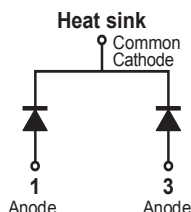


### MBRD10200CT



#### Pin out



#### Description

Littelfuse MBR series Schottky Barrier Rectifier is designed to meet the general requirements of commercial applications by providing high temperature, low leakage and low  $V_F$  products.

It is suitable for high frequency switching mode power supply, free-wheeling diodes and polarity protection diodes.

#### Features

- High junction temperature capability
- Guard ring for enhanced ruggedness and long term reliability
- Low forward voltage drop
- High frequency operation
- Common cathode configuration in compact surface mount TO-252 package

#### Applications

- Switching mode power supply
- Free-wheeling diodes
- DC/DC converters
- Polarity protection diodes

#### Maximum Ratings

| Parameters                                            | Symbol      | Test Conditions                                                    | Max                              | Unit |
|-------------------------------------------------------|-------------|--------------------------------------------------------------------|----------------------------------|------|
| Peak Inverse Voltage                                  | $V_{RWM}$   | -                                                                  | 200                              | V    |
| Average Forward Current                               | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 105^\circ\text{C}$ , rectangular wave form | 5 (per leg)<br>10 (total device) | A    |
| Peak One Cycle Non-Repetitive Surge Current (per leg) | $I_{FSM}$   | 8.3ms, half Sine pulse                                             | 128                              | A    |

#### Electrical Characteristics

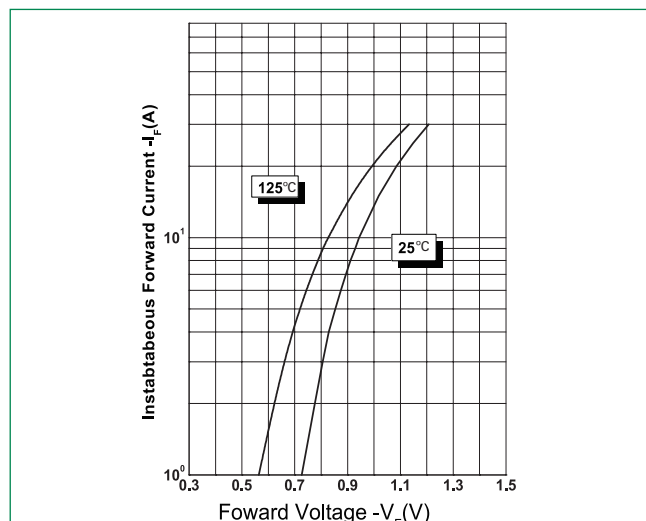
| Parameters                          | Symbol   | Test Conditions                                                          | Max    | Unit             |
|-------------------------------------|----------|--------------------------------------------------------------------------|--------|------------------|
| Forward Voltage Drop (per leg) *    | $V_{F1}$ | @ 5A, Pulse, $T_J = 25^\circ\text{C}$                                    | 0.9    | V                |
|                                     | $V_{F2}$ | @ 5A, Pulse, $T_J = 125^\circ\text{C}$                                   | 0.74   |                  |
| Reverse Current (per leg) *         | $I_{R1}$ | @ $V_R = \text{rated } V_R$ , $T_J = 25^\circ\text{C}$                   | 1.0    | mA               |
|                                     | $I_{R2}$ | @ $V_R = \text{rated } V_R$ , $T_J = 125^\circ\text{C}$                  | 25     |                  |
| Junction Capacitance (per leg)      | $C_T$    | @ $V_R = 5\text{V}$ , $T_C = 25^\circ\text{C}$ , $f_{SIG} = 1\text{MHz}$ | 150    | pF               |
| Typical Series Inductance (per leg) | $L_S$    | Measured lead to lead 5 mm from package body                             | 8.0    | nH               |
| Voltage Rate of Change              | $dv/dt$  |                                                                          | 10,000 | V/ $\mu\text{s}$ |

\* Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

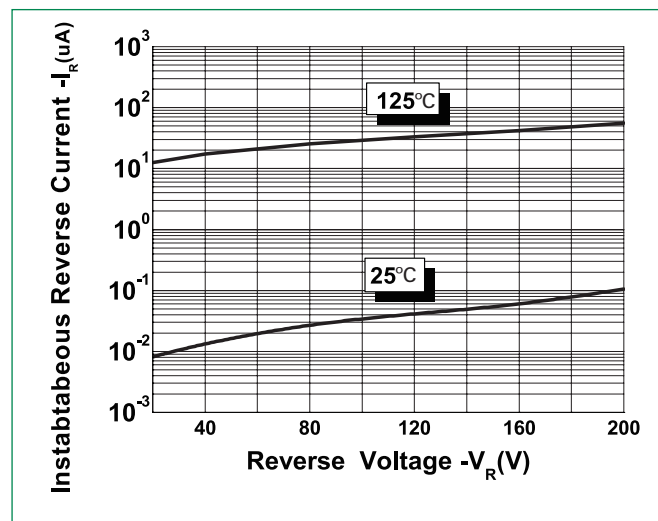
**Thermal-Mechanical Specifications**

| Parameters                                                | Symbol       | Test Conditions                      | Max         | Unit |
|-----------------------------------------------------------|--------------|--------------------------------------|-------------|------|
| Max. Junction Temperature                                 | $T_J$        |                                      | -55 to +150 | °C   |
| Max. Storage Temperature                                  | $T_{stg}$    |                                      | -55 to +150 | °C   |
| Maximum Thermal Resistance Junction to Case (per leg)     | $R_{thJC}$   | DC operation                         | 3.5         | °C/W |
| Maximum Thermal Resistance Junction to Case (per package) |              |                                      | 2.0         |      |
| Maximum Thermal Resistance, Case to Heat Sink             | $R_{thCS}$   | Mounting surface, smooth and greased | 1.0         | °C/W |
| Approximate Weight                                        | wt           |                                      | 0.39        | g    |
| Case Style                                                | DPAK(TO-252) |                                      |             |      |

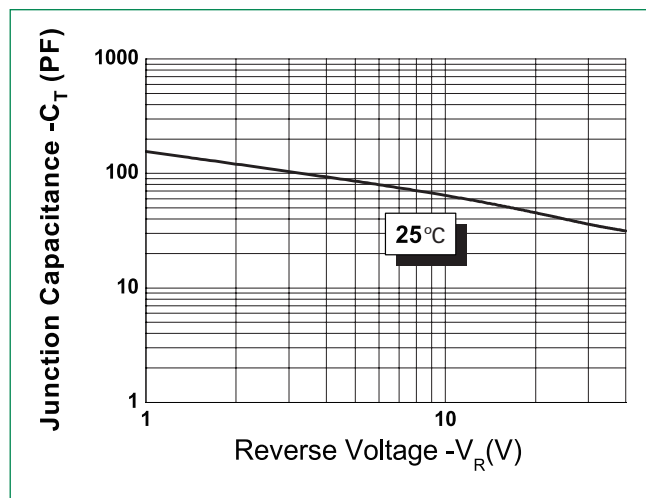
**Figure 1: Typical Forward Characteristics**



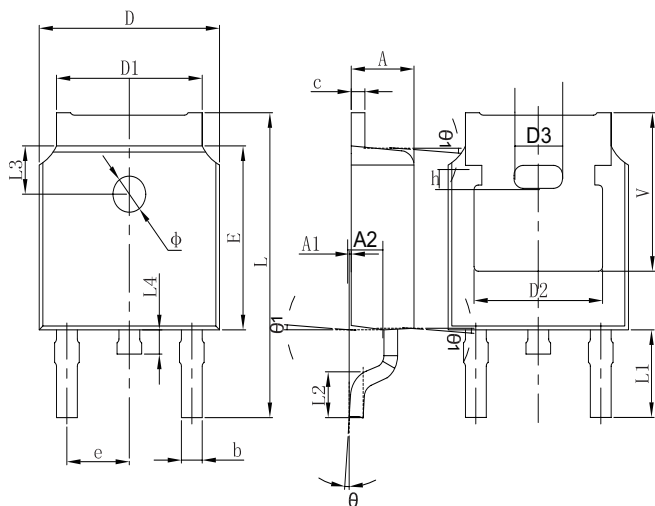
**Figure 2: Typical Reverse Characteristics**



**Figure 3: Typical Junction Capacitance**

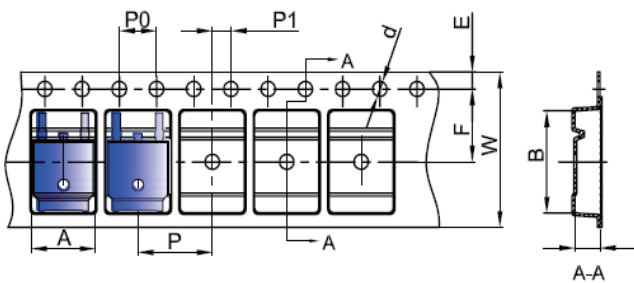


### Dimensions-DPAK(TO-252)



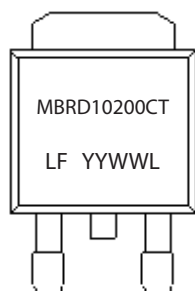
| Symbol | Millimeters |       |
|--------|-------------|-------|
|        | Min         | Max   |
| A      | 2.20        | 2.38  |
| A1     | 0           | 0.10  |
| b      | 0.71        | 0.81  |
| c      | 0.46        | 0.56  |
| D      | 6.50        | 6.70  |
| D1     | 5.13        | 5.46  |
| D2     | 4.83 REF    |       |
| E      | 6.00        | 6.20  |
| e      | 2.186       | 2.386 |
| L      | 9.80        | 10.40 |
| L1     | 2.90 REF    |       |
| L2     | 1.40        | 1.70  |
| L3     | 1.60 REF    |       |
| L4     | 0.60        | 1.00  |
| φ      | 1.10        | 1.30  |
| θ      | 0°          | 8°    |
| A2     | 0.91        | 1.11  |
| V      | 5.35 REF    |       |
| D3     | 1.778 REF   |       |
| h      | 0.762 REF   |       |
| θ1     | 7°          |       |

### Carrier Tape & Reel Specification



| Symbol | Millimeters |       |
|--------|-------------|-------|
|        | Min         | Max   |
| A      | 6.80        | 7.00  |
| B      | 10.40       | 10.60 |
| C      | 2.60        | 2.80  |
| d      | ø1.45       | ø1.65 |
| E      | 1.65        | 1.85  |
| F      | 7.40        | 7.60  |
| P0     | 3.90        | 4.10  |
| P      | 7.90        | 8.10  |
| P1     | 1.90        | 2.10  |
| W      | 15.90       | 16.30 |

### Part Numbering and Marking System



MBR = Device Type  
 D = Package type  
 10 = Forward Current (10A)  
 200 = Reverse Voltage (200V)  
 CT = Configuration  
 LF = Littelfuse  
 YY = Year  
 WW = Week  
 L = Lot Number

### Packing Options

| Part Number | Marking     | Packing Mode   | M.O.Q |
|-------------|-------------|----------------|-------|
| MBRD10200CT | MBRD10200CT | 2500pcs / reel | 2500  |