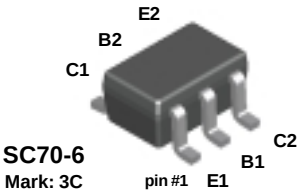
FAIRCHILD
SEMICONDUCTOR TM

BC857S



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.

PNP Multi-Chip General Purpose Amplifier

This device is designed for general purpose amplifier applications at collector currents to 200 mA. Sourced from Process 68.

Absolute Maximum Ratings*

T_A = 25°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	5.0	V
I_C	Collector Current - Continuous	200	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°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.
3) All voltages (V) and currents (A) are negative polarity for PNP transistors.

Thermal Characteristics

T_A = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		BC857S	
P_D	Total Device Dissipation Derate above 25°C	300 2.4	mW mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	415	°C/W

Electrical Characteristics

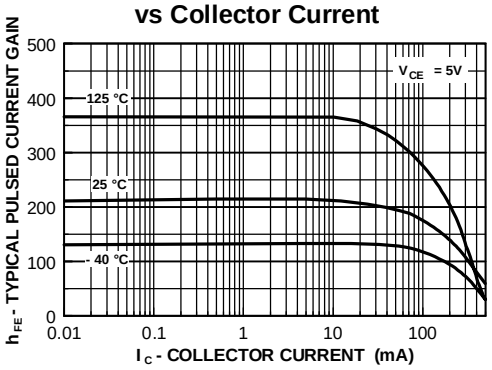
T_A = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C = 10 mA, I_B = 0	45			V
$V_{(BR)CES}$	Collector-Base Breakdown Voltage	I_C = 10 µA, I_E = 0	50			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10 µA, I_E = 0	50			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10 µA, I_C = 0	5.0			V
I_{CBO}	Collector-Cutoff Current	V_{CB} = 30 V V_{CB} = 30 V, T_A = 150°C			15 4.0	nA µA
ON CHARACTERISTICS						
h_{FE}	DC Current Gain	I_C = 2.0 mA, V_{CE} = 5.0 V	125		630	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 10 mA, I_B = 0.5 mA I_C = 100 mA, I_B = 5.0 mA			0.3 0.65	V V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 2.0 mA, V_{CE} = 5.0 V I_C = 10 mA, V_{CE} = 5.0 V	0.6		0.75 0.82	V V
SMALL SIGNAL CHARACTERISTICS						
f_T	Current Gain - Bandwidth Product	I_C = 10 mA, V_{CE} = 5.0, f = 100 mHz		200		MHz
C_{obo}	Output Capacitance	V_{CB} = 10 V, f = 1.0 MHz		3.5		pF
NF	Noise Figure	I_C = 0.2 mA, V_{CE} = 5.0, R_S = 2.0 kΩ, f = 1.0 kHz, BW = 200 Hz		2.5		dB

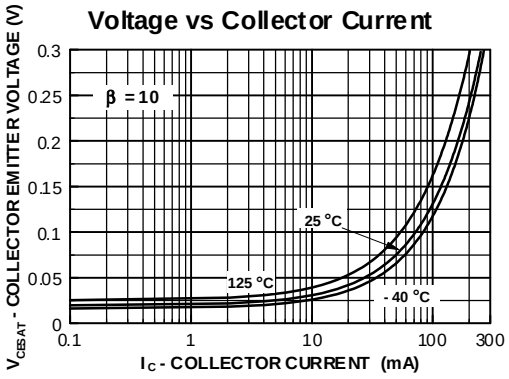
NOTE: All voltages (V) and currents (A) are negative polarity for PNP transistors.

Typical Characteristics

Typical Pulsed Current Gain vs Collector Current



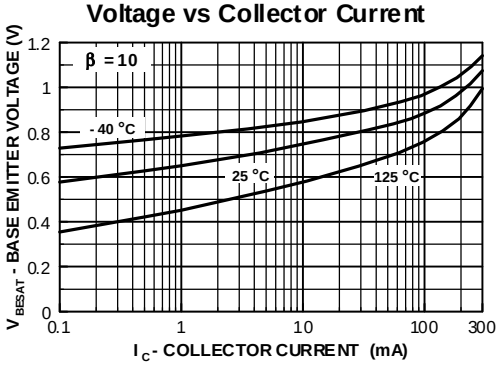
Collector-Emitter Saturation Voltage vs Collector Current



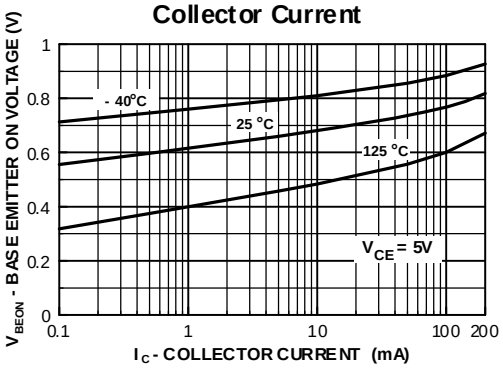
PNP Multi-Chip General Purpose Amplifier
(continued)

Typical Characteristics (continued)

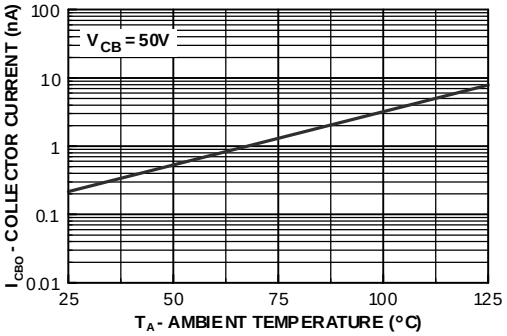
Base-Emitter Saturation Voltage vs Collector Current



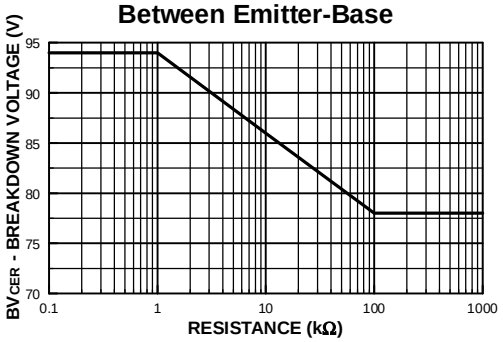
Base Emitter ON Voltage vs Collector Current



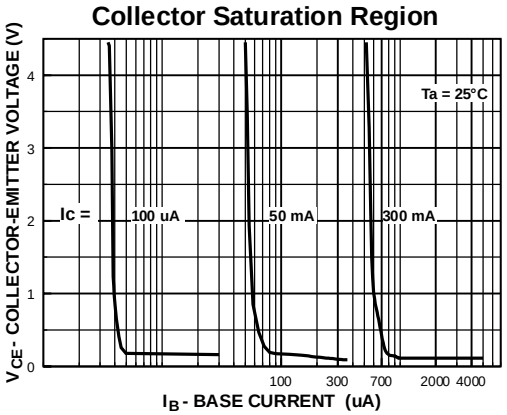
Collector-Cutoff Current vs Ambient Temperature



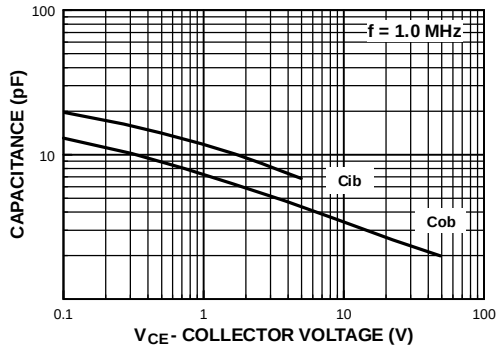
Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base



Collector Saturation Region

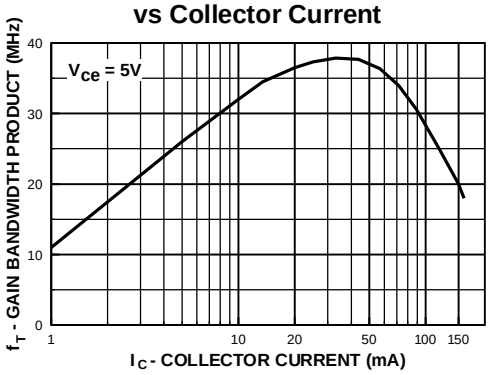


Input and Output Capacitance vs Reverse Voltage

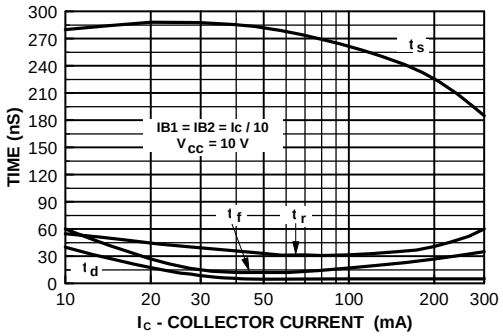


Typical Characteristics (continued)

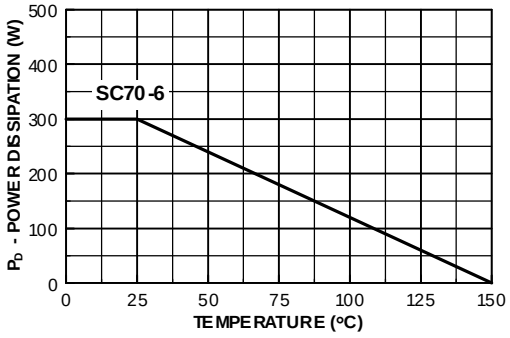
Gain Bandwidth Product vs Collector Current



Switching Times vs Collector Current



Power Dissipation vs Ambient Temperature



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