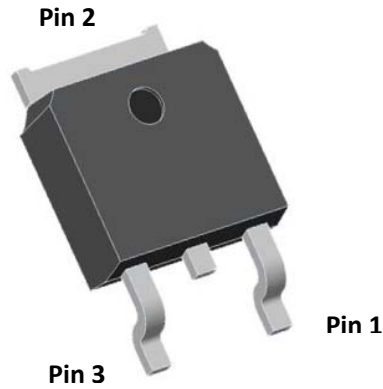




## Schottky Diodes

### 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-252  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen free
- **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             | MBR2060CDQ |
|-----------------------------------------------------------------------------------------------|------------------|------------------|------------|
| Device marking code                                                                           | -                | -                | MBR2060CD  |
| Repetitive peak reverse voltage                                                               | V <sub>RRM</sub> | V                | 60         |
| Average Rectified Output Current<br>@60Hz -sine wave, T <sub>c</sub> =115°C                   | I <sub>O</sub>   | A                | 20         |
| Forward Surge Current (Non-repetitive)<br>@60Hz Half-sine wave, 1 cycle, T <sub>a</sub> =25°C | I <sub>FSM</sub> | A                | 130        |
| Current Squared Time @1ms≤t≤8.3ms T <sub>J</sub> =25°C                                        | I <sup>2</sup> t | A <sup>2</sup> s | 70         |
| 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> =10A                                              | T <sub>J</sub> =25°C  | 0.72 | 0.8 |
|                                         |                 |      |                                                                  | T <sub>J</sub> =125°C | 0.63 | 0.7 |
| Typical junction capacitance per diode  | C <sub>J</sub>  | pF   | V <sub>R</sub> =4V, f=1 MHz                                      |                       | 280  | -   |
| Reverse recovery time per diode         | T <sub>RR</sub> | ns   | I <sub>F</sub> =0.5A, I <sub>R</sub> =1A, I <sub>rr</sub> =0.25A |                       | 15   |     |
| 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 | -    | 30  |



## ■ Characteristics (Typical)

Fig.1: Forward Current Derating Curve

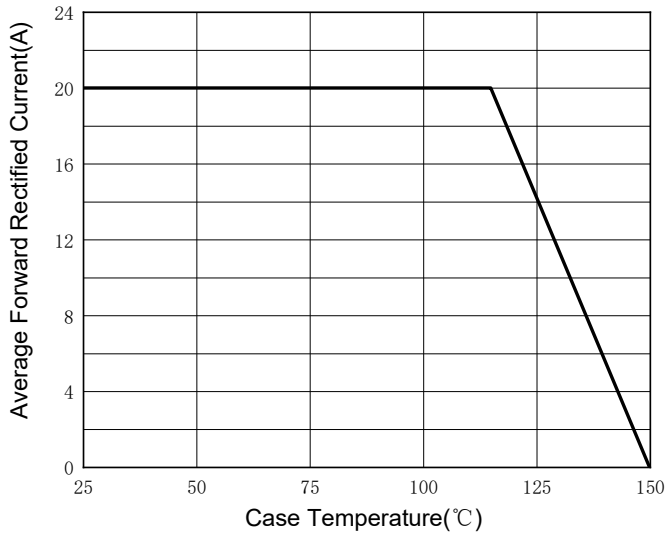


Fig.2: Forward Surge Current Capability(Per Diode)

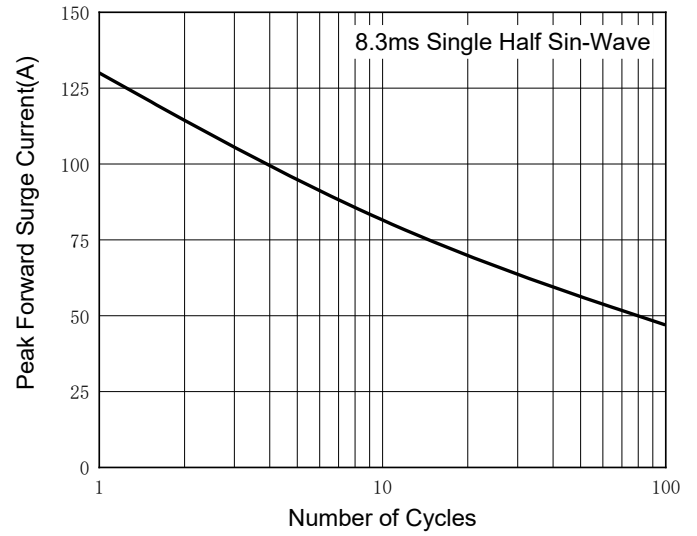


Fig.3: Typical Instantaneous Forward Characteristics(Per Diode)

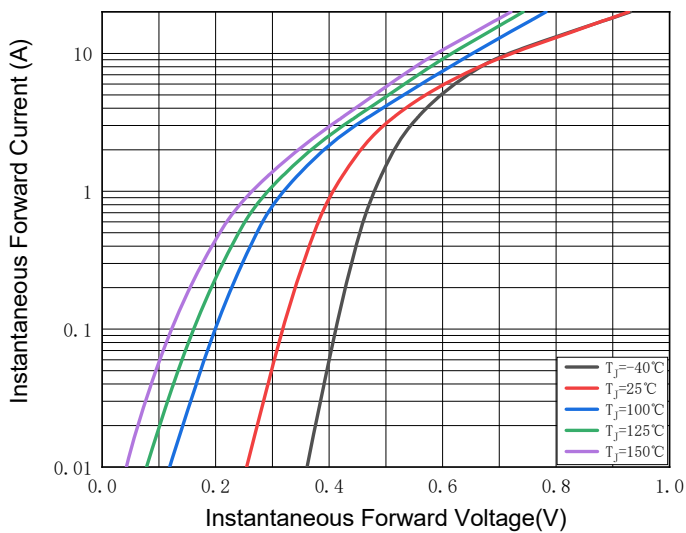


Fig.4: Typical Reverse Leakage Characteristics(Per Diode)

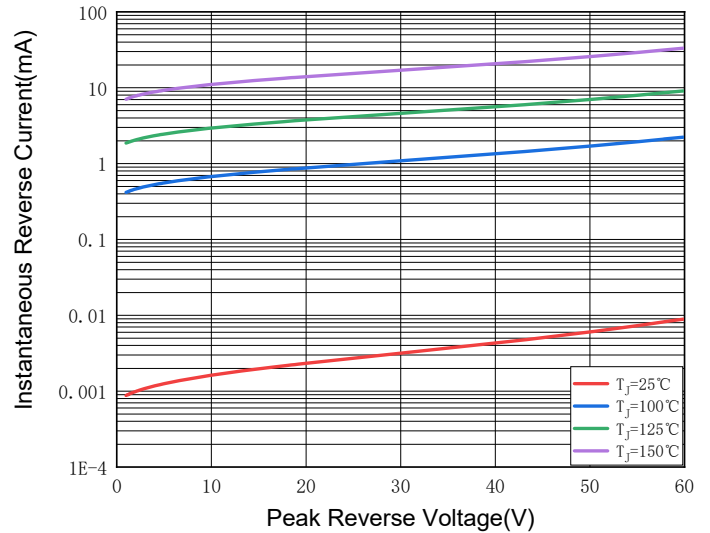
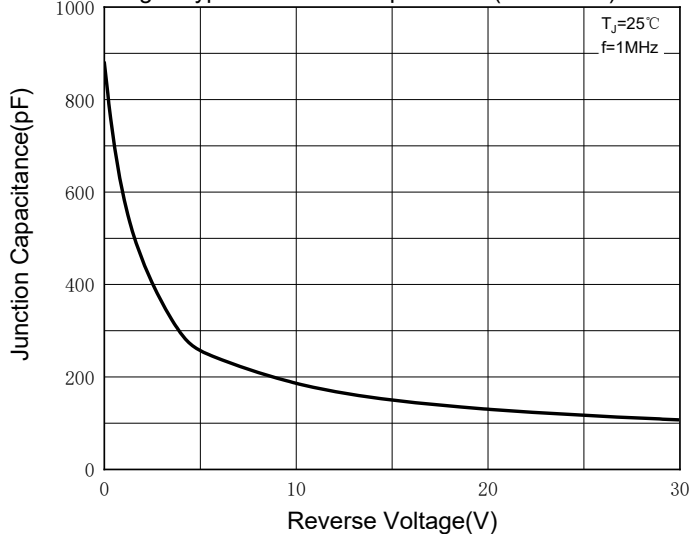


Fig.5: Typical Junction Capacitance(Per Diode)





## MBR2060CDQ

### ■ Thermal Characteristics

| PARAMETER                            | SYMBOL           | UNIT                 | MBR2060CDQ        |
|--------------------------------------|------------------|----------------------|-------------------|
| Typical thermal resistance per diode | $R_{\theta J-A}$ | $^{\circ}\text{C/W}$ | 45 <sup>(1)</sup> |
|                                      | $R_{\theta J-C}$ | $^{\circ}\text{C/W}$ | 4 <sup>(1)</sup>  |

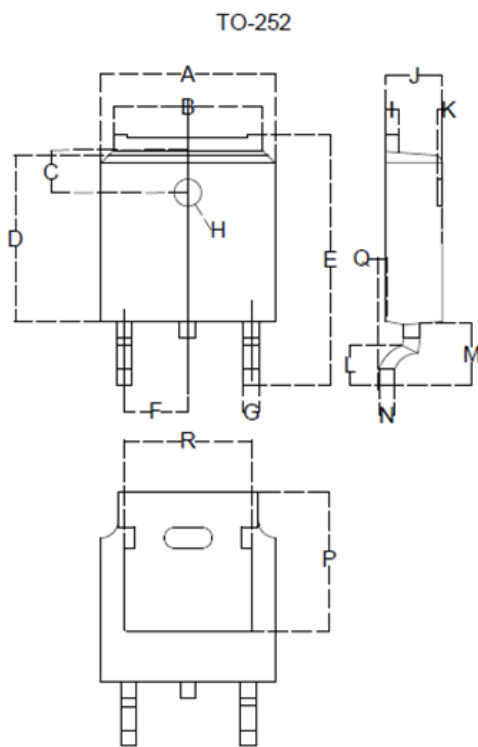
Note:

(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)

| PREFERRED P/N | UNIT WEIGHT(g)   | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|------------------|----------------------|-------------------------|----------------------------|---------------|
| MBR2060CDQ    | Approximate 0.32 | 2500                 | 2500                    | 25000                      | Reel          |

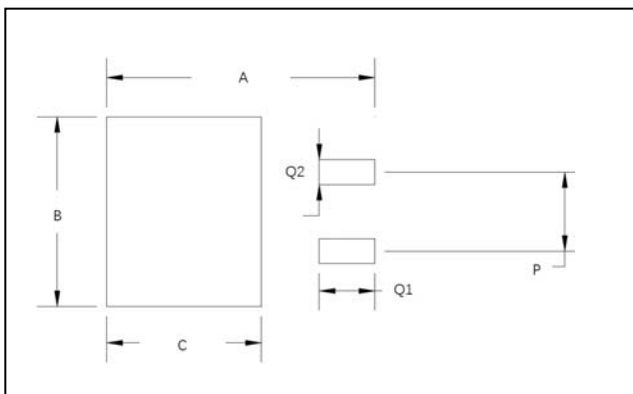
### ■ Outline Dimensions



Dimensions in millimeters

| TO-252 |              |              |
|--------|--------------|--------------|
| Dim    | Min          | Max          |
| A      | 6.500        | 6.700        |
| B      | 5.100        | 5.460        |
| C      | 1.400        | 1.800        |
| D      | 6.000        | 6.200        |
| E      | 10.000       | 10.400       |
| F      | 2.166        | 2.366        |
| G      | 0.660        | 0.860        |
| H      | $\Phi 1.050$ | $\Phi 1.350$ |
| I      | 0.460        | 0.580        |
| J      | 2.200        | 2.400        |
| K      | 0            | 0.300        |
| L      | 0.890        | 2.290        |
| M      | 2.730        | 3.080        |
| N      | 0.430        | 0.580        |
| P      | 5.15         | 5.45         |
| Q      | 0            | 0.2          |
| R      | 4.500        | 5.100        |

### ■ Suggested Pad Layout



| Dim | Millimeters |
|-----|-------------|
| A   | 10.70       |
| B   | 5.70        |
| C   | 6.23        |
| P   | 4.532       |
| Q1  | 2.25        |
| Q2  | 1.21        |



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