Super Fast Recovery Diode
RFN5B2S

●Applications
General rectification

●Features
1) Power mold type. (CPD)
2) Low switching loss
3) High current overload capacity

●Construction
Silicon epitaxial planer

●Dimensions (Unit : mm)

●Absolute maximum ratings (Tc=25°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>VRM</td>
<td>Duty≤0.5</td>
<td>200</td>
<td>V</td>
</tr>
<tr>
<td>Reverse voltage</td>
<td>VR</td>
<td>Direct voltage</td>
<td>200</td>
<td>V</td>
</tr>
<tr>
<td>Average rectified forward current</td>
<td>IO</td>
<td>60Hz half sin wave, resistive load</td>
<td>Tc=82°C</td>
<td>5</td>
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<tr>
<td>Forward current surge peak</td>
<td>IFSM</td>
<td>60Hz half sin wave, Non-repetitive one cycle peak value, Tj=25°C</td>
<td>40</td>
<td>A</td>
</tr>
<tr>
<td>Junction temperature</td>
<td>TJ</td>
<td></td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Tstg</td>
<td></td>
<td>-55 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

●Electrical characteristics (Tj=25°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>VF</td>
<td>Ip=5A</td>
<td></td>
<td>0.90</td>
<td>0.98</td>
<td>V</td>
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<tr>
<td>Reverse current</td>
<td>IR</td>
<td>VRe=200V</td>
<td></td>
<td>0.01</td>
<td>10</td>
<td>μA</td>
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<tr>
<td>Reverse recovery time</td>
<td>trr</td>
<td>Ip=0.5A, Ip=1A, trr=0.25×IR</td>
<td></td>
<td>13</td>
<td>25</td>
<td>ns</td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>Rth(j-c)</td>
<td>junction to lead</td>
<td></td>
<td>12</td>
<td></td>
<td>°C/W</td>
</tr>
</tbody>
</table>

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### FORWARD VOLTAGE: $V_F$ (mV)

- $V_F$ - $I_F$ CHARACTERISTICS

#### $I_F$ CHARACTERISTICS
- $T_j = 125^\circ C$
- $T_j = 25^\circ C$
- $T_j = 75^\circ C$
- $T_j = 150^\circ C$

#### REVERSE VOLTAGE: $V_R$ (V)

- $V_R$ - $I_R$ CHARACTERISTICS

#### CAPACITANCE BETWEEN TERMINALS: $C_t$ (pF)

- $f = 1\text{MHz}$
- $T_j = 25^\circ C$
- $V_R = 200\text{V}$
- $n = 20\text{pcs}$

#### FORWARD VOLTAGE: $V_F$ (mV)

- $V_F$ - $I_F$ CHARACTERISTICS

#### REVERSE CURRENT: $I_R$ (nA)

- $I_R$ - $V_R$ (V)

#### CAPACITANCE BETWEEN TERMINALS: $C_t$ (pF)

- $f = 1\text{MHz}$
- $V_R = 0\text{V}$
- $n = 10\text{pcs}$

### Dispersion Maps

- $I_F$ Dispersion Map
- $V_R$ Dispersion Map

**AVE:**
- $895.5\text{mV}$
- $135.2\text{pF}$
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**Data Sheet**

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**ITS ABILITY OF PEAK SURGE FORWARD CURRENT:**

- **I₃SM:** AVE: 112.5 A
- **t₈:** 8.3 ms

**REVERSE RECOVERY TIME:**

- **trr:** AVE: 12.6 ns

**NUMBER OF CYCLES I₃SM/CYCLE CHARACTERISTICS**

**ELECTROSTATIC DISCHARGE TEST ESD (KV):**

- **C=200pF R=0Ω:** No break at 30kV
- **C=100pF R=1.5kΩ:** AVE: 19.9kV

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**TRANSIENT THERMAL IMPEDANCE Rθj/CW:**

**Rth CHARACTERISTICS**

- **TIME (t):** 0.001 to 1000 s
- **Rθj:** 0 to 100 °C/W
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Data Sheet

FORWARD POWER DISSIPATION: $P_f$ (W)

AVERAGE RECTIFIED FORWARD CURRENT: $I_o$ (A)

D.C. $\sin(\theta = 180)$

$D=1/2$

CASE TEMPERATURE: $T_c$ (°C)

DERATING CURVE ($I_o$-$T_c$)

$V_R=100V$

$D=t/T$

$T_j=150° C$

$V_A=0V$

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