Silicon Schottky Diode

- General-purpose diode for high-speed switching
- Circuit protection
- Voltage clamping
- High-level detecting and mixing
- BAS70-04S: For orientation in reel see package information below
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

BAS170W  BAS70  BAS70-04  BAS70-04S  BAS70-05
BAS70-02L  BAS70-02W  BAS70-02V  BAS70-04W  BAS70-05W

1BAS70-02L is not qualified according AEC Q101
### Maximum Ratings at $T_A = 25 \, ^\circ C$, unless otherwise specified

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diode reverse voltage</td>
<td>$V_R$</td>
<td>70</td>
<td>V</td>
</tr>
<tr>
<td>Forward current</td>
<td>$I_F$</td>
<td>70</td>
<td>mA</td>
</tr>
<tr>
<td>Non-repetitive peak surge forward current</td>
<td>$I_{FSM}$</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>$t \leq 10\text{ms}$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total power dissipation</td>
<td>$P_{tot}$</td>
<td>250</td>
<td>mW</td>
</tr>
<tr>
<td>BAS70, BAS70-07, $T_S \leq 72 , ^\circ C$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAS70-02L, $T_S \leq 117 , ^\circ C$</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BAS70-02W, -02V, $T_S \leq 107 , ^\circ C$</td>
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<td></td>
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<tr>
<td>BAS70-04, BAS70-06, $T_S \leq 48 , ^\circ C$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAS70-04S/W/-06W, BAS170W, $T_S \leq 97 , ^\circ C$</td>
<td></td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>BAS70-05, $T_S \leq 22 , ^\circ C$</td>
<td></td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>BAS70-05W, $T_S \leq 90 , ^\circ C$</td>
<td></td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>BAS70-07W, $T_S \leq 114 , ^\circ C$</td>
<td></td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>Junction temperature</td>
<td>$T_J$</td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>$T_{op}$</td>
<td>-55 ... 125</td>
<td></td>
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<tr>
<td>Storage temperature</td>
<td>$T_{Stg}$</td>
<td>-55 ... 150</td>
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* Not for new design
## Thermal Resistance

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>Junction - soldering point&lt;sup&gt;1&lt;/sup&gt;</td>
<td>$R_{thJS}$</td>
<td>$\leq 310$</td>
<td>K/W</td>
</tr>
<tr>
<td>BAS70, BAS70-07</td>
<td></td>
<td></td>
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<tr>
<td>BAS70-02L</td>
<td></td>
<td>$\leq 130$</td>
<td></td>
</tr>
<tr>
<td>BAS70-02W, -02V</td>
<td></td>
<td>$\leq 170$</td>
<td></td>
</tr>
<tr>
<td>BAS70-04, BAS70-06</td>
<td></td>
<td>$\leq 410$</td>
<td></td>
</tr>
<tr>
<td>BAS70-04S/W, BAS70-06W</td>
<td></td>
<td>$\leq 210$</td>
<td></td>
</tr>
<tr>
<td>BAS70-05</td>
<td></td>
<td>$\leq 510$</td>
<td></td>
</tr>
<tr>
<td>BAS70-05W</td>
<td></td>
<td>$\leq 240$</td>
<td></td>
</tr>
<tr>
<td>BAS70-07W</td>
<td></td>
<td>$\leq 145$</td>
<td></td>
</tr>
<tr>
<td>BAS170W</td>
<td></td>
<td>$\leq 190$</td>
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</tr>
</tbody>
</table>

## Electrical Characteristics at $T_A = 25 \, ^\circ C$, unless otherwise specified

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Values</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>min.</td>
<td>typ.</td>
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<tr>
<td><strong>DC Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakdown voltage</td>
<td>$V_{(BR)}$</td>
<td>70</td>
<td>-</td>
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<tr>
<td>$I_{(BR)} = 10 , \mu A$</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Reverse current</td>
<td>$I_R$</td>
<td>-</td>
<td>-</td>
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<tr>
<td>$V_R = 50 , V$</td>
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<tr>
<td>Forward voltage</td>
<td>$V_F$</td>
<td>300</td>
<td>375</td>
</tr>
<tr>
<td>$I_F = 1 , mA$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$I_F = 10 , mA$</td>
<td></td>
<td>600</td>
<td>705</td>
</tr>
<tr>
<td>$I_F = 15 , mA$</td>
<td></td>
<td>720</td>
<td>880</td>
</tr>
<tr>
<td>Forward voltage matching&lt;sup&gt;2&lt;/sup&gt;)</td>
<td>$\Delta V_F$</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>$I_F = 10 , mA$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>1</sup> For calculation of $R_{thJA}$ please refer to Application Note AN077 (Thermal Resistance Calculation)

<sup>2</sup> $\Delta V_F$ is the difference between lowest and highest $V_F$ in a multiple diode component.
# Electrical Characteristics at $T_A = 25 \, ^\circ\text{C}$, unless otherwise specified

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Values</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diode capacitance $V_R = 0, f = 1 , \text{MHz}$</td>
<td>$C_T$</td>
<td>-</td>
<td>1.5</td>
</tr>
<tr>
<td>Forward resistance $I_F = 10 , \text{mA}, f = 10 , \text{kHz}$</td>
<td>$r_f$</td>
<td>-</td>
<td>34</td>
</tr>
<tr>
<td>Charge carrier life time $I_F = 25 , \text{mA}$</td>
<td>$\tau_{rr}$</td>
<td>-</td>
<td>-</td>
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</tbody>
</table>
Diode capacitance $C_T = f(V_R)$
$f = 1\text{MHz}$

Forward resistance $\eta_f = f(I_F)$
$f = 10\text{kHz}$

Reverse current $I_R = f(V_R)$
$T_A = \text{Parameter}$

Forward current $I_F = f(V_F)$
$T_A = \text{Parameter}$
Forward current $I_F = f(T_S)$
BAS70, BAS70-07

Forward current $I_F = f(T_S)$
BAS70-02W, -02V

Forward current $I_F = f(T_S)$
BAS70-04, BAS70-06

Forward current $I_F = f(T_S)$
BAS70-02L
Forward current $I_F = f(T_S)$
BAS70-04S/W, BAS70-06W, BAS170W

Forward current $I_F = f(T_S)$
BAS70-05

Forward current $I_F = f(T_S)$
BAS70-05W

Forward current $I_F = f(T_S)$
BAS70-07W
Forward current $I_F = f(T_S)$

BAS170W

Permissible Puls Load $R_{\text{thJS}} = f(t_p)$

BAS70

Permissible Pulse Load

$\frac{I_{F\text{max}}}{I_{F\text{DC}}} = f(t_p)$

BAS70

Permissible Puls Load $R_{\text{thJS}} = f(t_p)$

BAS70-02L
Permissible Pulse Load

$I_{F_{\text{max}}}/I_{F_{\text{DC}}} = f(t_p)$

BAS70-02L

Permissible Puls Load $R_{\text{thJS}} = f(t_p)$

BAS70-02W, -02V

Permissible Pulse Load

$I_{F_{\text{max}}}/I_{F_{\text{DC}}} = f(t_p)$

BAS70-02W, -02V

Permissible Puls Load $R_{\text{thJS}} = f(t_p)$

BAS70-04, BAS70-06
**Permissible Pulse Load**

\[ \frac{I_{\text{Fmax}}}{I_{\text{FDC}}} = f(t_p) \]

BAS70-04, BAS70-06

**Permissible Puls Load**

\[ R_{\text{thJS}} = f(t_p) \]

BAS70-04S

![Graph showing permissible pulse load and thermal impedance vs. pulse duration for BAS70-04W and BAS70-06W]
Permissible Pulse Load

\[ \frac{l_{\text{Fmax}}}{l_{\text{FDC}}} = f(t_p) \]

BAS70-04W, BAS70-06W

Permissible Pulse Load

\[ \frac{l_{\text{Fmax}}}{l_{\text{FDC}}} = f(t_p) \]

BAS70-05

Permissible Pulse Load

\[ \frac{l_{\text{Fmax}}}{l_{\text{FDC}}} = f(t_p) \]

BAS70-05W

Permissible Puls Load \( R_{\text{thJS}} = f(t_p) \)

BAS70-05
Permissible Pulse Load

\( I_{\text{Fmax}} / I_{\text{FDC}} = f(t_p) \)

BAS70-05W

Permissible Puls Load \( R_{\text{thJS}} = f(t_p) \)

BAS70-07W

Permissible Pulse Load

\( I_{\text{Fmax}} / I_{\text{FDC}} = f(t_p) \)

BAS70-07W

Permissible Puls Load \( R_{\text{thJS}} = f(t_p) \)

BAS170W
Permissible Pulse Load

\[ \frac{I_{\text{Fmax}}}{I_{\text{FDC}}} = f(t_p) \]

BAS170W
Package Outline

Foot Print

Marking Layout (Example)

Standard Packing

Reel ø180 mm = 3,000 Pieces/Reel
Reel ø180 mm = 8,000 Pieces/Reel (2 mm Pitch)
Reel ø330 mm = 10,000 Pieces/Reel
### Package Outline

- **Cathode marking**
- **Foot Print**
- **Marking Layout (Example)**

### Standard Packing

- Reel ø180 mm = 3.000 Pieces/Reel
- Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)
- Reel ø330 mm = 10.000 Pieces/Reel
Date Code marking for discrete packages with one digit (SCD80, SC79, SC75\(^1\)) CES-Code

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<td>n</td>
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<td>N</td>
<td>5</td>
</tr>
</tbody>
</table>

\(^1\) New Marking Layout for SC75, implemented at October 2005.
Package Outline

Foot Print

Marking Layout (Example)

Standard Packing
Reel Ø180 mm = 3,000 Pieces/Reel
Reel Ø330 mm = 10,000 Pieces/Reel
Package Outline

Foot Print

Marking Layout (Example)

Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel
Package Outline

Foot Print

Marking Layout

Standard Packing

Reel ø 180 mm: 3,000 Pieces / Reel
Reel ø 330 mm = 10,000 Pieces / Reel
Package Outline

Foot Print

Marking Layout (Example)

Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel
Package Outline

Foot Print

Marking Layout (Example)

Standard Packing
Reel Ø180 mm = 3,000 Pieces/Reel
Reel Ø330 mm = 10,000 Pieces/Reel
Package Outline

Foot Print

Marking Layout (Example)
Small variations in positioning of Date code, Type code and Manufacture are possible.

Standard Packing
Reel ø180 mm = 3,000 Pieces/Reel
Reel ø330 mm = 10,000 Pieces/Reel
For symmetric types no defined Pin 1 orientation in reel.
Package Outline

Top view

Bottom view

1) Dimension applies to plated terminal

Foot Print

For board assembly information please refer to Infineon website "Packages"

Marking Layout (Example)

Standard Packing

Reel ø180 mm – 15,000 Pieces/Reel
Reel ø330 mm – 50,000 Pieces/Reel (optional)
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