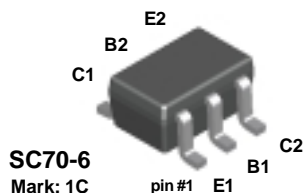


BC847S



NOTE: The pinouts are symmetrical; pin 1 and pin 4 are interchangeable. Units inside the carrier can be of either orientation and will not affect the functionality of the device.

NPN Multi-Chip General Purpose Amplifier

This device is designed for general purpose amplifier applications at collector currents to 200 mA. Sourced from Process 07.

Absolute Maximum Ratings*

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	45	V
V_{CES}	Collector-Base Voltage	50	V
V_{CBO}	Collector-Base Voltage	50	V
V_{EBO}	Emitter-Base Voltage	6.0	V
I_C	Collector Current - Continuous	200	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Characteristic	Max	Units
		BC847S	
P_D	Total Device Dissipation Derate above 25°C	300	mW
		2.4	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	415	$^\circ\text{C}/\text{W}$

NPN Multi-Chip General Purpose Amplifier

(continued)

BC847S

Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{ mA}, I_B = 0$	45			V
$V_{(BR)CES}$	Collector-Base Breakdown Voltage	$I_C = 10\text{ }\mu\text{A}, I_E = 0$	50			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\text{ }\mu\text{A}, I_E = 0$	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	$V_{CB} = 30\text{ V}, I_E = 0$ $V_{CB} = 30\text{ V}, I_E = 0, T_A = 150^\circ\text{C}$			15 5.0	nA μA

ON CHARACTERISTICS

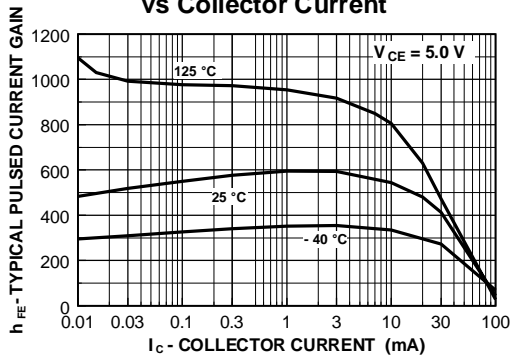
h_{FE}	DC Current Gain	$I_C = 2.0\text{ mA}, V_{CE} = 5.0\text{ V}$	110		630	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}, I_B = 5.0\text{ mA}$			0.25 0.65	V V
$V_{BE(on)}$	Base-Emitter ON Voltage	$I_C = 2.0\text{ mA}, V_{CE} = 5.0\text{ V}$ $I_C = 10\text{ mA}, V_{CE} = 5.0\text{ V}$	0.58		0.7 0.77	V V

SMALL SIGNAL CHARACTERISTICS

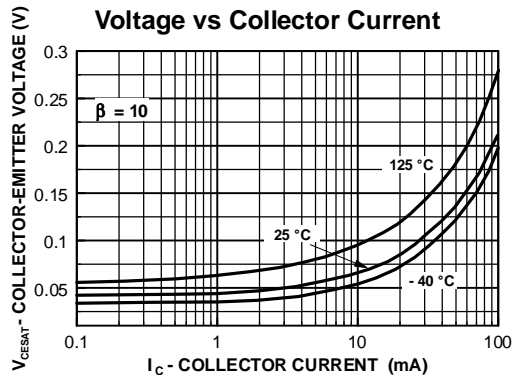
f_T	Current Gain - Bandwidth Product	$I_C = 20\text{ mA}, V_{CE} = 5.0,$ $f = 100\text{ mHz}$		200		MHz
C_{obo}	Output Capacitance	$V_{CB} = 10\text{ V}, f = 1.0\text{ MHz}$		2.0		pF

Typical Characteristics

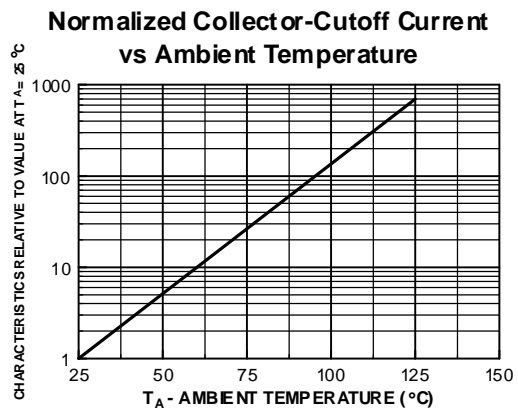
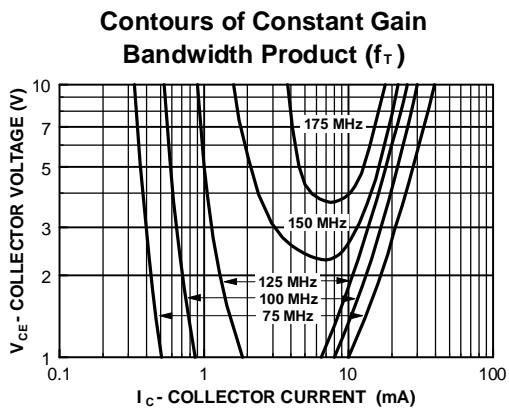
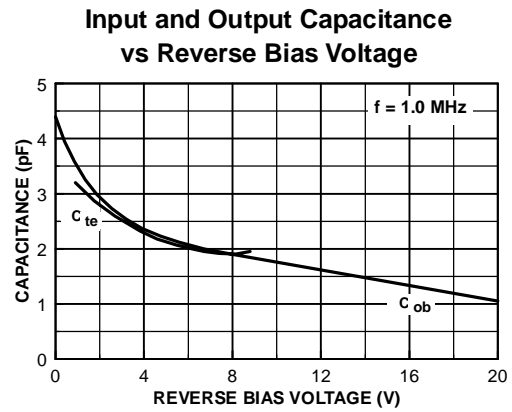
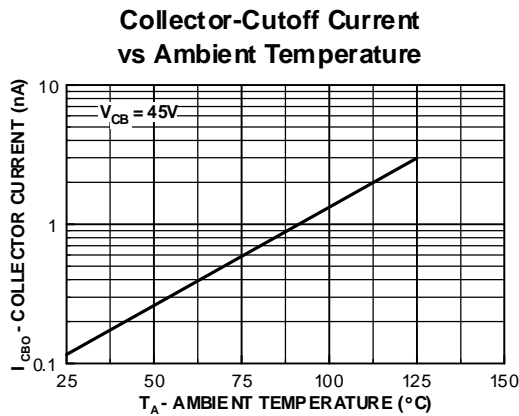
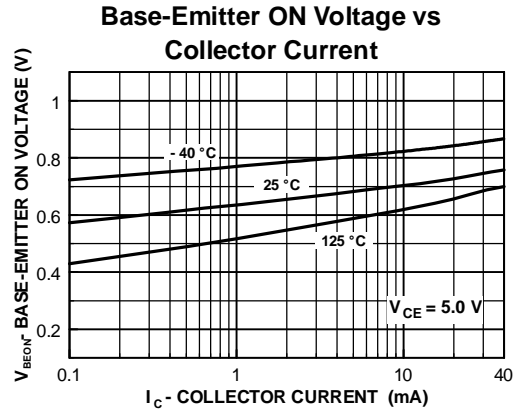
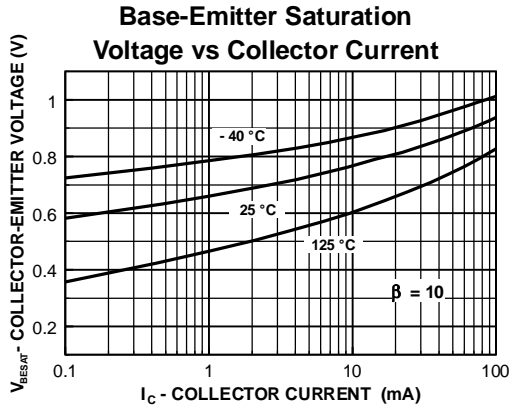
Typical Pulsed Current Gain vs Collector Current



Collector-Emitter Saturation Voltage vs Collector Current



Typical Characteristics



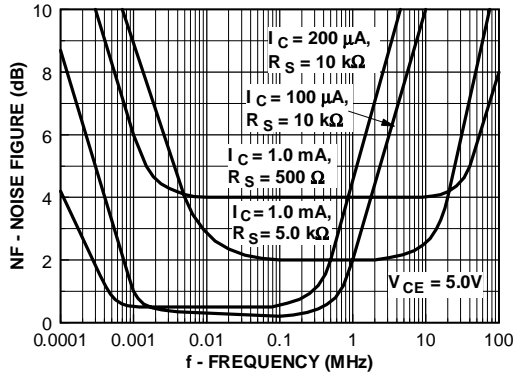
NPN Multi-Chip General Purpose Amplifier

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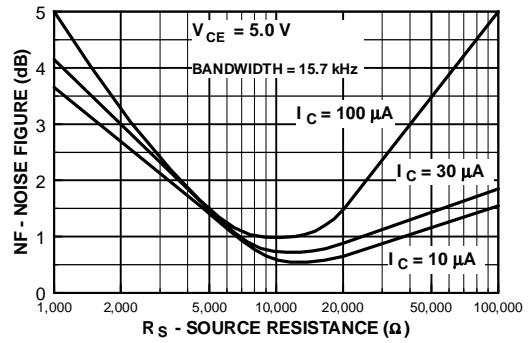
BC847S

Typical Characteristics (continued)

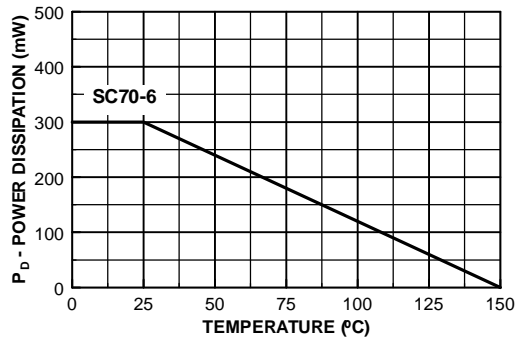
Noise Figure vs Frequency



Wideband Noise Frequency vs Source Resistance



Power Dissipation vs Ambient Temperature



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