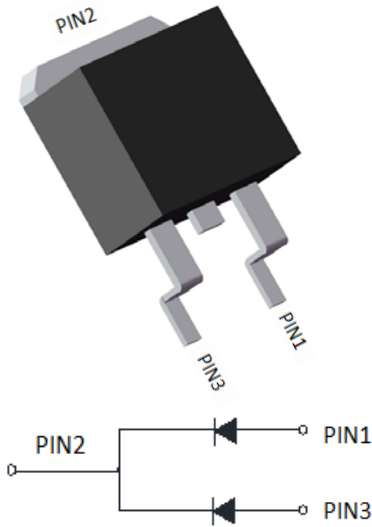


## Schottky Diodes



### Features

- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- Part no. with suffix "Q" means AEC-Q101 qualified

### Typical Applications

Typical applications are in switching power supplies, converters, automotive, freewheeling diodes, and reverse battery protection.

### Mechanical Data

- **Package:** TO-263  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** As marked

### ■Maximum Ratings (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER   | SYMBOL           | UNIT             | MBRB4060CTQ |
|---|------------------|------------------|-------------|
| Device marking code   |                  |                  | MBRB4060CT  |
| Repetitive peak reverse voltage   | V <sub>RRM</sub> | V                | 60          |
| Average Rectified Output Current<br>@60Hz -sine wave, T <sub>c</sub> =90°C                    | I <sub>O</sub>   | A                | 40          |
| Forward Surge Current (Non-repetitive)<br>@60Hz Half-sine wave, 1 cycle, T <sub>a</sub> =25°C | I <sub>FSM</sub> | A                | 300         |
| Current Squared Time<br>@1ms≤t≤8.3ms T <sub>J</sub> =25°C                                     | I <sup>2</sup> t | A <sup>2</sup> s | 373         |
| Storage Temperature   | T <sub>stg</sub> | °C               | -55 ~ +150  |
| Junction Temperature  | T <sub>J</sub>   | °C               | -55 ~ +150  |

### ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER                               | SYMBOL         | UNIT | TEST CONDITIONS                                | Typ                   | Max  |     |
|---|----------------|------|--|-----------------------|------|-----|
| Instantaneous forward voltage per diode | V <sub>F</sub> | V    | I <sub>F</sub> =20A      T <sub>J</sub> =25°C  | 0.69                  | 0.73 |     |
|   |                |      | I <sub>F</sub> =20A      T <sub>J</sub> =125°C | 0.60                  | 0.68 |     |
| Typical junction capacitance per diode  | C <sub>J</sub> | pF   | V <sub>R</sub> =4V, f=1 MHz                    | 790                   |      |     |
| Instantaneous reverse current per diode | I <sub>R</sub> | mA   | V <sub>R</sub> =60V                            | T <sub>J</sub> =25°C  | -    | 0.1 |
|   |                |      |  | T <sub>J</sub> =125°C | -    | 20  |



## ■ Characteristics (Typical)

Fig.1: Forward Current Derating Curve

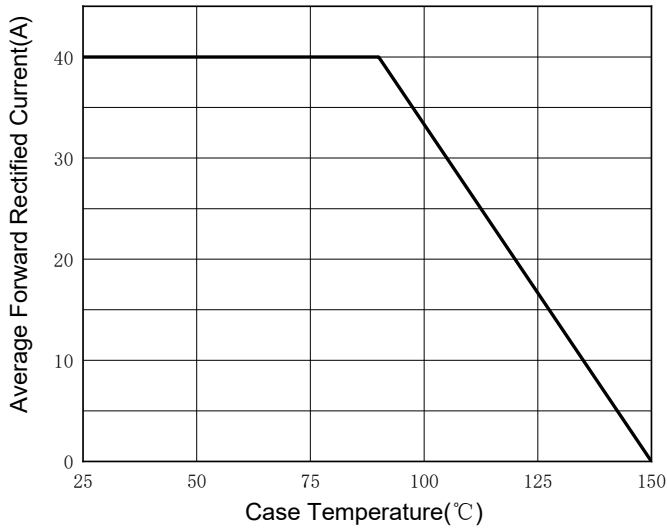


Fig.2: Forward Surge Current Capability(Per Diode)

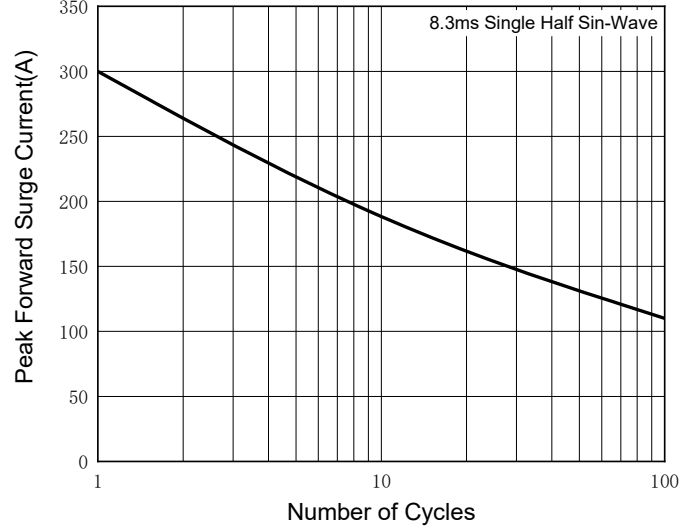


Fig.3: Typical Instantaneous Forward Characteristics(Per Diode)

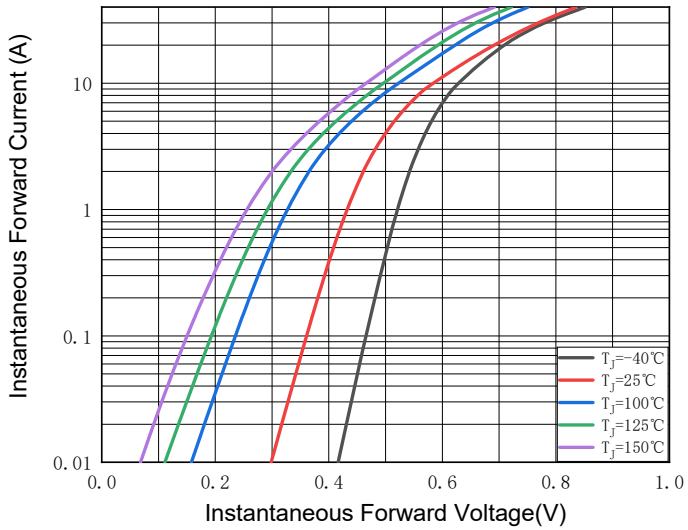


Fig.4: Typical Reverse Leakage Characteristics(Per Diode)

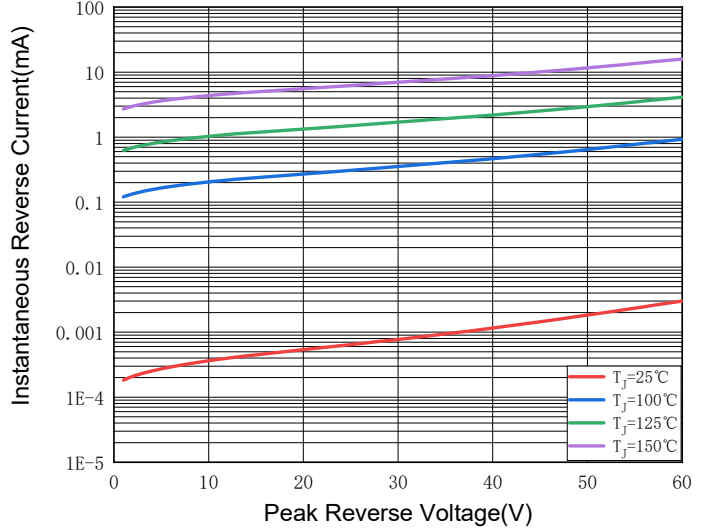
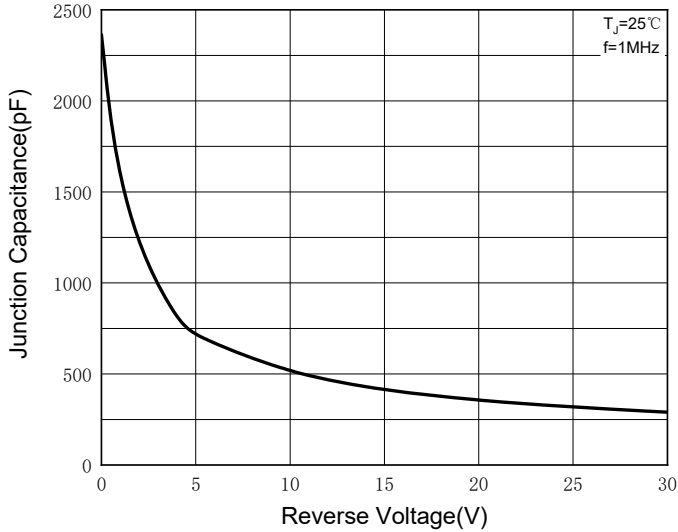


Fig.5: Typical Junction Capacitance(Per Diode)





# MBRB4060CTQ

## ■ Thermal Characteristics ( $T_a=25^{\circ}\text{C}$ Unless otherwise specified)

| PARAMETER                            | SYMBOL           | UNIT                        | MBRB4060CTQ       |
|--------------------------------------|------------------|-----------------------------|-------------------|
| Typical thermal resistance per diode | $R_{\theta J-A}$ | $^{\circ}\text{C}/\text{W}$ | 40 <sup>(1)</sup> |
|                                      | $R_{\theta J-C}$ | $^{\circ}\text{C}/\text{W}$ | 4 <sup>(1)</sup>  |

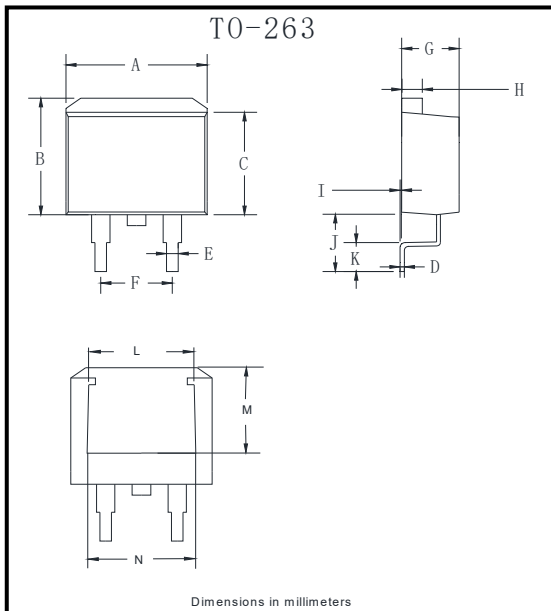
Note:

(1) Thermal resistance from junction to ambient and from junction to case mounted on P.C.B with 25.4mm\*25.4mm copper pad areas.

## ■ Ordering Information (Example)

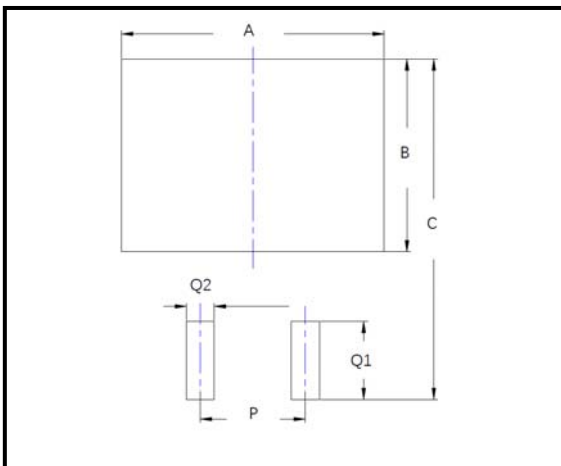
| PREFERED P/N | UNIT WEIGHT(g)   | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|--------------|------------------|----------------------|-------------------------|----------------------------|---------------|
| MBRB4060CTQ  | Approximate 1.43 | 1000                 | 2000                    | 10000                      | Reel          |

## ■ Outline Dimensions



| T0-263 |      |      |
|--------|------|------|
| Dim    | Min  | Max  |
| A      | 9.5  | 10.5 |
| B      | 9.7  | 10.5 |
| C      | 8.4  | 9.0  |
| D      | 0.28 | 0.64 |
| E      | 0.68 | 0.94 |
| F      | 4.55 | 5.6  |
| G      | 4.04 | 5.10 |
| H      | 1.14 | 1.4  |
| I      | 0    | 0.2  |
| J      | 4.9  | 6.05 |
| K      | 1.79 | 2.79 |
| L      | 7.3  | 7.9  |
| M      | 6.2  | 6.8  |
| N      | 7.6  | 8.2  |

## ■ Suggested Pad Layout



| Dim | Millimeters |
|-----|-------------|
| A   | 12.7        |
| B   | 9.4         |
| C   | 16.6        |
| P   | 5.08        |
| Q1  | 3.8         |
| Q2  | 1.35        |



## MBRB4060CTQ

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