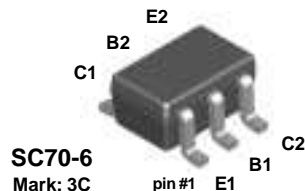


# BC857S



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\*

$T_A = 25^\circ\text{C}$  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	5.0	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.
- 3) All voltages (V) and currents (A) are negative polarity for PNP transistors.

### Thermal Characteristics

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

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

PNP Multi-Chip General Purpose Amplifier  
(continued)

Electrical Characteristics

T<sub>A</sub> = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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OFF CHARACTERISTICS

V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0	45			V
V <sub>(BR)CES</sub>	Collector-Base Breakdown Voltage	I <sub>C</sub> = 10 μA, I <sub>E</sub> = 0	50			V
V <sub>(BR)CBO</sub>	Collector-Base Breakdown Voltage	I <sub>C</sub> = 10 μA, I <sub>E</sub> = 0	50			V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> = 10 μA, I <sub>C</sub> = 0	5.0			V
I <sub>CBO</sub>	Collector-Cutoff Current	V <sub>CB</sub> = 30 V V <sub>CB</sub> = 30 V, T <sub>A</sub> = 150°C			15 4.0	nA μA

ON CHARACTERISTICS

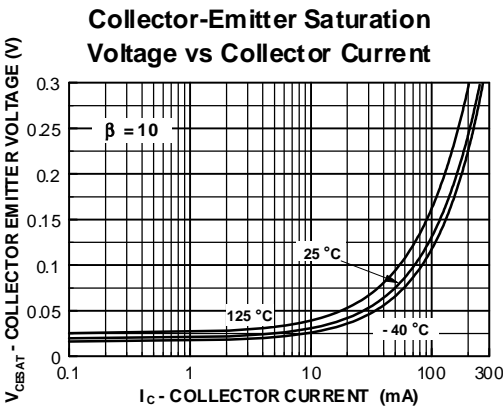
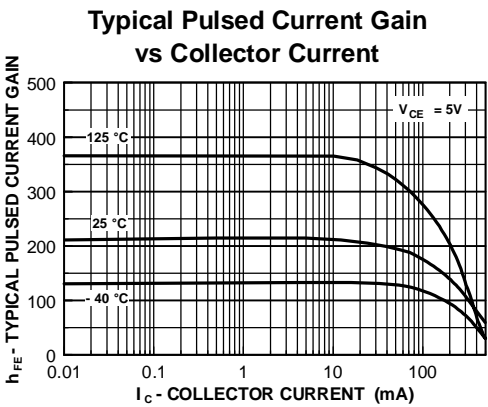
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 2.0 mA, V <sub>CE</sub> = 5.0 V	125		630	
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.5 mA I <sub>C</sub> = 100 mA, I <sub>B</sub> = 5.0 mA			0.3 0.65	V V
V <sub>BE(on)</sub>	Base-Emitter On Voltage	I <sub>C</sub> = 2.0 mA, V <sub>CE</sub> = 5.0 V I <sub>C</sub> = 10 mA, V <sub>CE</sub> = 5.0 V	0.6		0.75 0.82	V V

SMALL SIGNAL CHARACTERISTICS

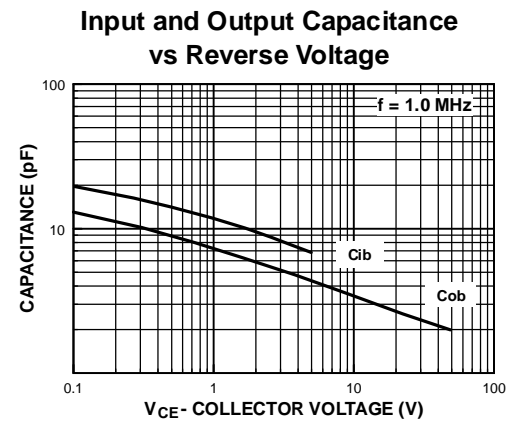
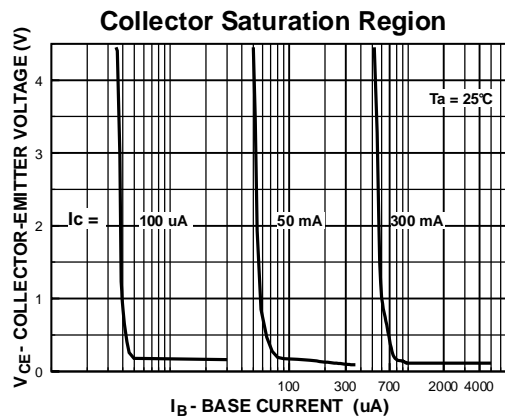
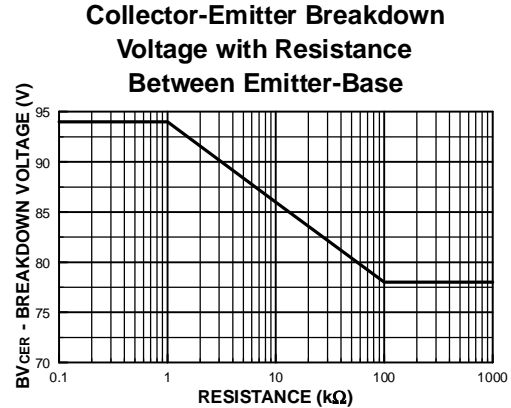
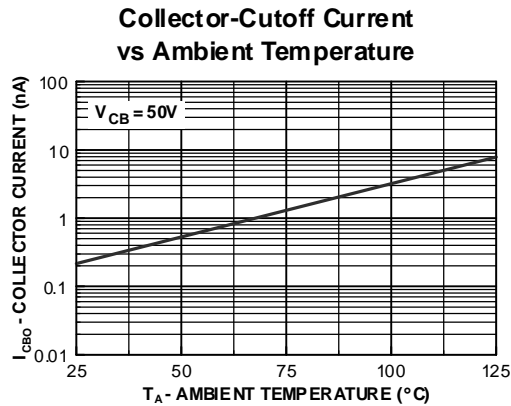
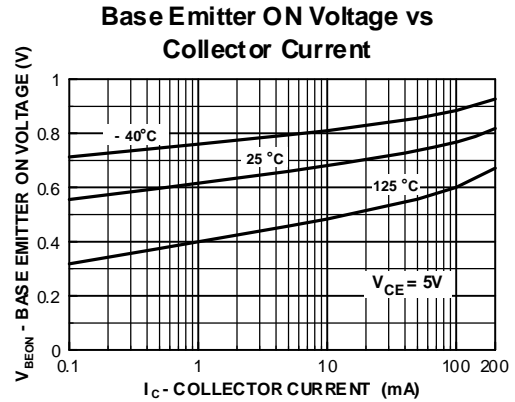
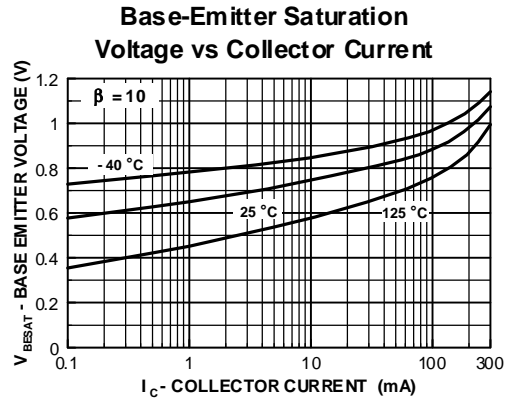
f <sub>T</sub>	Current Gain - Bandwidth Product	I <sub>C</sub> = 10 mA, V <sub>CE</sub> = 5.0, f = 100 mHz		200		MHz
C <sub>obo</sub>	Output Capacitance	V <sub>CB</sub> = 10 V, f = 1.0 MHz		3.5		pF
NF	Noise Figure	I <sub>C</sub> = 0.2 mA, V <sub>CE</sub> = 5.0, R <sub>S</sub> = 2.0 kΩ, f = 1.0 kHz, BW = 200 Hz		2.5		dB

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

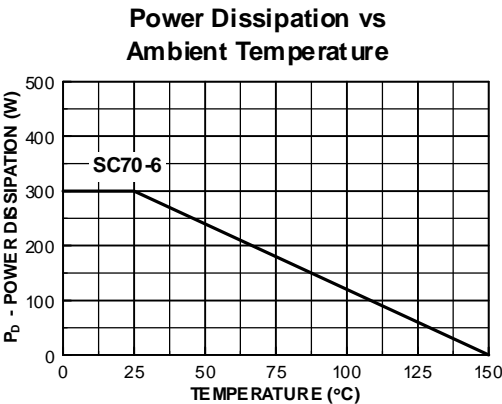
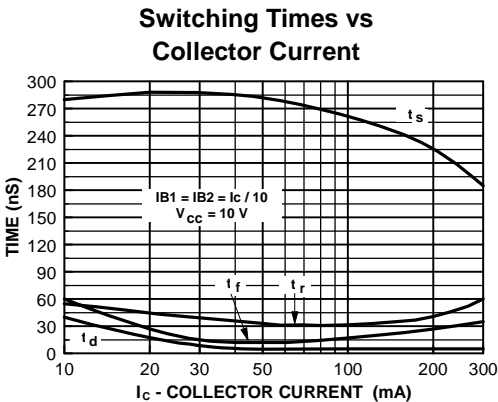
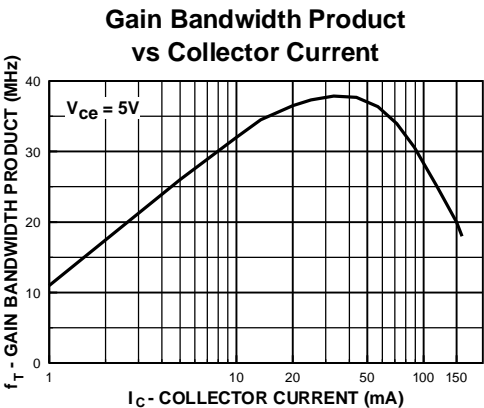
Typical Characteristics



Typical Characteristics (continued)



Typical Characteristics (continued)



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DOME™	ISOPLANAR™	Quiet Series™	
E <sup>2</sup> CMOS™	MICROWIRE™	SILENT SWITCHER®	
EnSigna™	OPTOLOGIC™	SMART START™	
FACT™	OPTOPLANAR™	SuperSOT™-3	
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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.
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