

## 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



### 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

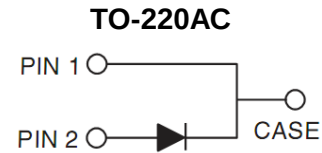
Meet JESD 201 class 1A whisker test,

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

**Polarity:** As marked

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

**Weight:** 1.86 g (approximately)



| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)                                              |                    |              |             |              |             |              |              |              |      |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------|-------------|--------------|-------------|--------------|--------------|--------------|------|
| PARAMETER                                                                                                                                 | SYMBOL             | MBR<br>1635  | MBR<br>1645 | MBR<br>1650  | MBR<br>1660 | MBR<br>1690  | MBR<br>16100 | MBR<br>16150 | UNIT |
| Maximum repetitive peak reverse voltage                                                                                                   | V <sub>RRM</sub>   | 35           | 45          | 50           | 60          | 90           | 100          | 150          | V    |
| Maximum RMS voltage                                                                                                                       | V <sub>RMS</sub>   | 24           | 31          | 35           | 42          | 63           | 70           | 105          | V    |
| Maximum DC blocking voltage                                                                                                               | V <sub>DC</sub>    | 35           | 45          | 50           | 60          | 90           | 100          | 150          | V    |
| Maximum average forward rectified current                                                                                                 | I <sub>F(AV)</sub> | 16           |             |              |             |              |              |              | A    |
| Peak repetitive forward current<br>(Rated VR, Square Wave, 20KHz)                                                                         | I <sub>FRM</sub>   | 32           |             |              |             |              |              |              | A    |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load                                                       | I <sub>FSM</sub>   | 150          |             |              |             |              |              |              | A    |
| Peak repetitive reverse surge current (Note 1)                                                                                            | I <sub>RRM</sub>   | 1.0          |             | 0.5          |             |              |              | A            |      |
| Maximum instantaneous forward voltage (Note 2)<br>I <sub>F</sub> =16A, T <sub>J</sub> =25°C<br>I <sub>F</sub> =16A, T <sub>J</sub> =125°C | V <sub>F</sub>     | 0.63<br>0.57 |             | 0.75<br>0.65 |             | 0.85<br>0.75 |              | 0.95<br>0.92 | V    |
| Maximum reverse current @ rated VR    T <sub>J</sub> =25 °C<br>T <sub>J</sub> =125 °C                                                     | I <sub>R</sub>     | 0.5<br>15    |             | 0.5<br>10    |             | 0.3<br>7.5   |              | 0.1<br>5     | mA   |
| Voltage rate of change (Rated V <sub>R</sub> )                                                                                            | dV/dt              | 10000        |             |              |             |              |              |              | V/μs |
| Typical thermal resistance                                                                                                                | R <sub>θJC</sub>   | 3            |             |              |             |              |              |              | °C/W |
| Operating junction temperature range                                                                                                      | T <sub>J</sub>     | - 55 to +150 |             |              |             |              |              |              | °C   |
| Storage temperature range                                                                                                                 | T <sub>STG</sub>   | - 55 to +150 |             |              |             |              |              |              | °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   |
| MBR16xx<br>(Note 1)  | Prefix "H"         | C0           | Suffix "G"          | TO-220AC | 50 / Tube |

Note 1: "xx" defines voltage from 35V (MBR1635) to 150V (MBR16150)

| EXAMPLE       |          |                    |              |                     |                    |
|---------------|----------|--------------------|--------------|---------------------|--------------------|
| PREFERRED P/N | PART NO. | AEC-Q101 QUALIFIED | PACKING CODE | GREEN COMPOUND CODE | DESCRIPTION        |
| MBR1660 C0    | MBR1660  |                    | C0           |                     |                    |
| MBR1660 C0G   | MBR1660  |                    | C0           | G                   | Green compound     |
| MBR1660HC0    | MBR1660  | H                  | C0           |                     | AEC-Q101 qualified |

## RATINGS AND CHARACTERISTICS CURVES

(TA=25°C unless otherwise noted)

FIG. 1- FORWARD CURRENT DERATING CURVE

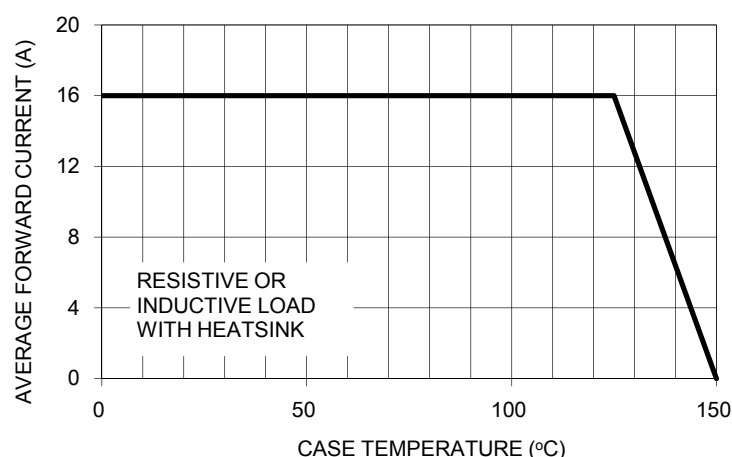


FIG. 2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

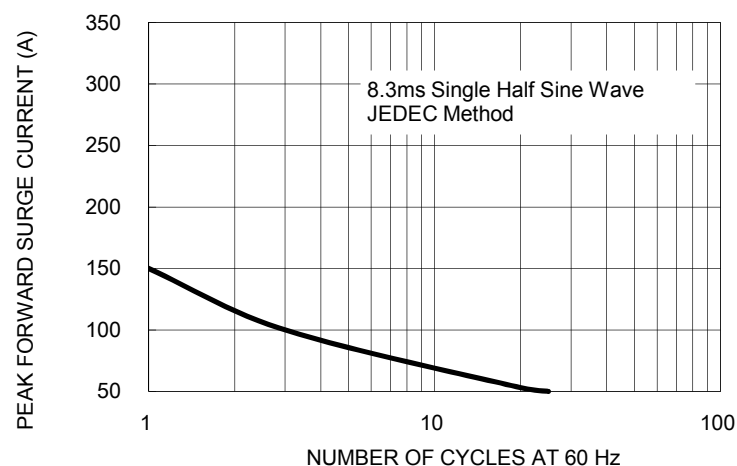


FIG. 3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

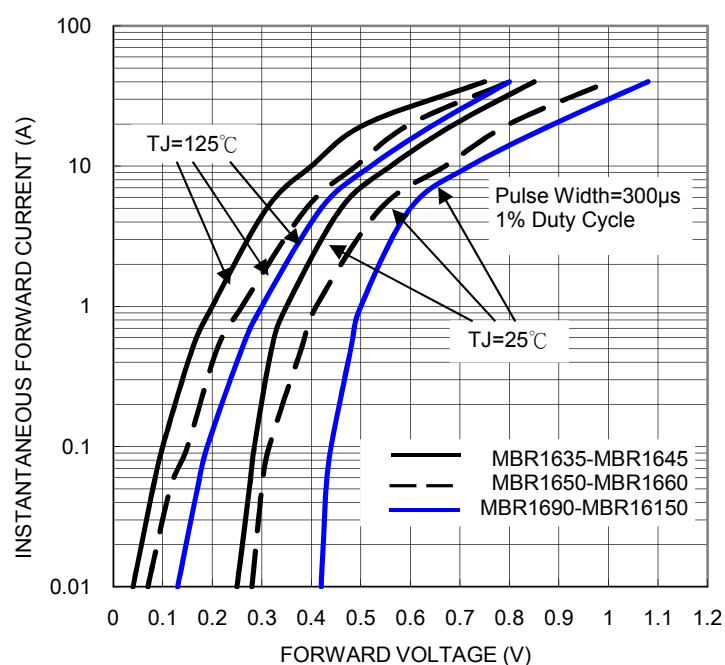


FIG. 4- TYPICAL REVERSE CHARACTERISTICS

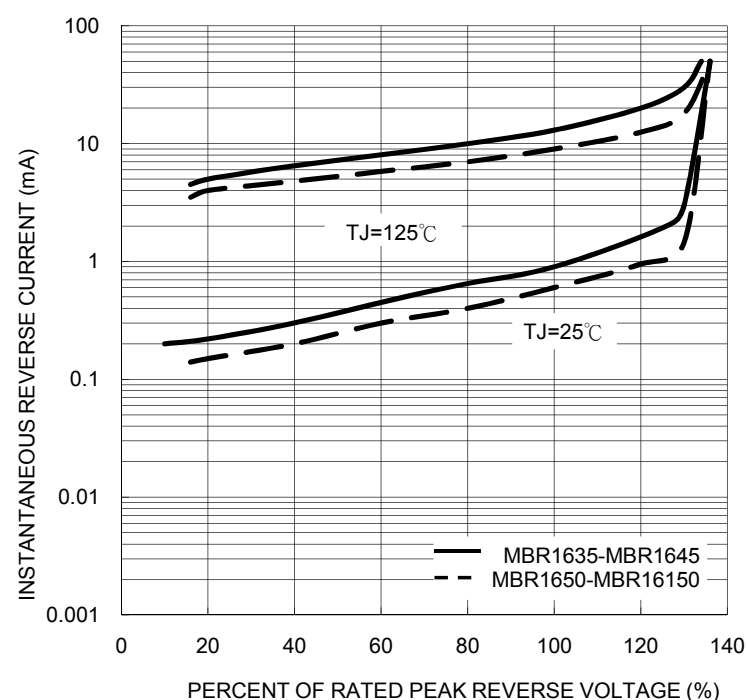


FIG. 5- TYPICAL JUNCTION CAPACITANCE

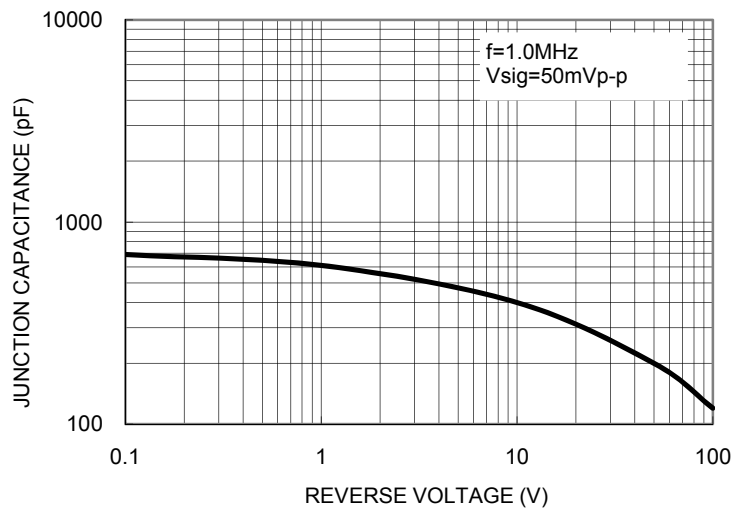
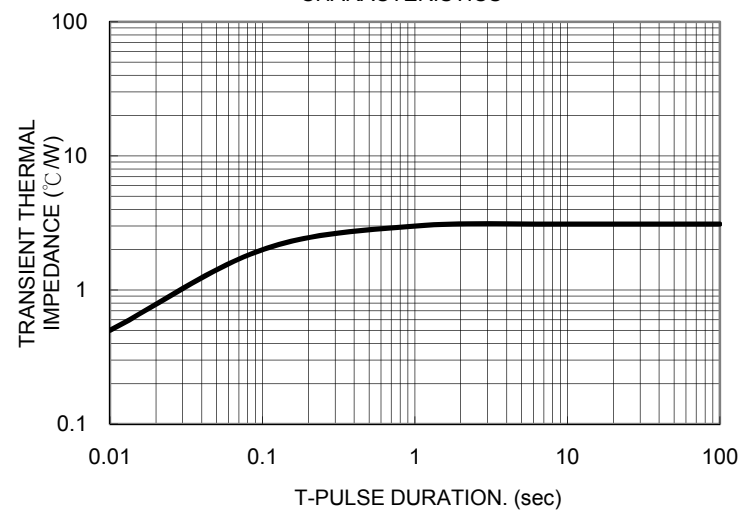
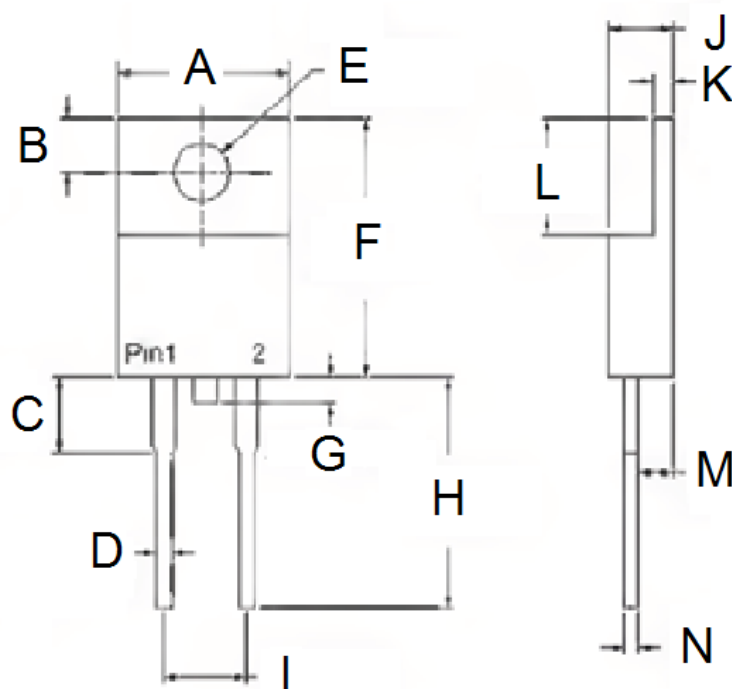


FIG. 6- TYPICAL TRANSIENT THERMAL CHARACTERISTICS



## 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

### Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9