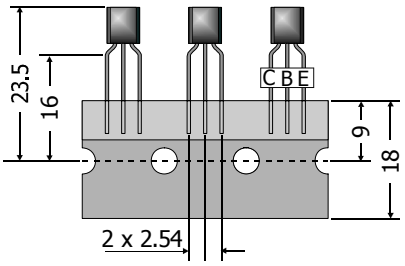
Diotec Semiconductor

BC556 ... BC559

PNP **General Purpose Si-Epitaxial PlanarTransistors**
Si-Epitaxial Planar-Transistoren für universellen Einsatz **PNP**

Version 2006-05-31



Dimensions - Maße [mm]

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°C) **Grenzwerte (T_A = 25°C)**

			BC556	BC557	BC558/ 559
Collector-Emitter-voltage	E-B short	$-V_{CES}$	80 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 Storage temperature – Lagerungstemperatur		T_j T_S	-55...+150°C -55...+150°C		

Characteristics (T_j = 25°C) **Kennwerte (T_j = 25°C)**

		Group A	Group B	Group C
DC current gain – Kollektor-Basis-Stromverhältnis [2])				
$-V_{CE}$ = 5 V, $-I_C$ = 10 µA	h_{FE}	typ. 90	typ. 150	typ. 270
$-V_{CE}$ = 5 V, $-I_C$ = 2 mA	h_{FE}	110 ... 220	200 ... 450	420 ... 800
$-V_{CE}$ = 5 V, $-I_C$ = 100 mA	h_{FE}	typ. 120	typ. 200	typ. 400
h-Parameters at/bei $-V_{CE}$ = 5 V, $-I_C$ = 2 mA, f = 1 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 kΩ	3.2 ...8.5 kΩ	6 ... 15 kΩ
Output admittance – Ausgangs-Leitwert	h_{oe}	18 < 30 µS	30 < 60 µS	60 < 110 µS
Reverse voltage transfer ratio Spannungsrückwirkung	h_{re}	typ. 1.5*10-4	typ. 2*10-4	typ. 3*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°C) **Kennwerte (T_j = 25°C)**

			Min.	Typ.	Max.
Collector-Emitter cutoff current – Kollektor-Emitter-Reststrom					
- V_{CE} = 80 V, (B-E short)	BC546	- I_{CES}	–	0.2 nA	15 nA
- V_{CE} = 50 V, (B-E short)	BC547	- I_{CES}	–	0.2 nA	15 nA
- V_{CE} = 30 V, (B-E short)	BC548 / BC549	- I_{CES}	–	0.2 nA	15 nA
- V_{CE} = 80 V, T_j = 125°C, (B-E short)	BC546	- I_{CES}	–	–	4 µA
- V_{CE} = 50 V, T_j = 125°C, (B-E short)	BC547	- I_{CES}	–	–	4 µA
- V_{CE} = 30 V, T_j = 125°C, (B-E short)	BC548 / BC549	- I_{CES}	–	–	4 µA
Collector-Emitter saturation voltage – Kollektor-Emitter-Sättigungsspg [2])					
- I_C = 10 mA, - I_B = 0.5 mA		- V_{CEsat}	–	80 mV	300 mV
- I_C = 100 mA, - I_B = 5 mA		- V_{CEsat}	–	250 mV	650 mV
Base-Emitter saturation voltage – Basis-Emitter-Sättigungsspannung [2])					
- I_C = 10 mA, - I_B = 0.5 mA		- V_{BEsat}	–	700 mV	–
- I_C = 100 mA, - I_B = 5 mA		- V_{BEsat}	–	900 mV	–
Base-Emitter-voltage – Basis-Emitter-Spannung [2])					
- V_{CE} = 5 V, - I_C = 2 mA		- V_{BE}	600 mV	660 mV	750 mV
- V_{CE} = 5 V, - I_C = 10 mA		- V_{BE}	–	–	800 mV
Gain-Bandwidth Product – Transitfrequenz					
- V_{CE} = 5 V, - I_C = 10 mA, f = 100 MHz		f_T	–	150 MHz	–
Collector-Base Capacitance – Kollektor-Basis-Kapazität					
- V_{CB} = 10 V, I_E =ie = 0, f = 1 MHz		C_{CBO}	–	3.5 pF	6 pF
Emitter-Base Capacitance – Emitter-Basis-Kapazität					
- V_{EB} = 0.5 V, I_C = i_c = 0, f = 1 MHz		C_{EB0}	–	10 pF	–
Noise figure – Rauschzahl					
- V_{CE} = 5 V, - I_C = 200 µA, R_G = 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 Wärmewiderstand Sperrschicht – umgebende Luft		R_{thA}	< 200 K/W [1])		
Recommended complementary NPN transistors Empfohlene komplementäre NPN-Transistoren			BC546 ... BC549		
Available current gain groups per type Lieferbare Stromverstärkungsgruppen pro Typ			BC556A BC557A BC558A	BC556B BC557B BC558B BC559B	BC557C BC558C BC559C

2 Tested with pulses t_p = 300 µs, duty cycle ≤ 2% – Gemessen mit Impulsen t_p = 300 µs, Schaltverhältnis ≤ 2%

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