

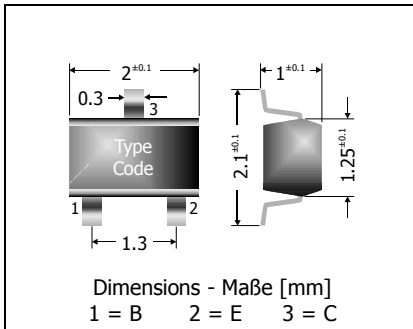
## BC846W ... BC849W

NPN

**Surface Mount General Purpose Si-Epi-Planar Transistors**  
**Si-Epi-Planar Universaltransistoren für die Oberflächenmontage**

NPN

Version 2011-07-07



Power dissipation – Verlustleistung

200 mW

Plastic case  
Kunststoffgehäuse

SOT-323

Weight approx. – Gewicht ca.

0.01 g

Plastic material has UL classification 94V-0  
Gehäusematerial UL94V-0 klassifiziertStandard packaging taped and reeled  
Standard Lieferform gegurtet auf Rolle

### Maximum ratings (T<sub>A</sub> = 25°C)

### Grenzwerte (T<sub>A</sub> = 25°C)

|                                                      |        |                   | BC846W               | BC847W | BC848W<br>BC849W |
|------------------------------------------------------|--------|-------------------|----------------------|--------|------------------|
| Collector-Emitter-volt. – Kollektor-Emitter-Spannung | B open | V <sub>CEO</sub>  | 65 V                 | 45 V   | 30 V             |
| Collector-Base-voltage – Kollektor-Basis-Spannung    | E open | V <sub>CBO</sub>  | 80 V                 | 50 V   | 30 V             |
| Emitter-Base-voltage – Emitter-Basis-Spannung        | C open | V <sub>EBO</sub>  | 6 V                  |        | 5 V              |
| Power dissipation – Verlustleistung                  |        | P <sub>tot</sub>  | 200 mW <sup>1)</sup> |        |                  |
| Collector current – Kollektorstrom (dc)              |        | I <sub>C</sub>    | 100 mA               |        |                  |
| Peak Collector current – Kollektor-Spitzenstrom      |        | I <sub>CM</sub>   | 200 mA               |        |                  |
| Peak Base current – Basis-Spitzenstrom               |        | I <sub>BM</sub>   | 200 mA               |        |                  |
| Peak Emitter current – Emitter-Spitzenstrom          |        | - I <sub>EM</sub> | 200 mA               |        |                  |
| Junction temperature – Sperrschichttemperatur        |        | T <sub>j</sub>    | -55...+150°C         |        |                  |
| Storage temperature – Lagerungstemperatur            |        | T <sub>s</sub>    | -55...+150°C         |        |                  |

### Characteristics (T<sub>j</sub> = 25°C)

### Kennwerte (T<sub>j</sub> = 25°C)

|                                                                                                   |                                               |                 | Min.            | Typ.   | Max.   |
|---------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------|-----------------|--------|--------|
| DC current gain – Kollektor-Basis-Stromverhältnis                                                 | V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 μA | Group A         | h <sub>FE</sub> | 90     | –      |
|                                                                                                   |                                               | Group B         | h <sub>FE</sub> | 150    | –      |
|                                                                                                   |                                               | Group C         | h <sub>FE</sub> | 270    | –      |
|                                                                                                   | V <sub>CE</sub> = 5 V, I <sub>C</sub> = 2 mA  | Group A         | h <sub>FE</sub> | 110    | 180    |
| Group B                                                                                           |                                               | h <sub>FE</sub> | 200             | 290    | 450    |
| Group C                                                                                           |                                               | h <sub>FE</sub> | 420             | 520    | 800    |
| Collector-Emitter saturation voltage – Kollektor-Sättigungsspannung <sup>2)</sup>                 |                                               |                 |                 |        |        |
| I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA<br>I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA | V <sub>CEsat</sub>                            |                 | –               | 90 mV  | 250 mV |
|                                                                                                   | V <sub>CEsat</sub>                            |                 | –               | 200 mV | 600 mV |

1 Mounted on P.C. board with 3 mm<sup>2</sup> copper pad at each terminal  
 Montage auf Leiterplatte mit 3 mm<sup>2</sup> Kupferbelag (Löt-pad) an jedem Anschluss

2 Tested with pulses t<sub>p</sub> = 300 μs, duty cycle ≤ 2% – Gemessen mit Impulsen t<sub>p</sub> = 300 μs, Schaltverhältnis ≤ 2%

**Characteristics (T<sub>j</sub> = 25°C)****Kennwerte (T<sub>j</sub> = 25°C)**

|                                                                                                                         |                                              | <b>Min.</b>                                                  | <b>Typ.</b>                                  | <b>Max.</b> |
|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------------------------------------------|----------------------------------------------|-------------|
| Base-Emitter saturation voltage – Basis-Sättigungsspannung <sup>2)</sup>                                                |                                              |                                                              |                                              |             |
| I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA                                                                         | V <sub>BEsat</sub>                           | –                                                            | 700 mV                                       | –           |
| I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA                                                                          | V <sub>BEsat</sub>                           | –                                                            | 900 mV                                       | –           |
| Base-Emitter-voltage – Basis-Emitter-Spannung <sup>2)</sup>                                                             |                                              |                                                              |                                              |             |
| V <sub>CE</sub> = 5 V, I <sub>C</sub> = 2 mA                                                                            | V <sub>BE</sub>                              | 580 mV                                                       | 660 mV                                       | 700 mV      |
| V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 mA                                                                           | V <sub>BE</sub>                              | –                                                            | –                                            | 720 mV      |
| Collector-Base cutoff current – Kollektor-Basis-Reststrom                                                               |                                              |                                                              |                                              |             |
| V <sub>CB</sub> = 30 V, (E open)                                                                                        | I <sub>CBO</sub>                             | –                                                            | –                                            | 15 nA       |
| V <sub>CE</sub> = 30 V, T <sub>j</sub> = 125°C, (E open)                                                                | I <sub>CBO</sub>                             | –                                                            | –                                            | 5 µA        |
| Emitter-Base cutoff current                                                                                             |                                              |                                                              |                                              |             |
| V <sub>EB</sub> = 5 V, (C open)                                                                                         | I <sub>EBO</sub>                             | –                                                            | –                                            | 100 nA      |
| Gain-Bandwidth Product – Transitfrequenz                                                                                |                                              |                                                              |                                              |             |
| V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 mA, f = 100 MHz                                                              | f <sub>T</sub>                               | 100 MHz                                                      | –                                            | –           |
| Collector-Base Capacitance – Kollektor-Basis-Kapazität                                                                  |                                              |                                                              |                                              |             |
| V <sub>CB</sub> = 10 V, I <sub>E</sub> = i <sub>e</sub> = 0, f = 1 MHz                                                  | C <sub>CB0</sub>                             | –                                                            | 3.5 pF                                       | 6 pF        |
| Emitter-Base Capacitance – Emitter-Basis-Kapazität                                                                      |                                              |                                                              |                                              |             |
| V <sub>EB</sub> = 0.5 V, I <sub>C</sub> = i <sub>c</sub> = 0, f = 1 MHz                                                 | C <sub>EBO</sub>                             | –                                                            | 9 pF                                         | –           |
| Noise figure – Rauschzahl                                                                                               |                                              |                                                              |                                              |             |
| V <sub>CE</sub> = 5 V, I <sub>C</sub> = 200 µA, R <sub>G</sub> = 2 kΩ                                                   | BC846W ... BC848W                            | F                                                            | –                                            | 2 dB        |
| f = 1 kHz, Δf = 200 Hz                                                                                                  | BC849W                                       | F                                                            | –                                            | 1.2 dB      |
| Thermal resistance junction to ambient air<br>Wärmewiderstand Sperrschicht – umgebende Luft                             |                                              | R <sub>thA</sub>                                             | < 620 K/W <sup>1)</sup>                      |             |
| Recommended complementary PNP transistors<br>Empfohlene komplementäre PNP-Transistoren                                  |                                              | BC856W ... BC859W                                            |                                              |             |
| Marking of available current gain<br>groups per type<br>Stempelung der lieferbare Stromverstärkungs-<br>gruppen pro Typ | BC846AW = 1A<br>BC847AW = 1E<br>BC848AW = 1J | BC846BW = 1B<br>BC847BW = 1F<br>BC848BW = 1K<br>BC849BW = 2B | BC847CW = 1G<br>BC848CW = 1L<br>BC849CW = 2C |             |

<sup>2)</sup> Tested with pulses t<sub>p</sub> = 300 µs, duty cycle ≤ 2% – Gemessen mit Impulsen t<sub>p</sub> = 300 µs, Schaltverhältnis ≤ 2%

<sup>1)</sup> Mounted on P.C. board with 3 mm<sup>2</sup> copper pad at each terminal  
Montage auf Leiterplatte mit 3 mm<sup>2</sup> Kupferbelag (Löt-pad) an jedem Anschluss