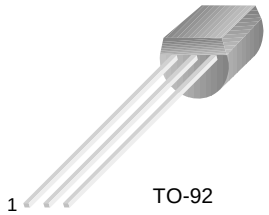
FAIRCHILD
SEMICONDUCTOR®

BC307/308/309

Switching and Amplifier Applications

- Low Noise: BC309



TO-92

1. Collector 2. Base 3. Emitter

PNP Epitaxial Silicon Transistor

Absolute Maximum Ratings T_a=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage		
	: BC307	-50	V
	: BC308/309	-30	V
V_{CEO}	Collector-Emitter Voltage		
	: BC307	-45	V
	: BC308/309	-25	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current (DC)	-100	mA
P_C	Collector Power Dissipation	500	mW
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 ~ 150	°C

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C= -2mA, I_B=0				
	: BC307		-45			V
	: BC308/309		-25			V
BV_{CES}	Collector-Emitter Breakdown Voltage	I_C= -10μA, V_{BE}=0				
	: BC307		-50			V
	: BC308/309		-30			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E= -10μA, I_C=0	-5			V
I_{CES}	Collector Cut-off Current					
	: BC307	V_{CE}= -45V, V_{BE}=0		-2	-15	nA
	: BC308/309	V_{CE}= -25V, V_{BE}=0		-2	-15	nA
h_{FE}	DC Current Gain	V_{CE}= -5V, I_C= -2mA	120		800	
V_{CE} (sat)	Collector-Emitter Saturation Voltage	I_C= -10mA, I_B= -0.5mA			-0.3	V
		I_C= -100mA, I_B= -5mA		-0.5		V
V_{BE} (sat)	Collector-Base Saturation Voltage	I_C= -10mA, I_B= -0.5mA		-0.7		V
		I_C= -100mA, I_B= -5mA		-0.85		V
V_{BE} (on)	Base-Emitter On Voltage	V_{CE}= -5V, I_C= -2mA	-0.55	-0.62	-0.7	V
f_T	Current Gain Bandwidth Product	V_{CE}= -5V, I_C= -10mA, f=50MHz		130		MHz
C_{ob}	Output Capacitance	V_{CB}= -10V, I_E=0, f=1MHz			6	pF
C_{ib}	Input Capacitance	V_{EB}= -0.5V, I_C=0, f=1MHz		12		pF
NF	Noise Figure					
	: BC307/308	V_{CE}= -5V, I_C= -0.2mA,			10	dB
	: BC309	R_G=2KΩ, f=1KHz			4	dB
	: BC309	V_{CE}= -5V, I_C= -0.2mA		2	4	dB
		R_G=2KΩ, f=30~15KHz				

h_{FE} Classification

Classification	A	B	C
h_{FE}	120 ~ 220	180 ~ 460	380 ~ 800

Typical Characteristics

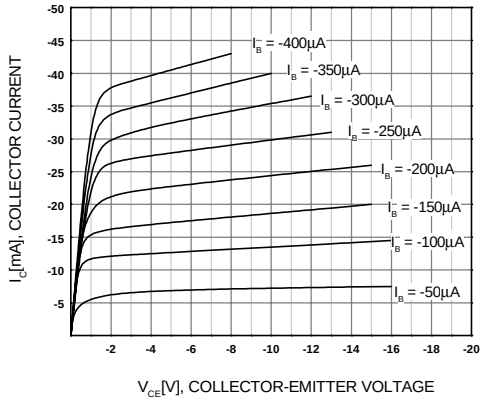


Figure 1. Static Characteristic

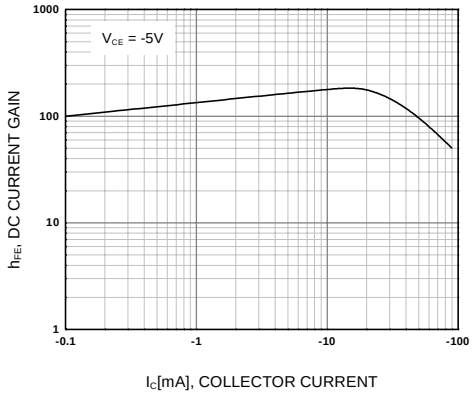


Figure 2. DC current Gain

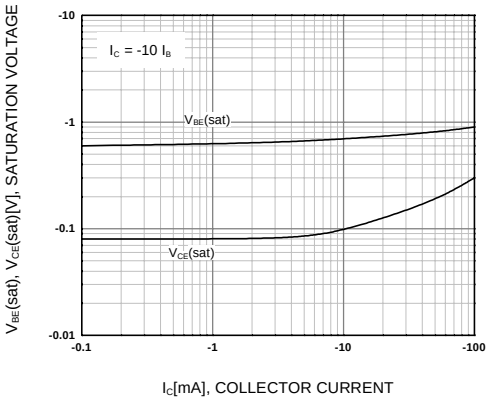


Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

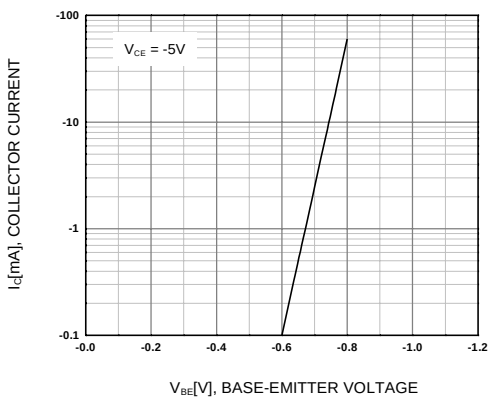


Figure 4. Base-Emitter Capacitance

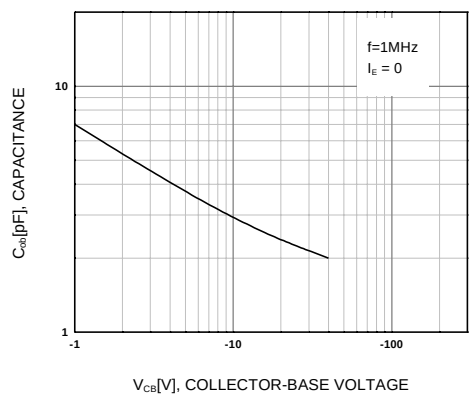


Figure 5. Collector Output Capacitance

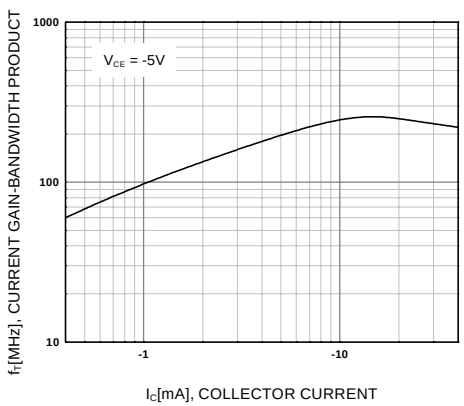
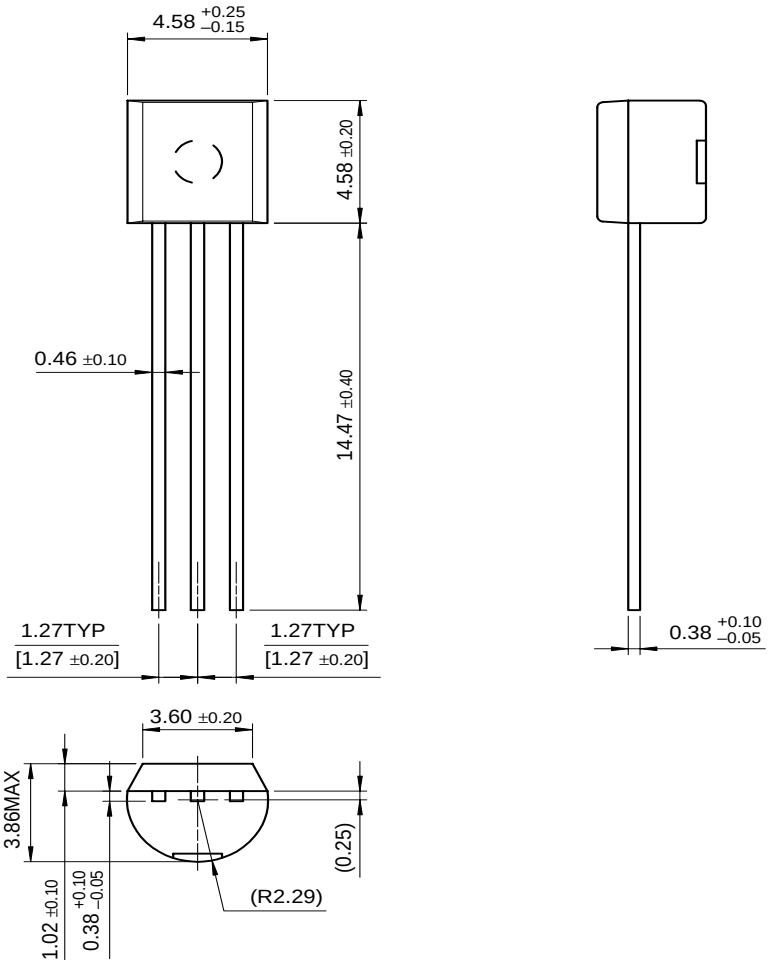


Figure 6. Current Gain Bandwidth Product

Package Dimensions

TO-92



Dimensions in Millimeters

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CoolFET™	FASTr™	MicroFET™	PowerTrench®	SuperSOT™-6
CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
DOME™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic™
E^2CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	I^2C™	OCX™	RapidConfigure™	UHC™
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The Power Franchise™		OPTOLOGIC®	SILENT SWITCHER®	VCX™
Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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