HIGH VOLTAGE POWER SCHOTTKY RECTIFIER MBR20200C

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.

The MBR20200C is available in TO-220-3, TO-220-3 (2) and TO-220F-3 packages.

Main Product Characteristics

$I_{F(AV)}$	2×10A
V_{RRM}	200V
T_J	150°C
$V_{F(max)}$	0.9V

Features

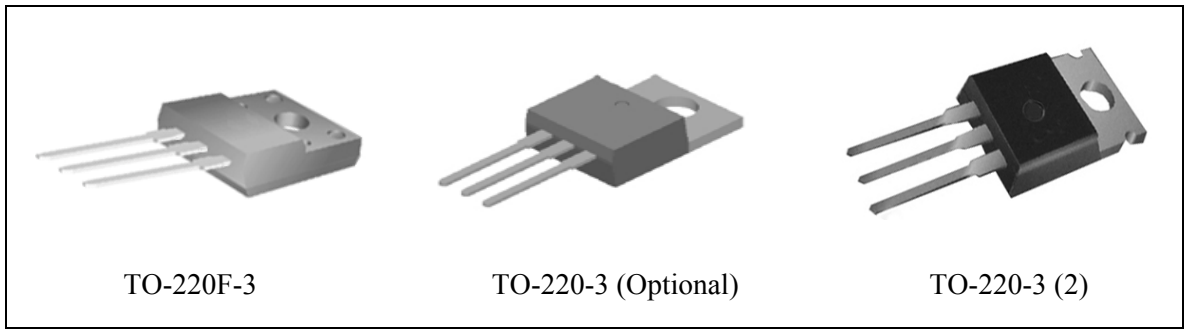
- Low Forward Voltage: 0.9V @ 25°C
- High Surge Capacity
- 150°C Operating Junction Temperature
- 20A Total (10A Per Diode Leg)
- Guard-ring for Stress Protection
- Pb-free Package

Mechanical Characteristics

- Case: Epoxy, Molded
- Epoxy Meets UL 94V-0 @ 0.125in.
- Weight (Approximately): 1.9 Grams
- Finish: All External Surfaces Corrosion Resistant and Terminal
- Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Maximum for 10 Seconds

Applications

- Power Supply Output Rectification
- Power Management
- Instrumentation



TO-220F-3 TO-220-3 (Optional) TO-220-3 (2)

Figure 1. Package Types of MBR20200C

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER MBR20200C

Pin Configuration

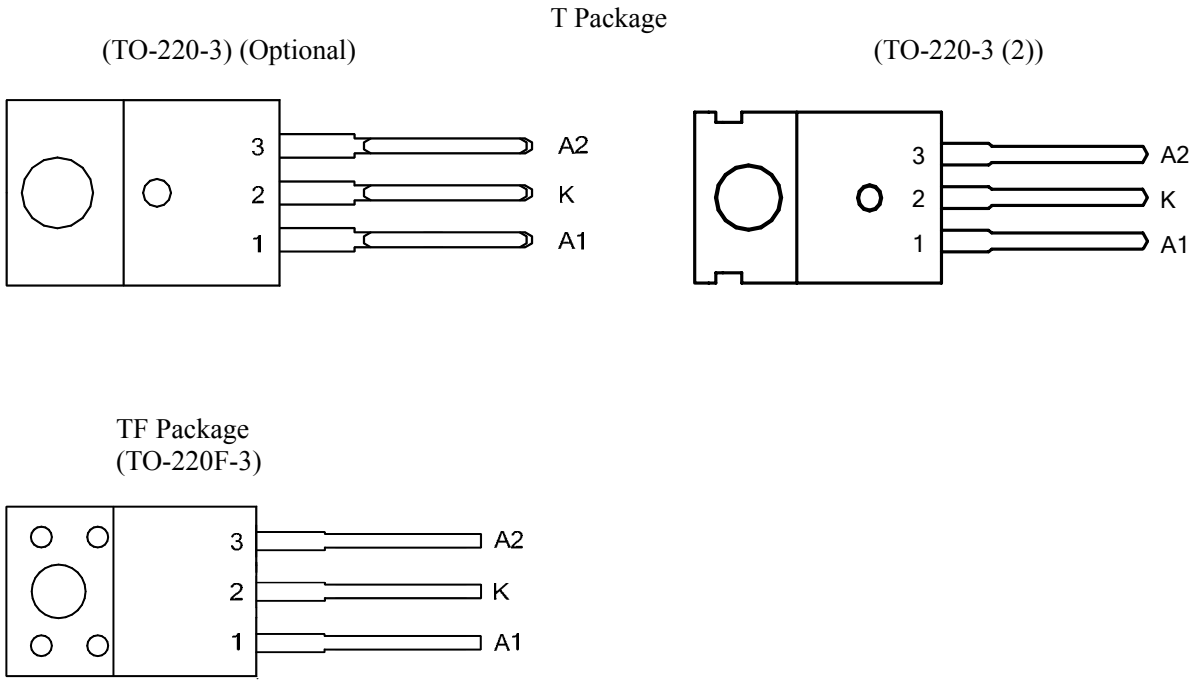


Figure 2. Pin Configuration of MBR20200C (Top View)

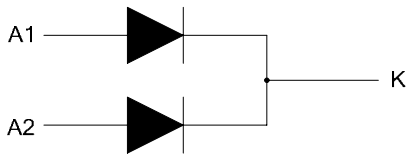
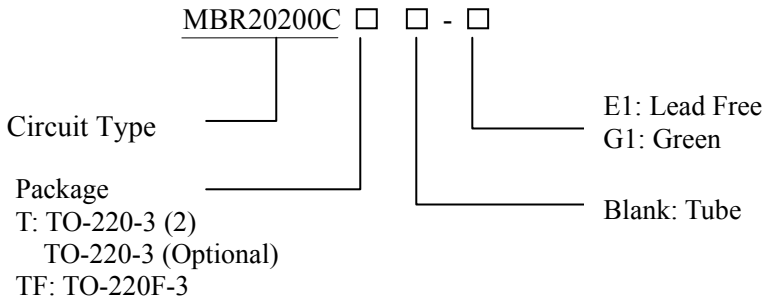


Figure 3. Internal Structure of MBR20200C

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER MBR20200C

Ordering Information



Package	Part Number		Marking ID		Packing Type
	Lead Free	Green	Lead Free	Green	
TO-220-3 (2)	MBR20200CT-E1	MBR20200CT-G1	MBR20200CT-E1	MBR20200CT-G1	Tube
TO-220F-3	MBR20200CTF-E1	MBR20200CTF-G1	MBR20200CTF-E1	MBR20200CTF-G1	Tube

BCD Semiconductor's Pb-free products, as designated with "E1" suffix in the part number, are RoHS compliant. Products with “G1” suffix are available in green packages.

Absolute Maximum Ratings (Per Diode Leg) (Note 1)

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	V
Average Rectified Forward Current (Rated V_R) T_C=133°C	$I_{F(AV)}$	10	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20kHz) T_C=130°C	I_{FRM}	20	A
Non Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Half Wave, Single Phase, 60Hz)	I_{FSM}	150	A
Operating Junction Temperature Range (Note 2)	T_J	150	°C
Storage Temperature Range	T_{STG}	-65 to 150	°C
Voltage Rate of Change (Rated V_R)	dv/dt	10000	V/μs
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: $dP_D/dT_J < 1/\theta_{JA}$.

Recommended Operating Conditions

Parameter	Symbol	Condition	Value		Unit
Maximum Thermal Resistance	θ_{JC}	Junction to Case	TO-220-3/ TO-220-3 (2)	2.0	°C/W
			TO-220F-3	2.5	
	θ_{JA}	Junction to Ambient	TO-220-3/ TO-220-3 (2)	60	
			TO-220F-3	60	

Electrical Characteristics

Parameter	Symbol	Conditions	Value	Units
Maximum Instantaneous Forward Voltage Drop (Note 3)	V_F	I_F=10A, T_C=25℃	0.9	V
Maximum Instantaneous Reverse Current (Note 3)	I_R	Rated DC Voltage, T_C=125℃	6.0	mA
		Rated DC Voltage, T_C=25℃	0.05	

Note 3: Pulse Test: Pulse Width=300μs, Duty Cycle≤2.0%.

Typical Performance Characteristics

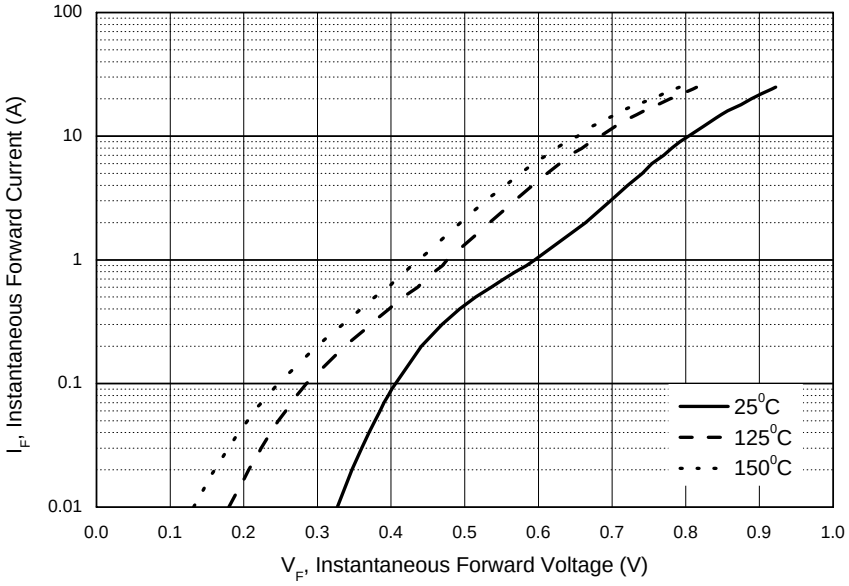


Figure 4. Typical Forward Voltage Per Diode

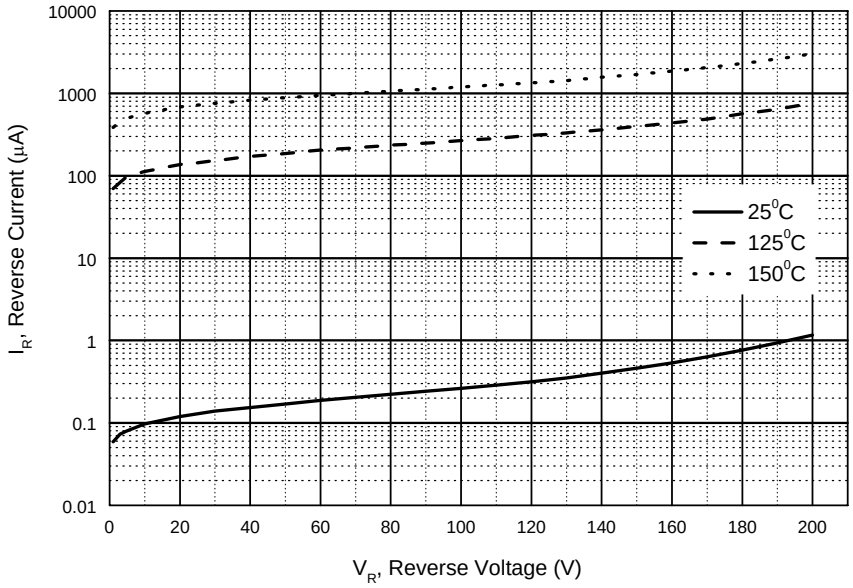


Figure 5. Typical Reverse Current Per Diode

Typical Performance Characteristics (Continued)

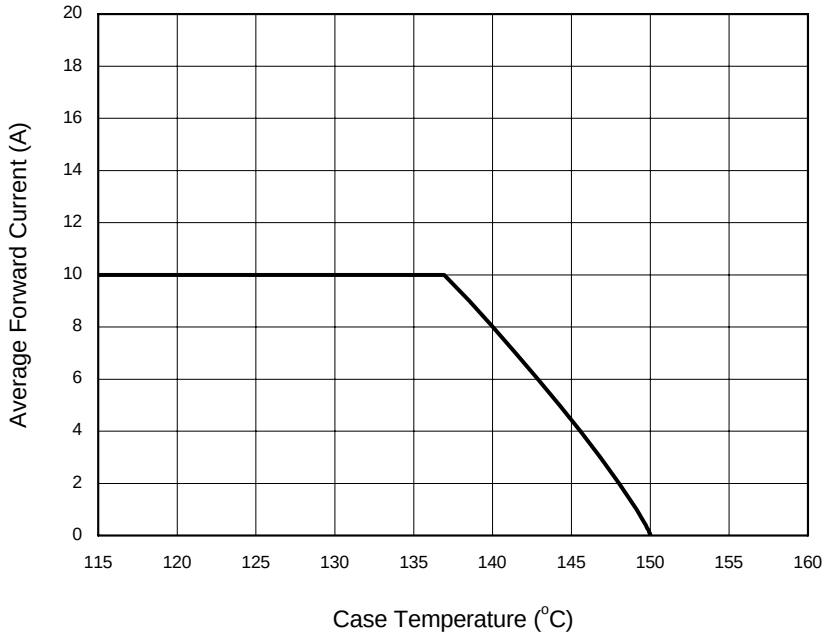


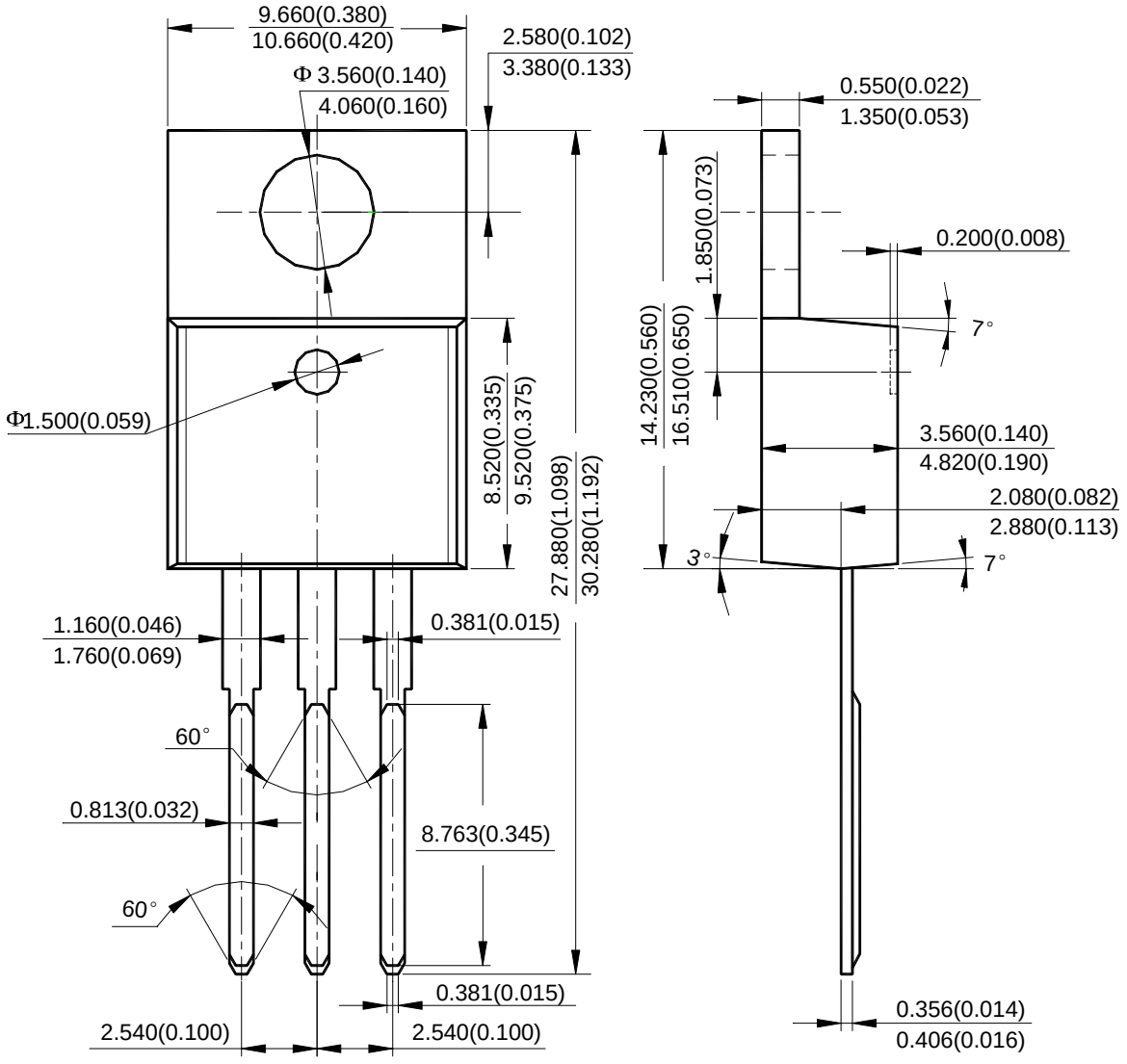
Figure 6. Average Forward Current vs. Case Temperature (Square, per Diode)

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER MBR20200C

Mechanical Dimensions

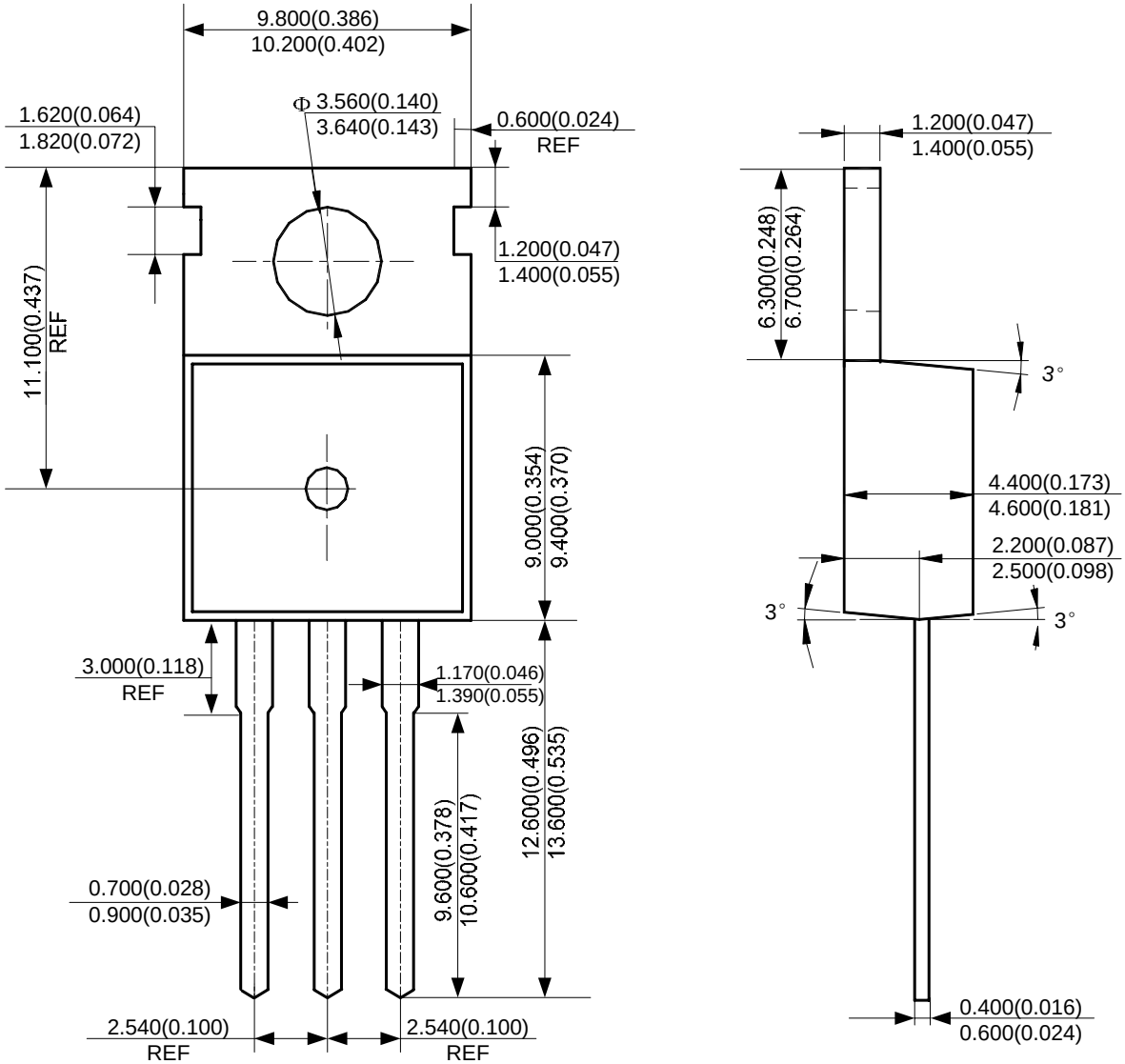
TO-220-3 **Unit: mm(inch)**

(Optional)



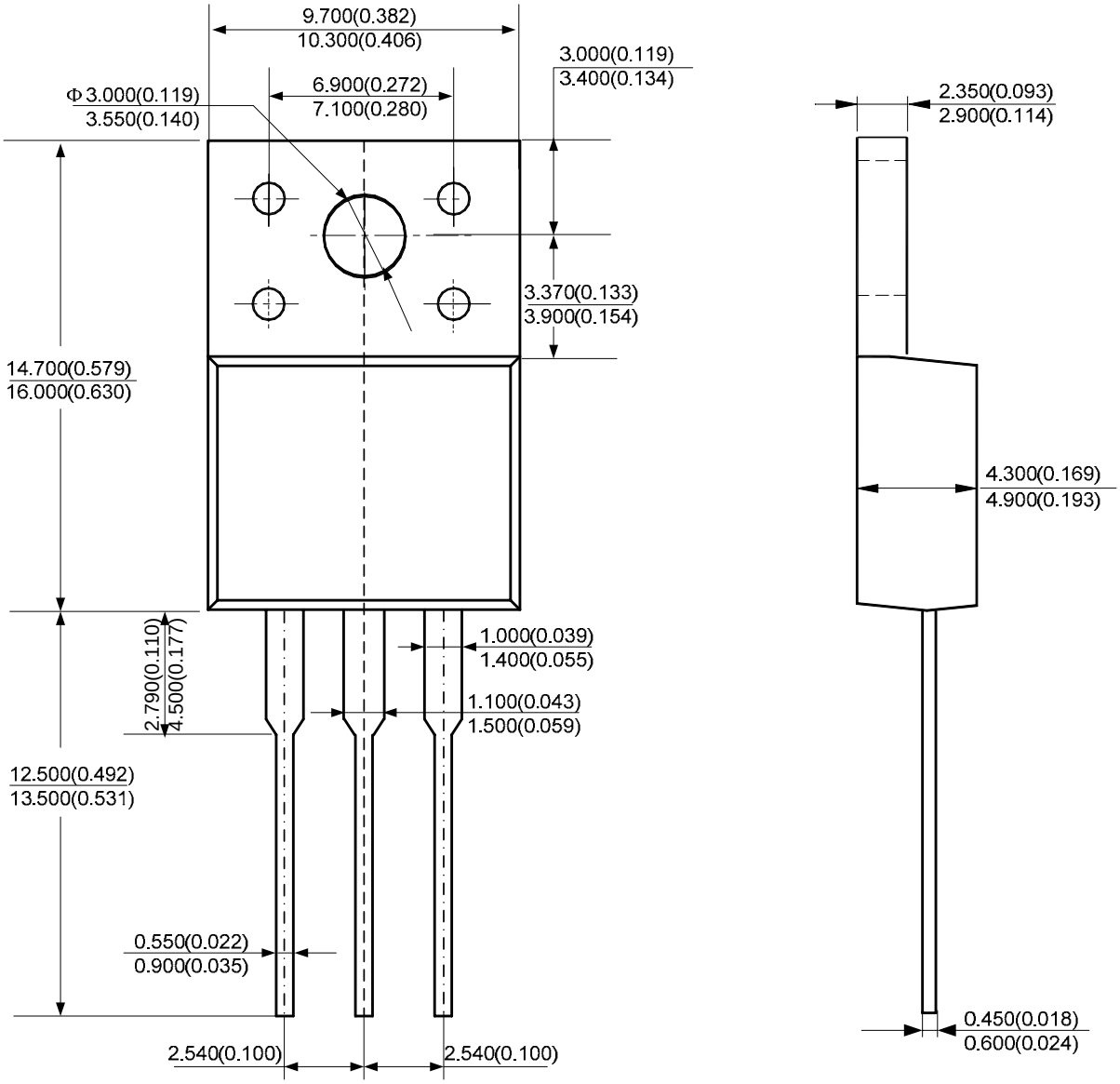
Mechanical Dimensions (Continued)

TO-220-3 (2) **Unit: mm(inch)**



Mechanical Dimensions (Continued)

TO-220F-3 **Unit: mm(inch)**



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