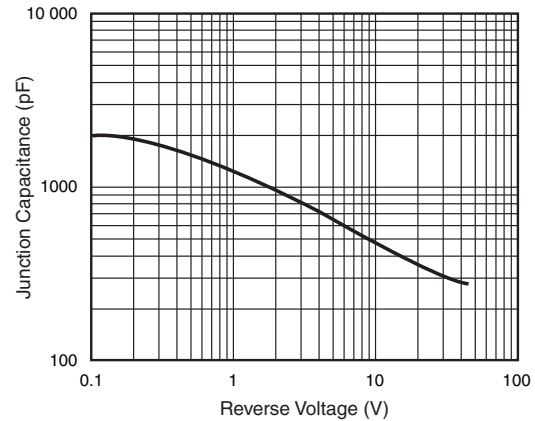


Fig. 5 - Typical Junction Capacitance Per Diode

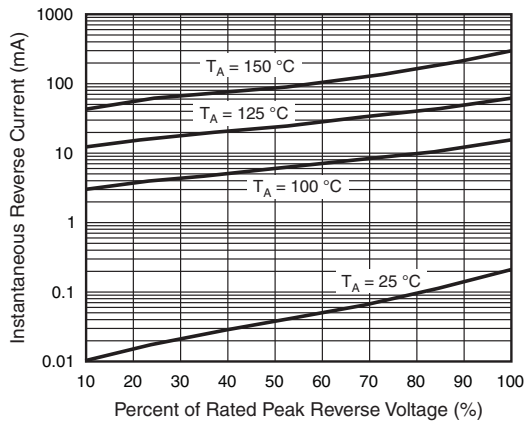


Fig. 4 - Typical Reverse Characteristics Per Diode

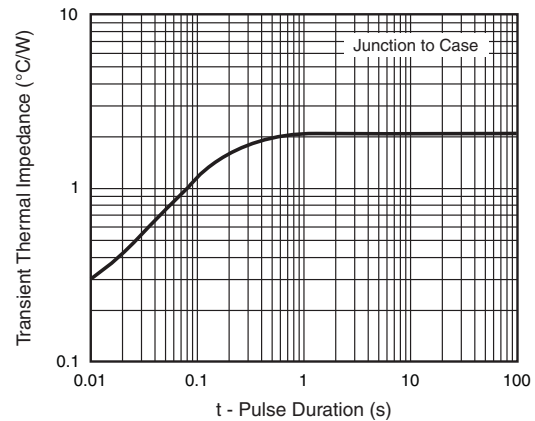
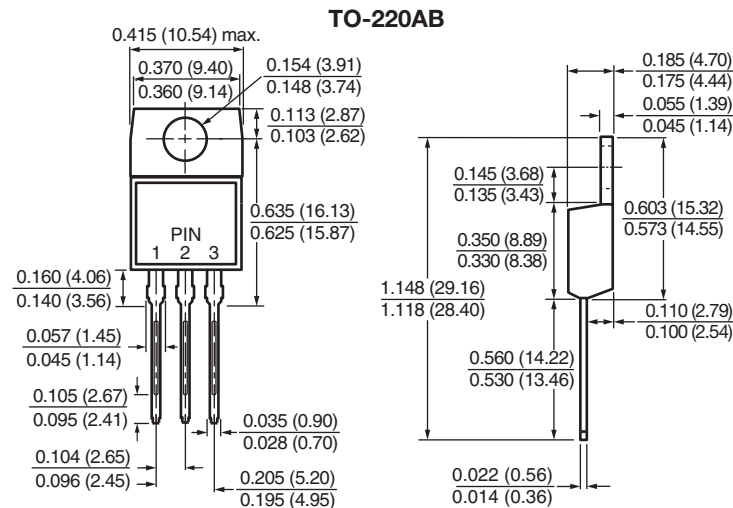


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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