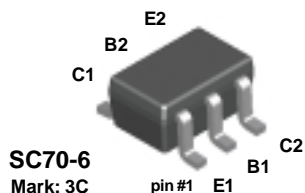


BC857S



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°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	$I_C = 10\ \mu\text{A}, I_E = 0$	50			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\ \mu\text{A}, I_E = 0$	50			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\ \mu\text{A}, I_C = 0$	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 μA

ON CHARACTERISTICS

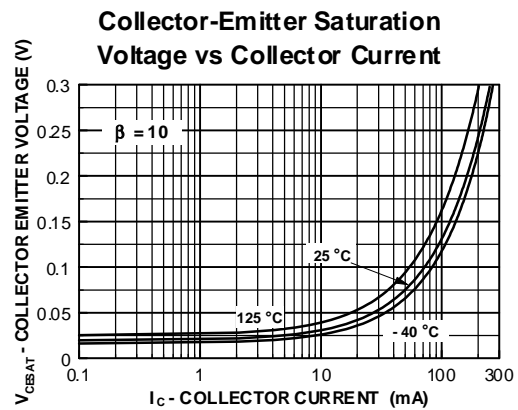
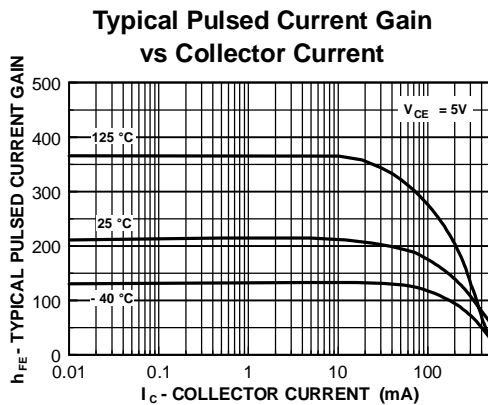
h_{FE}	DC Current Gain	$I_C = 2.0\text{ mA}, V_{CE} = 5.0\text{ V}$	125		630	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}, I_B = 5.0\text{ mA}$			0.3 0.65	V V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 2.0\text{ mA}, V_{CE} = 5.0\text{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

SMALL SIGNAL CHARACTERISTICS

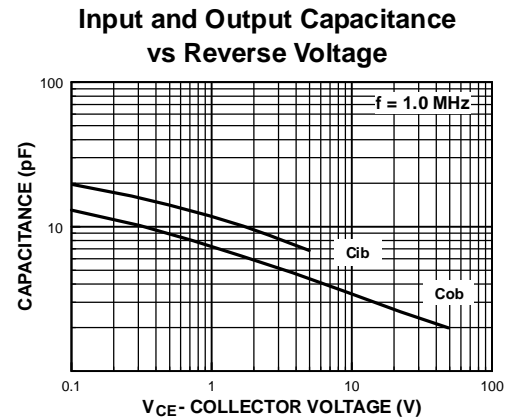
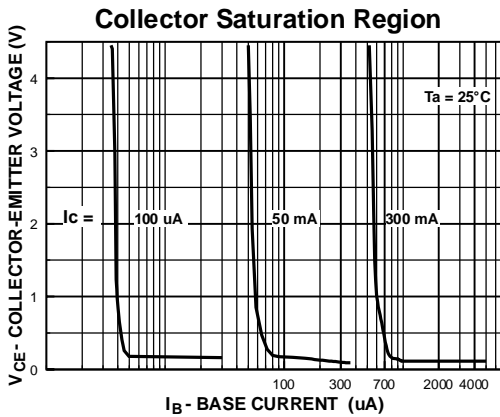
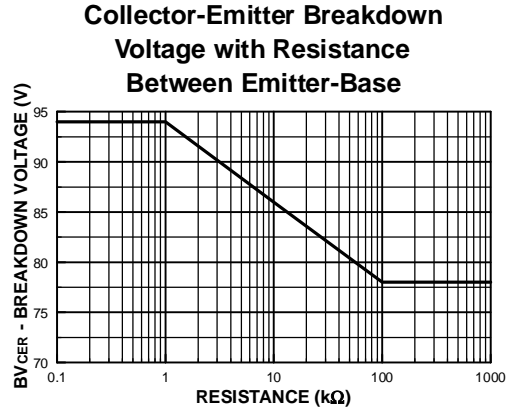
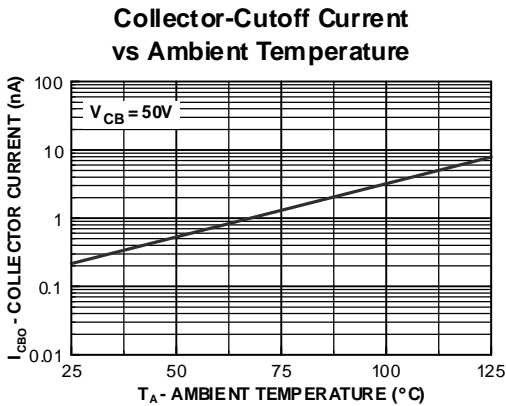
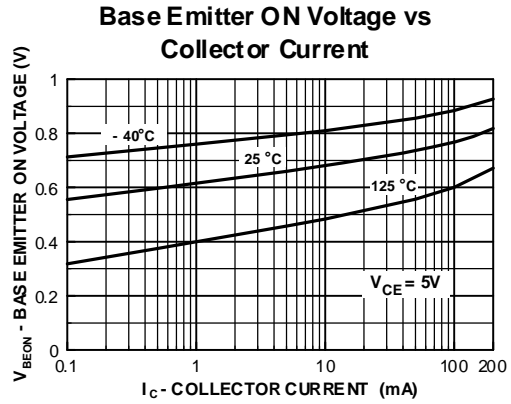
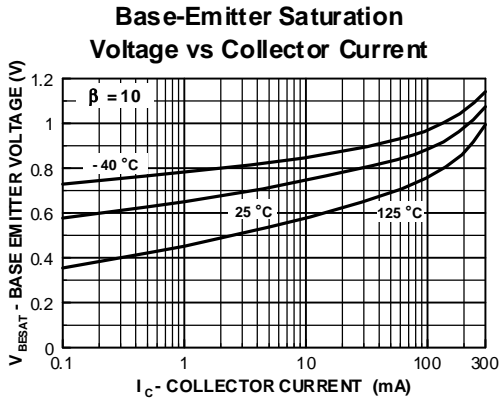
f_T	Current Gain - Bandwidth Product	$I_C = 10\text{ mA}, V_{CE} = 5.0,$ $f = 100\text{ mHz}$		200		MHz
C_{obo}	Output Capacitance	$V_{CB} = 10\text{ V}, f = 1.0\text{ MHz}$		3.5		pF
NF	Noise Figure	$I_C = 0.2\text{ mA}, V_{CE} = 5.0,$ $R_S = 2.0\text{ k}\Omega, f = 1.0\text{ kHz},$ $BW = 200\text{ Hz}$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

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

Typical Characteristics

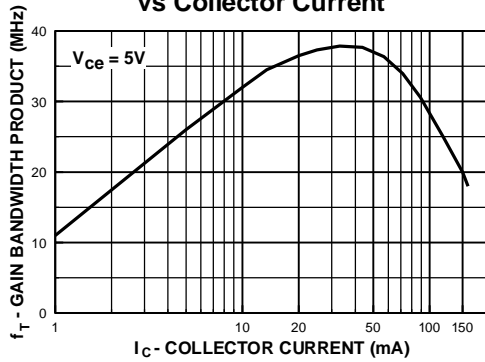


Typical Characteristics (continued)

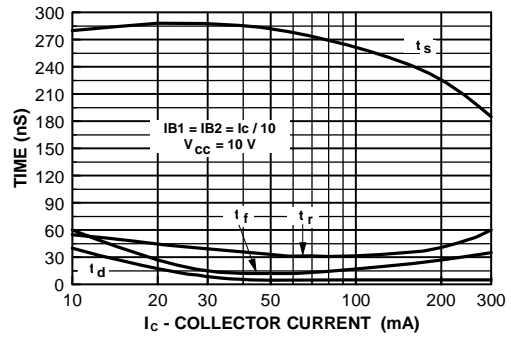


Typical Characteristics (continued)

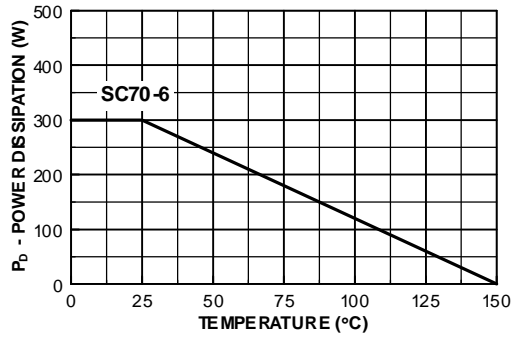
Gain Bandwidth Product vs Collector Current



Switching Times vs Collector Current



Power Dissipation vs Ambient Temperature



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DOME™	ISOPLANAR™	Quiet Series™	
E ² CMOS™	MICROWIRE™	SILENT SWITCHER®	
EnSigna™	OPTOLOGIC™	SMART START™	
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