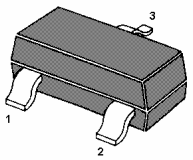
BC859

PNP Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications.

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

As complementary type the NPN transistor BC849 is recommended.



1. Base 2. Emitter 3. Collector

SOT-23 Plastic Package

Absolute Maximum Ratings (T_a=25 °C)

	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	30	V
Collector Emitter Voltage	$-V_{CEO}$	30	V
Collector Emitter Voltage	$-V_{CES}$	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	P_{tot}	200	mW
Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	450	°C/W
Thermal Resistance Junction to Substrate Backside	$R_{\theta SB}$	320	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_S	-65 to +150	°C

BC859

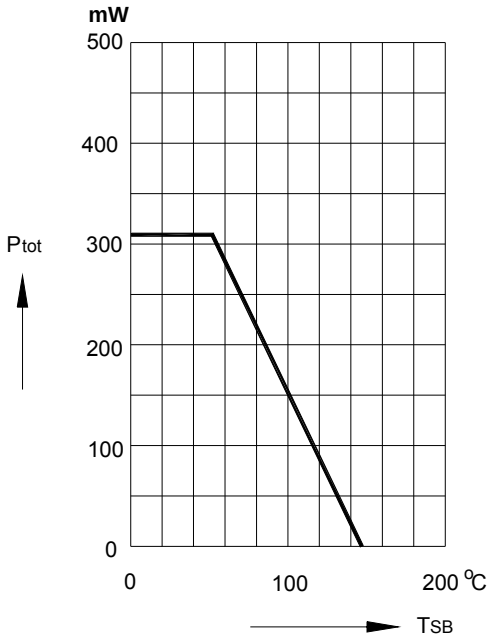
Characteristics at T_a =25 °C

			Symbol	Min.	Typ.	Max.	Unit
h-Parameters at $-V_{CE}$=5V, $-I_C$=2mA, f=1KHz							
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}	6.0	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 VoltageTransfer 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, $-I_C$=2mA	Current Gain Group	A	h_{FE}	110	-	220	-
		B	h_{FE}	200	-	450	-
		C	h_{FE}	420	-	800	-
Collector–Emitter Saturation Voltage							
at $-I_C$=10mA, $-I_B$=0.5mA			$-V_{CEsat}$	-	-	300	mV
at $-I_C$=100mA, $-I_B$=5mA			$-V_{CEsat}$	-	-	650	mV
Base-Emitter On Voltage							
at $-I_C$=2mA, $-V_{CE}$=5V			$-V_{BE(on)}$	600	-	750	mV
at $-I_C$=10mA, $-V_{CE}$=5V			$-V_{BE(on)}$	-	-	820	mV
Collector Cutoff Current							
at $-V_{CB}$=30V			$-I_{CBO}$	-	-	15	nA
at $-V_{CB}$=30V, T_J=150°C			$-I_{CBO}$	-	-	5	µA

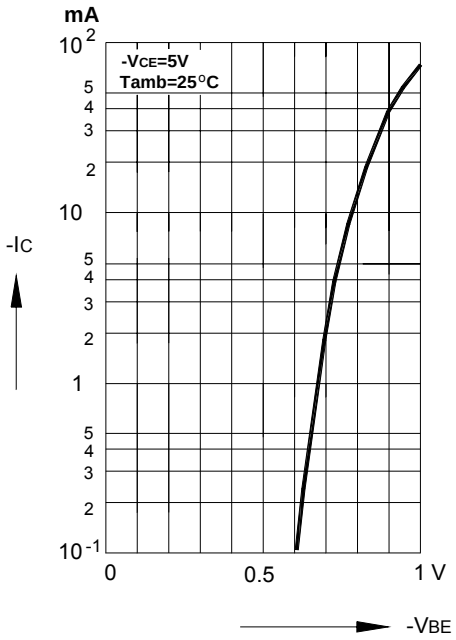
Characteristics at T_{amb}=25 °C

	Symbol	Min.	Typ.	Max.	Unit
Gain Bandwidth Product at $-V_{CE}$=5V, $-I_C$=10mA, f=100MHz	f_T	-	150	-	MHz
Collector Base Capacitance at $-V_{CB}$=10V, f=1.0MHz	C_{CBO}	-	-	6	pF
Noise Figure at $-I_C$=200μA, $-V_{CE}$=5V, R_G=2KΩ, f=1.0kHz, Δf=200Hz at $-I_C$=200μA, $-V_{CE}$=5V, R_G=2KΩ, f=30...15000Hz	F F	- -	- -	4 4	dB dB

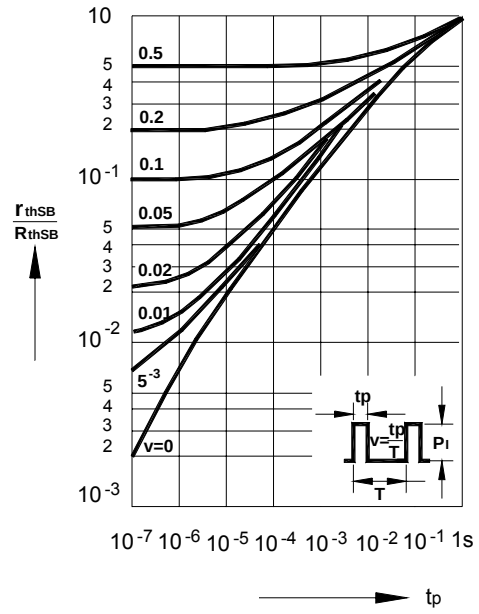
Admissible power dissipation versus temperature of substrate backside



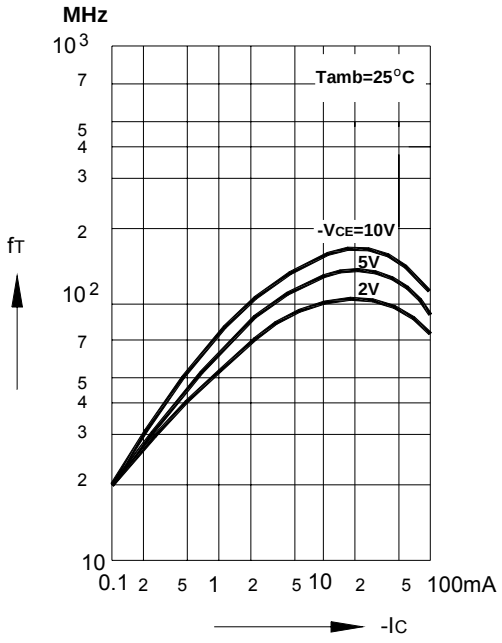
Collector current versus base emitter voltage



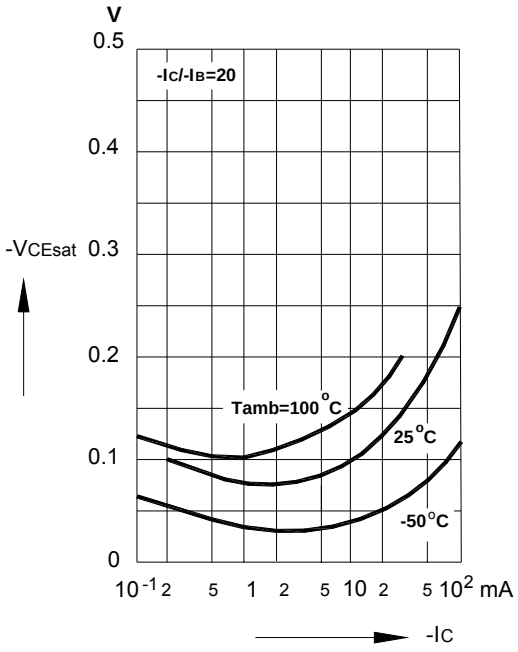
Pulse thermal resistance versus pulse duration (normalized)



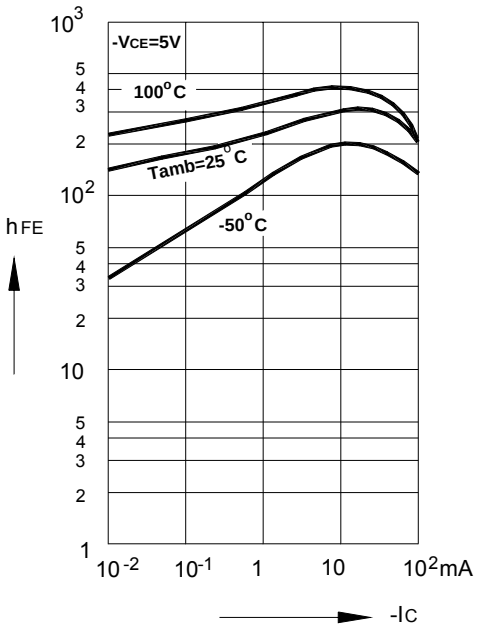
Gain bandwidth product versus collector current



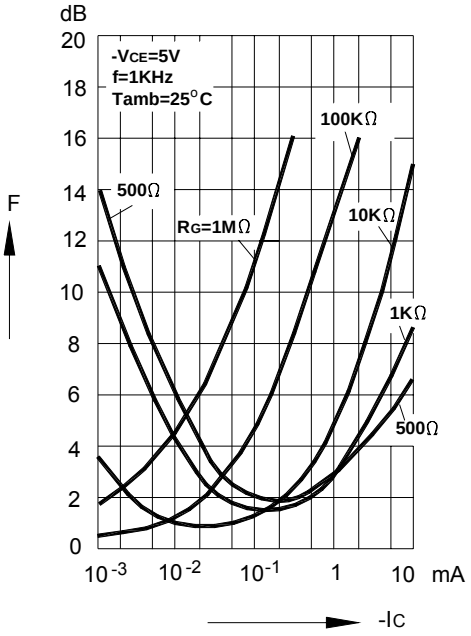
Collector saturation voltage versus collector current



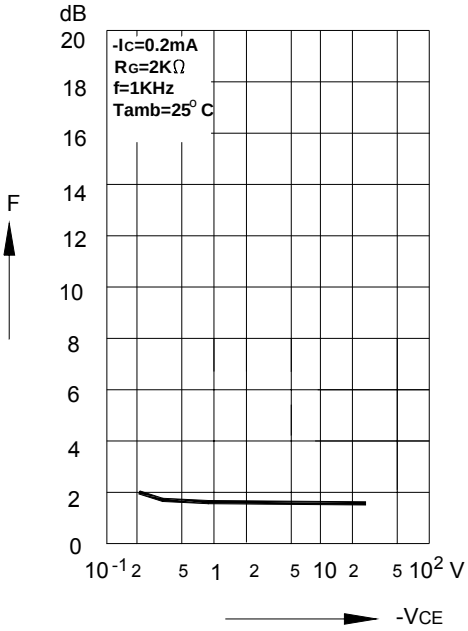
DC current gain versus collector current



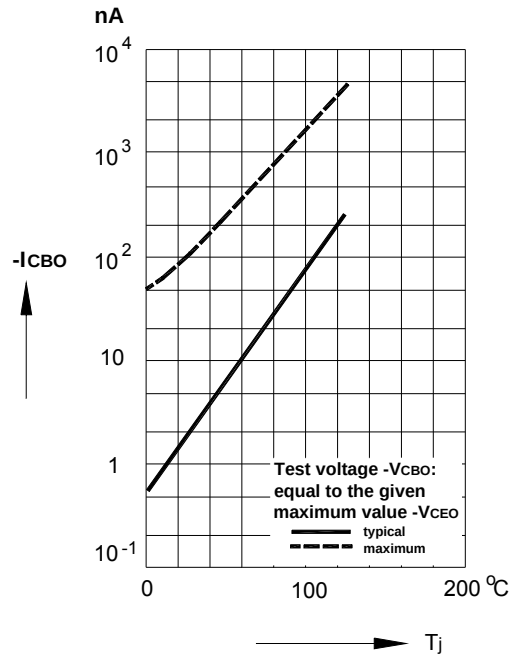
Noise figure versus collector current



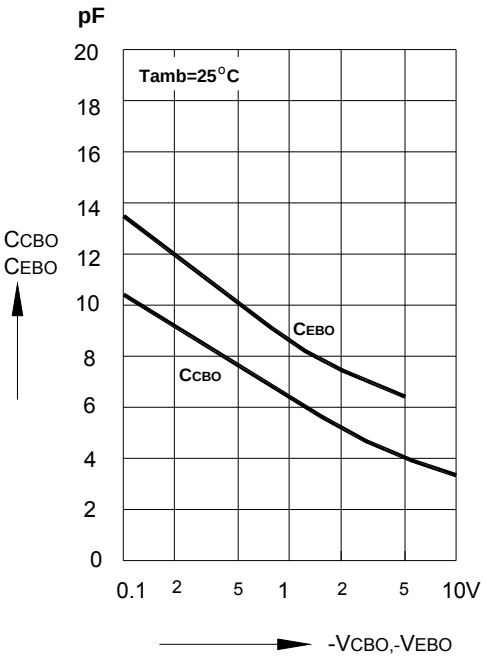
Noise figure versus collector emitter voltage



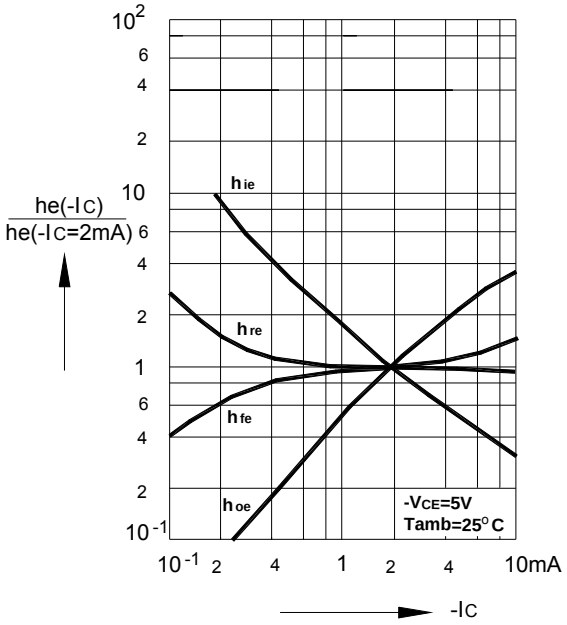
Collector-Base cutoff current versus ambient temperature



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



Relative h-parameters versus collector current



Noise figure versus collector current