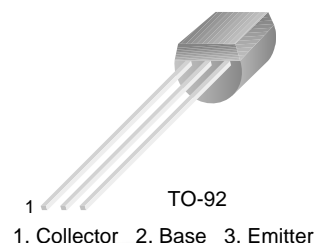**FAIRCHILD**
SEMICONDUCTOR®

October 2012

BC556/557/558/559/560
PNP Epitaxial Silicon Transistor

Features

- Switching and Amplifier
- High Voltage: BC556, V_{CEO} = -65V
- Low Noise: BC559, BC560
- Complement to BC546 ... BC 550

TO-92

1. Collector 2. Base 3. Emitter

Absolute Maximum Ratings T_a = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : BC556 : BC557/560 : BC558/559	 -80 -50 -30	 V V V
V_{CEO}	Collector-Emitter Voltage : BC556 : BC557/560 : BC558/559	 -65 -45 -30	 V V 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	-65 ~ 150	°C

Electrical Characteristics T_a = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
I_{CBO}	Collector Cut-off Current	V_{CB}= -30V, I_E=0			-15	nA
h_{FE}	DC Current Gain	V_{CE}= -5V, I_C=2mA	110		800	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C= -10mA, I_B= -0.5mA I_C= -100mA, I_B= -5mA	 -250	-90 	-300 -650	mV mV
V_{BE}(sat)	Collector-Base Saturation Voltage	I_C= -10mA, I_B= -0.5mA I_C= -100mA, I_B= -5mA		-700 -900		mV mV
V_{BE}(on)	Base-Emitter On Voltage	V_{CE}= -5V, I_C= -2mA V_{CE}= -5V, I_C= -10mA	-600	-660	-750 -800	mV mV
f_T	Current Gain Bandwidth Product	V_{CE}= -5V, I_C= -10mA, f=10MHz		150		MHz
C_{ob}	Output Capacitance	V_{CB}= -10V, I_E=0, f=1MHz			6	pF
NF	Noise Figure : BC556/557/558 : BC559/560 : BC559 : BC560	V_{CE}= -5V, I_C= -200μA f=1KHz, R_G=2KΩ V_{CE}= -5V, I_C= -200μA R_G=2KΩ, f=30~15000MHz		2 1 1.2 1.2	10 4 4 2	dB dB dB dB

h_{FE} Classification

Classification	A	B	C
h_{FE}	110 ~ 220	200 ~ 450	420 ~ 800

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Typical Performance Characteristics
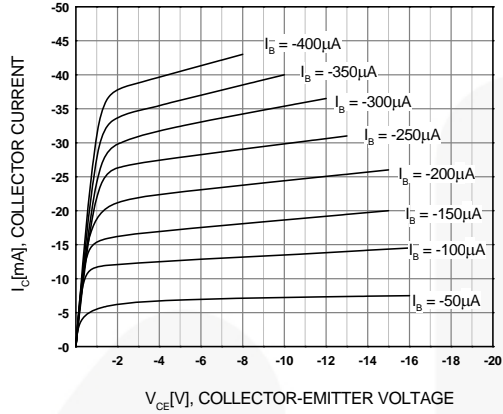
Figure 1. Static Characteristic

Plot: I_C[mA], COLLECTOR CURRENT vs V_{CE}[V], COLLECTOR-EMITTER VOLTAGE
Curves: $I_B = -400\mu A$, $I_B = -350\mu A$, $I_B = -300\mu A$, $I_B = -250\mu A$, $I_B = -200\mu A$, $I_B = -150\mu A$, $I_B = -100\mu A$, $I_B = -50\mu A$

Figure 2. DC current Gain

Plot: h_{FE}, DC CURRENT GAIN vs I_C[mA], COLLECTOR CURRENT; $V_{CE} = -5V$
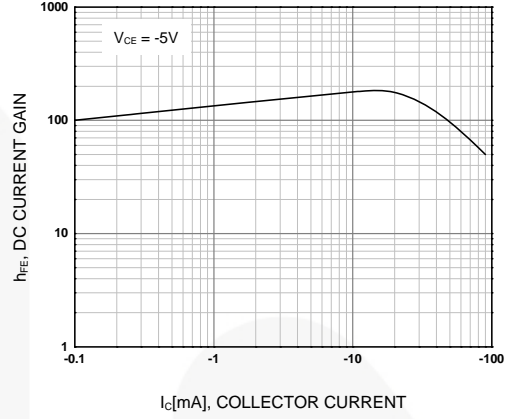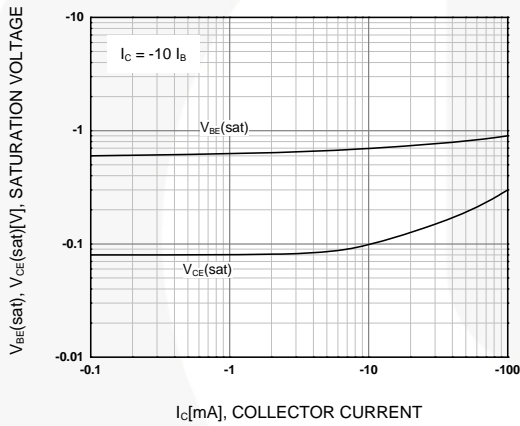
Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

Plot: $V_{BE}(sat)$, $V_{CE}(sat)$[V], SATURATION VOLTAGE vs I_C[mA], COLLECTOR CURRENT; $I_C = -10\ I_B$
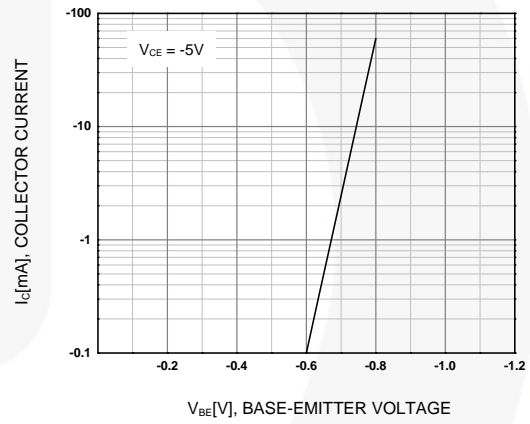
Figure 4. Base-Emitter On Voltage

Plot: I_C[mA], COLLECTOR CURRENT vs V_{BE}[V], BASE-EMITTER VOLTAGE; $V_{CE} = -5V$
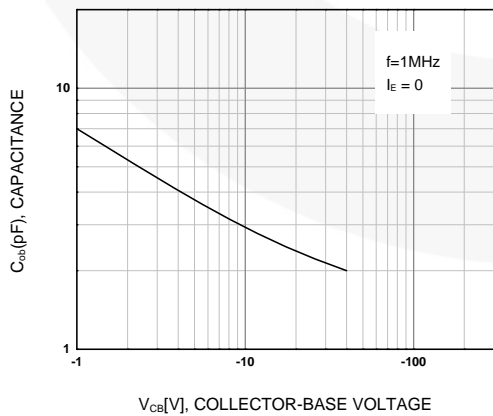
Figure 5. Collector Output Capacitance

Plot: C_{ob}(pF), CAPACITANCE vs V_{CB}[V], COLLECTOR-BASE VOLTAGE; f=1MHz, $I_E = 0$
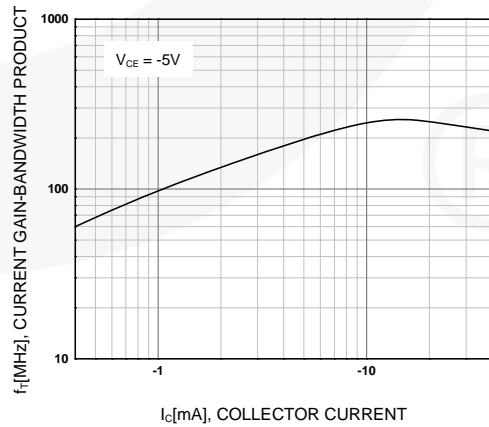
Figure 6. Current Gain Bandwidth Product

Plot: f_T[MHz], CURRENT GAIN-BANDWIDTH PRODUCT vs I_C[mA], COLLECTOR CURRENT; $V_{CE} = -5V$

Physical Dimensions

TO-92

5.20
4.32

5.33
4.32

(0.81)
(0.79)

15.62
13.20

1   2   3

0.56
0.36

1.27

2.54

0.52
0.30

4.19
3.05

1   2   3

2.66
2.13
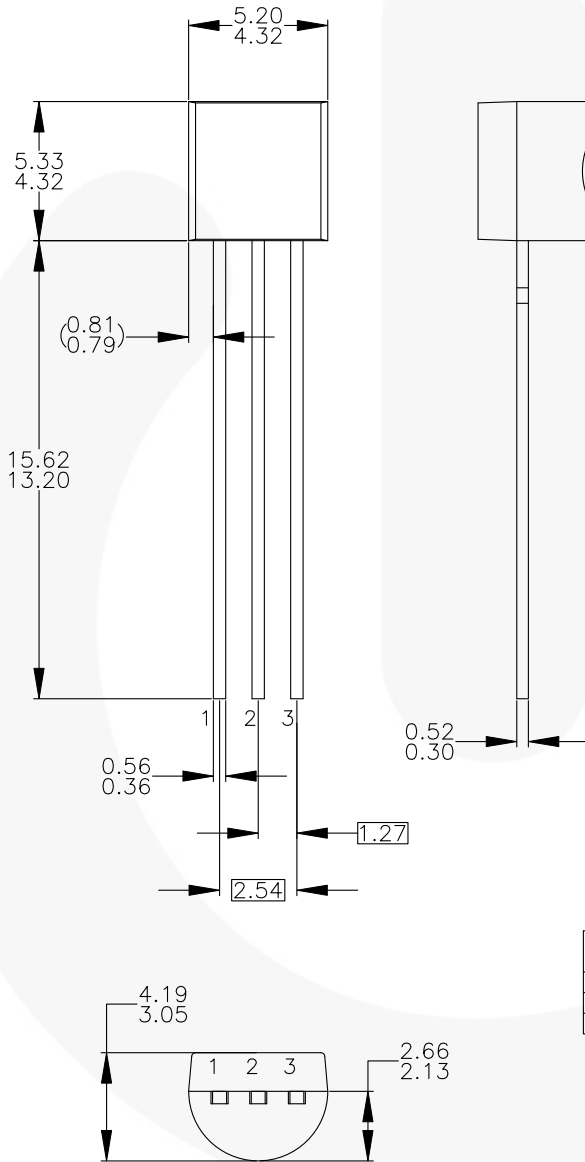
NOTES: UNLESS OTHERWISE SPECIFIED

A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DRAWING CONFORMS TO ASME Y14.5M-1994.
D) TO-92 (92,94,96,97,98) PIN CONFIGURATION:

PIN	92			94			96			97			98		
	P	F	M	P	F	M	B	F	M	P	F	M	P	F	M
1	E	S	S	E	S	S	B	D	G	C	G	D	C	G	D
2	B	D	G	C	G	D	E	S	S	B	D	G	E	S	S
3	C	G	D	B	D	G	C	G	D	E	S	S	B	D	G

LEGEND:
P — BIPOLAR   E — EMITTER   D — DRAIN
F — JFET   B — BASE   S — SOURCE
M — DMOS   C — COLLECTOR   G — GATE

E) FOR PACKAGE 92, 94, 96, 97 AND 98:
PIN CONFIGURATION DRAIN "D" AND SOURCE "S" ARE INTERCHANGEAGLE AT JFET "F" OPTION.
F) DRAWING FILENAME: MKT-ZA03DREV3.

Dimensions in Millimeters

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	MicroPak2™	SuperSOT™-3	
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FlashWriter®*			VoltagePlus™
FPS™	⏻®		XS™

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Definition of Terms

Datasheet Identification	Product Status	Definition
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No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

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