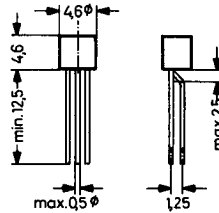
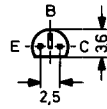


# BC170

## NPN Silicon Planar Transistor

for switching and amplifier applications

The transistor is subdivided into three groups, A, B and C, according to its DC current gain.



Plastic Package  $\approx$  JEDEC TO-92  
TO-18 compatible  
The case is impervious to light

Weight approximately 0.18 g  
Dimensions in mm

## Absolute Maximum Ratings

	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	20	V
Collector Emitter Voltage	$V_{CEO}$	20	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	100	mA
Power Dissipation at $T_{amb} = 25^\circ\text{C}$	$P_{tot}$	300 <sup>1)</sup>	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_s$	-55 to +150	$^\circ\text{C}$

<sup>1)</sup> Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

## Characteristics at $T_{amb} = 25^\circ\text{C}$

	Symbol	Min.	Typ.	Max.	Unit
DC Current gain at $V_{CE} = 1\text{ V}$ , $I_C = 1\text{ mA}$ <b>Current Gain Group A</b> <b>B</b> <b>C</b> at $V_{CE} = 1\text{ V}$ , $I_C = 30\text{ mA}$ <b>Current Gain Group A</b> <b>B</b> <b>C</b>	$h_{FE}$	35	—	100	—
	$h_{FE}$	80	—	250	—
	$h_{FE}$	200	—	600	—
	$h_{FE}$	30	—	—	—
	$h_{FE}$	60	—	—	—
	$h_{FE}$	150	—	—	—
Collector Saturation Voltage at $I_C = 1\text{ mA}$ , $I_B = 0.1\text{ mA}$ at $I_C = 30\text{ mA}$ , $I_B = 3\text{ mA}$	$V_{CEsat}$	—	—	0.25	V
	$V_{CEsat}$	—	—	0.4	V
Base Saturation Voltage at $I_C = 1\text{ mA}$ , $I_B = 0.1\text{ mA}$	$V_{BEsat}$	—	—	0.7	V

Characteristics, continuation

	Symbol	Min.	Typ.	Max.	Unit
Collector Cutoff Current at $V_{CB} = 15\text{ V}$	$I_{CBO}$	–	–	0.1	$\mu\text{A}$
Emitter Cutoff Current at $V_{EB} = 4\text{ V}$	$I_{EBO}$	–	–	0.1	$\mu\text{A}$
Collector Base Capacitance at $V_{CBO} = 10\text{ V}$ , $f = 1\text{ MHz}$	$C_{CBO}$	–	4	–	pF
Emitter Base Capacitance at $V_{EBO} = 0.5\text{ V}$ , $f = 1\text{ MHz}$	$C_{EBO}$	–	12	–	pF
Gain Bandwidth Product at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$ , $f = 50\text{ MHz}$	$f_T$	–	100	–	MHz
Noise Figure at $V_{CE} = 5\text{ V}$ , $I_C = 0.2\text{ mA}$ , $R_G = 2\text{ k}\Omega$ , $f = 1\text{ kHz}$ , $\Delta f = 200\text{ Hz}$	F	–	–	10	dB
Thermal Resistance Junction to Ambient	$R_{thA}$	–	–	420 <sup>1)</sup>	K/W

<sup>1)</sup> Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

