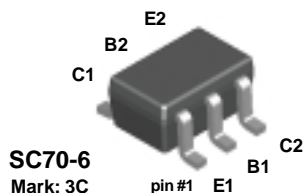


## BC857S



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	mW
		2.4	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	415	$^\circ\text{C}/\text{W}$

# PNP Multi-Chip General Purpose Amplifier

(continued)

BC857S

## 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	$I_E = 10\text{ }\mu\text{A}, I_C = 0$	5.0			V
$I_{CBO}$	Collector-Cutoff Current	$V_{CB} = 30\text{ V}$ $V_{CB} = 30\text{ V}, T_A = 150^\circ\text{C}$			15 4.0	nA $\mu\text{A}$

### ON CHARACTERISTICS

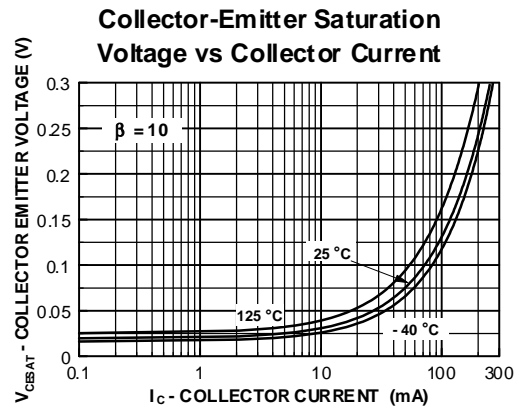
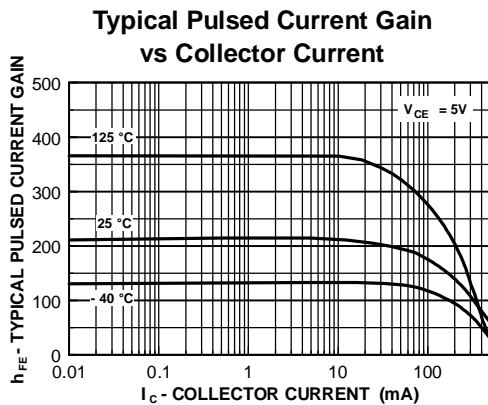
$h_{FE}$	DC Current Gain	$I_C = 2.0\text{ mA}, V_{CE} = 5.0\text{ V}$	125		630	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}, I_B = 5.0\text{ mA}$			0.3 0.65	V V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 2.0\text{ mA}, V_{CE} = 5.0\text{ V}$ $I_C = 10\text{ mA}, V_{CE} = 5.0\text{ V}$	0.6		0.75 0.82	V V

### SMALL SIGNAL CHARACTERISTICS

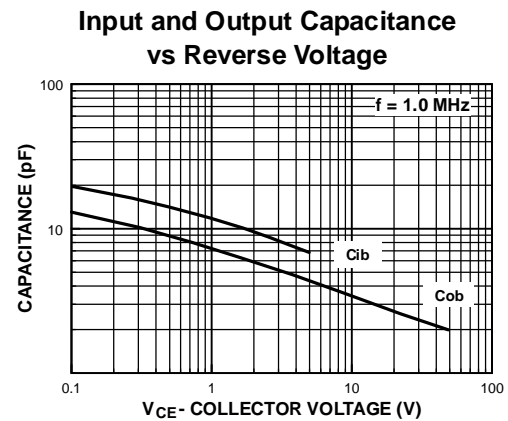
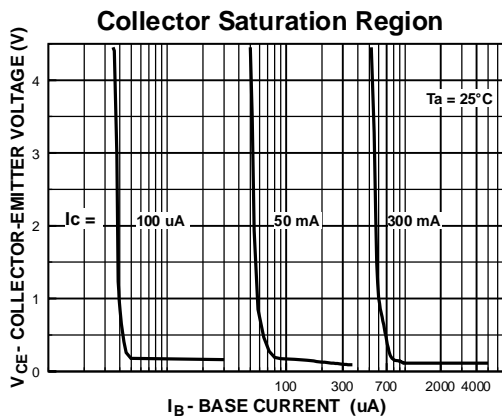
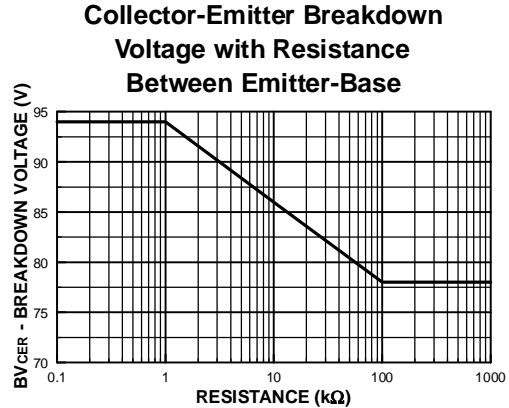
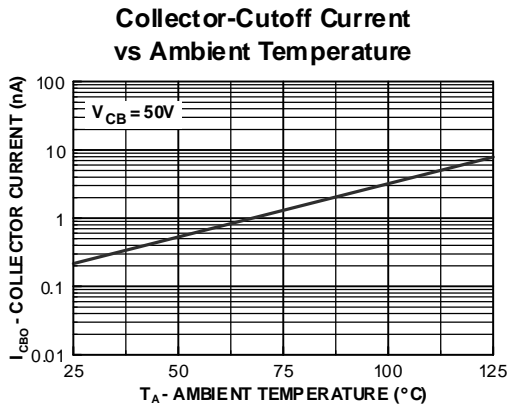
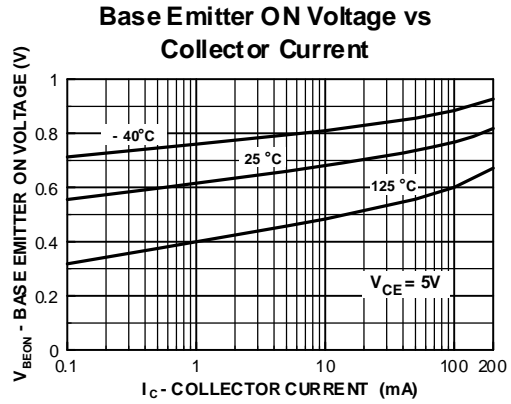
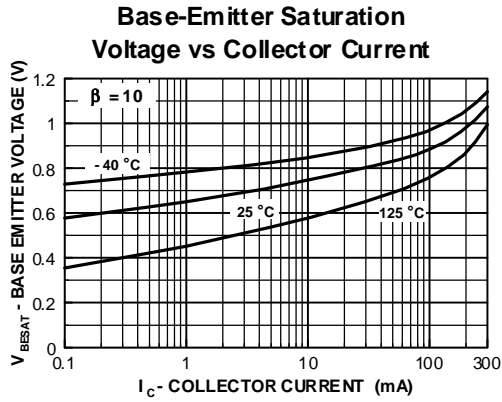
$f_T$	Current Gain - Bandwidth Product	$I_C = 10\text{ mA}, V_{CE} = 5.0,$ $f = 100\text{ mHz}$		200		MHz
$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{ V}, f = 1.0\text{ MHz}$		3.5		pF
NF	Noise Figure	$I_C = 0.2\text{ mA}, V_{CE} = 5.0,$ $R_S = 2.0\text{ k}\Omega, f = 1.0\text{ kHz},$ $BW = 200\text{ Hz}$		2.5		dB

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

## Typical Characteristics

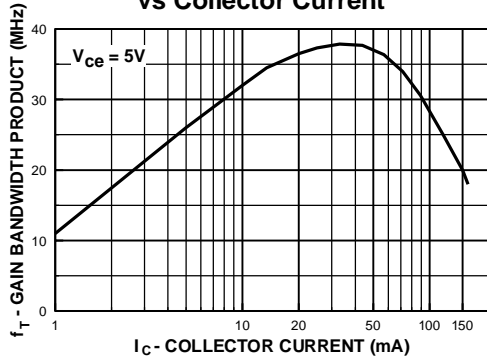


Typical Characteristics (continued)

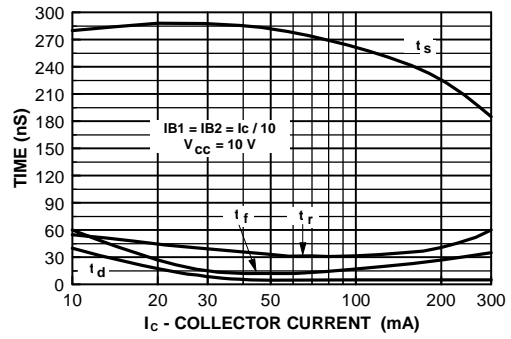


Typical Characteristics (continued)

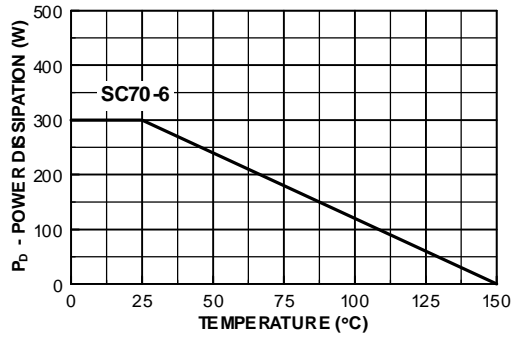
Gain Bandwidth Product vs Collector Current



Switching Times vs Collector Current



Power Dissipation vs Ambient Temperature



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FACT Quiet Series <sup>TM</sup>	PACMAN <sup>TM</sup>	SuperSOT <sup>TM</sup> -6	
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