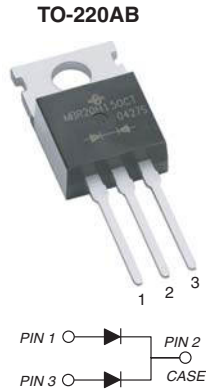


Dual Common Cathode Schottky Rectifier



FEATURES

- Power pack
- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency 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

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-220AB

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: As marked

Mounting Torque: 10 in-lbs maximum

| PRIMARY CHARACTERISTICS | |
|-------------------------|------------------|
| $I_{F(AV)}$ | 2 x 30 A |
| V_{RRM} | 35 V, 45 V, 60 V |
| I_{FSM} | 320 A |
| V_F | 0.51 V, 0.56 V |
| T_J max. | 150 °C |
| Package | TO-220AB |
| Diode variations | Common cathode |

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | |
|--|----------------|--------------|--------|--------|------------------|
| PARAMETER | SYMBOL | M6035C | M6045C | M6060C | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 35 | 45 | 60 | V |
| Maximum average forward rectified current at (fig.1) | $I_{F(AV)}$ | total device | | 60 | A |
| | | per diode | | 30 | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 320 | | | A |
| Peak repetitive reverse current per diode at $t_p = 2\ \mu\text{s}$, 1 kHz per diode | I_{RRM} | 1.0 | | | A |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | | | V/ μs |
| 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 | M6035C | M6045C | M6060C | | UNIT | | |
|---|-------------|---------------------|-----------------------------------|---------------------|--------|------|------|---------------|------|
| | | | TYP. | MAX. | TYP. | MAX. | | | |
| Instantaneous forward voltage per diode | $V_F^{(1)}$ | $I_F = 10\text{ A}$ | $T_J = 25\text{ }^\circ\text{C}$ | 0.42 | - | 0.43 | - | V | |
| | | | | $I_F = 20\text{ A}$ | 0.49 | - | 0.52 | | - |
| | | | | $I_F = 30\text{ A}$ | 0.55 | 0.61 | 0.59 | | 0.65 |
| | | $I_F = 10\text{ A}$ | $T_J = 125\text{ }^\circ\text{C}$ | 0.31 | - | 0.33 | - | | |
| | | | | $I_F = 20\text{ A}$ | 0.42 | - | 0.47 | | - |
| | | | | $I_F = 30\text{ A}$ | 0.51 | 0.56 | 0.56 | | 0.61 |
| Reverse current per diode | $I_R^{(2)}$ | V_R | $T_J = 25\text{ }^\circ\text{C}$ | 140 | 700 | 180 | 700 | μA | |
| | | | $T_J = 125\text{ }^\circ\text{C}$ | 106 | 175 | 140 | 175 | mA | |
| Typical junction capacitance | C_J | 4.0 V, 1 MHz | 1170 | - | 970 | - | pF | | |

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 | M6035C | M6045C | M6060C | 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 |
|---------------|-----------------|------------------------|---------------|---------------|
| M6045C-E3/45 | 2.068 | 45 | 50/tube | Tube |

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

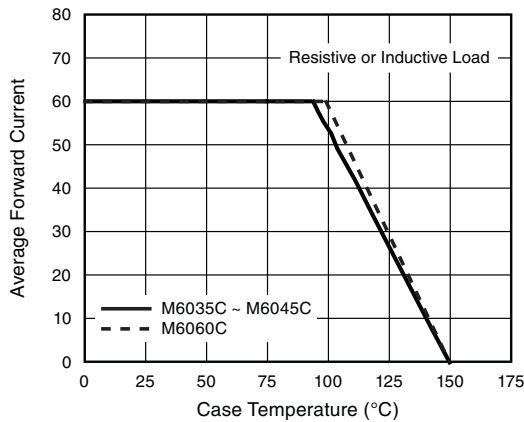


Fig. 1 - Maximum Forward Current Derating Curve

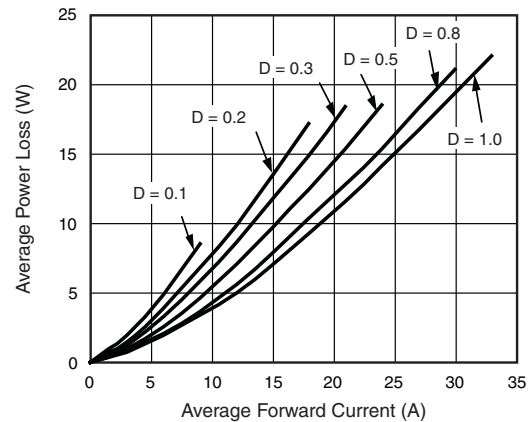


Fig. 2 - Forward Power Loss Characteristics Per Diode

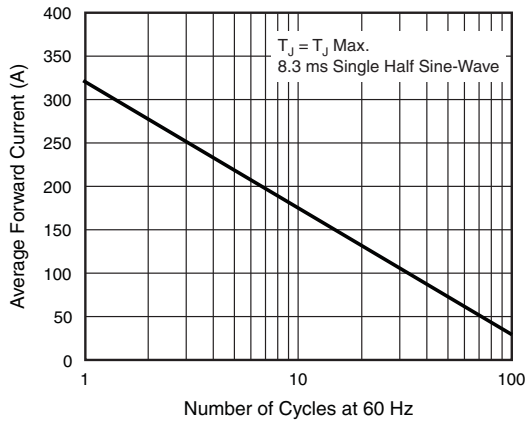


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

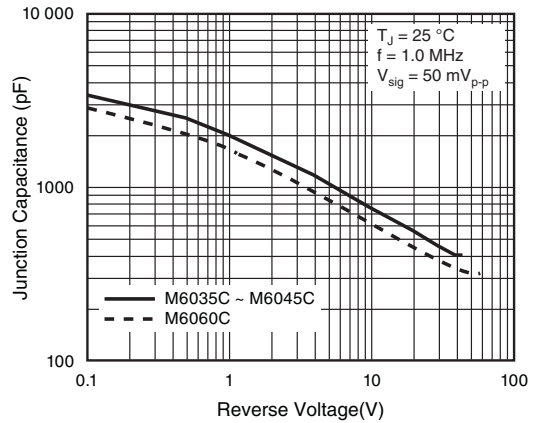


Fig. 6 - Typical Junction Capacitance Per Diode

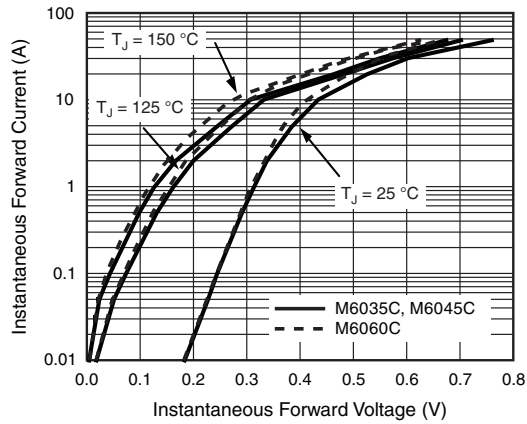


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

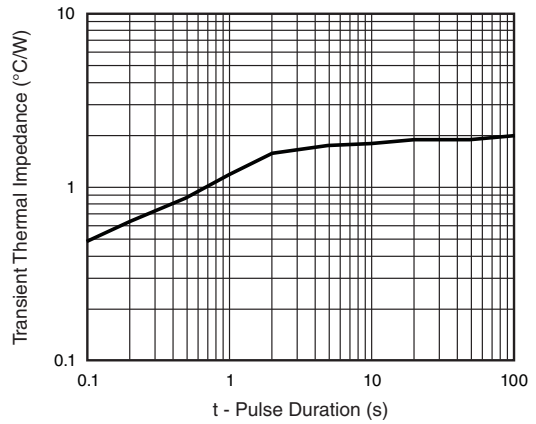


Fig. 7 - Typical Transient Thermal Impedance Per Diode

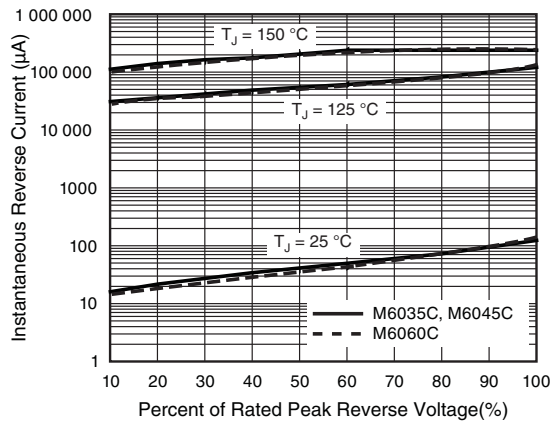
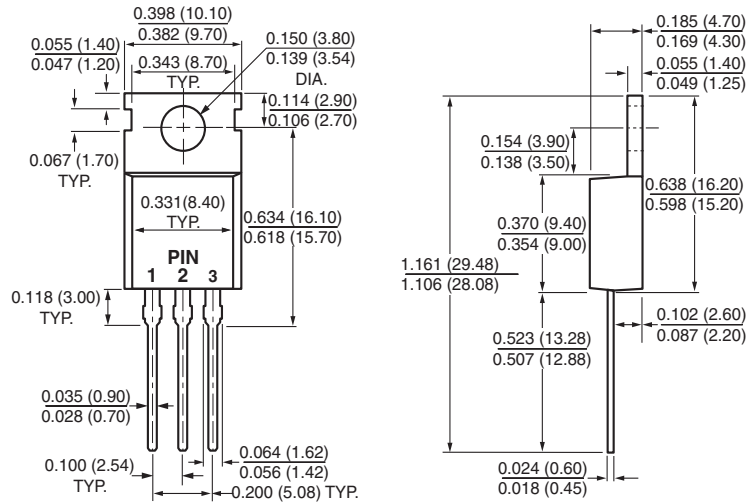


Fig. 5 - Typical Reverse Characteristics Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB





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