Description

The EG01A is a fast recovery diode of 600 V / 0.5 A. The maximum \( t_{tr} \) of 100 ns is realized by optimizing a life-time control.

Features

- \( V_{RM} = 600 \text{ V} \)
- \( I_{F(AV)} = 0.5 \text{ A} \)
- \( V_F = 2.0 \text{ V} \)
- \( t_{tr} = 100 \text{ ns} \)
- Bare Leads: Pb-free (RoHS Compliant)

Applications

- Secondary Side Rectifier Diode
  (Flyback Converter, LLC Converter, etc.)
- Freewheel Diode
  (Offline Buck and Buck-boost Converter)

Package

Axial (φ2.7 × 5.0L / φ0.6)

![Diode Package Diagram]
Absolute Maximum Ratings

Unless otherwise specified, $T_A = 25 \, ^\circ\text{C}$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Repetitive Reverse Voltage</td>
<td>$V_{RM}$</td>
<td>$600$ V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repetitive Reverse Voltage</td>
<td>$V_{RM}$</td>
<td>$600$ V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Forward Current</td>
<td>$I_{F\text{(AV)}}$</td>
<td>See Figure 2 and Figure 3</td>
<td>$0.5$ A</td>
<td></td>
</tr>
<tr>
<td>Surge Forward Current</td>
<td>$I_{FSM}$</td>
<td>Half cycle sine wave, positive side, $10$ ms, $1$ shot</td>
<td>$10$ A</td>
<td></td>
</tr>
<tr>
<td>$I^2t$ Limiting Value</td>
<td>$I^2t$</td>
<td>$1 , \text{ms} \leq t \leq 10 , \text{ms}$</td>
<td>$0.5$ A$^2$ s</td>
<td></td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>$T_J$</td>
<td>$-40$ to $150$ °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{STG}$</td>
<td>$-40$ to $150$ °C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Electrical Characteristics

Unless otherwise specified, $T_A = 25 \, ^\circ\text{C}$

<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 Drop</td>
<td>$V_F$</td>
<td>$T_J = 25 , ^\circ\text{C}, I_F = 0.5$ A</td>
<td>—</td>
<td>—</td>
<td>2.0  V</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$T_J = 100 , ^\circ\text{C}, I_F = 0.5$ A</td>
<td>—</td>
<td>1.0</td>
<td>—</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Leakage Current</td>
<td>$I_R$</td>
<td>$V_R = V_{RM}$</td>
<td>—</td>
<td>—</td>
<td>100  μA</td>
<td></td>
</tr>
<tr>
<td>Reverse Leakage Current Under High Temperature</td>
<td>$I_H I_R$</td>
<td>$V_R = V_{RM}, T_J = 100 , ^\circ\text{C}$</td>
<td>—</td>
<td>—</td>
<td>500  μA</td>
<td></td>
</tr>
<tr>
<td>Reverse Recovery Time</td>
<td>$I_{t1}$</td>
<td>$I_F = I_{RP} = 100$ mA, $90%$ recovery point, $T_J = 25 , ^\circ\text{C}$</td>
<td>—</td>
<td>—</td>
<td>100  ns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$I_{t2}$</td>
<td>$I_F = 100$ mA, $I_{RP} = 200$ mA, $75%$ recovery point, $T_J = 25 , ^\circ\text{C}$</td>
<td>—</td>
<td>—</td>
<td>50   ns</td>
<td></td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>$R_{th(J-L)}$</td>
<td>See Figure 1</td>
<td>—</td>
<td>—</td>
<td>20  °C/W</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1  Lead Temperature Measurement Conditions

(1)$R_{th(J-L)}$ is thermal resistance between junction and lead.
Rating and Characteristic Curves

Figure 2. $I_{F(AV)}$ vs. $T_L$ Typical Characteristics\(^{(2)}\)  
($V_R = 0$ V)

Figure 3. $I_{F(AV)}$ vs. $T_L$ Typical Characteristics\(^{(2)}\)  
($V_R = 600$ V)

Figure 4. $V_F$ vs. $I_F$ Typical Characteristics

Figure 5. $V_R$ vs. $I_R$ Typical Characteristics

\(^{(2)}\) See Figure 1 for the lead temperature measurement conditions.
Physical Dimensions

- Axial (φ2.7 × 5.0L / φ0.6)

![Axial Dimensions Diagram]

NOTES:
- Dimensions in millimeters
- Bare leads: Pb-free (RoHS compliant)
- When soldering the products, it is required to minimize the working time, within the following limits:
  - Flow: 260 ± 5 °C / 10 ± 1 s, 2 times
  - Soldering Iron: 380 ± 10 °C / 3.5 ± 0.5 s, 1 time (Soldering should be at a distance of at least 1.5 mm from the body of the product.)

Marking Diagram

Cathode Mark

Specific Device Code (see Table 1)

Lot Number:
- Y is the last digit of the year of manufacture (0 to 9)
- M is the month of the year (1 to 9, O, N or D)
- D is the period of days represented by:
  - : the first 10 days of the month (1st to 10th)
  - : the second 10 days of the month (11th to 20th)
  - : the last 10–11 days of the month (21st to 31st)

Table 1. Specific Device Code

<table>
<thead>
<tr>
<th>Specific Device Code</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>G0A</td>
<td>EG01A</td>
</tr>
</tbody>
</table>
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DSGN-AEZ-16003