

## Features

- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix Designates Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Low Power Loss and High Efficiency
- Guardring for Overvoltage Protection
- High Junction Temperature Capability

## Maximum Ratings @ 25°C (Unless Otherwise Specified)

| Parameter                                                              | Symbol      | Value        |              |              | Unit             |
|------------------------------------------------------------------------|-------------|--------------|--------------|--------------|------------------|
|                                                                        |             | MBR20100FCTH | MBR20150FCTH | MBR20200FCTH |                  |
| Peak Repetitive Reverse Voltage                                        | $V_{RRM}$   | 100          | 150          | 200          | V                |
| Working Peak Reverse Voltage                                           | $V_{RWM}$   |              |              |              |                  |
| DC Blocking Voltage                                                    | $V_R$       |              |              |              |                  |
| RMS Reverse Voltage                                                    | $V_{RMS}$   | 70           | 105          | 140          | V                |
| Average Rectified Forward Current                                      | $I_{F(AV)}$ | 10<br>20     |              |              | A                |
| Per Diode<br>Per Device                                                |             |              |              |              |                  |
| Non-Repetitive Peak Surge Current (Per Diode)<br>@8.3ms Half Sine Wave | $I_{FSM}$   | 200          |              |              | A                |
| Current Squared Time (Per Diode) @ $1ms \leq t \leq 8.3ms$             | $I^2t$      | 166          |              |              | A <sup>2</sup> s |

## Marking Code

| Part Number  | Marking Code |
|--------------|--------------|
| MBR20100FCTH | MBR20100FCTH |
| MBR20150FCTH | MBR20150FCTH |
| MBR20200FCTH | MBR20200FCTH |

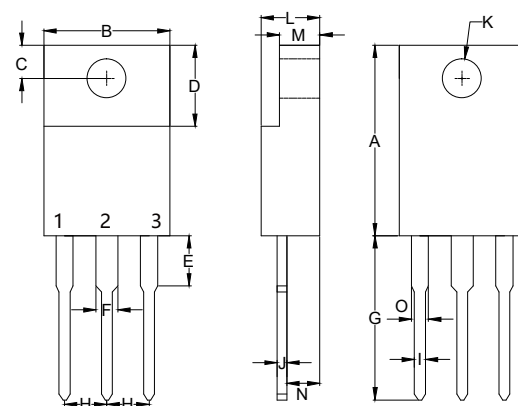
## Internal Structure

| Pin | Description | Simplified Outline | Graphic Symbol |
|-----|-------------|--------------------|----------------|
| 2   | Cathode     |                    |                |
| 1&3 | Anode       |                    |                |
|     |             |                    |                |

Note :1. High Temperature Solder Exemption Applied, See EU Directive Annex 7a.

# 20 Amp Schottky Barrier Rectifier 100 to 200 Volts

## ITO-220AB



| DIM | INCHES |       | MM    |       | NOTE |
|-----|--------|-------|-------|-------|------|
|     | MIN    | MAX   | MIN   | MAX   |      |
| A   | 0.567  | 0.642 | 14.40 | 16.30 |      |
| B   | -----  | 0.421 | ----- | 10.70 |      |
| C   | 0.085  | 0.128 | 2.15  | 3.25  |      |
| D   | 0.248  | 0.272 | 6.30  | 6.90  |      |
| E   | -----  | 0.177 | ----- | 4.50  |      |
| F   | -----  | 0.071 | ----- | 1.80  |      |
| G   | 0.500  | 0.539 | 12.70 | 14.20 |      |
| H   | 0.100  |       | 2.55  |       |      |
| I   | -----  | 0.035 | ----- | 0.90  |      |
| J   | -----  | 0.032 | ----- | 0.80  |      |
| K   | 0.102  | 0.150 | 2.60  | 3.80  | Φ    |
| L   | -----  | 0.201 | ----- | 5.10  |      |
| M   | -----  | 0.140 | ----- | 3.56  |      |
| N   | 0.083  | 0.126 | 2.10  | 3.20  |      |
| O   | -----  | 0.071 | ----- | 1.80  |      |

## Thermal characteristics

| Symbol        | Parameter                                   | Conditions                 | Min | Typ | Max | Unit |
|---------------|---------------------------------------------|----------------------------|-----|-----|-----|------|
| $T_J$         | Operating Junction Temperature Range        |                            | -55 |     | 175 | °C   |
| $T_{stg}$     | Storage Temperature Range                   |                            | -55 |     | 175 | °C   |
| $R_{th(J-C)}$ | Thermal Resistance from Junction to Case    | Per Leg                    |     | 3.2 |     | °C/W |
| $R_{th(J-A)}$ | Thermal Resistance from Junction to Ambient | Without Heatsink, Free air |     | 60  |     | °C/W |

## Mechanical Data

Recommended Mounting Torque: 5in·lbs

## Electrical Characteristics @ 25°C Unless Otherwise Specified

| Parameter                                                                             | Symbol | Test Conditions                   | Min | Typ               | Max                  | Unit    |
|---------------------------------------------------------------------------------------|--------|-----------------------------------|-----|-------------------|----------------------|---------|
| Forward Voltage<br>Per Diode<br><br>MBR20100FCTH<br>MBR20150FCTH<br>MBR20200FCTH      | $V_F$  | $I_F=10A; T_J=25^{\circ}C$        |     |                   | 0.80<br>0.85<br>0.90 | V       |
| Reverse Current<br>Per Diode                                                          | $I_R$  | at Rated $V_R; T_J=25^{\circ}C$   |     |                   | 10                   | $\mu A$ |
|                                                                                       |        | at Rated $V_R; T_J=125^{\circ}C$  |     |                   | 2                    | mA      |
| Junction Capacitance<br>Per Diode<br><br>MBR20100FCTH<br>MBR20150FCTH<br>MBR20200FCTH | $C_J$  | $V_R=4V; f=1MHz; T_J=25^{\circ}C$ |     | 270<br>215<br>165 |                      | pF      |

## Curve Characteristics

Fig. 1 - Forward Current Derating Curve

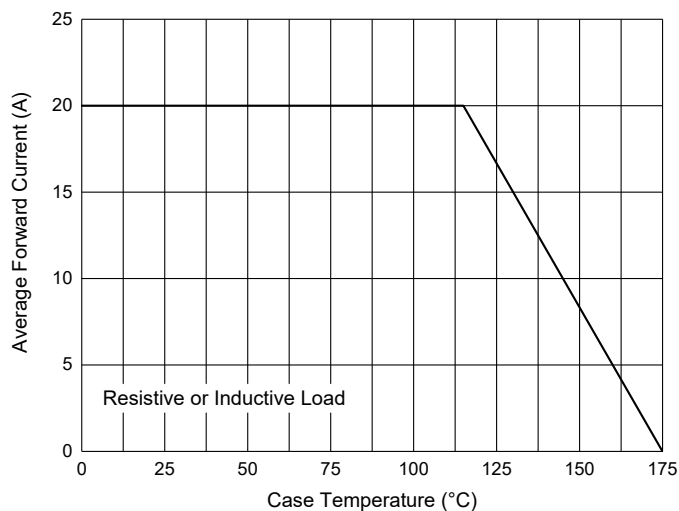


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

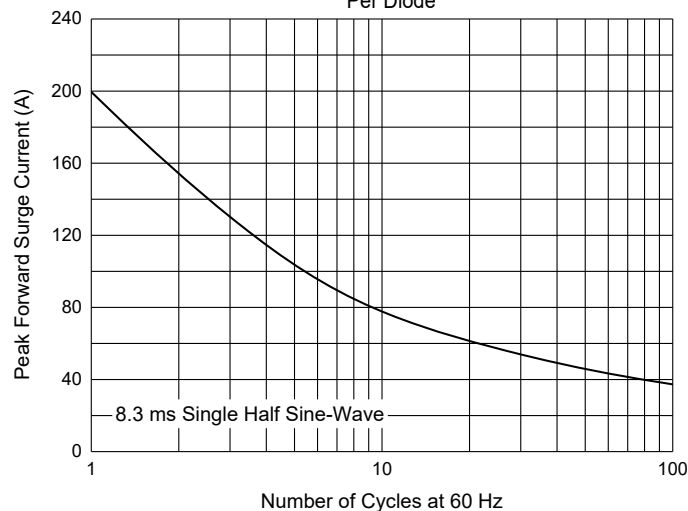


Fig. 3 - Typical Forward Characteristics Per Diode

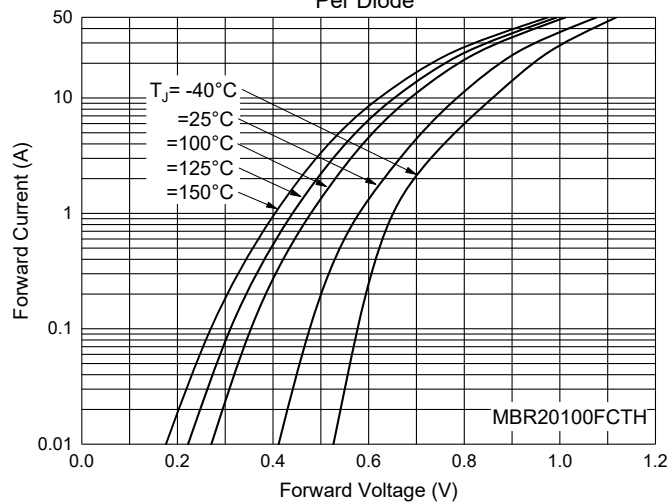


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

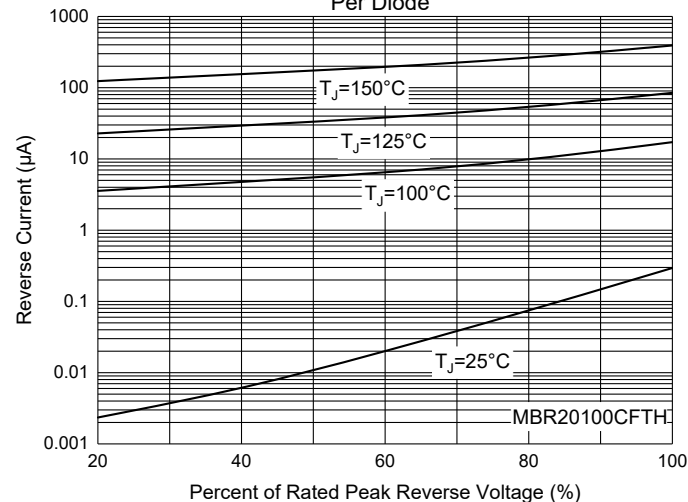


Fig. 5 - Typical Forward Characteristics Per Diode

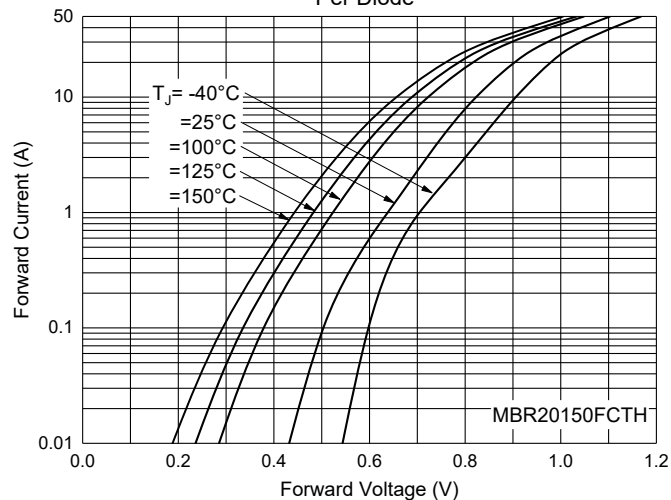
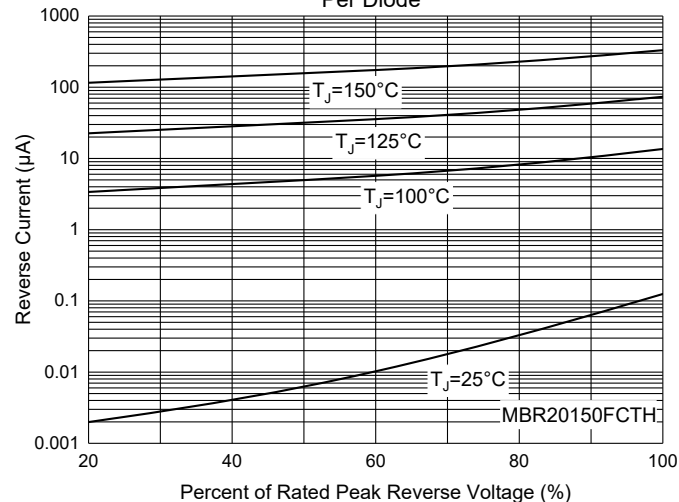


Fig. 6 - Typical Reverse Leakage Characteristics Per Diode



## Curve Characteristics

Fig. 7 - Typical Forward Characteristics  
Per Diode

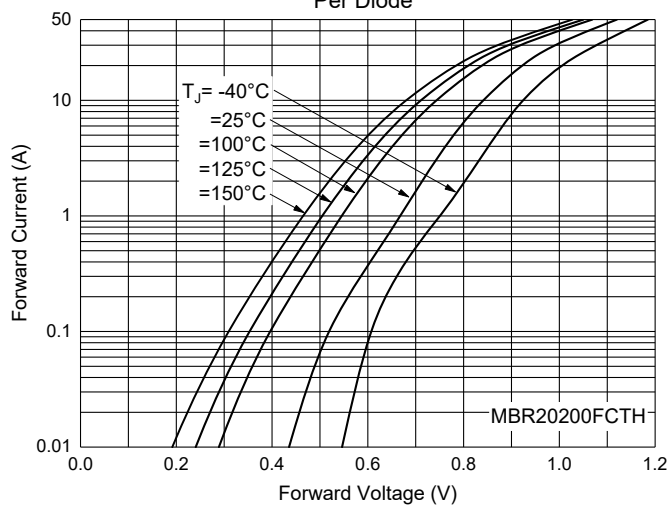


Fig. 8 - Typical Reverse Leakage Characteristics  
Per Diode

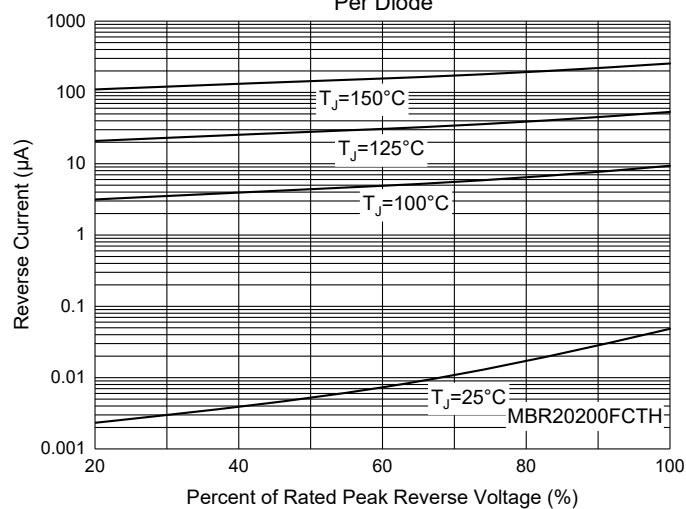
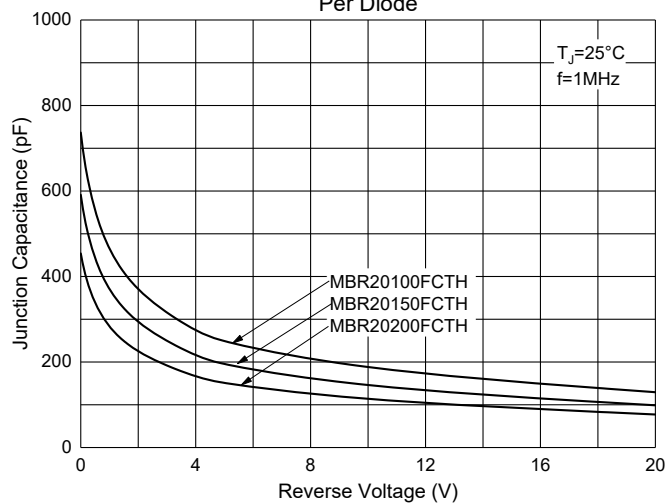


Fig. 9 - Typical Capacitance Characteristics  
Per Diode



## Ordering Information

| Device         | Packing                                  |
|----------------|------------------------------------------|
| Part Number-BP | Bulk:50pcs/Tube, 1Kpcs/Box, 5Kpcs/Carton |

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-BP-HF

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