

# MBRF2040CT~MBRF20200CT

Rev.A Nov.-2024

## / Descriptions

TO-220F

Schottky Barrier Diode in a TO-220F Plastic Package.

## / Features

Low poer losses, High efficiency operation.

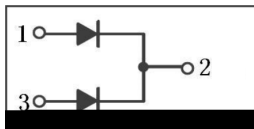
## / Applications

OR-ing

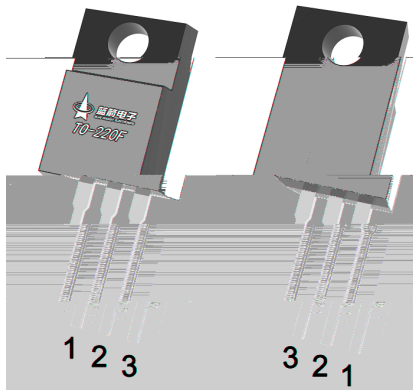
DC-DC

For use in high frequency inverters, switching power supplies, freewheeling diodes, OR-ing diode, dc-to-dc converters and reverse battery protection.

## / Equivalent Circuit



## / Pinning



PIN1 Anode      PIN 2 Cathode      PIN 3 Anode

## / Marking

See Marking Instructions.

# MBRF2040CT~MBRF20200CT

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## / Electrical Characteristics(Ta=25 )

| Parameter                                            | Symbol                          | Rating  |      |      |       |         |       | Unit |
|------------------------------------------------------|---------------------------------|---------|------|------|-------|---------|-------|------|
|                                                      |                                 | MBRFXCT |      |      |       |         |       |      |
|                                                      |                                 | 2040    | 2045 | 2060 | 20100 | 20150   | 20200 |      |
| PeakRepetitive Reverse Voltage                       | V <sub>RM</sub>                 | 40      | 45   | 60   | 100   | 150     | 200   | V    |
| RMS Reverse Voltage                                  | V <sub>RMS</sub>                | 28      | 32   | 42   | 70    | 105     | 140   | V    |
| DC Blocking Voltage                                  | V <sub>DC</sub>                 | 40      | 45   | 60   | 100   | 150     | 200   | V    |
| Average Rectified Forward Current                    | I <sub>F(AV)</sub>              | 10X2    |      |      |       |         |       | A    |
| Forward Voltage at 10A                               | V <sub>F</sub>                  | 0.70    |      | 0.75 | 0.85  | 0.90    | 0.92  | V    |
| Instantaneous Reverse Current<br>Ta=25°C<br>Ta=125°C | I <sub>R</sub>                  | 0.1     |      |      | 0.05  |         |       | mA   |
|                                                      |                                 | 20      |      |      | 20    |         |       |      |
| Typical Junction Capacitance <sup>(1)</sup>          | C <sub>J</sub>                  | 600     |      | 400  |       |         |       | pF   |
| Non Repetitive Peak Surge Current                    | I <sub>FSM</sub>                | 150     |      |      |       |         |       | A    |
| Thermal Resistance Junction to Case <sup>(2)</sup>   | R <sub>JA</sub>                 | 45      |      |      |       |         |       | °C/W |
| Junction and Storage Temperature Range               | T <sub>j</sub> T <sub>stg</sub> | -55~150 |      |      |       | -55~175 |       | °C   |

### Notes

(1) Measured at 1 MHz and applied reverse voltage of 4 V D.C

(2) P.C.B. mounted with 10cmX10cmX1mm copper pad areas.

/ Electrical Characteristic Curve

Fig.1 TYPICAL FORWARD CURRENT DERATING CURVE

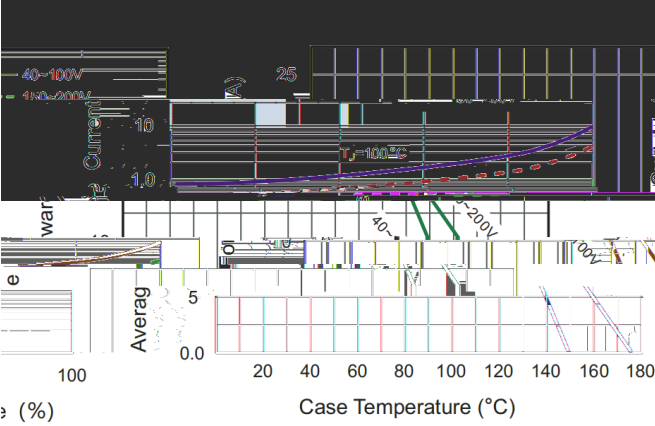


Fig.2 Typical Reverse Characteristics

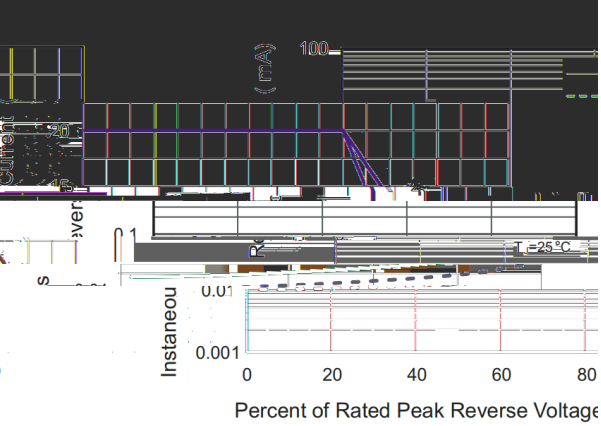


Fig.3 Typical Forward Characteristics (per lot)

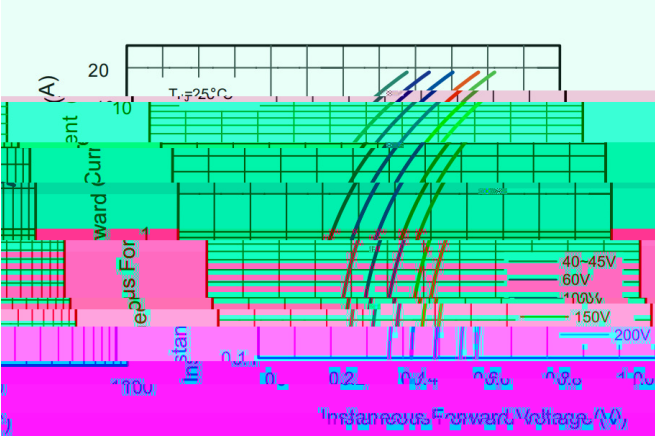


Fig.4 Typical Junction Capacitance

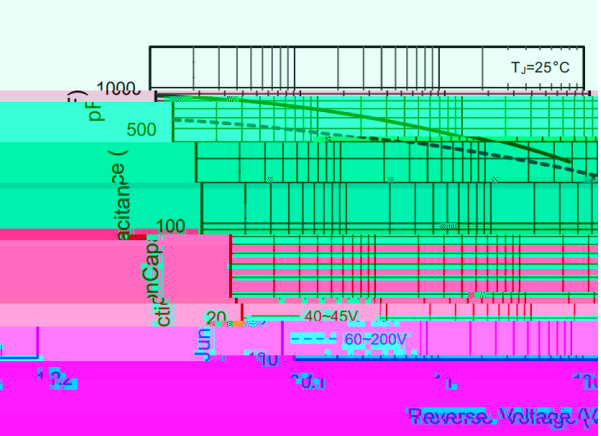


Fig.5 Maximum Non-Repetitive Peak

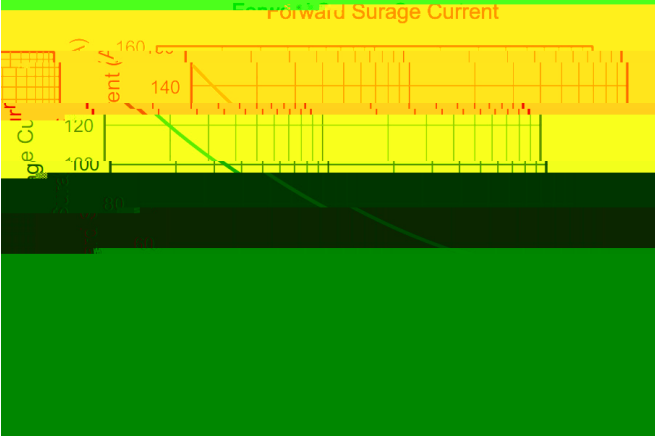
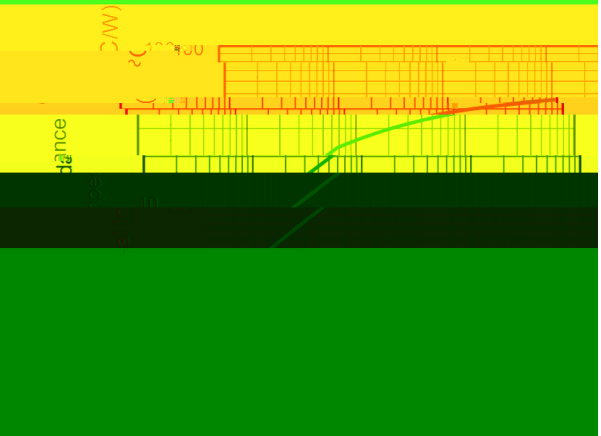
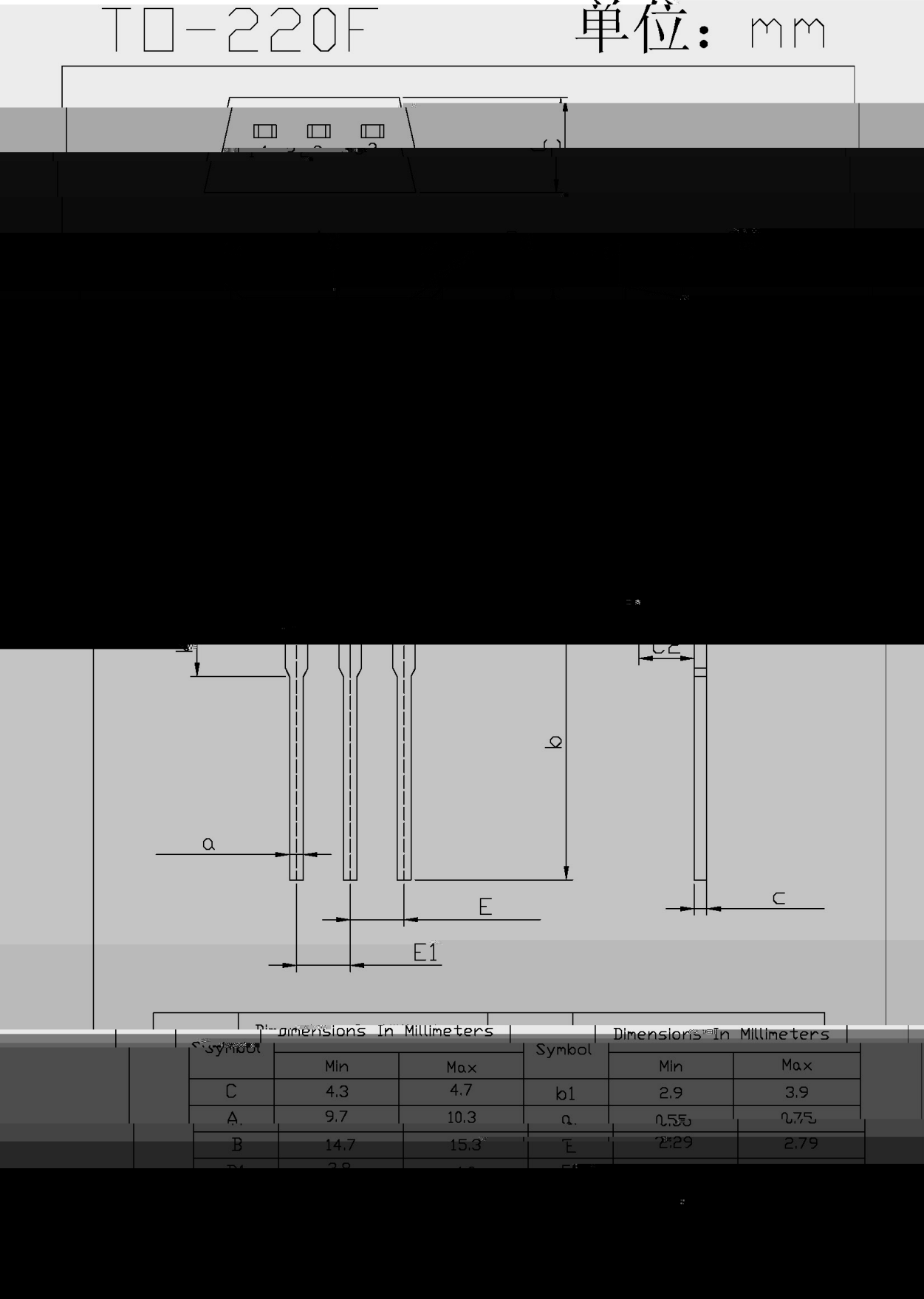


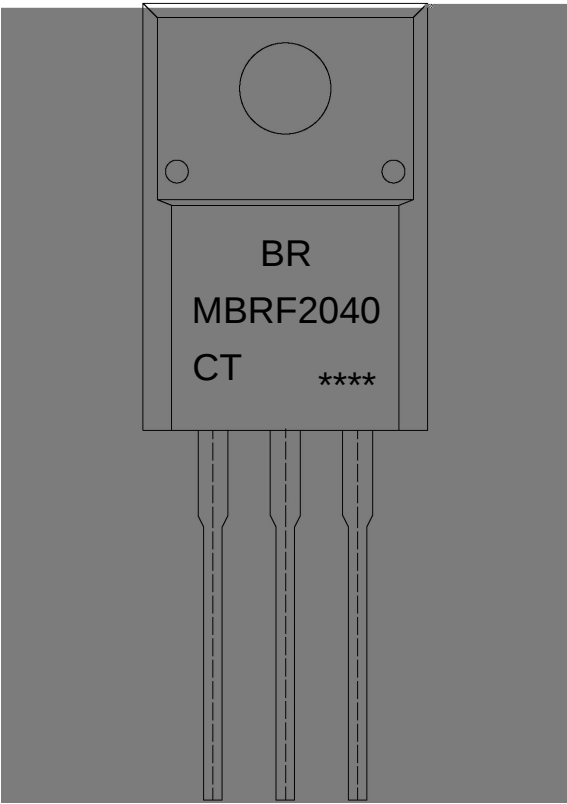
Fig.6 Typical Transient Thermal Impedance



/ Package Dimensions



/ Marking Instructions



BR  
MBRF2040  
CT:  
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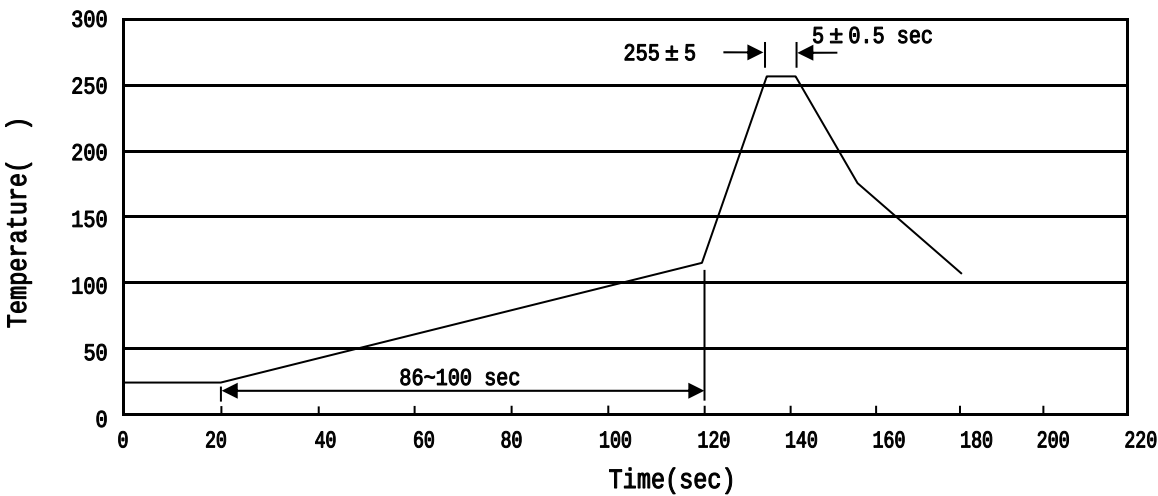
Note:

|          |                                        |
|----------|----------------------------------------|
| BR:      | Company Code                           |
| MBRF2040 | Product Type                           |
| CT:      | Internal Structure                     |
| ****:    | Lot No. Code, code change with Lot No. |

Marking

| Type number | Marking code         |
|-------------|----------------------|
| MBRF2040CT  | BR/MBRF2040/CT/****  |
| MBRF2045CT  | BR/MBRF2045/CT/****  |
| MBRF2060CT  | BR/MBRF2060/CT/****  |
| MBRF20100CT | BR/MBRF20100/CT/**** |
| MBRF20150CT | BR/MBRF20150/CT/**** |
| MBRF20200CT | BR/MBRF20200/CT/**** |

( ) / Temperature Profile for Dip Soldering(Pb-Free)



Note:

- |   |       |     |           |        |                                            |
|---|-------|-----|-----------|--------|--------------------------------------------|
| 1 | 25    | 150 | 60        | 90sec; | 1.Preheating:25~150 °C , Time:60~90sec.    |
| 2 | 255±5 |     | 5±0.5sec; |        | 2.Peak Temp.:255±5 °C , Duration:5±0.5sec. |
| 3 |       | 2   | 10        | /sec.  | 3. Cooling Speed: 2~10 °C /sec.            |

/ Resistance to Soldering Heat Test Conditions

270±5                      10±1 sec.                      Temp.:270±5                      Time:10±1 sec

/ Packaging SPEC.

/ BULK

| Package Type | Units |    |       |   |        | Dimension (unit mm <sup>3</sup> ) |             |             |
|--------------|-------|----|-------|---|--------|-----------------------------------|-------------|-------------|
|              |       |    |       |   |        |                                   |             |             |
| TO-220/F     | 200   | 10 | 2,000 | 5 | 10,000 | 135×190                           | 237×172×102 | 560×245×195 |

/ TUBE

| Package Type | Units |    |       |   |       | Dimension (unit mm <sup>3</sup> ) |            |             |
|--------------|-------|----|-------|---|-------|-----------------------------------|------------|-------------|
|              |       |    |       |   |       |                                   |            |             |
| TO-220/F     | 50    | 20 | 1,000 | 5 | 5,000 | 532×31.4×5.5                      | 555×164×50 | 575×290×180 |

/ Notices