1. General description

General-purpose Schottky diode in an ultra small DFN1006BD-2 (SOD882BD) leadless Surface-Mounted Device (SMD) plastic package with side-wettable flanks.

2. Features and benefits

- Forward current: $I_F \leq 0.2 \, \text{A}$
- Reverse voltage: $V_R \leq 30 \, \text{V}$
- Ultra small SMD plastic package
- Low leakage current
- Suitable for Automatic Optical Inspection (AOI) of solder joint
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Low voltage rectification
- Blocking diodes
- Low power consumption applications

4. Quick reference data

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$I_F$</td>
<td>forward current</td>
<td></td>
<td>-</td>
<td>-</td>
<td>200</td>
<td>mA</td>
</tr>
<tr>
<td>$I_R$</td>
<td>reverse current</td>
<td>$V_R = 30 , \text{V}; \ T_{amb} = 25 , ^\circ \text{C}$</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>$\mu \text{A}$</td>
</tr>
<tr>
<td>$V_R$</td>
<td>reverse voltage</td>
<td></td>
<td>-</td>
<td>-</td>
<td>30</td>
<td>V</td>
</tr>
</tbody>
</table>

5. Pinning information

<table>
<thead>
<tr>
<th>Pin</th>
<th>Symbol</th>
<th>Description</th>
<th>Simplified outline</th>
<th>Graphic symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>K</td>
<td>cathode[1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>A</td>
<td>anode</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[1] The marking bar indicates the cathode.
### 6. Ordering information

Table 3. Ordering information

<table>
<thead>
<tr>
<th>Type number</th>
<th>Package Name</th>
<th>Description</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAT32LS-Q</td>
<td>DFN1006BD-2</td>
<td>Leadless ultra small plastic package with side-wettable flanks (SWF); 2 terminals; 0.65 mm pitch; 1 mm x 0.6 mm x 0.47 mm body</td>
<td>SOD882BD</td>
</tr>
</tbody>
</table>

### 7. Marking

Table 4. Marking codes

<table>
<thead>
<tr>
<th>Type number</th>
<th>Marking code</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAT32LS-Q</td>
<td>8X</td>
</tr>
</tbody>
</table>

### 8. Limiting values

Table 5. Limiting values

*In accordance with the Absolute Maximum Rating System (IEC 60134).*

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_R$</td>
<td>reverse voltage</td>
<td></td>
<td>-</td>
<td>30</td>
<td>V</td>
</tr>
<tr>
<td>$I_F$</td>
<td>forward current</td>
<td></td>
<td>-</td>
<td>200</td>
<td>mA</td>
</tr>
<tr>
<td>$I_{FRM}$</td>
<td>repetitive peak forward current</td>
<td>$t_p \leq 1, \text{ms}$; $\delta \leq 0.25$</td>
<td>-</td>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>$I_{FSM}$</td>
<td>non-repetitive peak forward current</td>
<td>$t_p = 8, \text{ms}$; square wave; $T_{j,(\text{init})} = 25, ^\circ, \text{C}$</td>
<td>-</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>$P_{tot}$</td>
<td>total power dissipation</td>
<td>$T_{amb} \leq 25, ^\circ, \text{C}$</td>
<td>[1]</td>
<td>335</td>
<td>mW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[2]</td>
<td>610</td>
<td>mW</td>
</tr>
<tr>
<td>$T_j$</td>
<td>junction temperature</td>
<td></td>
<td>-</td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>$T_{amb}$</td>
<td>ambient temperature</td>
<td></td>
<td>-75</td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>$T_{stg}$</td>
<td>storage temperature</td>
<td></td>
<td>-65</td>
<td>150</td>
<td>°C</td>
</tr>
</tbody>
</table>

[2] For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses $P_R$ are a significant part of the total power losses.
[3] Device mounted on an FR4 PCB, 70 µm single-sided copper, tin-plated mounting pad for cathode 1 cm².

### 9. Thermal characteristics

Table 6. Thermal characteristics

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R_{th(j-a)}$</td>
<td>thermal resistance from junction to ambient</td>
<td>in free air</td>
<td>[1] [2]</td>
<td>-</td>
<td>-</td>
<td>375</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[3]</td>
<td>-</td>
<td>-</td>
<td>205</td>
</tr>
</tbody>
</table>

[2] For Schottky barrier diodes thermal runaway has to be considered, as in some applications the reverse power losses $P_R$ are a significant part of the total power losses.
[3] Device mounted on an FR4 PCB, 70 µm single-sided copper, tin-plated mounting pad for cathode 1 cm².
### 10. Characteristics

#### Table 7. Characteristics

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_F$</td>
<td>forward voltage</td>
<td>$I_F = 0.1 \text{ mA}; t_p \leq 300 \mu s; \delta \leq 0.02$; pulsed; $T_{amb} = 25 \degree C$</td>
<td>-</td>
<td>-</td>
<td>220</td>
<td>mV</td>
</tr>
<tr>
<td></td>
<td>$I_F = 1 \text{ mA}; t_p \leq 300 \mu s; \delta \leq 0.02$; pulsed; $T_{amb} = 25 \degree C$</td>
<td>-</td>
<td>-</td>
<td>290</td>
<td>mV</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$I_F = 10 \text{ mA}; t_p \leq 300 \mu s; \delta \leq 0.02$; pulsed; $T_{amb} = 25 \degree C$</td>
<td>-</td>
<td>-</td>
<td>360</td>
<td>mV</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$I_F = 100 \text{ mA}; t_p \leq 300 \mu s; \delta \leq 0.02$; pulsed; $T_{amb} = 25 \degree C$</td>
<td>-</td>
<td>-</td>
<td>500</td>
<td>mV</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$I_F = 200 \text{ mA}; t_p \leq 300 \mu s; \delta \leq 0.02$; pulsed; $T_{amb} = 25 \degree C$</td>
<td>-</td>
<td>-</td>
<td>600</td>
<td>mV</td>
<td></td>
</tr>
<tr>
<td>$I_R$</td>
<td>reverse current</td>
<td>$V_R = 30 \text{ V}; T_{amb} = 25 \degree C$</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>$\mu A$</td>
</tr>
<tr>
<td>$C_d$</td>
<td>diode capacitance</td>
<td>$V_R = 1 \text{ V}; f = 1 \text{ MHz}; T_{amb} = 25 \degree C$</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td>pF</td>
</tr>
</tbody>
</table>

**Fig. 1.** Forward current as a function of forward voltage; typical values

**Fig. 2.** Reverse current as a function of reverse voltage; typical values
General-purpose Schottky diode

Fig. 3. Diode capacitance as a function of reverse voltage; typical values

11. Test information

Quality information
This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - *Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

12. Package outline

Fig. 4. Package outline DFN1006BD-2 (SOD882BD)
13. Soldering

Footprint information for reflow soldering of DFN1006BD-2 package

Fig. 5. Reflow soldering footprint for DFN1006BD-2 (SOD882BD)
### 14. Revision history

Table 8. Revision history

<table>
<thead>
<tr>
<th>Data sheet ID</th>
<th>Release date</th>
<th>Data sheet status</th>
<th>Change notice</th>
<th>Supersedes</th>
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</thead>
<tbody>
<tr>
<td>BAT32LS-Q v.1</td>
<td>20220421</td>
<td>Product data sheet</td>
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<td>-</td>
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</table>
15. Legal information

Data sheet status

<table>
<thead>
<tr>
<th>Document status</th>
<th>Product status</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>[1][2]</td>
<td>[3]</td>
<td></td>
</tr>
</tbody>
</table>

Objective [short] data sheet

Development

This document contains data from the objective specification for product development.

Preliminary [short] data sheet

Qualification

This document contains data from the preliminary specification.

Product [short] data sheet

Production

This document contains the product specification.

---

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[2] The term "short data sheet" is explained in section "Definitions".

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General-purpose Schottky diode

Contents

1. General description ...................................................... 1
2. Features and benefits .................................................. 1
3. Applications ........................................................... 1
4. Quick reference data .................................................. 1
5. Pinning information ................................................... 1
6. Ordering information .................................................. 2
7. Marking ................................................................. 2
8. Limiting values ........................................................ 2
9. Thermal characteristics ............................................... 2
10. Characteristics ........................................................ 3
11. Test information ....................................................... 4
12. Package outline ....................................................... 4
13. Soldering .............................................................. 5
14. Revision history ....................................................... 6
15. Legal information ..................................................... 7

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