# Schottky Barrier Rectifier

## FEATURES

- Low power loss, high efficiency
- Guardring for overvoltage protection
- High surge current capability
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition


**TO-220AC**


Pb-Free

RoHS COMPLIANT

## MECHANICAL DATA

**Case:** TO-220AC

Molding compound, UL flammability classification rating 94V-0

Base P/N with suffix "G" on packing code - halogen-free

Base P/N with prefix "H" on packing code - AEC-Q101 qualified

**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 1A whisker test,

with prefix "H" on packing code meet JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting torque:** 5 in-lbs maximum

**Weight:** 1.88 g (approximately)

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ($T_A$=25℃ unless otherwise noted)

| PARAMETER | SYMBOL | MBR 1035 | MBR 1045 | MBR 1050 | MBR 1060 | MBR 1090 | MBR 10100 | MBR 10150 | MBR 10200 | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 35 | 45 | 50 | 60 | 90 | 100 | 150 | 200 | V |
| Maximum RMS voltage | $V_{RMS}$ | 24 | 31 | 35 | 42 | 63 | 70 | 105 | 140 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 35 | 45 | 50 | 60 | 90 | 100 | 150 | 200 | V |
| Maximum average forward rectified current | $I_{F(AV)}$ | 10 | | | | | | | | A |
| Peak repetitive forward current (Rated VR, Square Wave, 20KHz) | $I_{FRM}$ | 20 | | | | | | | | A |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 150 | | | | | | | | A |
| Peak repetitive reverse surge current (Note 1) | $I_{RRM}$ | 1.0 | | 0.5 | | | | | | A |
| Maximum instantaneous forward voltage (Note 2)<br>$I_F$=10A, $T_J$=25℃<br>$I_F$=10A, $T_J$=125℃ | $V_F$ | 0.70<br>0.57 | | 0.80<br>0.70 | | 0.85<br>0.71 | | 1.05<br>- | | V |
| Maximum reverse current @ rated VR $T_J$=25 ℃ | $I_R$ | 0.1 | | | | | | | | mA |
| $T_J$=125 ℃ | | 15 | | 10 | | 6 | | | | |
| Voltage rate of change (Rated $V_R$) | dV/dt | 10000 | | | | | | | | V/μs |
| Typical thermal resistance | $R_{\theta JC}$ | 3 | | | | | | | | $^{O}$C/W |
| Operating junction temperature range | $T_J$ | - 55 to +150 | | | | | | | | $^{O}$C |
| Storage temperature range | $T_{STG}$ | - 55 to +175 | | | | | | | | $^{O}$C |

Note 1: tp = 2.0 μs, 1.0KHz

Note 2: Pulse test with PW=300μs, 1% duty cycle

| ORDERING INFORMATION | | | | | |
|---|---|---|---|---|---|
| PART NO. | AEC-Q101 QUALIFIED | PACKING CODE | GREEN COMPOUND CODE | PACKAGE | PACKING |
| MBR10xx (Note 1) | Prefix "H" | C0 | Suffix "G" | TO-220AC | 50 / Tube |

Note 1: "xx" defines voltage from 35V (MBR1035) to 200V (MBR10200)

| EXAMPLE | | | | | |
|---|---|---|---|---|---|
| PREFERRED P/N | PART NO. | AEC-Q101 QUALIFIED | PACKING CODE | GREEN COMPOUND CODE | DESCRIPTION |
| MBR1060 C0 | MBR1060 | | C0 | | |
| MBR1060 C0G | MBR1060 | | C0 | G | Green compound |
| MBR1060HC0 | MBR1060 | H | C0 | | AEC-Q101 qualified |

## RATINGS AND CHARACTERISTICS CURVES

(TA=25℃ unless otherwise noted)

FIG.1- FORWARD CURRENT DERATING CURVE

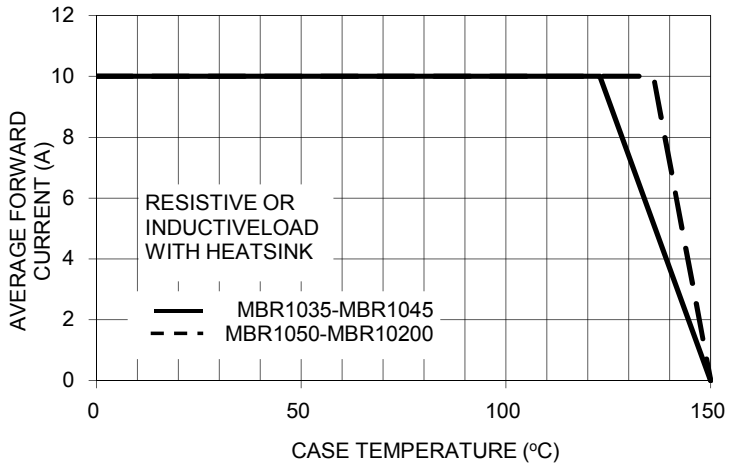



FIG. 2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

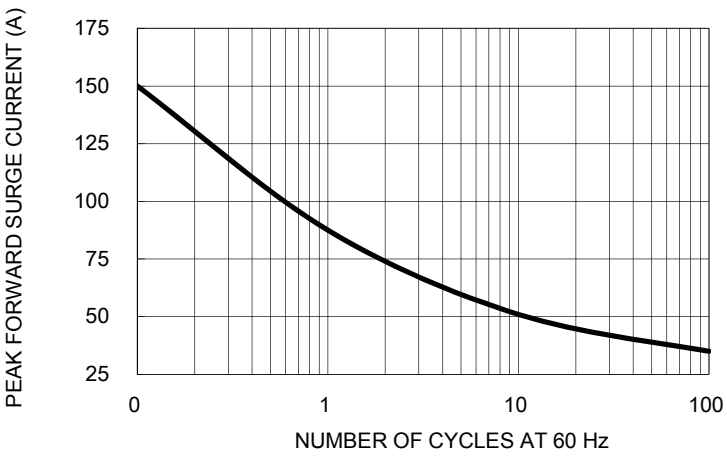



FIG. 3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

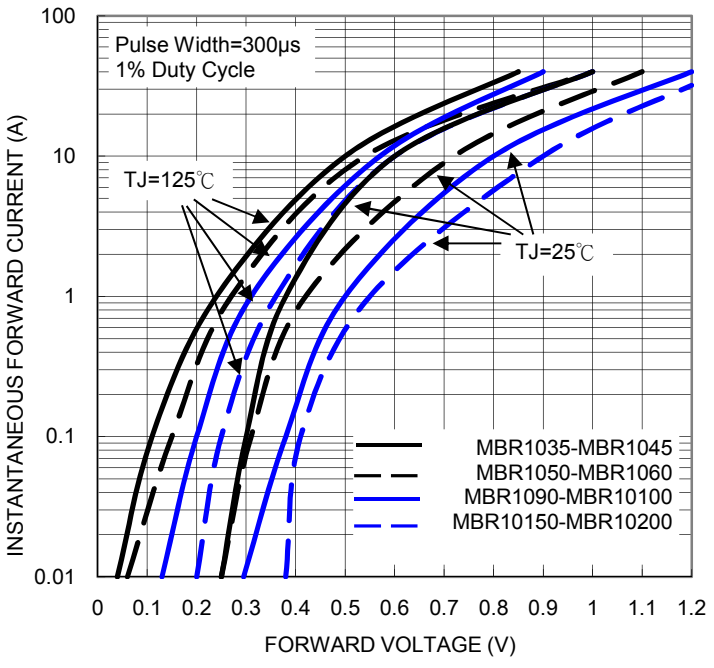



FIG. 4- TYPICAL REVERSE CHARACTERISTICS

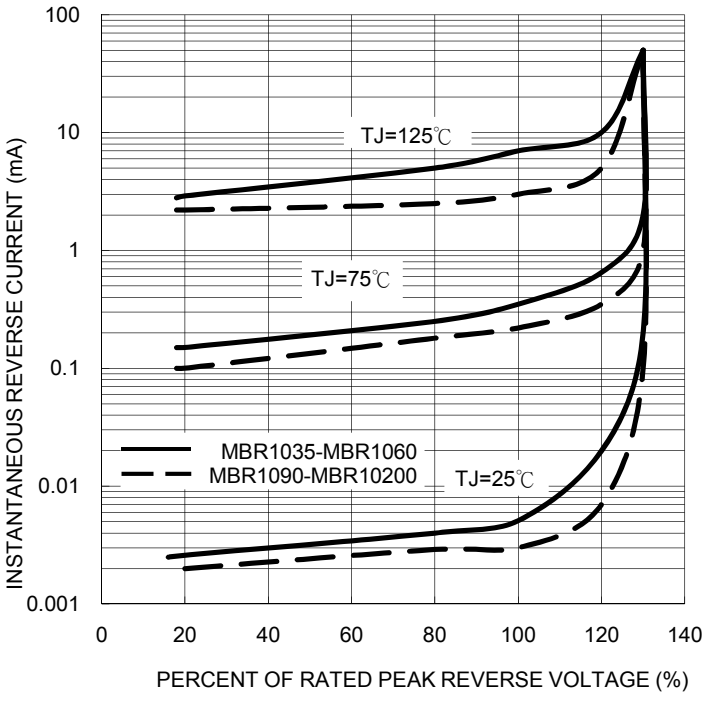


FIG. 5- TYPICAL JUNCTION CAPACITANCE

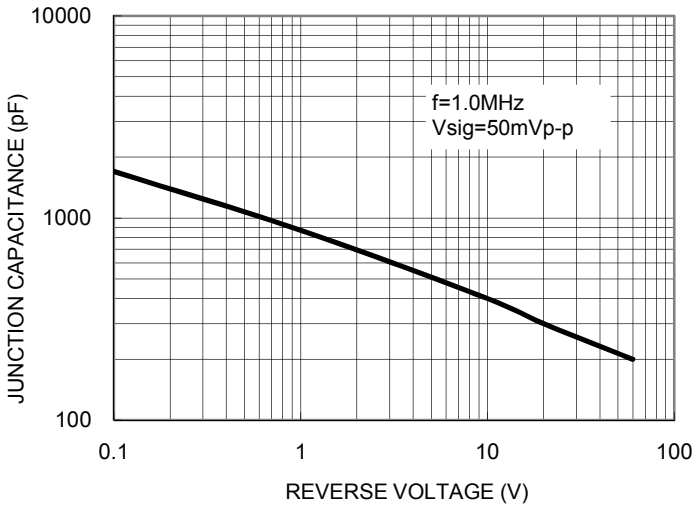
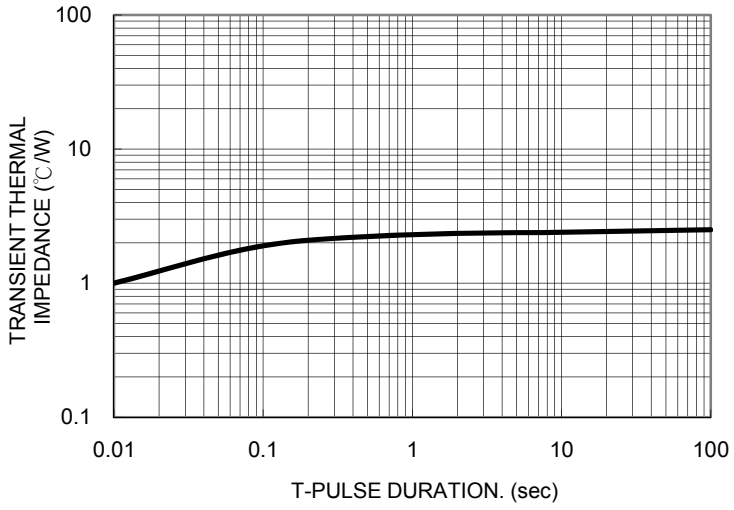
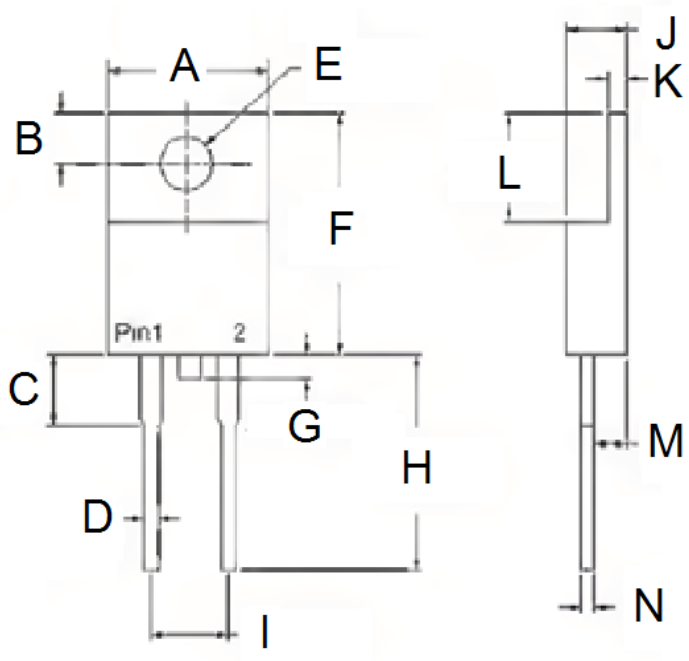



FIG. 6- TYPICAL TRANSIENT THERMAL CHARACTERISTIC




## PACKAGE OUTLINE DIMENSIONS




| DIM. | Unit (mm) | | Unit (inch) | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | - | 10.50 | - | 0.413 |
| B | 2.62 | 3.44 | 0.103 | 0.135 |
| C | 2.80 | 4.20 | 0.110 | 0.165 |
| D | 0.68 | 0.94 | 0.027 | 0.037 |
| E | 3.54 | 4.00 | 0.139 | 0.157 |
| F | 14.60 | 16.00 | 0.575 | 0.630 |
| G | 0.00 | 1.60 | 0.000 | 0.063 |
| H | 13.19 | 14.79 | 0.519 | 0.582 |
| I | 4.95 | 5.20 | 0.195 | 0.205 |
| J | 4.42 | 4.76 | 0.174 | 0.187 |
| K | 1.14 | 1.40 | 0.045 | 0.055 |
| L | 5.84 | 6.86 | 0.230 | 0.270 |
| M | 2.20 | 2.80 | 0.087 | 0.110 |
| N | 0.35 | 0.64 | 0.014 | 0.025 |

## MARKING DIAGRAM


| | |
|---|---|
| P/N | = Marking Code |
| G | = Green Compound |
| YWW | = Date Code |
| F | = Factory Code |

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