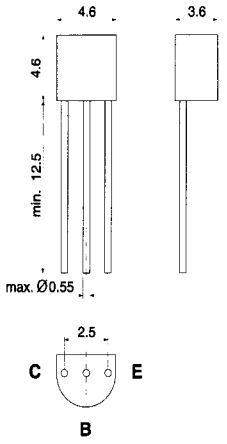
HN / BC 556...559

PNP Silicon Expitaxial Planar Transistor
for switching and AF amplifier applications.

These transistors are subdivided into three groups A, B and C according to their current gain. the type BC556 is available in groups A and B, however, the types BC557 and BC558 can be supplied in all three groups. The BC559 is a low-noise type available in all three groups. As complementary types, the NPN transistors BC546...BC549 are recommended.

On special request, these transistors can be manufactured in different pin configurations. Please refer to the "TO-92 TRANSISTOR PACKAGE OUTLINE" on page 80 for the available pin options.



TO-92 Plastic Package
Weight approx. 0.18 g
Dimensions in mm

Absolute Maximum Ratings (T_a = 25°C)

		Symbol	Value	Unit
Collector-Base Voltage	**HN / BC556**	$-V_{CBO}$	80	V
	HN / BC557	$-V_{CBO}$	50	V
	HN / BC558, HN / BC559	$-V_{CBO}$	30	V
Collector-Emitter Voltage	**HN / BC556**	$-V_{CES}$	80	V
	HN / BC557	$-V_{CES}$	50	V
	HN / BC558, HN / BC559	$-V_{CES}$	30	V
Collector-Emitter Voltage	**HN / BC556**	$-V_{CEO}$	65	V
	HN / BC557	$-V_{CEO}$	45	V
	HN / BC558, HN / BC559	$-V_{CEO}$	30	V
Emitter-Base Voltage		$-V_{EBO}$	5	V
Collector Current		$-I_C$	100	mA
Peak Collector Current		$-I_{CM}$	200	mA
Peak Base Current		$-I_{BM}$	200	mA
Peak Emitter Current		I_{EM}	200	mA
Power Dissipation at T_{amb} = 25 °C		P_{tot}	500[1)]	mW
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_S	-65 to + 150	°C

[1)] Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

G S P FORM A AVAILABLE

Characteristics at T_{amb} =25 °C

		Symbol	Min.	Typ.	Max.	Unit
h-Parameters						
at $-V_{CE}$ = 5V, $-I_C$ = 2 mA, f = 1 kHz						
Current Gain	Current Gain Group A	h_{fe}	-	220	-	-
	B	h_{fe}	-	330	-	-
	C	h_{fe}	-	600	-	-
Input Impedance	Current Gain Group A	h_{ie}	1.6	2.7	4.5	kΩ
	B	h_{ie}	3.2	4.5	8.5	kΩ
	C	h_{ie}	6	8.7	15	kΩ
Output Admittance	Current Gain Group A	h_{oe}	-	18	30	µS
	B	h_{oe}	-	30	60	µS
	C	h_{oe}	-	60	110	µS
Reverse Voltage Transfer Ratio						
	Current Gain Group A	h_{re}	-	$1.5 \cdot 10^{-4}$	-	-
	B	h_{re}	-	$2 \cdot 10^{-4}$	-	-
	C	h_{re}	-	$3 \cdot 10^{-4}$	-	-
DC Current Gain.						
at $-V_{CE}$ = 5V, $-I_C$ = 10 µA						
	Current Gain Group A	h_{FE}	-	90	-	-
	B	h_{FE}	-	150	-	-
	C	h_{FE}	-	270	-	-
at $-V_{CE}$ = 5V, $-I_C$ = 2 mA						
	Current Gain Group A	h_{FE}	110	180	220	-
	B	h_{FE}	200	290	450	-
	C	h_{FE}	420	500	800	-
at $-V_{CE}$ = 5V, $-I_C$ = 100 mA						
	Current Gain Group A	h_{FE}	-	120	-	-
	B	h_{FE}	-	200	-	-
	C	h_{FE}	-	400	-	-
Thermal Resistance Junction to Ambient Air		R_{thA}	-	-	250[1)]	K/W
Collector Saturation Voltage						
at $-I_C$ = 10 mA, $-I_B$ = 0.5 mA		$-V_{CEsat}$	-	80	300	mV
at $-I_C$ = 100 mA, $-I_B$ = 5 mA		$-V_{CEsat}$	-	250	650	mV
Base Saturation Voltage						
at $-I_C$ = 10 mA, $-I_B$ = 0.5 mA		$-V_{BEsat}$	-	700	-	mV
at $-I_C$ = 100 mA, $-I_B$ = 5 mA		$-V_{BEsat}$	-	900	-	mV
Base Emitter Voltage						
at $-V_{CE}$ = 5 V, $-I_C$ = 2 mA		$-V_{BE}$	600	660	750	mV
at $-V_{CE}$ = 5 V, $-I_C$ = 10 mA		$-V_{BE}$	-	-	800	mV
Collector Emitter Cutoff Current						
at $-V_{CE}$ = 80 V	**HN / BC 556**	$-I_{CES}$	-	0.2	15	nA
at $-V_{CE}$ = 50 V	**HN / BC 557**	$-I_{CES}$	-	0.2	15	nA
at $-V_{CE}$ = 30 V	**HN / BC 558**	$-I_{CES}$	-	0.2	15	nA
at $-V_{CE}$ = 80 V, T_j = 125 °C	**HN / BC 556**	$-I_{CES}$	-	-	4	µA
at $-V_{CE}$ = 50 V, T_j = 125 °C	**HN / BC 557**	$-I_{CES}$	-	-	4	µA
at $-V_{CE}$ = 30 V, T_j = 125 °C	**HN /BC 558, HN / BC 559**	$-I_{CES}$	-	-	4	µA

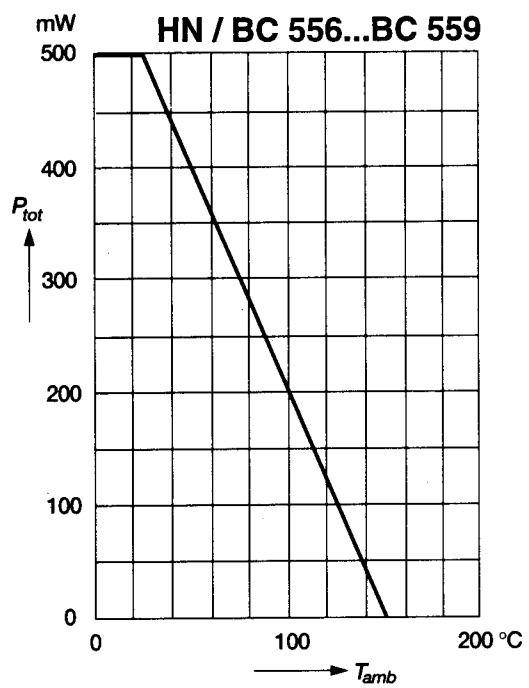
[1)] Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case.

Characteristics, continuation

	Symbol	Min.	Typ.	Max.	Unit
Gain-Bandwidth Product at $-V_{CE}$ = 5V, $-I_C$ = 10 mA, f = 100MHz	f_T	-	150	-	MHz
Collector-Base Capacitance at $-V_{CB}$ = 10 V, f = 1MHz	C_{CBO}	-	-	6	pF
Noise Figure at $-V_{CE}$ = 5 V, $-I_C$ = 200 µA, R_G = 2 kΩ, f = 1kHz, Δf = 200 Hz **HN / BC556, BC557, BC558** **HN / BC559**	 F F	-	 2 1	 10 4	 dB dB

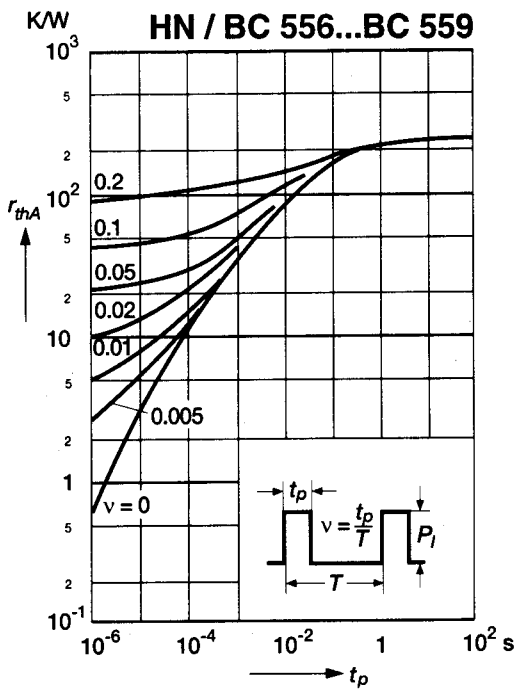
Admissible power dissipation versus temperature

Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

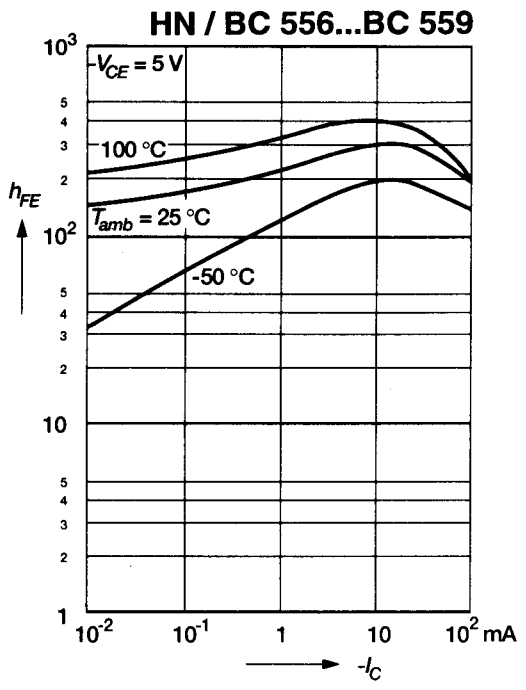


Pulse thermal resistance versus pulse duration

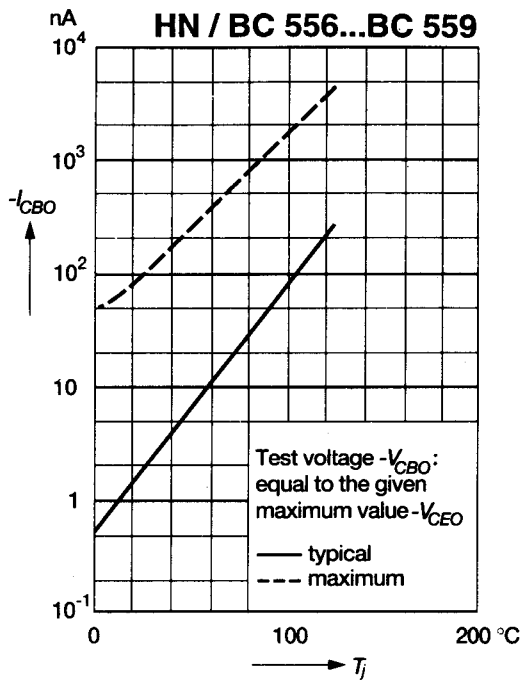
Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case



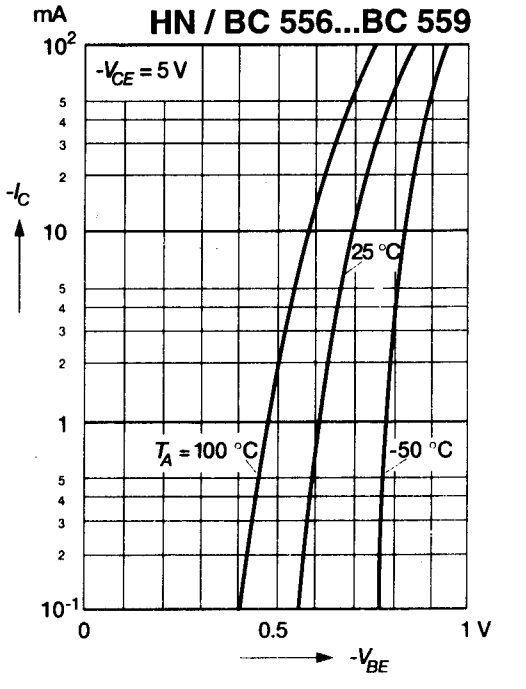
DC current gain versus collector current



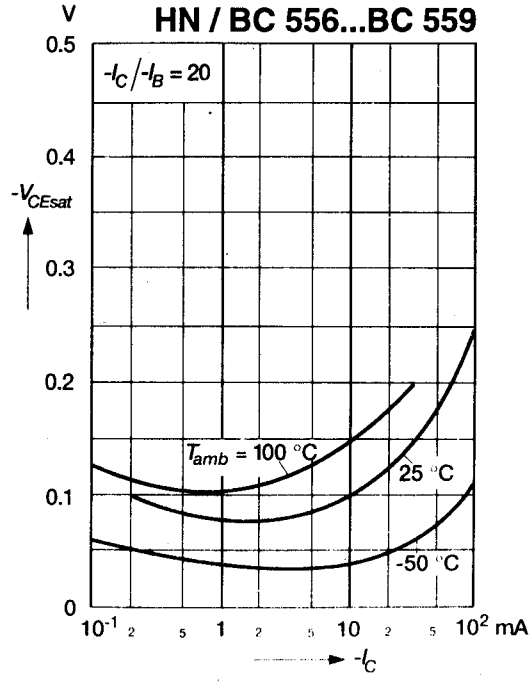
Collector-base cutoff current versus junction temperature



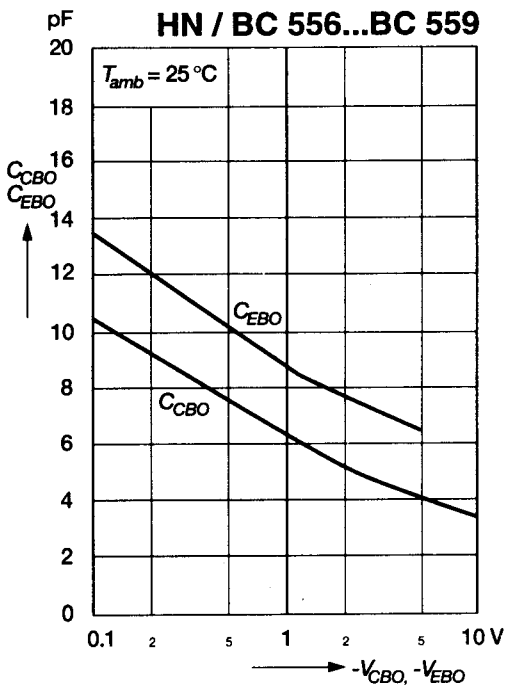
Collector current versus base-emitter voltage



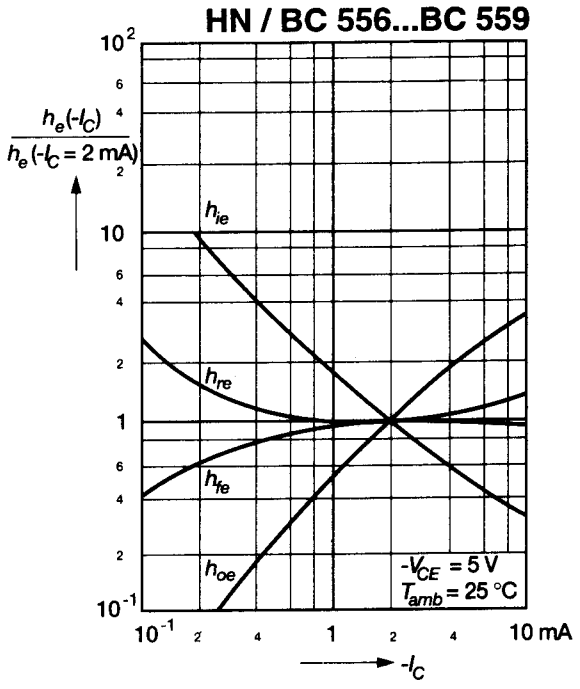
Collector saturation voltage versus collector current



Collector-base capacitance, Emitter-base capacitance versus reverse bias voltage



Relative h-parameters versus collector current



Gain-bandwidth product versus collector current