

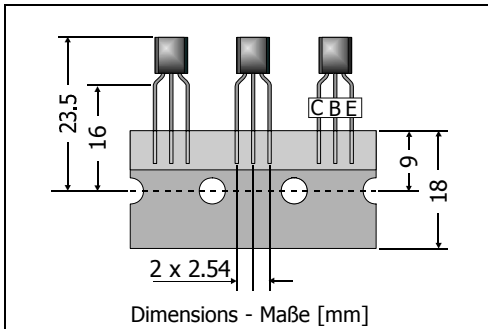
## BC546 ... BC549

NPN

General Purpose Si-Epitaxial Planar Transistors  
Si-Epitaxial Planar-Transistoren für universellen Einsatz

NPN

Version 2006-05-31



Power dissipation – Verlustleistung

500 mW

Plastic case  
KunststoffgehäuseTO-92  
(10D3)

Weight approx. – Gewicht ca.

0.18 g

Plastic material has UL classification 94V-0  
Gehäusematerial UL94V-0 klassifiziertStandard packaging taped in ammo pack  
Standard Lieferform gegurtet in Ammo-PackMaximum ratings ( $T_A = 25^\circ\text{C}$ )Grenzwerte ( $T_A = 25^\circ\text{C}$ )

			BC546	BC547	BC548/549
Collector-Emitter-voltage	E-B short	$V_{CES}$	85 V	50 V	30 V
Collector-Emitter-voltage	B open	$V_{CEO}$	65 V	45 V	30 V
Collector-Base-voltage	E open	$V_{CBO}$	80 V	50 V	30 V
Emitter-Base-voltage	C open	$V_{EBO}$	5 V		
Power dissipation – Verlustleistung		$P_{tot}$	500 mW <sup>1)</sup>		
Collector current – Kollektorstrom (dc)		$I_C$	100 mA		
Peak Collector current – Kollektor-Spitzenstrom		$I_{CM}$	200 mA		
Peak Base current – Basis-Spitzenstrom		$I_{BM}$	200 mA		
Peak Emitter current – Emitter-Spitzenstrom		$-I_{EM}$	200 mA		
Junction temperature – Sperrschichttemperatur		$T_j$	-55...+150°C		
Storage temperature – Lagerungstemperatur		$T_S$	-55...+150°C		

Characteristics ( $T_j = 25^\circ\text{C}$ )Kennwerte ( $T_j = 25^\circ\text{C}$ )

		Group A	Group B	Group C
DC current gain – Kollektor-Basis-Stromverhältnis <sup>2)</sup>				
$V_{CE} = 5\text{ V}, I_C = 10\ \mu\text{A}$	$h_{FE}$	typ. 90	typ. 150	typ. 270
$V_{CE} = 5\text{ V}, I_C = 2\text{ mA}$	$h_{FE}$	110 ... 220	200 ... 450	420 ... 800
$V_{CE} = 5\text{ V}, I_C = 100\text{ mA}$	$h_{FE}$	typ. 120	typ. 200	typ. 400
h-Parameters at/bei $V_{CE} = 5\text{ V}, I_C = 2\text{ mA}, f = 1\text{ kHz}$				
Small signal current gain Kleinsignal-Stromverstärkung	$h_{fe}$	typ. 220	typ. 330	typ. 600
Input impedance – Eingangs-Impedanz	$h_{ie}$	1.6 ... 4.5 k $\Omega$	3.2 ... 8.5 k $\Omega$	6 ... 15 k $\Omega$
Output admittance – Ausgangs-Leitwert	$h_{oe}$	18 < 30 $\mu\text{S}$	30 < 60 $\mu\text{S}$	60 < 110 $\mu\text{S}$
Reverser voltage transfer ratio Spannungsrückwirkung	$h_{re}$	typ. $1.5 \cdot 10^{-4}$	typ. $2 \cdot 10^{-4}$	typ. $3 \cdot 10^{-4}$

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)**

			Min.	Typ.	Max.
<b>Collector-Emitter cutoff current – Kollektor-Emitter-Reststrom</b>					
V <sub>CE</sub> = 80 V, (B-E short)	BC546	I <sub>CES</sub>	–	0.2 nA	15 nA
V <sub>CE</sub> = 50 V, (B-E short)	BC547	I <sub>CES</sub>	–	0.2 nA	15 nA
V <sub>CE</sub> = 30 V, (B-E short)	BC548 / BC549	I <sub>CES</sub>	–	0.2 nA	15 nA
V <sub>CE</sub> = 80 V, T <sub>j</sub> = 125°C, (B-E short)	BC546	I <sub>CES</sub>	–	–	4 µA
V <sub>CE</sub> = 50 V, T <sub>j</sub> = 125°C, (B-E short)	BC547	I <sub>CES</sub>	–	–	4 µA
V <sub>CE</sub> = 30 V, T <sub>j</sub> = 125°C, (B-E short)	BC548 / BC549	I <sub>CES</sub>	–	–	4 µA
<b>Collector-Emitter saturation voltage – Kollektor-Emitter-Sättigungsspg. <sup>2)</sup></b>					
I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA		V <sub>CEsat</sub>	–	80 mV	200 mV
I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5 mA		V <sub>CEsat</sub>	–	200 mV	600 mV
<b>Base saturation voltage – Basis-Sättigungsspannung <sup>2)</sup></b>					
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	–
<b>Base-Emitter-voltage – Basis-Emitter-Spannung <sup>2)</sup></b>					
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
<b>Gain-Bandwidth Product – Transitfrequenz</b>					
V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 mA, f = 100 MHz		f <sub>T</sub>	–	300 MHz	–
<b>Collector-Base Capacitance – Kollektor-Basis-Kapazität</b>					
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
<b>Emitter-Base Capacitance – Emitter-Basis-Kapazität</b>					
V <sub>EB</sub> = 0.5 V, I <sub>C</sub> = i <sub>c</sub> = 0, f = 1 MHz		C <sub>EB0</sub>	–	9 pF	–
<b>Noise figure – Rauschzahl</b>					
V <sub>CE</sub> = 5 V, I <sub>C</sub> = 200 µA, R <sub>G</sub> = 2 kΩ	BC546 / BC547	F	–	2 dB	10 dB
f = 1 kHz, Δf = 200 Hz	BC548 / BC549	F	–	1.2 dB	4 dB
<b>Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft</b>					
		R <sub>thA</sub>	< 200 K/W <sup>1)</sup>		
<b>Recommended complementary PNP transistors Empfohlene komplementäre PNP-Transistoren</b>					
			BC556 ... BC559		
<b>Available current gain groups per type Lieferbare Stromverstärkungsgruppen pro Typ</b>					
			BC546A BC547A BC548A	BC546B BC547B BC548B BC549B	BC547C BC548C BC549C

<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> 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