

NPN General Purpose Amplifier

(continued)

BC846A / BC846B / BC847A / BC847B / BC847C

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10 \text{ mA}$, $I_B = 0$	846A / B 847A / B 65 45		V
$V_{(BR)CES}$	Collector-Base Breakdown Voltage	$I_C = 10 \text{ }\mu\text{A}$, $I_E = 0$	846A / B 847A / B 80 50		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \text{ }\mu\text{A}$, $I_C = 0$	6.0		V
I_{CBO}	Collector-Cutoff Current	$V_{CB} = 30 \text{ V}$ $V_{CB} = 30 \text{ V}$, $T_A = 150^\circ\text{C}$		15 5.0	nA μA

ON CHARACTERISTICS

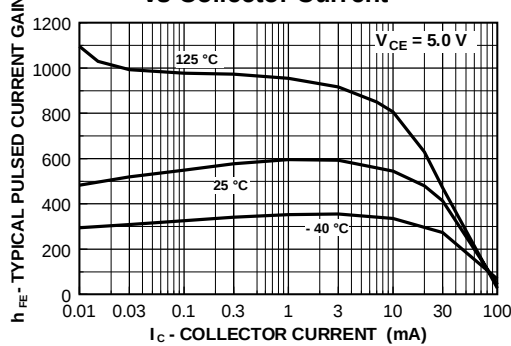
h_{FE}	DC Current Gain	$I_C = 2.0 \text{ mA}$, $V_{CE} = 5.0 \text{ V}$ 846A / 847A 846B / 847B 847C	110 200 420	220 450 800	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA}$, $I_B = 0.5 \text{ mA}$ $I_C = 100 \text{ mA}$, $I_B = 5.0 \text{ mA}$		0.25 0.6	V V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 2.0 \text{ mA}$, $V_{CE} = 5.0 \text{ V}$ $I_C = 10 \text{ mA}$, $V_{CE} = 5.0 \text{ V}$	0.58	0.70 0.77	V V

SMALL SIGNAL CHARACTERISTICS

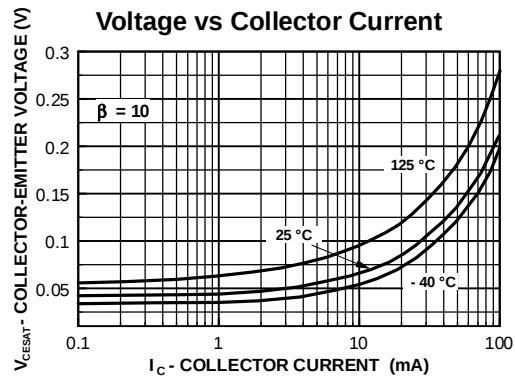
f_T	Current Gain - Bandwidth Product	$I_C = 10 \text{ mA}$, $V_{CE} = 5.0$, $f = 100 \text{ MHz}$	100		MHz
C_{obo}	Output Capacitance	$V_{CB} = 10 \text{ V}$, $f = 1.0 \text{ MHz}$		4.5	pF
NF	Noise Figure	$I_C = 0.2 \text{ mA}$, $V_{CE} = 5.0$, $R_S = 2.0 \text{ k}\Omega$, $f = 1.0 \text{ kHz}$, $BW = 200 \text{ Hz}$		10	dB

Typical Characteristics

Typical Pulsed Current Gain vs Collector Current



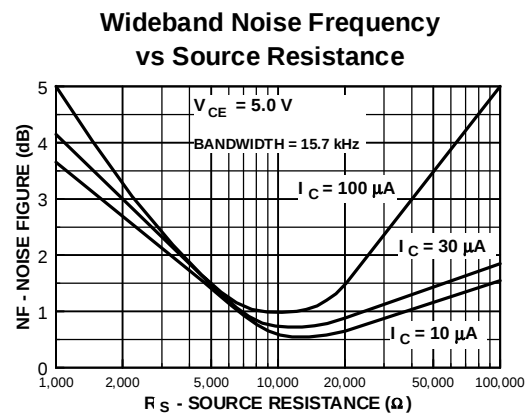
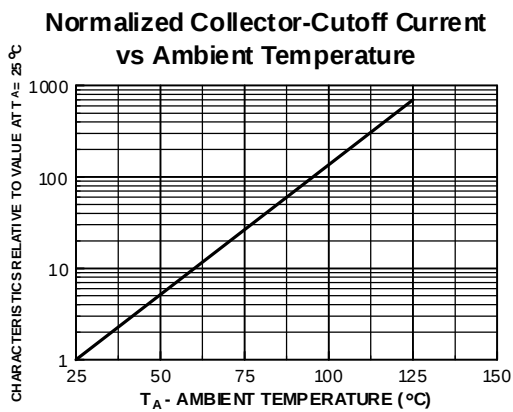
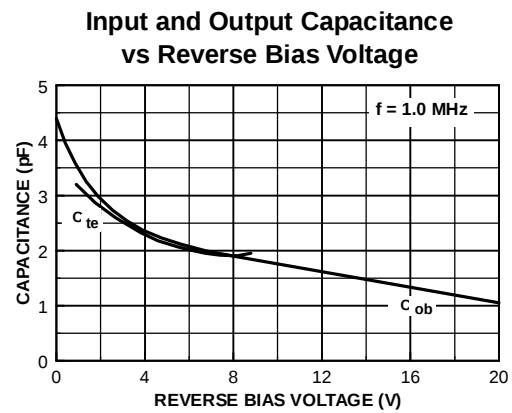
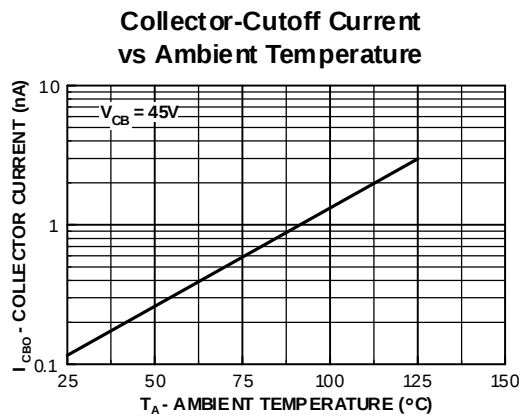
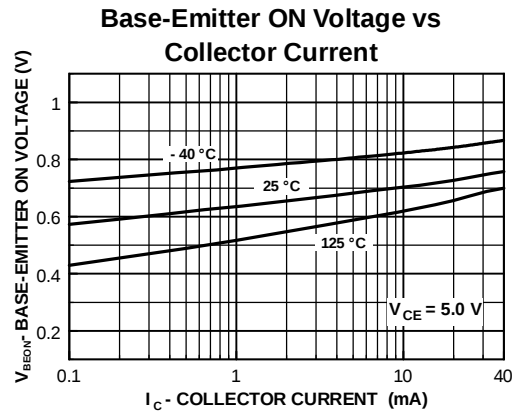
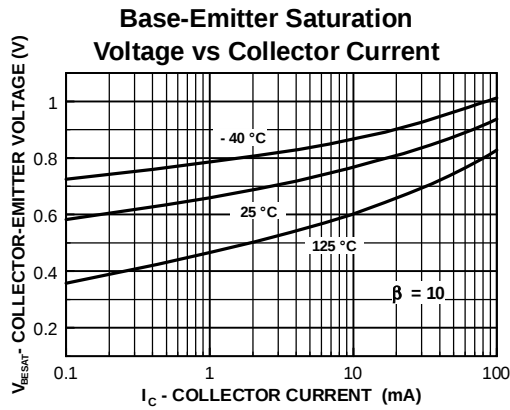
Collector-Emitter Saturation Voltage vs Collector Current



NPN General Purpose Amplifier (continued)

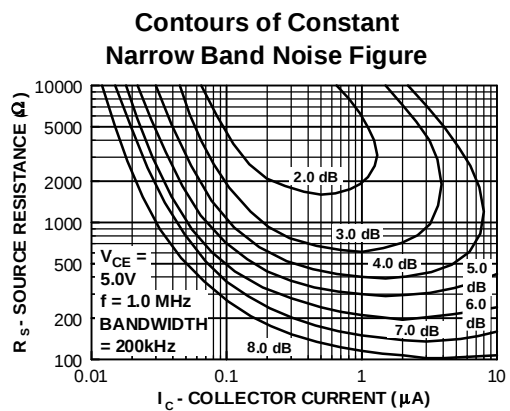
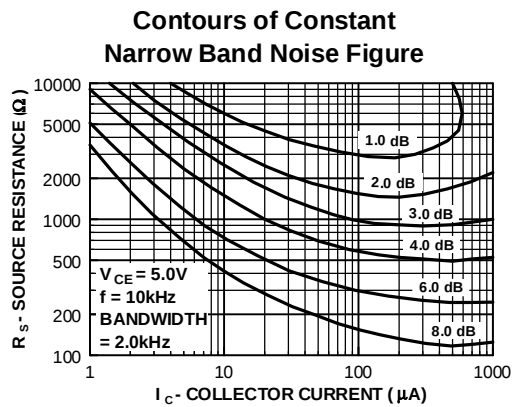
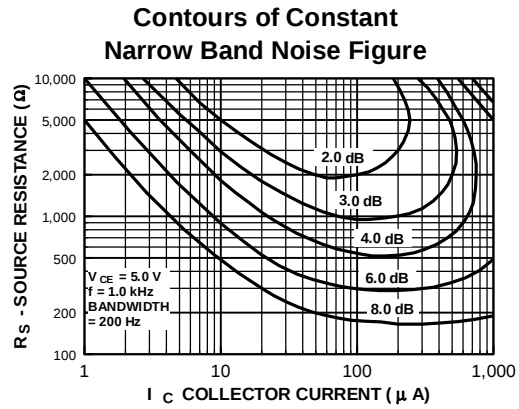
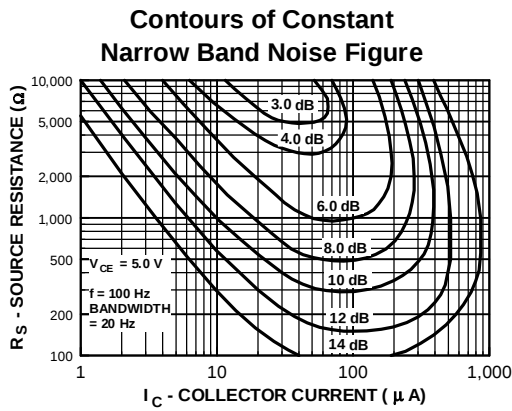
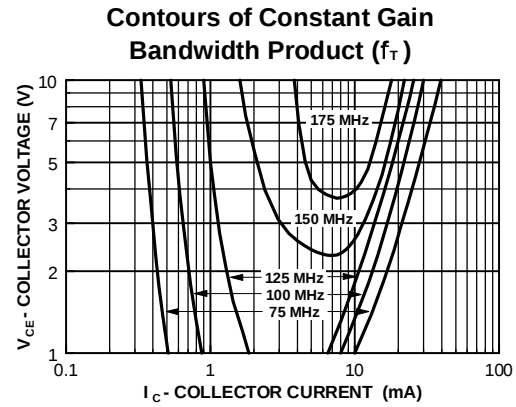
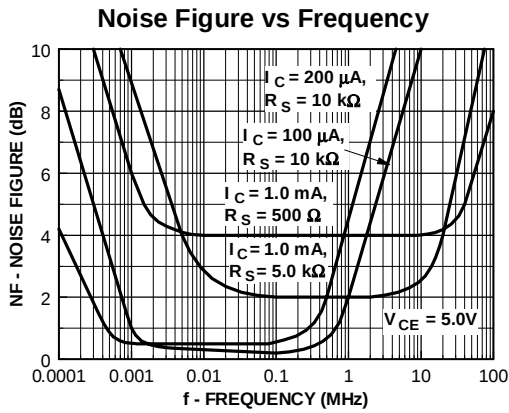
BC846A / BC846B / BC847A / BC847B / BC847C

Typical Characteristics



NPN General Purpose Amplifier (continued)

Typical Characteristics (continued)

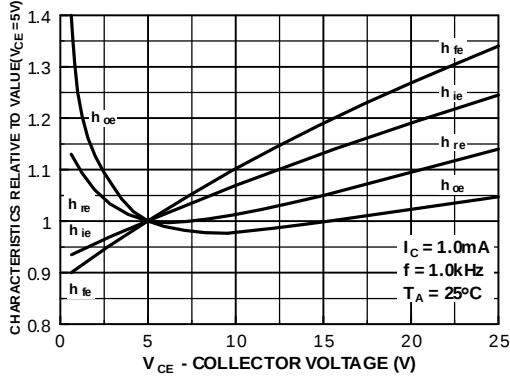


BC846A / BC846B / BC847A / BC847B / BC847C

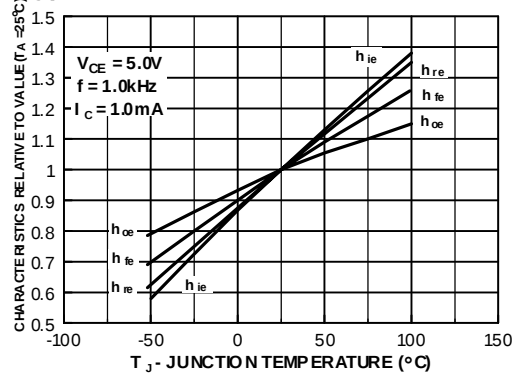
NPN General Purpose Amplifier (continued)

Typical Common Emitter Characteristics (f = 1.0 kHz)

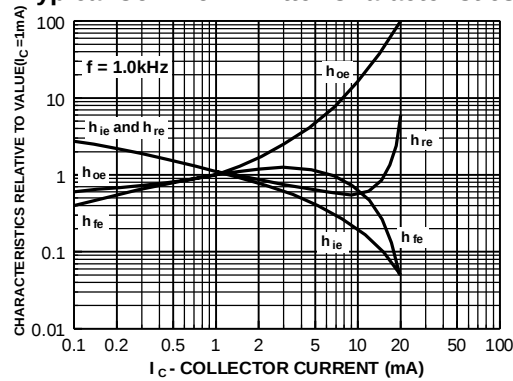
Typical Common Emitter Characteristics



Typical Common Emitter Characteristics



Typical Common Emitter Characteristics



BC846A / BC846B / BC847A / BC847B / BC847C

TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACE [™]	FAST [™]	PowerTrench [®]	SyncFET [™]
Bottomless [™]	GlobalOptoisolator [™]	QFET [™]	TinyLogic [™]
CoolFET [™]	GTO [™]	QS [™]	UHC [™]
CROSSVOLT [™]	HiSeC [™]	QT Optoelectronics [™]	VCX [™]
DOVE [™]	ISOPLANAR [™]	Quiet Series [™]	
E ² CMOS [™]	MICROWIRE [™]	SILENT SWITCHER [®]	
EnSigna [™]	OPTOLOGIC [™]	SMART START [™]	
FACT [™]	OPTOPLANAR [™]	SuperSOT [™] -3	
FACT Quiet Series [™]	PACMAN [™]	SuperSOT [™] -6	
FAST [®]	POP [™]	SuperSOT [™] -8	

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

Rev. G