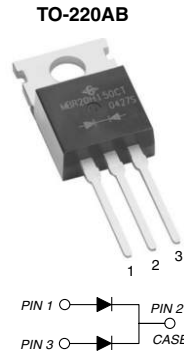


Dual Common-Cathode Schottky Rectifier



FEATURES

- Guarding for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, oring diodes, dc-to-dc converters or polarity protection applications.

PRIMARY CHARACTERISTICS

| | |
|--------------------|----------------|
| $I_{F(AV)}$ | 30 A x 2 |
| V_{RRM} | 35 V to 60 V |
| I_{FSM} | 320 A |
| V_F | 0.51 V, 0.56 V |
| $T_J \text{ max.}$ | 150 °C |

MECHANICAL DATA

Case: TO-220AB

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, 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 | M6035C | M6045C | M6060C | UNIT |
|--|----------------|---------------|--------|--------|------------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 35 | 45 | 60 | V |
| Maximum average forward rectified current (Fig. 1) total device per diode | $I_{F(AV)}$ | 60 30 | | | A |
| 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 at $t_p = 2.0\ \mu\text{s}$, 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 ($T_A = 25\text{ °C}$ unless otherwise noted)

| PARAMETER | TEST CONDITION | SYMBOL | M6035C | M6045C | M6060C | | UNIT | |
|---|---|---|--------|------------|------------|------------|------------|---------------------|
| | | | TYP. | MAX. | TYP. | MAX. | | |
| Instantaneous forward voltage per diode (1) | $I_F = 10\text{ A}$ $I_F = 20\text{ A}$ $I_F = 30\text{ A}$ | $T_J = 25\text{ °C}$ | 0.42 | - | 0.43 | - | V | |
| | | | 0.49 | - | 0.52 | - | | |
| | | | 0.55 | 0.61 | 0.59 | 0.65 | | |
| | $I_F = 10\text{ A}$ $I_F = 20\text{ A}$ $I_F = 30\text{ A}$ | $T_J = 125\text{ °C}$ | 0.31 | - | 0.33 | - | | |
| | | | 0.42 | - | 0.47 | - | | |
| | | | 0.51 | 0.56 | 0.56 | 0.61 | | |
| Reverse current per diode (2) | V_R | $T_J = 25\text{ °C}$ $T_J = 125\text{ °C}$ | I_R | 140 106 | 700 175 | 180 140 | 700 175 | μA mA |
| Typical junction capacitance | 4.0 V, 1 MHz | C_J | 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)

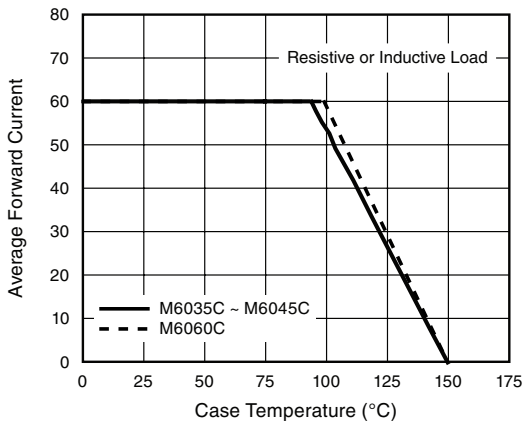


Figure 1. Maximum Forward Current Derating Curve

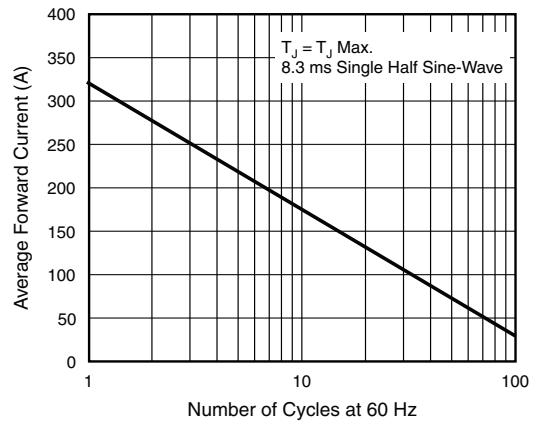


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

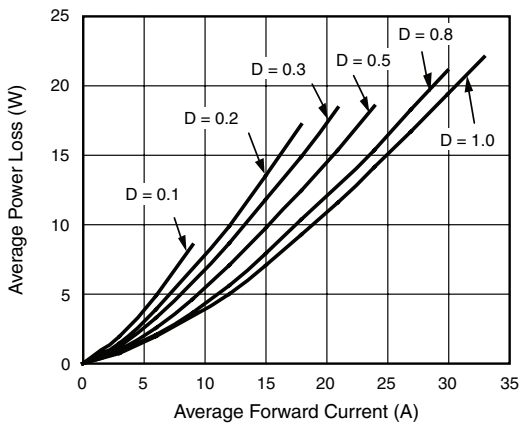


Figure 2. Forward Power Loss Characteristics Per Diode

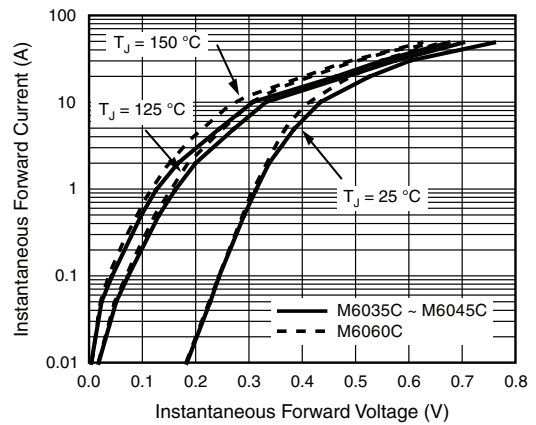


Figure 4. Typical Instantaneous Forward Characteristics Per Diode

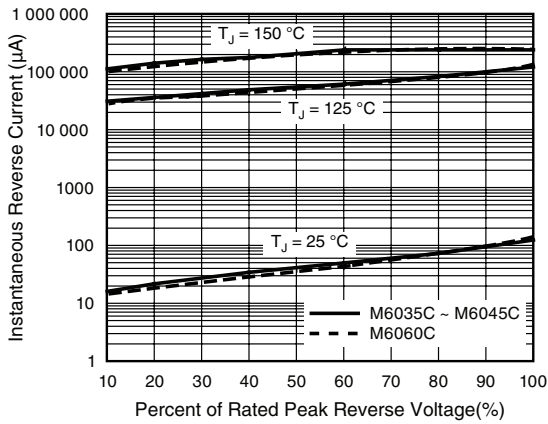


Figure 5. Typical Reverse Characteristics Per Diode

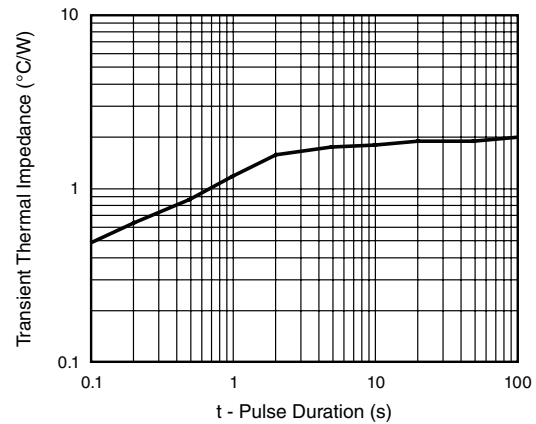


Figure 7. Typical Transient Thermal Impedance Per Diode

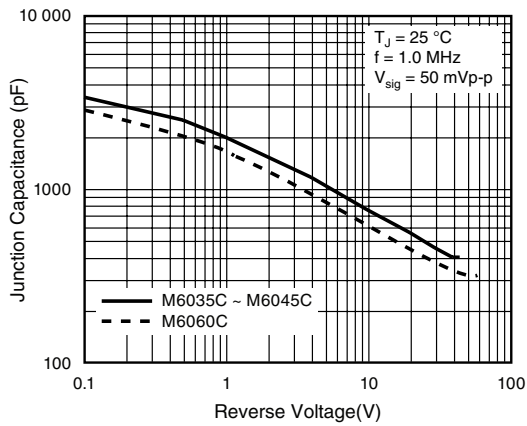
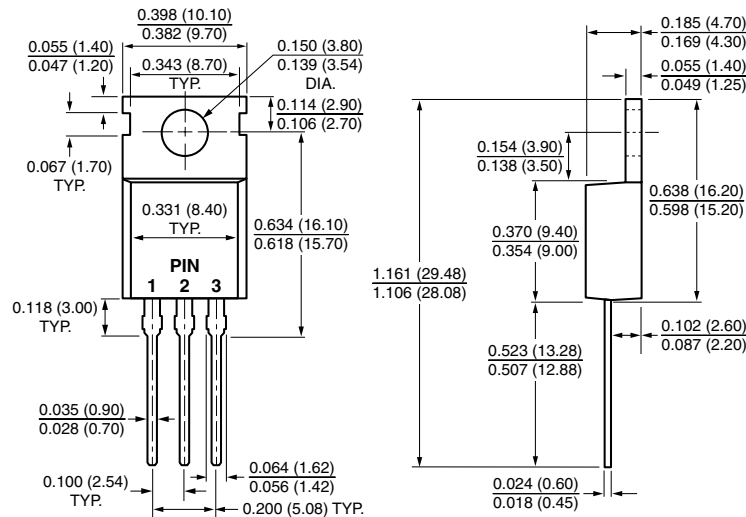


Figure 6. Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB





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All product specifications and data are subject to change without notice.

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