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Kind regards,

Team Nexperia
BAW101S
High voltage double diode
FEATURES

- Small plastic SMD package
- High switching speed: max. 50 ns
- High continuous reverse voltage: 300 V
- Electrically insulated diodes.

APPLICATIONS

- High voltage switching
- Automotive
- Communication.

DESCRIPTION

The BAW101S is a high-speed switching diode array with two separate dice, fabricated in planar technology and encapsulated in a small SOT363 plastic SMD package.

MARKING

<table>
<thead>
<tr>
<th>TYPE NUMBER</th>
<th>MARKING CODE(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAW101S</td>
<td>K2*</td>
</tr>
</tbody>
</table>

Note
1. ∗ = p: Made in Hong Kong.
   ∗ = t: Made in Malaysia.
   ∗ = W: Made in China.

PINNING

<table>
<thead>
<tr>
<th>PIN</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>anode 1</td>
</tr>
<tr>
<td>2</td>
<td>n.c.</td>
</tr>
<tr>
<td>3</td>
<td>cathode 2</td>
</tr>
<tr>
<td>4</td>
<td>anode 2</td>
</tr>
<tr>
<td>5</td>
<td>n.c.</td>
</tr>
<tr>
<td>6</td>
<td>cathode 1</td>
</tr>
</tbody>
</table>

Fig. 1 Simplified outline (SOT363) and symbol.
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>continuous reverse voltage</td>
<td>series connection</td>
<td>–</td>
<td>300</td>
<td>V</td>
</tr>
<tr>
<td>$V_{RRM}$</td>
<td>repetitive peak reverse voltage</td>
<td>series connection</td>
<td>–</td>
<td>300</td>
<td>V</td>
</tr>
<tr>
<td>$I_F$</td>
<td>continuous forward current</td>
<td>single diode loaded; note 1; see Fig.2</td>
<td>–</td>
<td>250</td>
<td>mA</td>
</tr>
<tr>
<td>$I_{FRM}$</td>
<td>repetitive peak forward current</td>
<td>double diode loaded; note 1; see Fig.2</td>
<td>–</td>
<td>140</td>
<td>mA</td>
</tr>
<tr>
<td>$I_{FSM}$</td>
<td>non-repetitive peak forward current</td>
<td>square wave; $T_j = 25 ^\circ C$ prior to surge; $t = 1 \mu s$</td>
<td>–</td>
<td>4.5</td>
<td>A</td>
</tr>
<tr>
<td>$P_{tot}$</td>
<td>total power dissipation</td>
<td>$T_{amb} = 25 ^\circ C$; note 1</td>
<td>–</td>
<td>350</td>
<td>mW</td>
</tr>
<tr>
<td>$T_{stg}$</td>
<td>storage temperature</td>
<td>–</td>
<td>–150</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>$T_j$</td>
<td>junction temperature</td>
<td>–</td>
<td>–150</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>$T_{amb}$</td>
<td>operating ambient temperature</td>
<td>–</td>
<td>–150</td>
<td>°C</td>
<td></td>
</tr>
</tbody>
</table>

Note:
1. Device mounted on an FR4 printed-circuit board, cathode-lead mounting pad = 1 cm².

ELECTRICAL CHARACTERISTICS
$T_j = 25 ^\circ C$ unless otherwise specified.

<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>$V_{BR(R)}$</td>
<td>reverse breakdown voltage</td>
<td>$I_R = 100 \mu A$</td>
<td>300</td>
<td>–</td>
<td>V</td>
</tr>
<tr>
<td>$V_F$</td>
<td>forward voltage</td>
<td>$I_F = 100 mA$; note 1</td>
<td>–</td>
<td>1.1</td>
<td>V</td>
</tr>
<tr>
<td>$I_R$</td>
<td>reverse current</td>
<td>$V_R = 250 V$; $T_{amb} = 150 ^\circ C$</td>
<td>–</td>
<td>150</td>
<td>nA</td>
</tr>
<tr>
<td>$I_{rr}$</td>
<td>reverse recovery time</td>
<td>when switched from $I_F = 30 mA$ to $I_R = 30 mA$; $R_L = 100 \Omega$; measured at $I_R = 3 mA$</td>
<td>–</td>
<td>50</td>
<td>ns</td>
</tr>
<tr>
<td>$C_d$</td>
<td>diode capacitance</td>
<td>$V_R = 0 V$; $f = 1 MHz$</td>
<td>–</td>
<td>2</td>
<td>pF</td>
</tr>
</tbody>
</table>

Note:
1. Pulse test: pulse width = 300 μs; $\delta = 0.02$. 
THERMAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>PARAMETER</th>
<th>CONDITIONS</th>
<th>VALUE</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R_{thj-s}$</td>
<td>thermal resistance from junction to soldering point</td>
<td>note 1</td>
<td>255</td>
<td>K/W</td>
</tr>
<tr>
<td>$R_{thj-a}$</td>
<td>thermal resistance from junction to ambient</td>
<td>note 2</td>
<td>357</td>
<td>K/W</td>
</tr>
</tbody>
</table>

Notes
1. One or more diodes loaded.
2. Device mounted on an FR4 printed-circuit board, cathode-lead mounting pad = 1 cm².

GRAPHICAL DATA

Fig. 2 Maximum permissible continuous forward current as a function of ambient temperature.

Fig. 3 Forward current as a function of forward voltage.

(1) Single diode loaded.
(2) Double diode loaded.
Device mounted on an FR4 printed-circuit board.
Cathode-lead mounting pad = 1 cm².

(1) $T_j = 150 ^\circ$ C; typical values.
(2) $T_j = 25 ^\circ$ C; typical values.
(3) $T_j = 25 ^\circ$ C; maximum values.
High voltage double diode

Based on square wave currents.

$T_j = 25 \, ^\circ C$ prior to surge.

**Fig. 4** Maximum permissible non-repetitive peak forward current as a function of pulse duration.

(1) $V_R = V_{R\text{MAX}}$: maximum values.
(2) $V_R = V_{R\text{MAX}}$: typical values.

**Fig. 5** Reverse current as a function of junction temperature.

**Fig. 6** Diode capacitance as a function of reverse voltage; typical values.
Fig. 7  Maximum permissible continuous reverse voltage as a function of ambient temperature.
High voltage double diode
BAW101S

PACKAGE OUTLINE
Plastic surface mounted package; 6 leads
SOT363

DIMENSIONS (mm are the original dimensions)

<table>
<thead>
<tr>
<th>UNIT</th>
<th>A</th>
<th>A1 max</th>
<th>bp</th>
<th>c</th>
<th>D</th>
<th>E</th>
<th>e</th>
<th>e1</th>
<th>H_E</th>
<th>L_p</th>
<th>Q</th>
<th>v</th>
<th>w</th>
<th>y</th>
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<tbody>
<tr>
<td>mm</td>
<td>1.1</td>
<td>0.8</td>
<td>0.30</td>
<td>0.25</td>
<td>2.2</td>
<td>1.35</td>
<td>1.35</td>
<td>0.65</td>
<td>2.2</td>
<td>2.0</td>
<td>0.45</td>
<td>0.25</td>
<td>0.2</td>
<td>0.1</td>
</tr>
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OUTLINE

REFERENCES

EUROPEAN

VERSION

PROJECTION

REFERENCES

ISSUE DATE

SOT363

IEC

JEDEC

EIAJ

SC-88

97-02-28

2003 May 13
High voltage double diode  

BAW101S

DATA SHEET STATUS

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<tr>
<th>DOCUMENT STATUS(1)</th>
<th>PRODUCT STATUS(2)</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective data sheet</td>
<td>Development</td>
<td>This document contains data from the objective specification for product development.</td>
</tr>
<tr>
<td>Preliminary data sheet</td>
<td>Qualification</td>
<td>This document contains data from the preliminary specification.</td>
</tr>
<tr>
<td>Product data sheet</td>
<td>Production</td>
<td>This document contains the product specification.</td>
</tr>
</tbody>
</table>

Notes

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