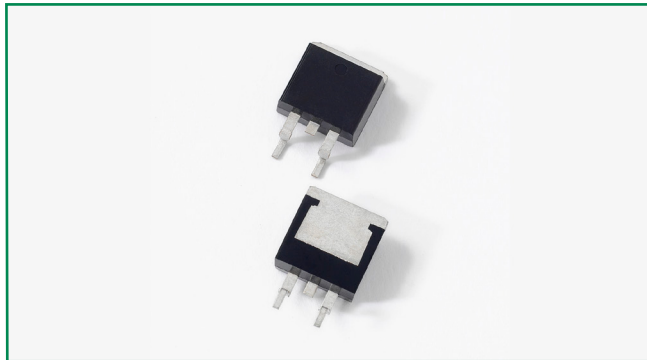
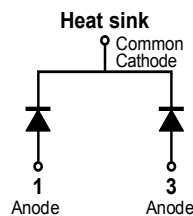


### MBRB10100CT



#### 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 surface mount TO-263 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                                  | $V_{RWM}$   | -                                                                  | 100                              | V    |
| Average Forward                                       | $I_{F(AV)}$ | 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                                             | 120                              | A    |

#### Electrical Characteristics

| Parameters                                | Symbol   | Test Conditions                                                          | Max    | Unit             |
|-------------------------------------------|----------|--------------------------------------------------------------------------|--------|------------------|
| Forward Voltage Drop (per leg) *          | $V_{F1}$ | @ 5A, Pulse, $T_J = 25^\circ\text{C}$                                    | 0.85   | V                |
|                                           | $V_{F2}$ | @ 5A, Pulse, $T_J = 125^\circ\text{C}$                                   | 0.75   |                  |
| Reverse Current at DC condition (per leg) | $I_{R1}$ | @ $V_R = \text{rated } V_R$ , $T_J = 25^\circ\text{C}$                   | 1.0    | mA               |
| Reverse Current (per leg) *               | $I_{R2}$ | @ $V_R = \text{rated } V_R$ , $T_J = 125^\circ\text{C}$                  | 15     |                  |
| Junction Capacitance (per leg)            | $C_T$    | @ $V_R = 5\text{V}$ , $T_C = 25^\circ\text{C}$ , $f_{SIG} = 1\text{MHz}$ | 300    | 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 |
|-----------------------------------------------|-----------------------------|-----------------|-------------|------|
| Junction Temperature                          | $T_J$                       |                 | -55 to +150 | °C   |
| Storage Temperature                           | $T_{stg}$                   |                 | -55 to +150 | °C   |
| Thermal Resistance Junction to Case (per leg) | $R_{thJC}$                  | DC operation    | 6.0         | °C/W |
| Approximate Weight                            | wt                          |                 | 1.85        | g    |
| Case Style                                    | D <sup>2</sup> PAK (TO-263) |                 |             |      |

Figure 1: Typical Forward Characteristics

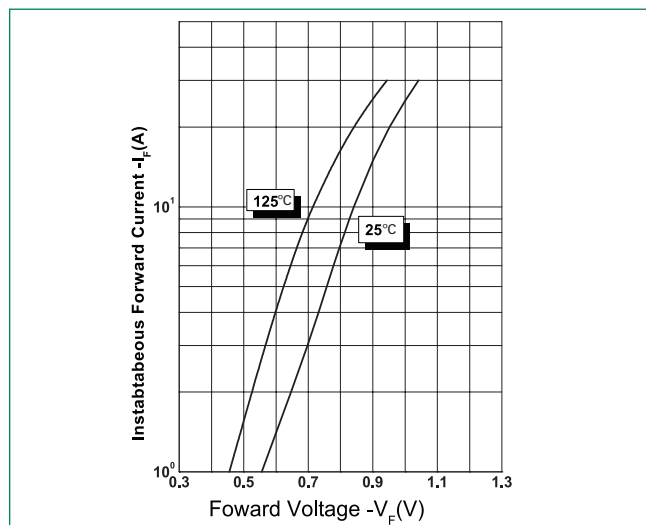


Figure 2: Typical Reverse Characteristics

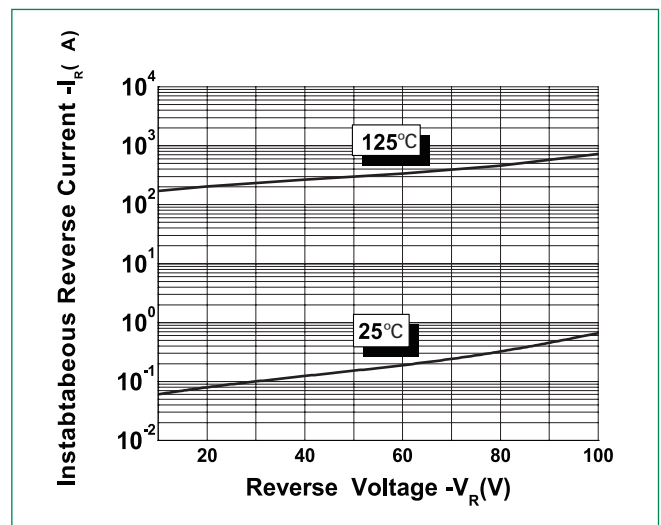
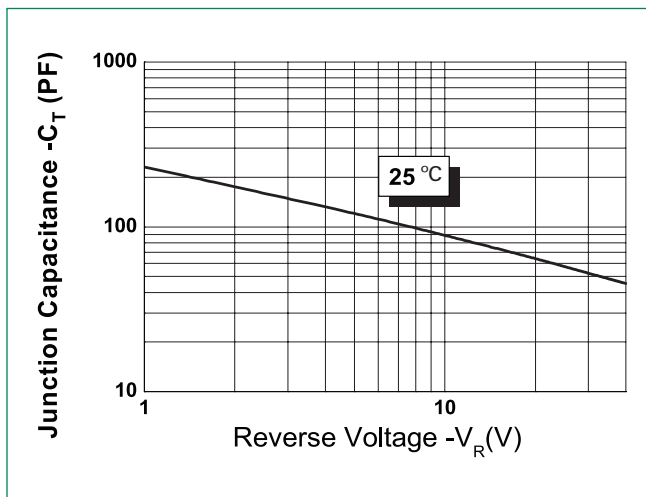
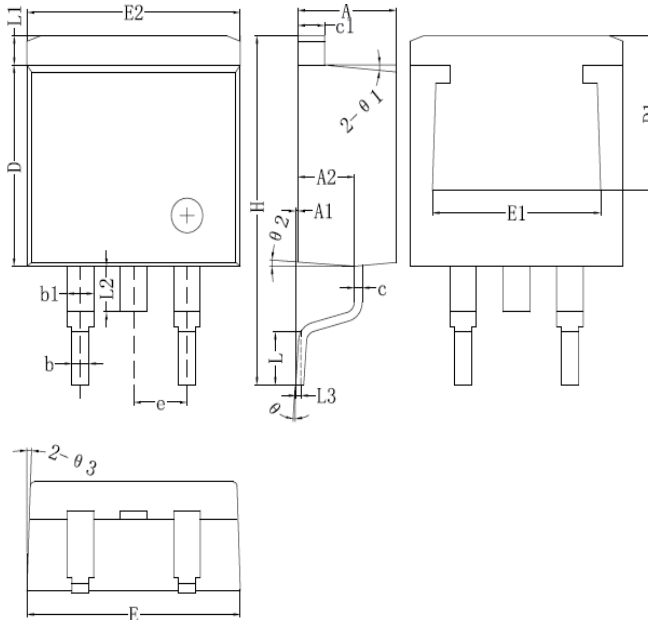


Figure 3: Typical Junction Capacitance



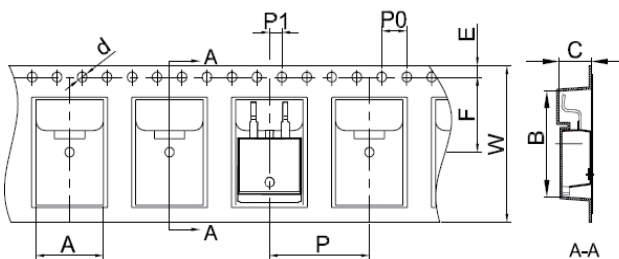
### Dimensions-D<sup>2</sup>PAK(TO-263)



|           | Millimeters |       |
|-----------|-------------|-------|
|           | Min         | Max   |
| <b>A</b>  | 4.06        | 4.83  |
| <b>A1</b> | 0.00        | 0.25  |
| <b>b</b>  | 0.51        | 0.99  |
| <b>b1</b> | 1.14        | 1.78  |
| <b>c</b>  | 0.31*       | 0.74  |
| <b>c1</b> | 1.14        | 1.65  |
| <b>D</b>  | 8.38        | 9.65  |
| <b>D1</b> | 6.40*       | -     |
| <b>E</b>  | 9.65        | 10.67 |
| <b>E1</b> | 6.22        | -     |
| <b>E2</b> | 9.65        | 10.67 |
| <b>e</b>  | 2.54 BSC    |       |
| <b>H</b>  | 14.60*      | 15.88 |
| <b>L</b>  | 1.78        | 2.79  |
| <b>L1</b> | -           | 1.68  |
| <b>L2</b> | -           | 1.78  |
| <b>L3</b> | 0.254 BSC   |       |

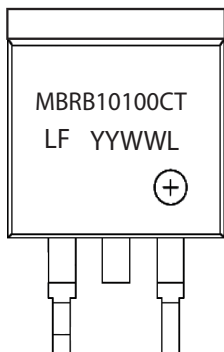
Footnote \*: The spec. does not comply with JEDEC spec.

### Carrier Tape & Reel Specification



| Symbol    | Millimeters |       |
|-----------|-------------|-------|
|           | Min         | Max   |
| <b>A</b>  | 10.70       | 10.90 |
| <b>B</b>  | 16.03       | 16.23 |
| <b>C</b>  | 5.11        | 5.31  |
| <b>d</b>  | ø1.45       | ø1.65 |
| <b>E</b>  | 1.65        | 1.85  |
| <b>F</b>  | 11.40       | 11.60 |
| <b>P0</b> | 3.90        | 4.10  |
| <b>P</b>  | 15.90       | 16.10 |
| <b>P1</b> | 1.90        | 2.10  |
| <b>W</b>  | 23.90       | 24.30 |

### Part Numbering and Marking System



MBR = Device Type  
 B = Package type  
 10 = Forward Current (10A)  
 100 = Reverse Voltage (100V)  
 CT = Configuration  
 LF = Littelfuse  
 YY = Year  
 WW = Week  
 L = Lot Number

### Packing Options

| Part Number | Marking     | Packing Mode  | M.O.Q |
|-------------|-------------|---------------|-------|
| MBRB10100CT | MBRB10100CT | 800pcs / reel | 800   |