

## HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

**MBR20H100C**

### General Description

High voltage dual Schottky rectifier suited for switch mode power supplies and other power converters. This device is intended for use in medium voltage operation, and particularly, in high frequency circuits where low switching losses and low noise are required.

MBR20H100C is available in TO-220F-3, TO-220-3 and TO-220-3 (2) packages.

### Features

- Low Forward Voltage: 0.64V @ 125°C
- High Surge Capacity
- 175°C Operating Junction Temperature
- 20A Total (10A Each Diode Leg)
- Guard-ring for Stress Protection
- Pb-free Package

### Applications

- Power Supply Output Rectification
- Power Management
- Instrumentation

### Main Product Characteristics

|             |       |
|-------------|-------|
| $I_F$ (AV)  | 2×10A |
| $V_{RRM}$   | 100V  |
| $T_J$       | 175°C |
| $V_F$ (max) | 0.64V |

### Mechanical Characteristics

- Case: Epoxy, Molded
- Epoxy Meets UL 94V-0 @ 0.125in.
- Weight (Approximately):  
2Grams (TO-220-3, TO-220-3 (2) and TO-220F-3)
- Finish: All External Surfaces Corrosion Resistant and Terminal
- Leads are Readily Solderable
- Lead Temperature for Soldering Purposes:  
260°C Maximum for 10 Seconds

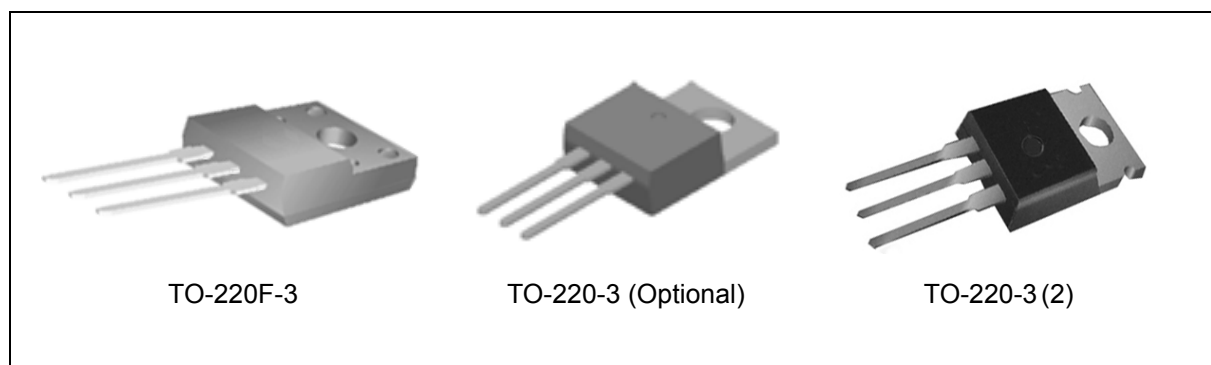


Figure 1. Package Types of MBR20H100C

**Pin Configuration**

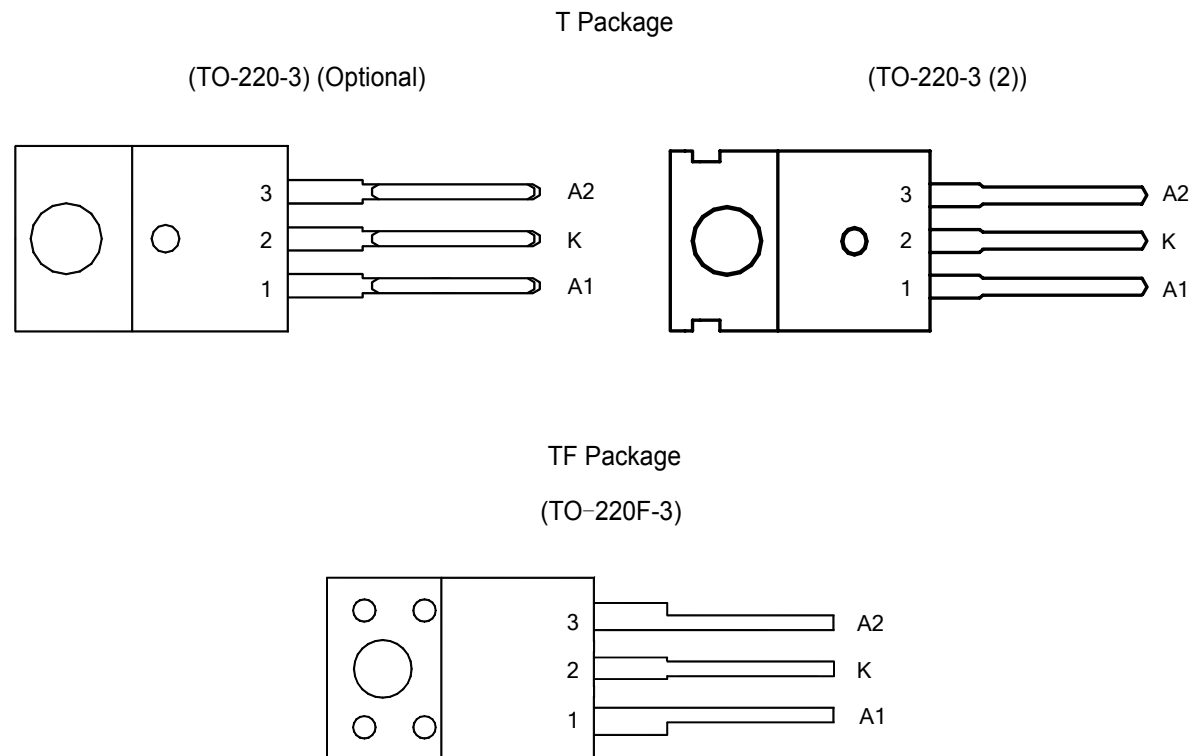


Figure 2. Pin Configuration of MBR20H100C (Top View)

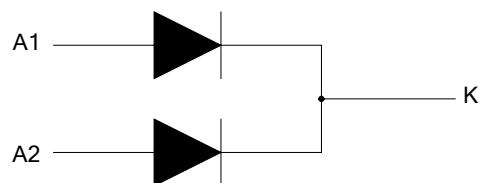
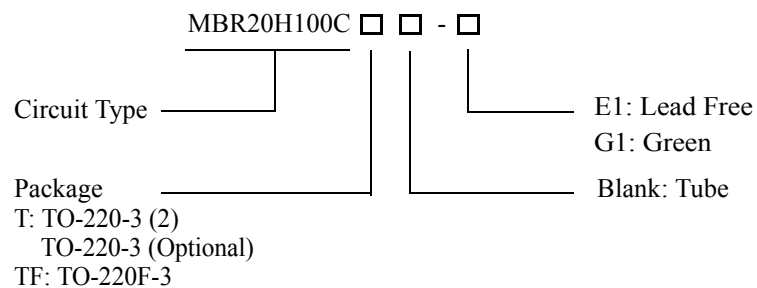


Figure 3. Internal Structure of MBR20H100C

**Ordering Information**



| Package      | Part Number     |                 | Marking ID      |                 | Packing Type |
|--------------|-----------------|-----------------|-----------------|-----------------|--------------|
|              | Lead Free       | Green           | Lead Free       | Green           |              |
| TO-220-3 (2) | MBR20H100CT-E1  | MBR20H100CT-G1  | MBR20H100CT-E1  | MBR20H100CT-G1  | Tube         |
| TO-220F-3    | MBR20H100CTF-E1 | MBR20H100CTF-G1 | MBR20H100CTF-E1 | MBR20H100CTF-G1 | Tube         |

## HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

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### Absolute Maximum Ratings (Each Diode Leg) (Note 1)

| Parameter                                                                                                   | Symbol                          | Value      | Unit               |
|-------------------------------------------------------------------------------------------------------------|---------------------------------|------------|--------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                      | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 100        | V                  |
| Average Rectified Forward Current<br>(Rated $V_R$ ) $T_C=162^{\circ}\text{C}$                               | $I_F (AV)$                      | 10         | A                  |
| Peak Repetitive Forward Current<br>(Rated $V_R$ , Square Wave, 20kHz) $T_C=160^{\circ}\text{C}$             | $I_{FRM}$                       | 20         | A                  |
| Non Repetitive Peak Surge Current (Surge Applied at Rated load<br>Conditions Half Wave, Single Phase, 60Hz) | $I_{FSM}$                       | 250        | A                  |
| Operating Junction Temperature (Note 2)                                                                     | $T_J$                           | 175        | $^{\circ}\text{C}$ |
| Storage Temperature Range                                                                                   | $T_{STG}$                       | -65 to 175 | $^{\circ}\text{C}$ |
| Voltage Rate of Change (Rated $V_R$ )                                                                       | $dv/dt$                         | 10000      | V/ $\mu\text{s}$   |
| ESD (Machine Model=C)                                                                                       |                                 | >400       | V                  |
| ESD (Human Body Model=3B)                                                                                   |                                 | >8000      | V                  |

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

Note 2: The heat generated must be less than the thermal conductivity from Junction to Ambient:  $dP_D/dT_J < 1/\theta_{JA}$ .

### Thermal Characteristics

| Parameter                  | Symbol        | Condition           | Value                     | Unit |
|----------------------------|---------------|---------------------|---------------------------|------|
| Maximum Thermal Resistance | $\theta_{JC}$ | Junction to Case    | TO-220-3/<br>TO-220-3 (2) | 2.0  |
|                            |               |                     | TO-220F-3                 | 2.5  |
|                            | $\theta_{JA}$ | Junction to Ambient | TO-220-3/<br>TO-220-3 (2) | 60   |

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## **Electrical Characteristics (Each Diode Leg)**

| Parameter                                           | Symbol | Condition                            | Value  | Unit |
|-----------------------------------------------------|--------|--------------------------------------|--------|------|
| Maximum Instantaneous Forward Voltage Drop (Note 3) | $V_F$  | $I_F=10A, T_C=25^{\circ}C$           | 0.77   | V    |
|                                                     |        | $I_F=10A, T_C=125^{\circ}C$          | 0.64   |      |
|                                                     |        | $I_F=20A, T_C=25^{\circ}C$           | 0.88   |      |
|                                                     |        | $I_F=20A, T_C=125^{\circ}C$          | 0.73   |      |
| Maximum Instantaneous Reverse Current (Note 3)      | $I_R$  | Rated DC Voltage, $T_C=125^{\circ}C$ | 6.0    | mA   |
|                                                     |        | Rated DC Voltage, $T_C=25^{\circ}C$  | 0.0045 |      |

Note 3: Pulse Test: Pulse Width=300 $\mu$ s, Duty Cycle $\leq$ 2.0%.

**Typical Performance Characteristics**

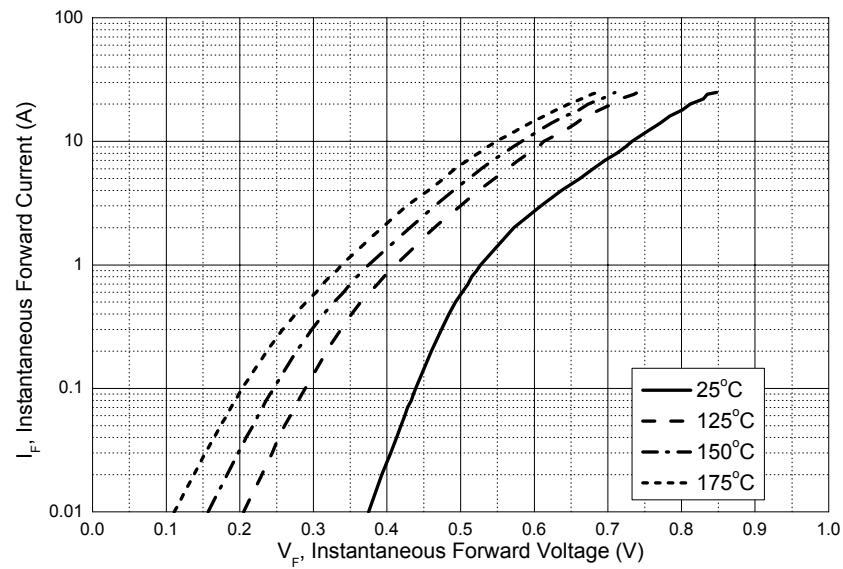


Figure 4. Typical Forward Voltage

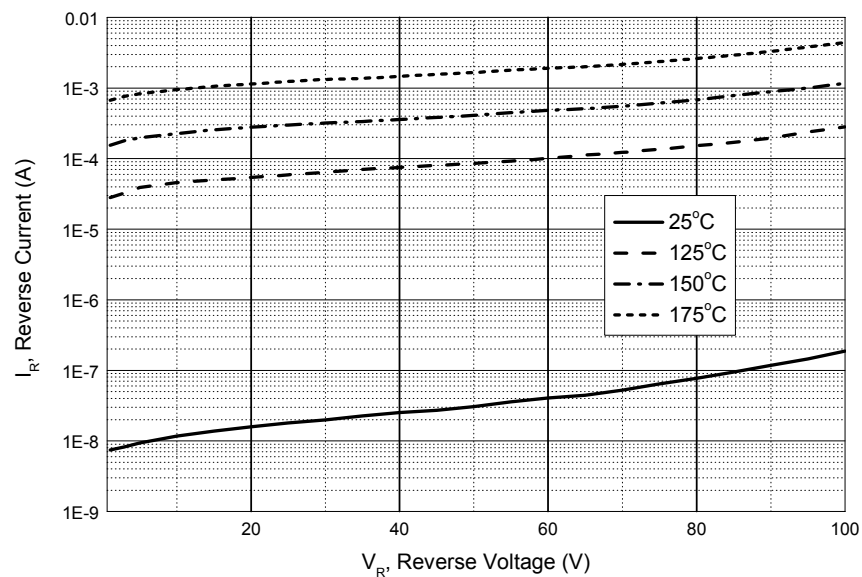


Figure 5. Typical Reverse Current

**Typical Performance Characteristics (Continued)**

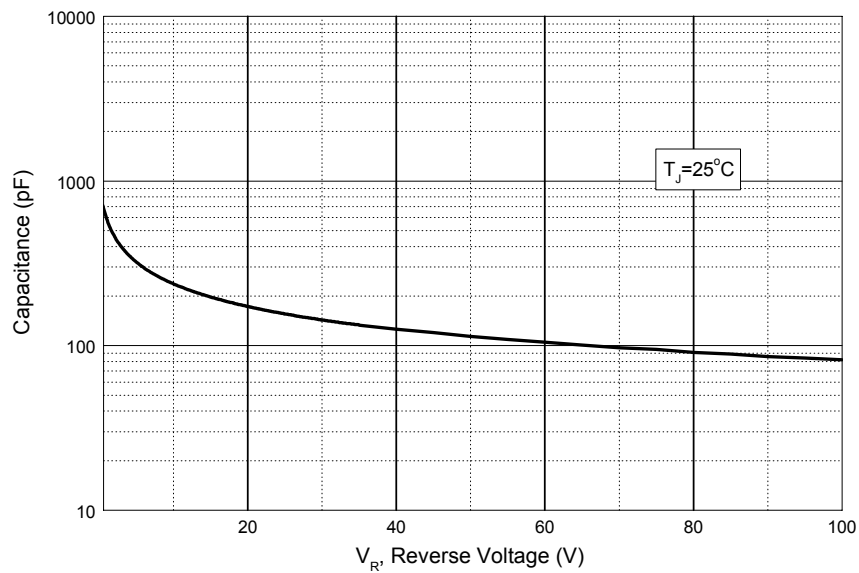


Figure 6. Capacitance vs.  $V_R$ , Reverse Voltage

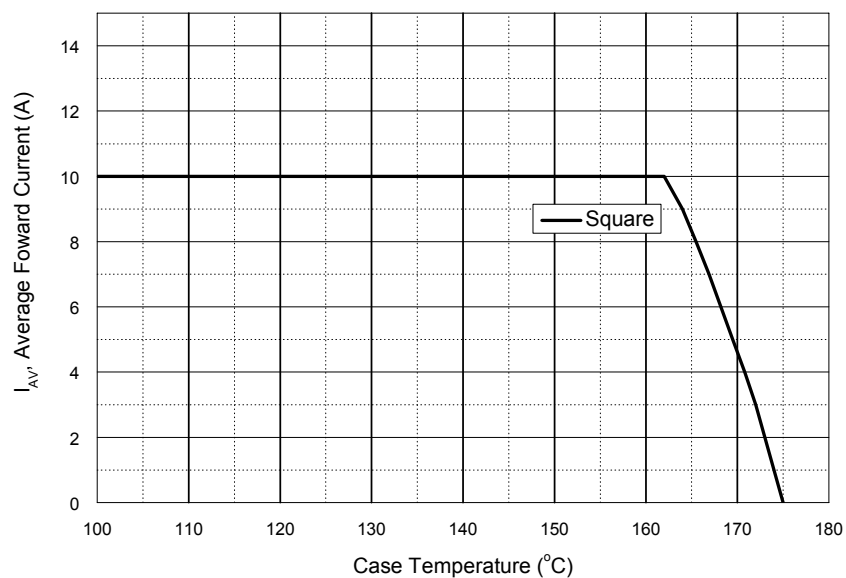
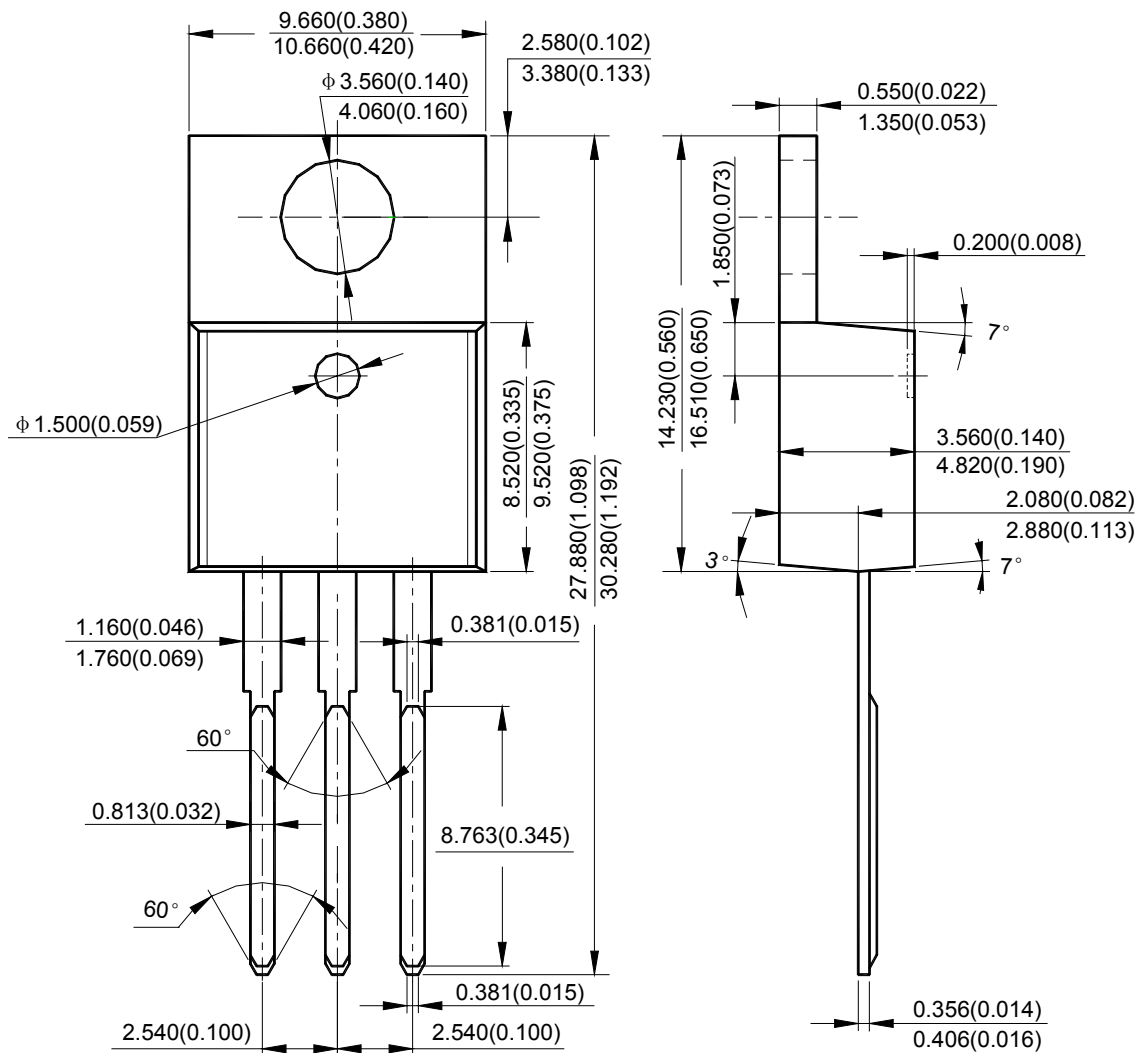


Figure 7. Average Forward Current vs. Case Temperature (Square, Each Diode)

**Mechanical Dimensions**

**TO-220-3**  
(Optional)

**Unit: mm(inch)**





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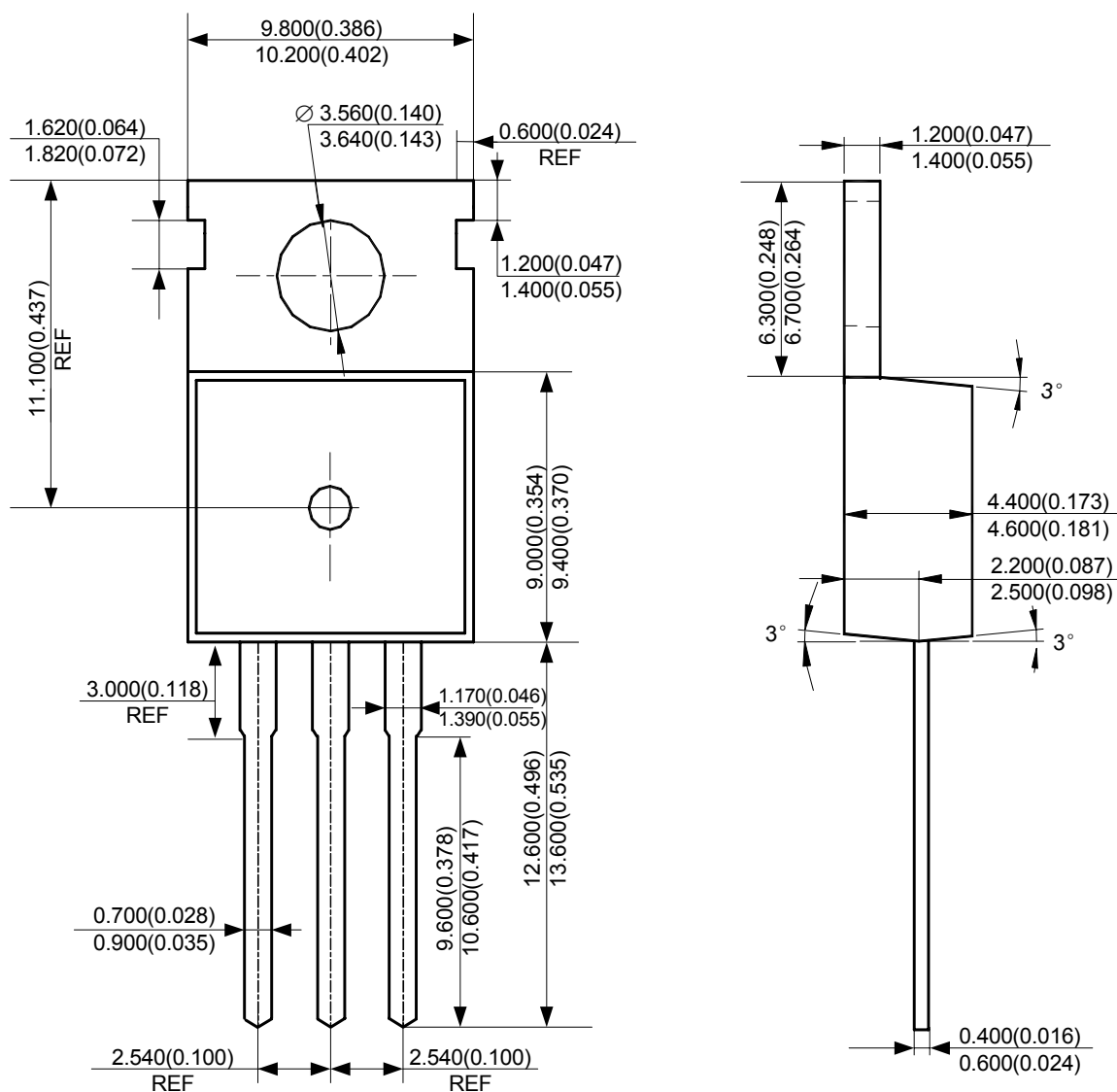
HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

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Mechanical Dimensions (Continued)

TO-220-3 (2)

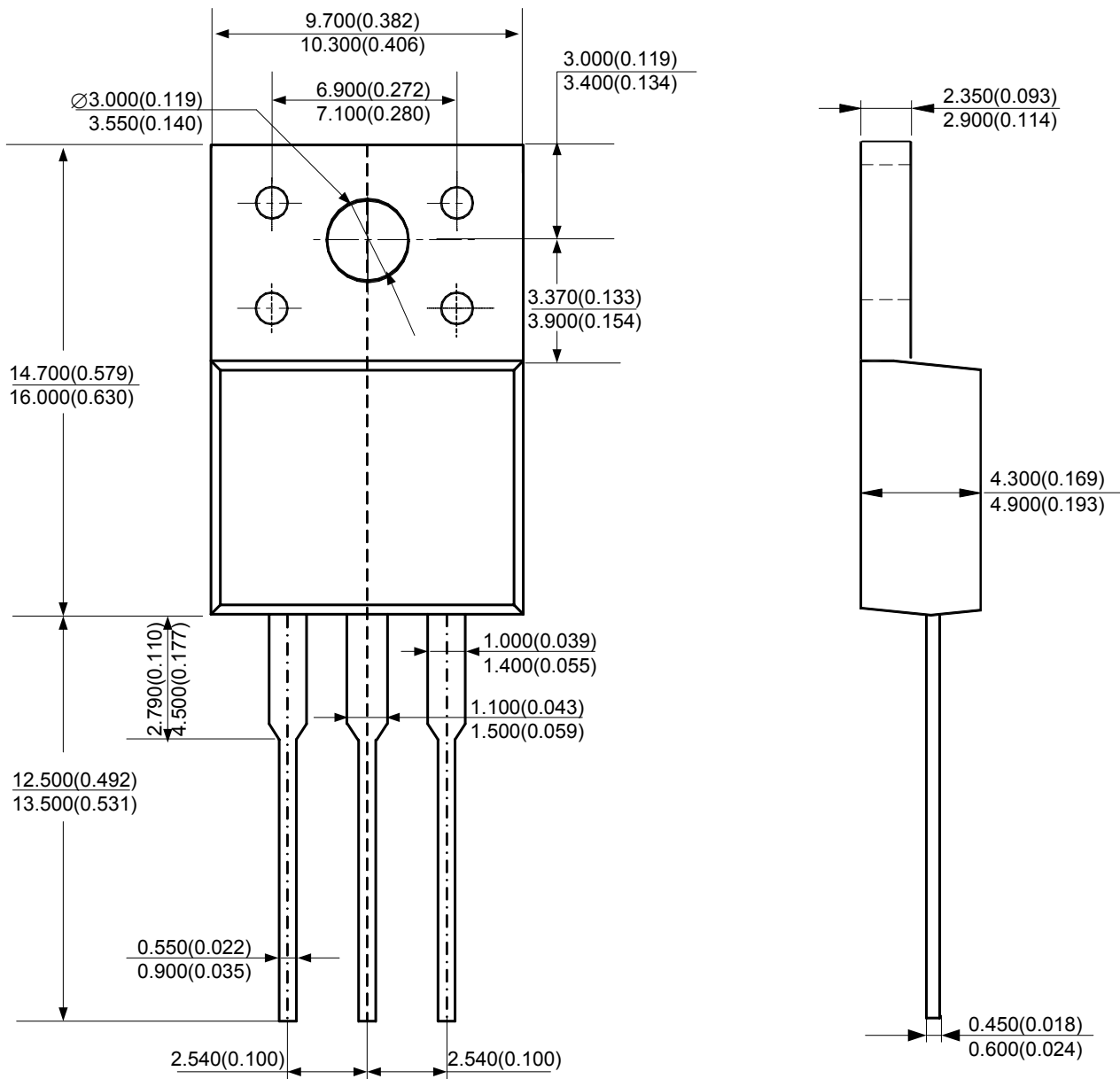
Unit: mm(inch)



**Mechanical Dimensions (Continued)**

**TO-220F-3**

**Unit: mm(inch)**



## 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

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