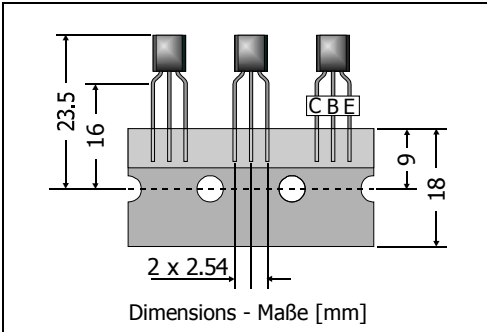


**BC556 ... BC559**  
**General Purpose Si-Epitaxial Planar Transistors**  
**Si-Epitaxial Planar-Transistoren für universellen Einsatz**

**PNP**

**PNP**

Version 2011-08-19



Power dissipation – Verlustleistung 500 mW  
 Plastic case TO-92  
 Kunststoffgehäuse (10D3)  
 Weight approx. – Gewicht ca. 0.18 g  
 Plastic material has UL classification 94V-0  
 Gehäusematerial UL94V-0 klassifiziert  
 Standard packaging taped in ammo pack  
 Standard Lieferform gegurtet in Ammo-Pack



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

**Grenzwerte (T<sub>A</sub> = 25°C)**

|   |           |                    | <b>BC556</b>         | <b>BC557</b> | <b>BC558/559</b> |
|---|-----------|--------------------|----------------------|--------------|------------------|
| Collector-Emitter-voltage                       | E-B short | - V <sub>CES</sub> | 80 V                 | 50 V         | 30 V             |
| Collector-Emitter-voltage                       | B open    | - V <sub>CEO</sub> | 65 V                 | 45 V         | 30 V             |
| Collector-Base-voltage                          | E open    | - V <sub>CBO</sub> | 80 V                 | 50 V         | 30 V             |
| Emitter-Base-voltage                            | C open    | - V <sub>EB0</sub> | 5 V                  |              |                  |
| Power dissipation – Verlustleistung             |           | P <sub>tot</sub>   | 500 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)**

|   |                 |                           | <b>Group A</b>          | <b>Group B</b>          | <b>Group C</b> |
|---|-----------------|---------------------------|-------------------------|-------------------------|----------------|
| DC current gain – Kollektor-Basis-Stromverhältnis <sup>2)</sup>                 |                 |                           |                         |                         |                |
| - V <sub>CE</sub> = 5 V, - I <sub>C</sub> = 10 µA                               | h <sub>FE</sub> | typ. 90                   | typ. 150                | typ. 270                |                |
| - V <sub>CE</sub> = 5 V, - I <sub>C</sub> = 2 mA                                | h <sub>FE</sub> | 110 ... 220               | 200 ... 450             | 420 ... 800             |                |
| - V <sub>CE</sub> = 5 V, - I <sub>C</sub> = 100 mA                              | h <sub>FE</sub> | typ. 120                  | typ. 200                | typ. 400                |                |
| h-Parameters at/bei - V <sub>CE</sub> = 5 V, - I <sub>C</sub> = 2 mA, f = 1 kHz |                 |                           |                         |                         |                |
| Small signal current gain<br>Kleinsignal-Stromverstärkung                       | h <sub>fe</sub> | typ. 220                  | typ. 330                | typ. 600                |                |
| Input impedance – Eingangs-Impedanz   | h <sub>ie</sub> | 1.6 ... 4.5 kΩ            | 3.2 ... 8.5 kΩ          | 6 ... 15 kΩ             |                |
| Output admittance – Ausgangs-Leitwert   | h <sub>oe</sub> | 18 < 30 µS                | 30 < 60 µS              | 60 < 110 µS             |                |
| Reverse voltage transfer ratio<br>Spannungsrückwirkung                          | h <sub>re</sub> | typ. 1.5*10 <sup>-4</sup> | typ. 2*10 <sup>-4</sup> | typ. 3*10 <sup>-4</sup> |                |

1 Valid, if leads are kept at ambient temperature at a distance of 2 mm from case  
 Gültig wenn die Anschlussdrähte in 2 mm Abstand vom Gehäuse auf Umgebungstemperatur gehalten werden

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

|   |                 |                      | <b>Min.</b>                | <b>Typ.</b>                          | <b>Max.</b>                |
|---|-----------------|----------------------|----------------------------|--------------------------------------|----------------------------|
| Collector-Emitter cutoff current – Kollektor-Emitter-Reststrom                              |                 |                      |                            |                                      |                            |
| - V <sub>CE</sub> = 80 V, (B-E short)   | BC556           | - I <sub>CES</sub>   | –                          | 0.2 nA                               | 15 nA                      |
| - V <sub>CE</sub> = 50 V, (B-E short)   | BC557           | - I <sub>CES</sub>   | –                          | 0.2 nA                               | 15 nA                      |
| - V <sub>CE</sub> = 30 V, (B-E short)   | BC558 / BC559   | - I <sub>CES</sub>   | –                          | 0.2 nA                               | 15 nA                      |
| - V <sub>CE</sub> = 80 V, T <sub>j</sub> = 125°C, (B-E short)                               | BC556           | - I <sub>CES</sub>   | –                          | –                                    | 4 µA                       |
| - V <sub>CE</sub> = 50 V, T <sub>j</sub> = 125°C, (B-E short)                               | BC557           | - I <sub>CES</sub>   | –                          | –                                    | 4 µA                       |
| - V <sub>CE</sub> = 30 V, T <sub>j</sub> = 125°C, (B-E short)                               | BC558 / BC559   | - I <sub>CES</sub>   | –                          | –                                    | 4 µA                       |
| Collector-Emitter saturation voltage – Kollektor-Emitter-Sättigungsspg <sup>2)</sup>        |                 |                      |                            |                                      |                            |
| - I <sub>C</sub> = 10 mA, - I <sub>B</sub> = 0.5 mA   |                 | - V <sub>CEsat</sub> | –                          | 80 mV                                | 300 mV                     |
| - I <sub>C</sub> = 100 mA, - I <sub>B</sub> = 5 mA  |                 | - V <sub>CEsat</sub> | –                          | 250 mV                               | 650 mV                     |
| Base-Emitter saturation voltage – Basis-Emitter-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>    | 600 mV                     | 660 mV                               | 750 mV                     |
| - V <sub>CE</sub> = 5 V, - I <sub>C</sub> = 10 mA   |                 | - V <sub>BE</sub>    | –                          | –                                    | 800 mV                     |
| Gain-Bandwidth Product – Transitfrequenz  |                 |                      |                            |                                      |                            |
| - V <sub>CE</sub> = 5 V, - I <sub>C</sub> = 10 mA, f = 100 MHz                              |                 | f <sub>T</sub>       | –                          | 150 MHz                              | –                          |
| Collector-Base Capacitance – Kollektor-Basis-Kapazität                                      |                 |                      |                            |                                      |                            |
| - V <sub>CB</sub> = 10 V, I <sub>E</sub> = I <sub>C</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>E</sub> = 0, f = 1 MHz                   |                 | C <sub>EB0</sub>     | –                          | 10 pF                                | –                          |
| Noise figure – Rauschzahl   |                 |                      |                            |                                      |                            |
| - V <sub>CE</sub> = 5 V, - I <sub>C</sub> = 200 µA, R <sub>G</sub> = 2 kΩ                   | BC556 ... BC558 | F                    | –                          | 2 dB                                 | 10 dB                      |
| f = 1 kHz, Δf = 200 Hz  | BC559           | F                    | –                          | 1 dB                                 | 4 dB                       |
| Thermal resistance junction to ambient air<br>Wärmewiderstand Sperrschicht – umgebende Luft |                 |                      | R <sub>thA</sub>           | < 200 K/W <sup>1)</sup>              |                            |
| Recommended complementary NPN transistors<br>Empfohlene komplementäre NPN-Transistoren      |                 |                      | BC546 ... BC549            |                                      |                            |
| Available current gain groups per type<br>Lieferbare Stromverstärkungsgruppen pro Typ       |                 |                      | BC556A<br>BC557A<br>BC558A | BC556B<br>BC557B<br>BC558B<br>BC559B | BC557C<br>BC558C<br>BC559C |

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

1 Valid, if leads are kept at ambient temperature at a distance of 2 mm from case

Gültig wenn die Anschlussdrähte in 2 mm Abstand vom Gehäuse auf Umgebungstemperatur gehalten werden