

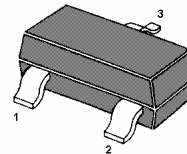
BC859

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.

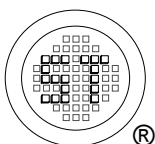


1. Base 2. Emitter 3. Collector

SOT-23 Plastic Package

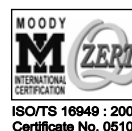
Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

	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	$^\circ\text{C/W}$
Thermal Resistance Junction to Substrate Backside	$R_{\theta SB}$	320	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_S	-65 to +150	$^\circ\text{C}$



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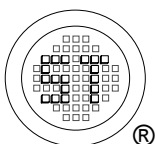
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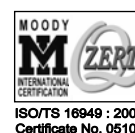
Characteristics at $T_a = 25^\circ\text{C}$

				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 · 10 ⁻⁴	-	-	
		B	h _{re}	-	2 · 10 ⁻⁴	-	-	
		C	h _{re}	-	3 · 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	



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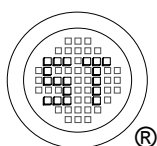


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BC859

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

	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 $-I_C=200\mu A$, $-V_{CE}=5V$, $R_G=2K\Omega$, $f=1.0kHz$, $\Delta f=200Hz$	F	-	-	4	dB
at $-I_C=200\mu A$, $-V_{CE}=5V$, $R_G=2K\Omega$, $f=30...15000Hz$	F	-	-	4	dB



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ISO/TS 16949 : 2002
Certificate No. 05103



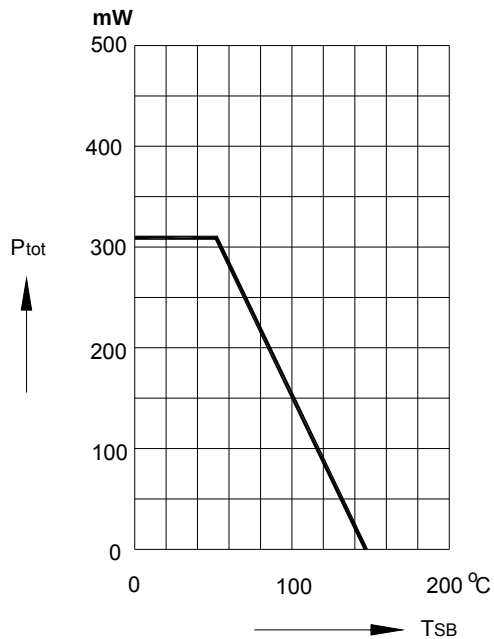
ISO 14001:2004
Certificate No. 7116



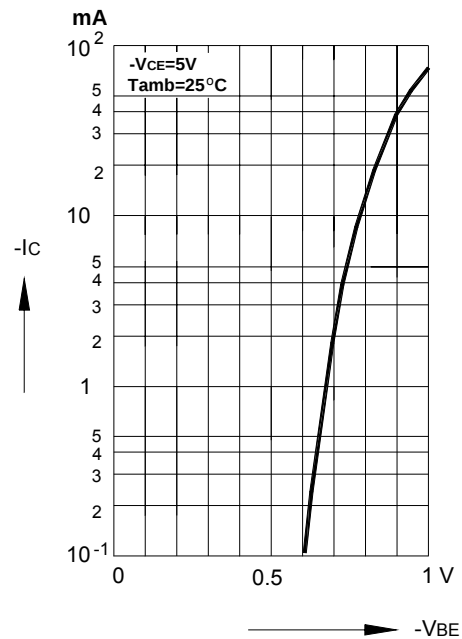
ISO 9001:2000
Certificate No. 0506098

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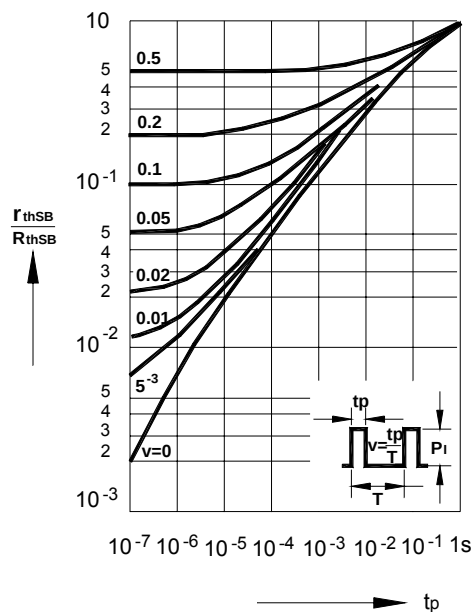
Admissible power dissipation
versus temperature of substrate backside



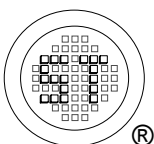
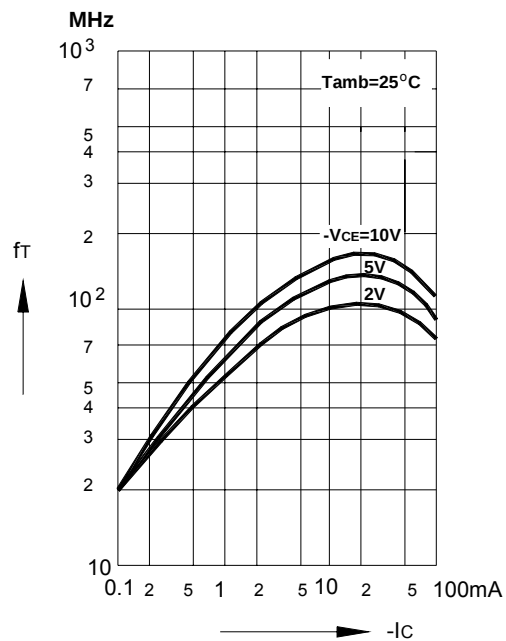
Collector current
versus base emitter voltage



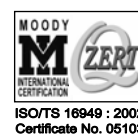
Pulse thermal resistance
versus pulse duration (normalized)



Gain bandwidth product
versus collector current

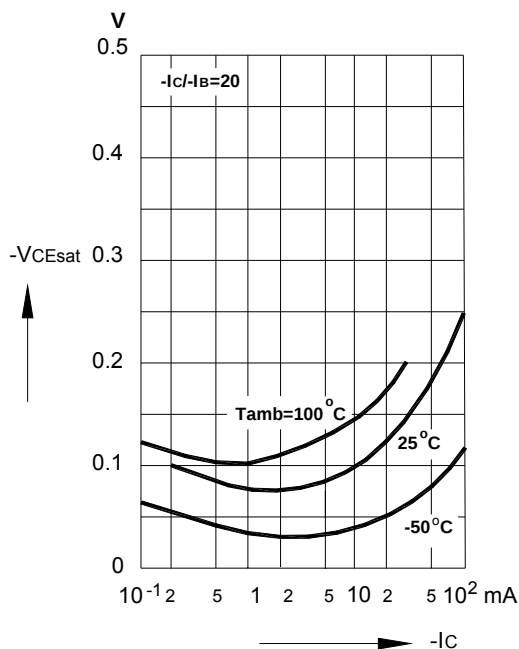


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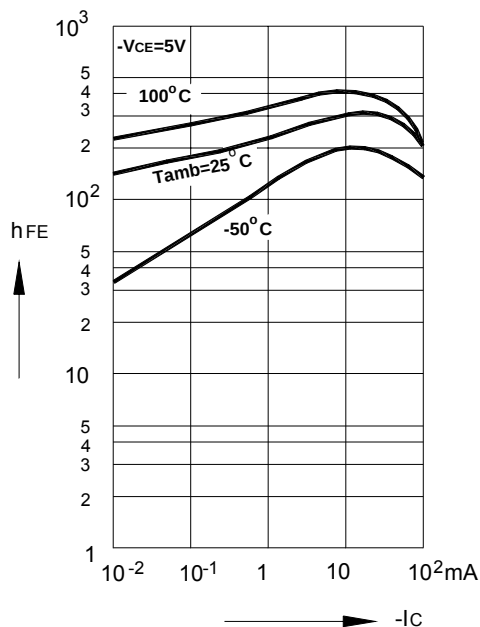


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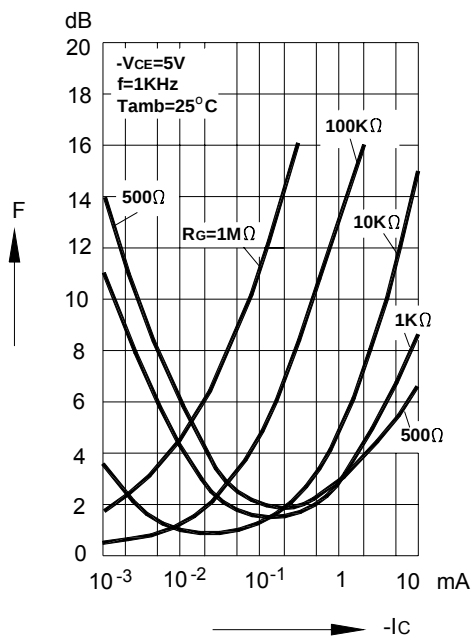
Collector saturation voltage
versus collector current



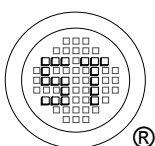
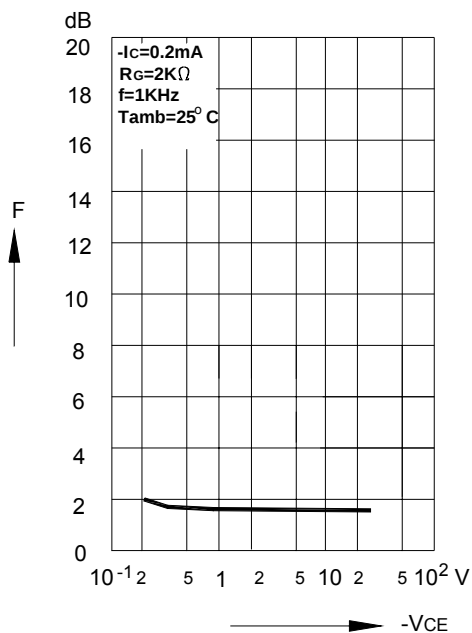
DC current gain
versus collector current



Noise figure
versus collector current

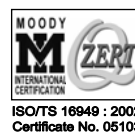


Noise figure
versus collector emitter voltage



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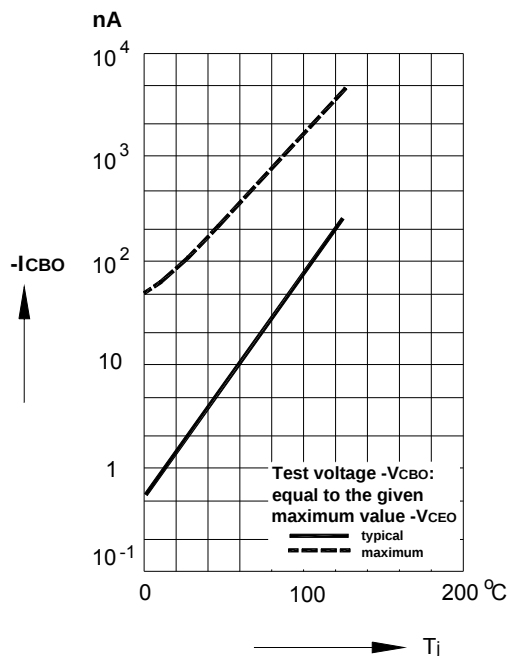
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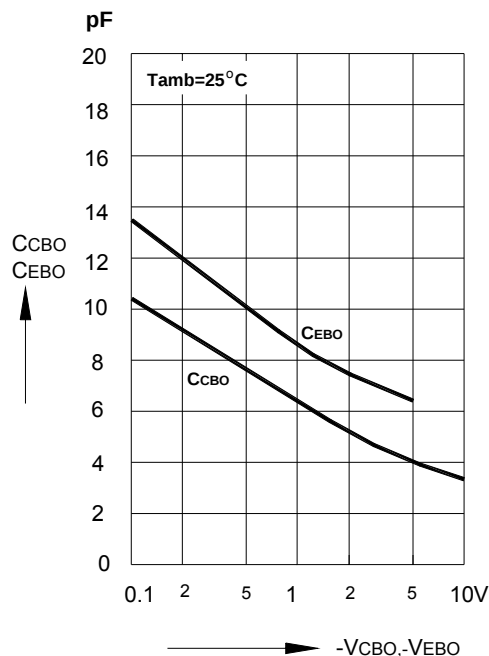
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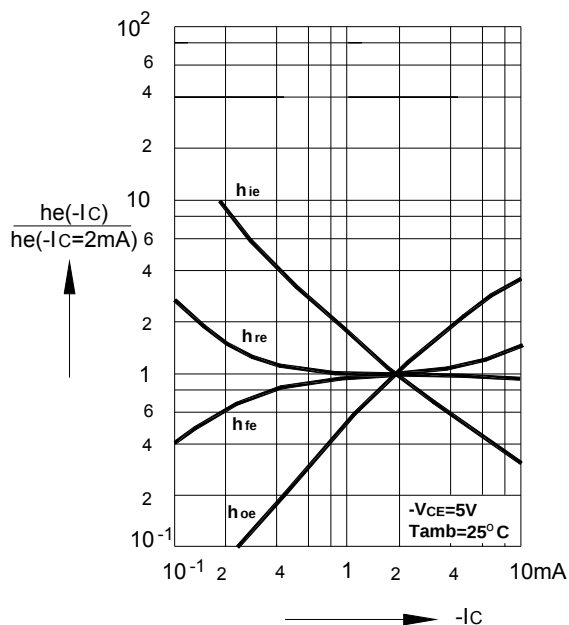
Collector-Base cutoff current
versus ambient temperature



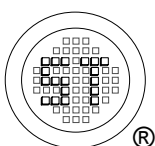
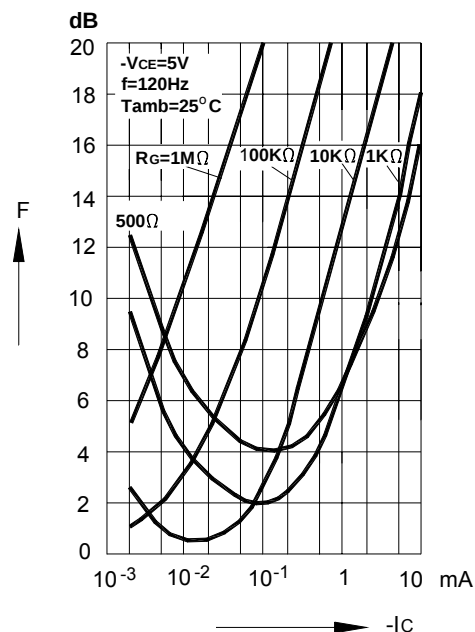
Collector-base capacitance,
Emitter-base capacitance
versus reverse bias voltage



Relative h-parameters
versus collector current

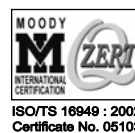


Noise figure
versus collector current



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