RBR20BGE60A  
Schottky Barrier Diode  

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Limits</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetitive peak reverse voltage</td>
<td>$V_{RM}$</td>
<td>Duty $\leq 0.5$</td>
<td>60</td>
<td>V</td>
</tr>
<tr>
<td>Reverse voltage</td>
<td>$V_R$</td>
<td>Reverse direct voltage</td>
<td>60</td>
<td>V</td>
</tr>
<tr>
<td>Average rectified forward current</td>
<td>$I_o$</td>
<td>$60\text{Hz half sin waveform, resistive load, } I_o/2 \text{ per diode, } T_c=50^\circ\text{C Max.}$</td>
<td>20</td>
<td>A</td>
</tr>
<tr>
<td>Peak forward surge current</td>
<td>$I_{FSM}$</td>
<td>$60\text{Hz half sin waveform, non-repetitive, per diode, } T_a=25^\circ\text{C}$</td>
<td>100</td>
<td>A</td>
</tr>
<tr>
<td>Junction temperature$^{(1)}$</td>
<td>$T_j$</td>
<td>-</td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>$T_{stg}$</td>
<td>-</td>
<td>-55 $\sim$ 150</td>
<td>°C</td>
</tr>
</tbody>
</table>

Note(1) To avoid occurrence of thermal runaway, actual board is to be designed to fulfill $dP/dT_j<1/R_{thJA}$.

Attention
Compared with PN junction diodes, Schottky Barrier Diode is generally high reverse current (IR). The reverse loss of the diode might increase as temperature increasing that causes heat-up and further IR. This phenomenon might end up the thermal destruction(thermal runaway). Therefore please give consideration to the reverse loss and the ambient temperature when using this product.
### Electrical Characteristics (T<sub>j</sub>=25°C unless otherwise specified)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward voltage&lt;sup&gt;(1)&lt;/sup&gt;</td>
<td>V&lt;sub&gt;F&lt;/sub&gt;</td>
<td>I&lt;sub&gt;F&lt;/sub&gt;=10A</td>
<td>-</td>
<td>-</td>
<td>0.59</td>
<td>V</td>
</tr>
<tr>
<td>Reverse current&lt;sup&gt;(1)&lt;/sup&gt;</td>
<td>I&lt;sub&gt;R&lt;/sub&gt;</td>
<td>V&lt;sub&gt;R&lt;/sub&gt;=60V</td>
<td>-</td>
<td>-</td>
<td>600</td>
<td>μA</td>
</tr>
</tbody>
</table>

Note:  
<sup>(1)</sup> Value per diode

### Thermal Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Resistance (Junction to case)&lt;sup&gt;(1)&lt;/sup&gt; (2)</td>
<td>R&lt;sub&gt;θJC&lt;/sub&gt;</td>
<td>-</td>
<td>-</td>
<td>0.86</td>
<td>℃/W</td>
</tr>
<tr>
<td>Per diode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per device</td>
<td></td>
<td>-</td>
<td>-</td>
<td>0.47</td>
<td>℃/W</td>
</tr>
<tr>
<td>Thermal Resistance (Junction to ambient)&lt;sup&gt;(1)&lt;/sup&gt; (3)</td>
<td>R&lt;sub&gt;θJA&lt;/sub&gt;</td>
<td>-</td>
<td>-</td>
<td>75</td>
<td>℃/W</td>
</tr>
</tbody>
</table>

Notes:  
<sup>(1)</sup> Value is guaranteed by design.  
<sup>(2)</sup> Transient dual interface measurement (TDIM) method.  
<sup>(3)</sup> Mounted on 50 x 50 x 1.6mm FR4 board, single-sided copper, 35μm thickness, reference footprint.

### Characteristic Curves

![Normalized Transient Thermal Impedance vs Pulse Time](image_url)

**Normalized Transient Thermal Impedance from Junction to Case (Per Device)**
Characteristic Curves

**Forward Current** $I_f$ vs. **Forward Voltage** $V_f$

- $T=150^\circ C$
- $T=125^\circ C$
- $T=75^\circ C$
- $T=25^\circ C$
- $T=25^\circ C$

**Reverse Current** $I_r$ vs. **Reverse Voltage** $V_r$

- $T=150^\circ C$
- $T=125^\circ C$
- $T=75^\circ C$
- $T=25^\circ C$
- $T=25^\circ C$

**Capacitance Between Terminals** $C_f$

- $f=1\text{MHz}$
- $T=25^\circ C$
- per diode

**Reverse Recovery Time** $t_{rr}$

- $T=95^\circ C$
- $I=0.5\text{A}$
- $I_s=1\text{A}$
- $I_{sw}=0.25\text{A}$
- $n=10\text{pcs}$
- per diode

Average $t_{rr}=23.3\text{ns}$
● Characteristic Curves

- **Critical Peak Surge**
- **Forward Current**
- **Number of Cycles**
  - $I_{FSCR}$ - Cycle Characteristics
- **Time**
  - $I_{FSCR}$ - Time Characteristics

- **Forward Power Dissipation**
  - $P_f$ vs. Average Rectified Forward Current ($I_f$)
  - Characteristics

- **Reverse Power Dissipation**
  - $P_r$ vs. Reverse Voltage ($V_r$)
  - Characteristics

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● Characteristic Curves

![Characteristic Curves Diagram](image-url)
● Dimensions

<table>
<thead>
<tr>
<th>D/M</th>
<th>Min</th>
<th>Average</th>
<th>Max</th>
<th>Min</th>
<th>Average</th>
<th>Max</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>2.20</td>
<td>2.30</td>
<td>2.40</td>
<td>0.087</td>
<td>0.091</td>
<td>0.094</td>
</tr>
<tr>
<td>A1</td>
<td>-</td>
<td>0.10</td>
<td>-</td>
<td>-</td>
<td>0.004</td>
<td>-</td>
</tr>
<tr>
<td>b</td>
<td>0.60</td>
<td>0.75</td>
<td>0.90</td>
<td>0.024</td>
<td>0.030</td>
<td>0.035</td>
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<tr>
<td>b2</td>
<td>-</td>
<td>0.85</td>
<td>-</td>
<td>-</td>
<td>0.033</td>
<td>-</td>
</tr>
<tr>
<td>b3</td>
<td>0.20</td>
<td>0.35</td>
<td>0.50</td>
<td>0.205</td>
<td>0.211</td>
<td>0.217</td>
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<tr>
<td>L</td>
<td>0.40</td>
<td>0.50</td>
<td>0.60</td>
<td>0.016</td>
<td>0.020</td>
<td>0.024</td>
</tr>
<tr>
<td>e2</td>
<td>0.40</td>
<td>0.50</td>
<td>0.60</td>
<td>0.016</td>
<td>0.020</td>
<td>0.024</td>
</tr>
<tr>
<td>D</td>
<td>6.00</td>
<td>6.10</td>
<td>6.40</td>
<td>0.236</td>
<td>0.240</td>
<td>0.252</td>
</tr>
<tr>
<td>D1</td>
<td>-</td>
<td>5.30</td>
<td>-</td>
<td>-</td>
<td>0.226</td>
<td>-</td>
</tr>
<tr>
<td>E</td>
<td>6.40</td>
<td>6.60</td>
<td>6.80</td>
<td>0.252</td>
<td>0.260</td>
<td>0.268</td>
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<tr>
<td>E1</td>
<td>-</td>
<td>4.80</td>
<td>-</td>
<td>-</td>
<td>0.189</td>
<td>-</td>
</tr>
<tr>
<td>e</td>
<td>-</td>
<td>2.30</td>
<td>-</td>
<td>-</td>
<td>0.091</td>
<td>-</td>
</tr>
<tr>
<td>H</td>
<td>9.40</td>
<td>10.00</td>
<td>10.40</td>
<td>0.370</td>
<td>0.394</td>
<td>0.409</td>
</tr>
<tr>
<td>L1</td>
<td>-</td>
<td>1.50</td>
<td>-</td>
<td>-</td>
<td>0.059</td>
<td>-</td>
</tr>
<tr>
<td>L3</td>
<td>0.70</td>
<td>1.00</td>
<td>1.30</td>
<td>0.028</td>
<td>0.039</td>
<td>0.051</td>
</tr>
<tr>
<td>L4</td>
<td>0.60</td>
<td>0.80</td>
<td>1.00</td>
<td>0.024</td>
<td>0.031</td>
<td>0.039</td>
</tr>
</tbody>
</table>

● Taping (Unit:mm)

φ1.5 ±0.1  4.0±0.1  2.0±0.1  8.0±0.1  175±0.1  7.5±0.1  10±0.1  13±0.3  16±0.2  0.3±0.1  2.5±0.1
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<table>
<thead>
<tr>
<th>JAPAN</th>
<th>USA</th>
<th>EU</th>
<th>CHINA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS III</td>
<td>CLASS III</td>
<td>CLASS II b</td>
<td>CLASS III</td>
</tr>
<tr>
<td>CLASS IV</td>
<td></td>
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</tr>
</tbody>
</table>

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   - [g] Use of our Products without cleaning residue of flux (Exclude cases where no-clean type fluxes is used. However, recommend sufficiently about the residue.) ; or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
   - [h] Use of the Products in places subject to dew condensation

4. The Products are not subject to radiation-proof design.

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6. In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse, is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.

7. De-rate Power Dissipation depending on ambient temperature. When used in sealed area, confirm that it is the use in the range that does not exceed the maximum junction temperature.

8. Confirm that operation temperature is within the specified range described in the product specification.

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2. In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

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   [c] the Products are exposed to direct sunshine or condensation
   [d] the Products are exposed to high Electrostatic

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