Schottky Barrier Diode
RB161QS-40

- **Applications**
  General rectification

- **Features**
  1) Small Silicon package (SMD1006)
  2) Halogen free
  3) Low $V_F$

- **Construction**
  Silicon epitaxial planar type

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### Dimensions (Unit : mm)

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### Land Size Figure (Unit : mm)

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### Structure

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### Taping Dimensions (Unit : mm)

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### Absolute Maximum Ratings ($T_c=25^\circ C$)

<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>40</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>$V_R$</td>
<td>Direct Reverse Voltage</td>
<td>40</td>
<td>V</td>
</tr>
<tr>
<td>Average forward rectified current</td>
<td>$I_O$</td>
<td>Glass epoxy board mounted, 60Hz half sin wave, resistive load, $T_c=90^\circ C$ Max.</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>Repetitive Peak Forward Current</td>
<td>$I_{FRM}$</td>
<td>15ms Duty $\leq 0.25$</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>Non-repetitive Forward Current Surge Peak</td>
<td>$I_{FSM}$</td>
<td>60Hz half sin wave, one cycle, Non-repetitive at $T_a=25^\circ C$</td>
<td>7</td>
<td>A</td>
</tr>
<tr>
<td>Operating Junction Temperature</td>
<td>$T_j$</td>
<td>-</td>
<td>150</td>
<td>$^\circ C$</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{stg}$</td>
<td>-</td>
<td>-55~150</td>
<td>$^\circ C$</td>
</tr>
</tbody>
</table>

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### Electrical Characteristics ($T_j=25^\circ C$)

<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</td>
<td>$V_F$</td>
<td>$I_F=1A$</td>
<td>-</td>
<td>-</td>
<td>600</td>
<td>mV</td>
</tr>
<tr>
<td>Reverse Current</td>
<td>$I_R$</td>
<td>$V_R=10V$</td>
<td>-</td>
<td>-</td>
<td>100</td>
<td>$\mu A$</td>
</tr>
</tbody>
</table>

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Electrical Characteristic Curves

- **V_f-I_f CHARACTERISTICS**
  - Forward current vs forward voltage for different temperatures.

- **V_r-I_r CHARACTERISTICS**
  - Reverse current vs reverse voltage for different temperatures.

- **I_o-P_f CHARACTERISTICS**
  - Average rectified forward current vs forward power dissipation for different temperatures.

- **V_r-P_r CHARACTERISTICS**
  - Reverse voltage vs reverse power dissipation for different temperatures.

- **DERATING CURVE (I_o-T_a)**
  - Derating curve for average rectified forward current vs ambient temperature for different temperatures.

- **DERATING CURVE (I_o-T_c)**
  - Derating curve for average rectified forward current vs case temperature for different temperatures.

Glass epoxy board mounted.
● Electrical Characteristic Curves

V<sub>R</sub>-C<sub>t</sub> CHARACTERISTICS

REVERSE VOLTAGE: V<sub>R</sub>(V) vs. CAPACITANCE BETWEEN TERMINALS: C<sub>t</sub>(pF)

T<sub>θ</sub>-25°C  f=1MHz

TRANSIENT THERMAL IMPEDANCE: R<sub>θ</sub>(℃/W)

TIME: t(s) vs. 1000

REVERSE VOLTAGE: V<sub>R</sub>(V) vs. 0.01

R<sub>θ</sub>-t CHARACTERISTICS

TIME: t(s) vs. 1000

GLASS EPOXY BOARD MOUNTED

I<sub>FSM</sub>=10mA  I<sub>F</sub>=1.5A

Peak Surge Forward Current: I<sub>FSM</sub>(A)

NUMBER OF CYCLES vs. 100

IF<sub>FSM</sub>-CYCLE CHARACTERISTICS

TIME: t(ms) vs. 1

IF<sub>FSM</sub>-t CHARACTERISTICS

TIME: t(ms) vs. 100

IF<sub>FSM</sub>-t CHARACTERISTICS
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(Note 1) Medical Equipment Classification of the Specific Applications

<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>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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[d] Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
[e] Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
[f] Sealing or coating our Products with resin or other coating materials
[g] Use of our Products without cleaning residue of flux (even if you use no-clean type fluxes, cleaning residue of flux is recommended); 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

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5. Please verify and confirm characteristics of the final or mounted products in using the Products.

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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.

9. ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

Precaution for Mounting / Circuit board design

1. When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.

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.

For details, please refer to ROHM Mounting specification
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Precaution for Electrostatic
This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of Ionizer, friction prevention and temperature / humidity control).

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   a. the Products are exposed to sea winds or corrosive gases, including Cl2, H2S, NH3, SO2, and NO2
   b. the temperature or humidity exceeds those recommended by ROHM
   c. the Products are exposed to direct sunshine or condensation
   d. the Products are exposed to high Electrostatic

2. Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.

3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.

4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

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