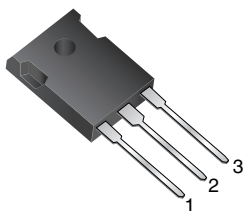


Dual Common Cathode Schottky Rectifier


TO-3P (TO-247AD)


FEATURES

- Power pack
- Guardring for overvoltage protection
- Low 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



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-3P (TO-247AD)

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} | 350 A |
| V_F at $I_F = 30$ A | 0.50 V, 0.56 V |
| T_J max. | 150 °C |
| Package | TO-3P (TO-247AD) |
| Circuit configurations | Common cathode |

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

| PARAMETER | SYMBOL | M6035P | M6045P | M6060P | UNIT |
|--|-----------------------------------|-------------|--------|--------|------|
| Maximum repetitive peak reverse voltage | V _{RRM} | 35 | 45 | 60 | V |
| Maximum average forward rectified current at (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} | 350 | | | A |
| Peak repetitive reverse current at t _p = 2 μs, 1 kHz per diode | I _{RRM} | 2.0 | | | 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 | | M6035P | M6045P | M6060P | | UNIT |
|---|-------------------------------|-----------------------|-------------------------|--------|--------|--------|------|------|
| | | | | TYP. | MAX. | TYP. | MAX. | |
| Instantaneous forward voltage per diode | V _F ⁽¹⁾ | I _F = 10 A | T _J = 25 °C | 0.42 | - | 0.43 | - | V |
| | | I _F = 20 A | | 0.49 | - | 0.52 | - | |
| | | I _F = 30 A | | 0.54 | 0.60 | 0.59 | 0.64 | |
| | | I _F = 10 A | T _J = 125 °C | 0.31 | - | 0.33 | - | |
| | | I _F = 20 A | | 0.42 | - | 0.47 | - | |
| | | I _F = 30 A | | 0.50 | 0.55 | 0.56 | 0.60 | |
| Reverse current per diode | I _R ⁽²⁾ | V _R | T _J = 25 °C | 135 | 600 | 240 | 600 | μA |
| | | | T _J = 125 °C | 110 | 160 | 140 | 160 | mA |
| Typical junction capacitance | C _J | 4.0 V, 1 MHz | | 1150 | - | 1090 | - | 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 | M6035P | M6045P | M6060P | 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 |
|---------------|-----------------|------------------------|---------------|---------------|
| M6045P-E3/45 | 6.14 | 45 | 30/tube | Tube |
| M6060P-E3/45 | 6.14 | 45 | 30/tube | Tube |

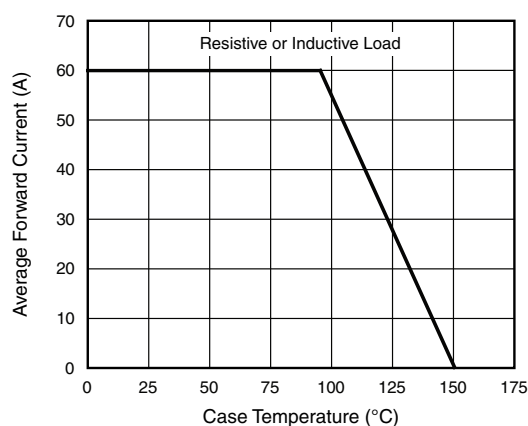
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

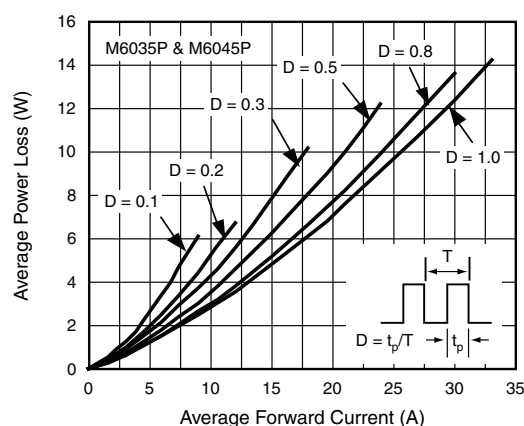


Fig. 2 - Forward Power Loss Characteristics Per Diode

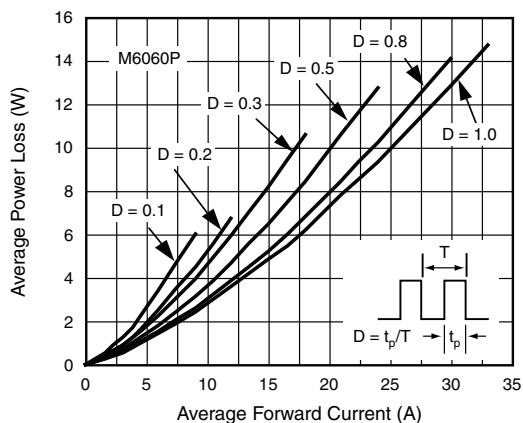


Fig. 3 - Forward Power Loss Characteristics Per Diode

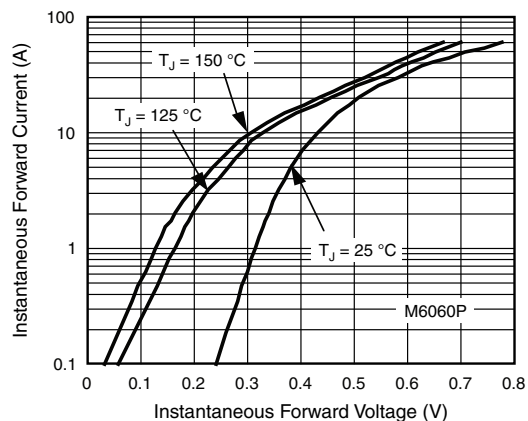


Fig. 6 - Typical Instantaneous Forward Characteristics Per Diode

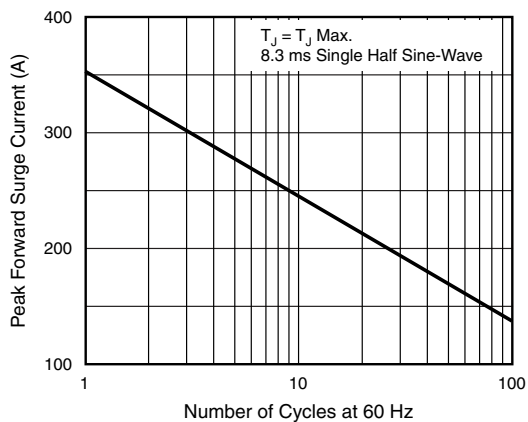


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

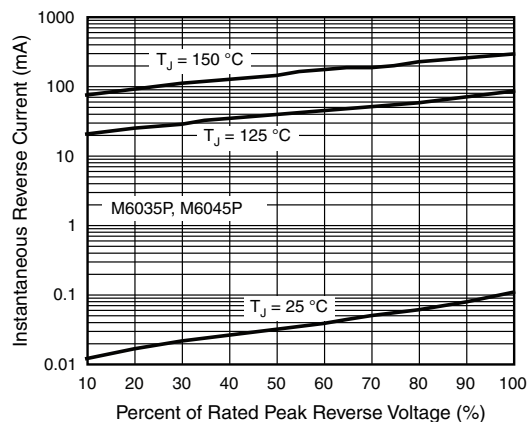


Fig. 7 - Typical Reverse Characteristics Per Diode

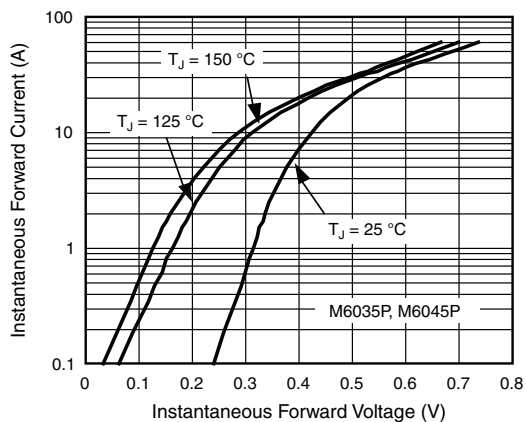


Fig. 5 - Typical Instantaneous Forward Characteristics Per Diode

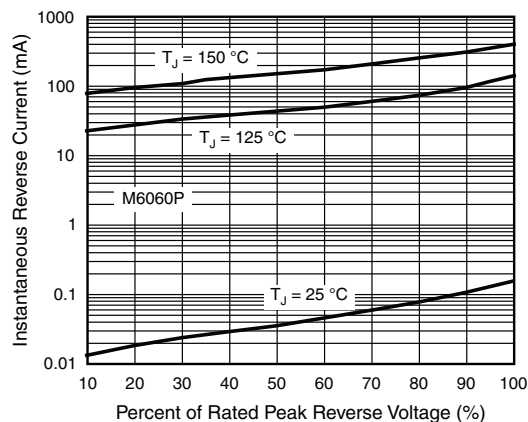


Fig. 8 - Typical Reverse Characteristics Per Diode

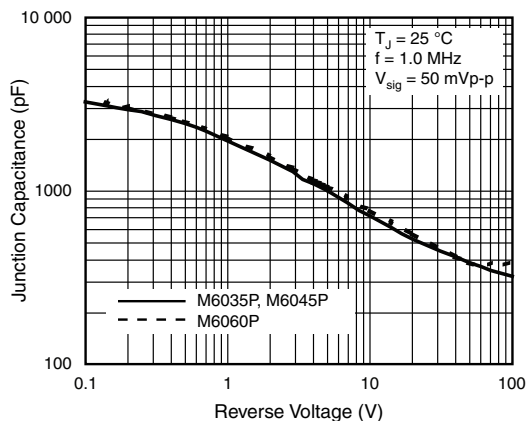


Fig. 9 - Typical Junction Capacitance Per Diode

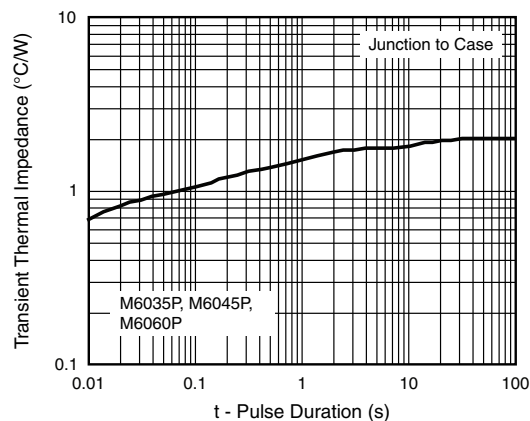
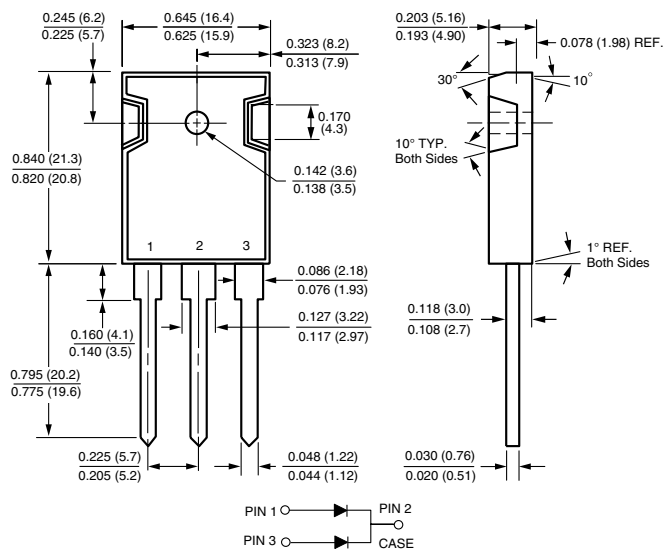


Fig. 10 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-3P (TO-247AD)




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