

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 |
|--|-------------|-------------|-------------|-------------|------------------|
| | | MBR20100CTH | MBR20150CTH | MBR20200CTH | |
| 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 20 | | | A |
| Per Diode Per Device | | | | | |
| Non-Repetitive Peak Surge Current (Per Diode) @8.3ms Half Sine Wave | I_{FSM} | 200 | | | A |
| Current Squared Time (Per Diode) @ $1ms \leq t \leq 8.3ms$ | I^2t | 166 | | | A ² s |

Marking Code

| Part Number | Marking Code |
|-------------|--------------|
| MBR20100CTH | MBR20100CTH |
| MBR20150CTH | MBR20150CTH |
| MBR20200CTH | MBR20200CTH |

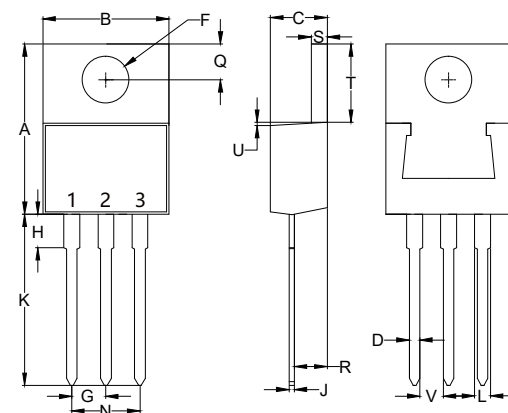
Internal Structure

| 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

TO-220AB



DIMENSIONS

| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|-------|-------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.560 | 0.625 | 14.22 | 15.88 | |
| B | 0.380 | 0.429 | 9.65 | 10.90 | |
| C | 0.140 | 0.201 | 3.56 | 5.10 | |
| D | 0.020 | 0.045 | 0.51 | 1.14 | |
| F | 0.131 | 0.170 | 3.34 | 4.31 | Φ |
| G | 0.079 | 0.121 | 2.01 | 3.07 | |
| H | ---- | 0.250 | ---- | 6.35 | |
| J | 0.011 | 0.025 | 0.28 | 0.64 | |
| K | 0.500 | 0.580 | 12.70 | 14.73 | |
| L | 0.045 | 0.060 | 1.14 | 1.52 | |
| N | 0.158 | 0.242 | 4.02 | 6.14 | |
| Q | 0.087 | 0.135 | 2.22 | 3.43 | |
| R | 0.080 | 0.126 | 2.04 | 3.19 | |
| S | 0.045 | 0.055 | 1.14 | 1.39 | |
| T | 0.230 | 0.270 | 5.84 | 6.86 | |
| U | ---- | 0.050 | ---- | 1.27 | |
| V | 0.045 | ---- | 1.15 | ---- | |

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 | | 1.5 | | °C/W |
| $R_{th(J-A)}$ | Thermal Resistance from Junction to Ambient | Note 1 | | 30 | | °C/W |

Note:

1. Device mounted on an FR4 PCB with 1in² copper pad areas.

Mechanical Data

Recommended Mounting Torque: 5in·lbs

Electrical Characteristics @ 25°C Unless Otherwise Specified

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--|--------|-----------------------------------|-----|-------------------|----------------------|------|
| Forward Voltage Per Diode MBR20100CTH MBR20150CTH MBR20200CTH | V_F | $I_F=10A; T_J=25^{\circ}C$ | | | 0.80 0.85 0.90 | V |
| Reverse Current Per Diode | I_R | at Rated $V_R; T_J=25^{\circ}C$ | | | 10 | μA |
| | | at Rated $V_R; T_J=125^{\circ}C$ | | | 1.5 | mA |
| Junction Capacitance Per Diode MBR20100CTH MBR20150CTH MBR20200CTH | C_J | $V_R=4V; f=1MHz; T_J=25^{\circ}C$ | | 270 215 165 | | pF |

Curve Characteristics

Fig. 1 - Forward Current Derating Curve

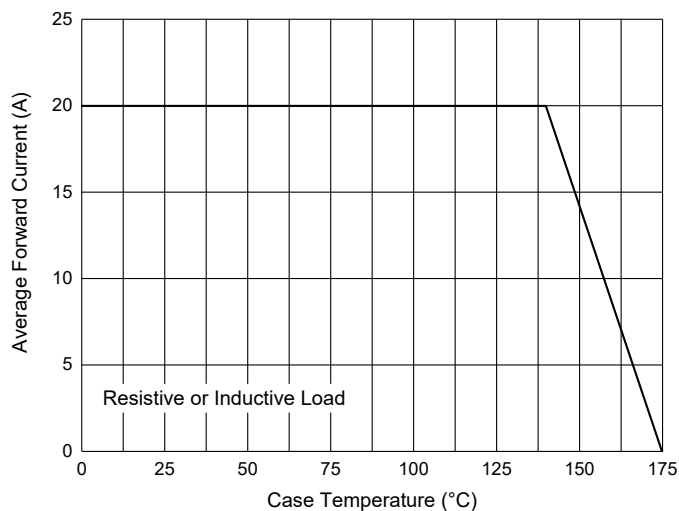


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

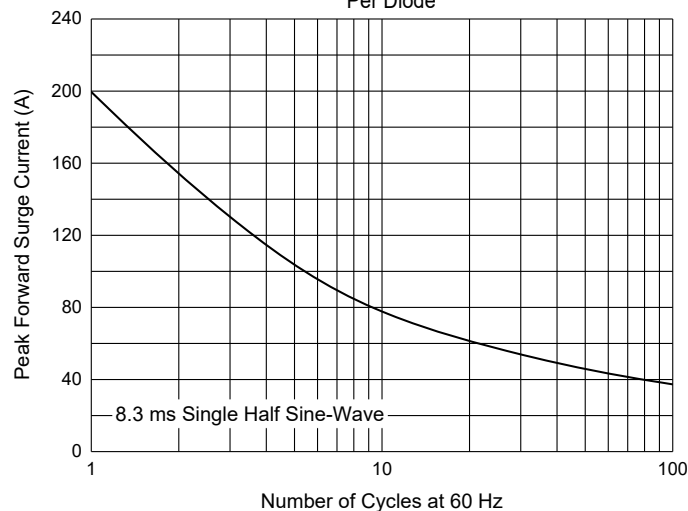


Fig. 3 - Typical Forward Characteristics Per Diode

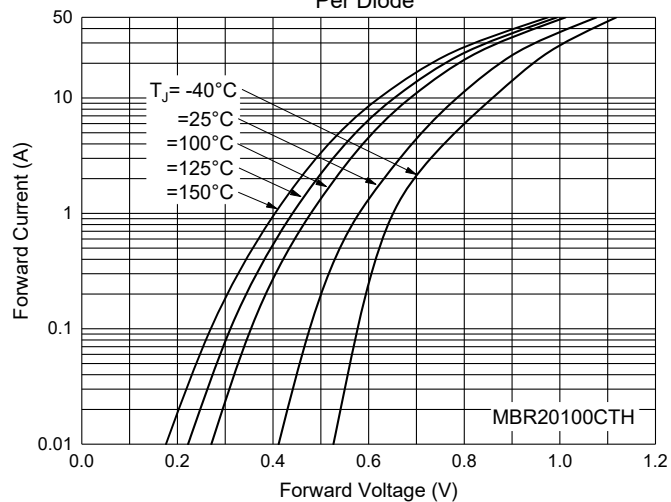


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

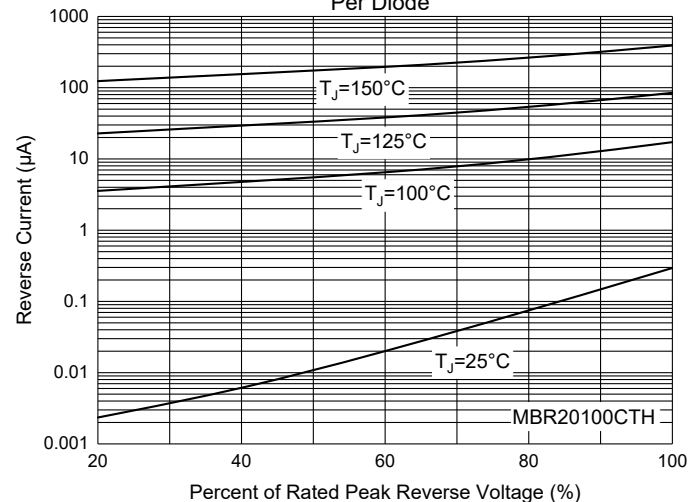


Fig. 5 - Typical Forward Characteristics Per Diode

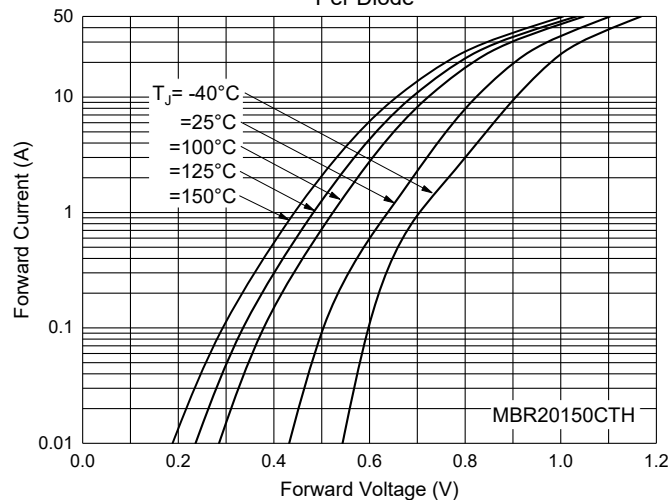
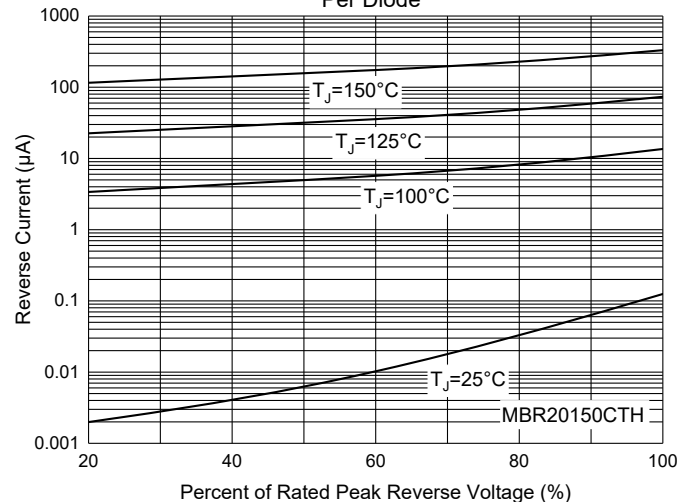


Fig. 6 - Typical Reverse Leakage Characteristics Per Diode



Curve Characteristics

Fig. 7 - Typical Forward Characteristics
Per Diode

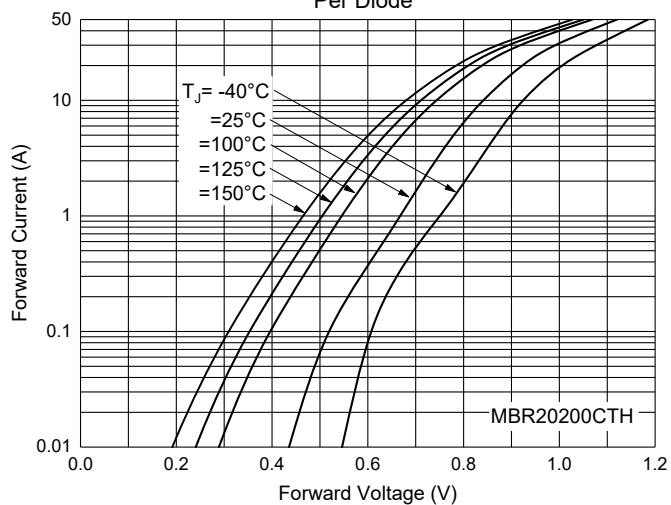


Fig. 8 - Typical Reverse Leakage Characteristics
Per Diode

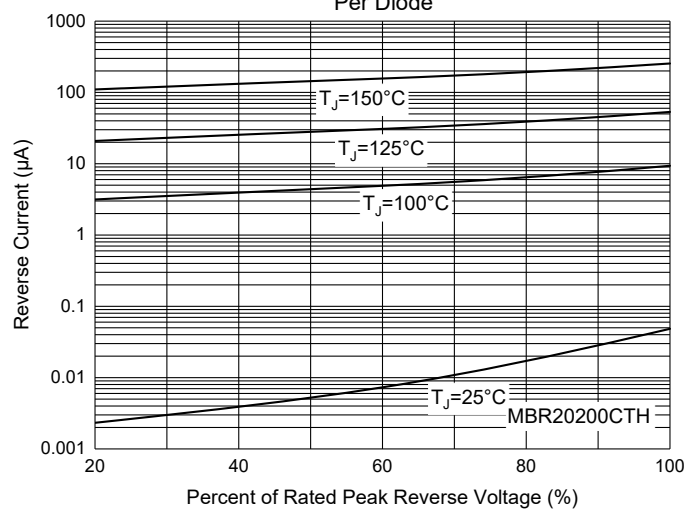
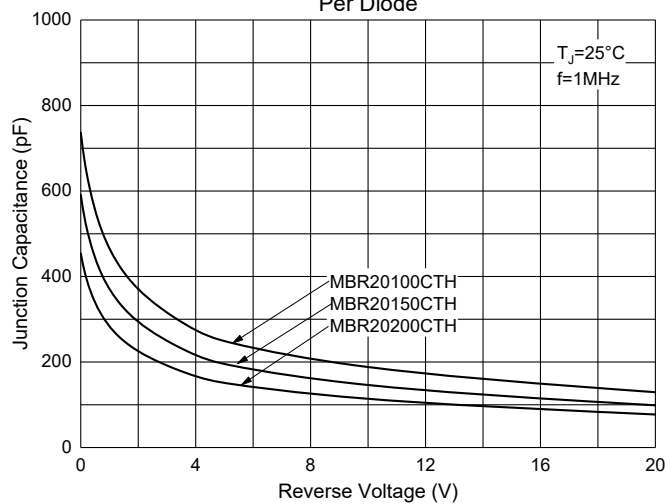


Fig. 9 - Typical Capacitance Characteristics
Per Diode



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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