

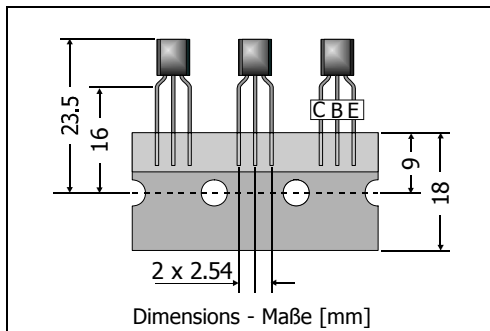
BC546 ... BC549

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
Kunststoffgehäuse

TO-92
(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 ($T_A = 25^\circ\text{C}$)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_{EB0}	5 V		
Power dissipation – Verlustleistung		P_{tot}	500 mW ¹⁾		
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 ²⁾				
$V_{CE} = 5\text{ V}, I_C = 10\text{ }\mu\text{A}$	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/bes $V_{CE} = 5\text{ V}, I_C = 2\text{ mA}, f = 1\text{ kHz}$				
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 Ω	3.2 ... 8.5 k Ω	6 ... 15 k Ω
Output admittance – Ausgangs-Leitwert	h_{oe}	18 < 30 μS	30 < 60 μS	60 < 110 μS
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 ($T_j = 25^\circ\text{C}$)
Kennwerte ($T_j = 25^\circ\text{C}$)

			Min.	Typ.	Max.
Collector-Emitter cutoff current – Kollektor-Emitter-Reststrom					
$V_{CE} = 80\text{ V}$, (B-E short)	BC546	I_{CES}	–	0.2 nA	15 nA
$V_{CE} = 50\text{ V}$, (B-E short)	BC547	I_{CES}	–	0.2 nA	15 nA
$V_{CE} = 30\text{ V}$, (B-E short)	BC548 / BC549	I_{CES}	–	0.2 nA	15 nA
$V_{CE} = 80\text{ V}$, $T_j = 125^{\circ}\text{C}$, (B-E short)	BC546	I_{CES}	–	–	4 μA
$V_{CE} = 50\text{ V}$, $T_j = 125^{\circ}\text{C}$, (B-E short)	BC547	I_{CES}	–	–	4 μA
$V_{CE} = 30\text{ V}$, $T_j = 125^{\circ}\text{C}$, (B-E short)	BC548 / BC549	I_{CES}	–	–	4 μA
Collector-Emitter saturation voltage – Kollektor-EmitterSättigungsspg. ²⁾					
$I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$		V_{CEsat}	–	80 mV	200 mV
$I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$		V_{CEsat}	–	200 mV	600 mV
Base saturation voltage – Basis-Sättigungsspannung ²⁾					
$I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$		V_{BEsat}	–	700 mV	–
$I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$		V_{BEsat}	–	900 mV	–
Base-Emitter-voltage – Basis-Emitter-Spannung ²⁾					
$V_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$		V_{BE}	580 mV	660 mV	700 mV
$V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$		V_{BE}	–	–	720 mV
Gain-Bandwidth Product – Transitfrequenz					
$V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$, $f = 100\text{ MHz}$		f_T	–	300 MHz	–
Collector-Base Capacitance – Kollektor-Basis-Kapazität					
$V_{CB} = 10\text{ V}$, $I_E = i_e = 0$, $f = 1\text{ MHz}$		C_{CBO}	–	3.5 pF	6 pF
Emitter-Base Capacitance – Emitter-Basis-Kapazität					
$V_{EB} = 0.5\text{ V}$, $I_C = i_c = 0$, $f = 1\text{ MHz}$		C_{EBO}	–	9 pF	–
Noise figure – Rauschzahl					
$V_{CE} = 5\text{ V}$, $I_C = 200\text{ }\mu\text{A}$, $R_G = 2\text{ k}\Omega$	BC546 / BC547	F	–	2 dB	10 dB
$f = 1\text{ kHz}$, $\Delta f = 200\text{ Hz}$	BC548 / BC549	F	–	1.2 dB	4 dB
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft		R_{thA}	< 200 K/W ¹⁾		
Recommended complementary PNP transistors Empfohlene komplementäre PNP-Transistoren			BC556 ... BC559		
Available current gain groups per type Lieferbare Stromverstärkungsgruppen pro Typ			BC546A BC547A BC548A	BC546B BC547B BC548B BC549B	BC547C BC548C BC549C

²⁾ Tested with pulses $t_p = 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$ – Gemessen mit Impulsen $t_p = 300\text{ }\mu\text{s}$, Schaltverhältnis $\leq 2\%$

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