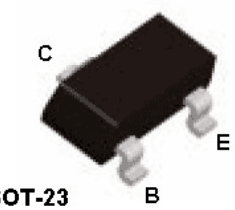
PNP General Purpose Amplifier

This device is designed for general purpose amplifier applications at collector currents to 300mA. Sourced from Process 68.



SOT-23
Mark: 3E / 3F / 3G

Absolute Maximum Ratings* T_A=25°C unless otherwise noted

Symbol	Paramter	Value	Units
V_{CEO}	Collector-Emitter Voltage	45	V
V_{CBO}	Collector-Base Voltage	50	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current-Continuous	500	mA
TJ, Tstg	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.

Thermal Characteristics TA=25°C unless otherwise noted

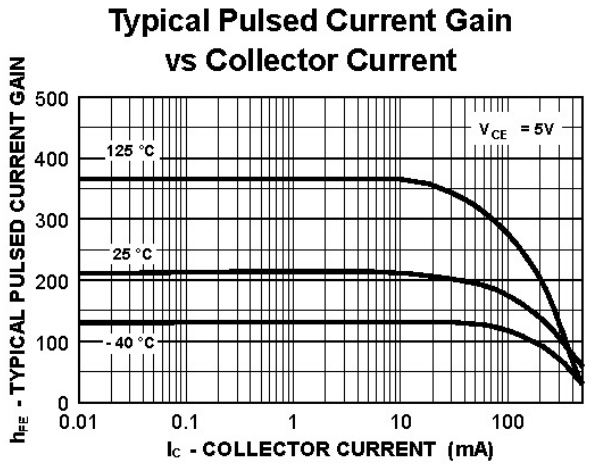
Symbol	Characteristic	Max	Units
		*BC857A/B/C	
P_D	Total Device Dissipation	350	mW
	Derate above 25°C	2.8	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	357	°C/W

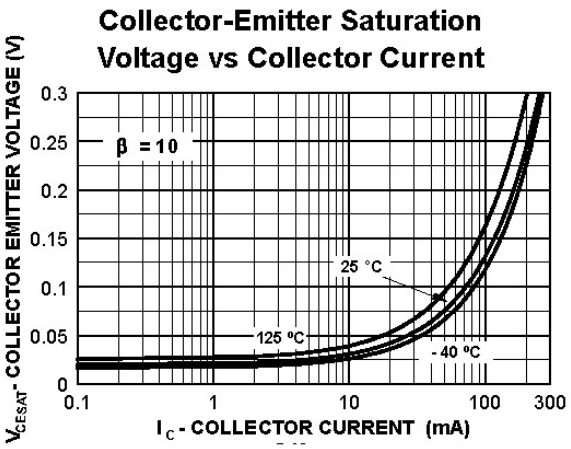
*Device mounted on FR-4 PCB 40mm X 40 mm X 1.5mm.

Electrical Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	Ic=10mA, I_B=0	45		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	Ic=10μA, I_E=0	50		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E=1.0μA, I_C=0	5.0		V
I_{CBO}	Collector-Cutoff Current	V_{CB}=30V		15	nA
		V_{CB}=30V, T_A=150°C		4.0	μA
ON CHARACTERISTICS					
h_{FE}	DC Current Gain	Ic=2.0mA, V_{CE}=5.0V			
		BC857A	125	250	
		BC857B	220	475	
		BC857C	420	800	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	Ic=10mA,I_B=0.5mA		0.3	V
		Ic=100mA, I_B=5.0mA		0.65	V`
$V_{BE(on)}$	Base-Emitter On Voltage	Ic=2.0mA, V_{CE}=5.0V	0.6	0.75	V
		Ic=10mA, V_{CE}=5.0V		0.82	V
SMALL SIGNAL CHARACTERISTICS					
f_T	Current Gain –Bandwidth Product	Ic=10mA, V_{CE}=5.0, f=100mHz	100		MHz
Cobo	Output Capacitance	V_{CB}=10V, f=1.0MHz		4.5	pF
NF	Noise Figure	Ic=0.2mA, V_{CE}=5.0, Rs=2.0kΩ,f=1.0kHz, BW=200Hz		10	dB

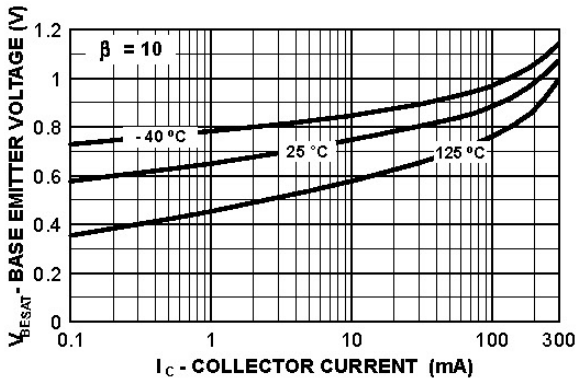
Typical Characteristics



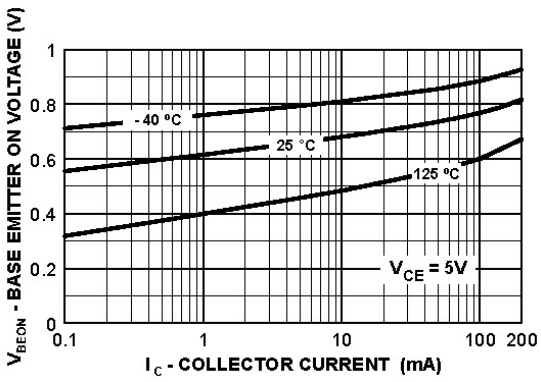


Typical Characteristics (continued)

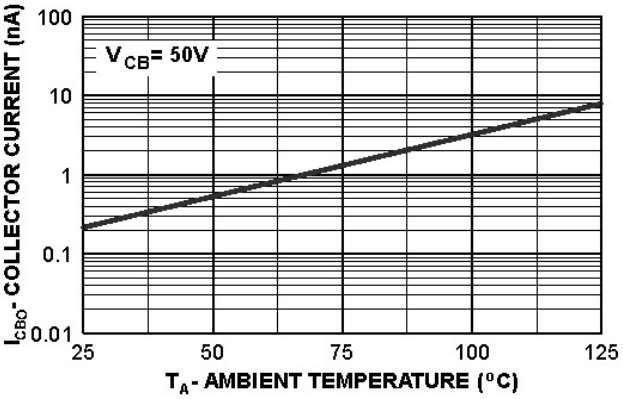
Base-Emitter Saturation Voltage vs Collector Current



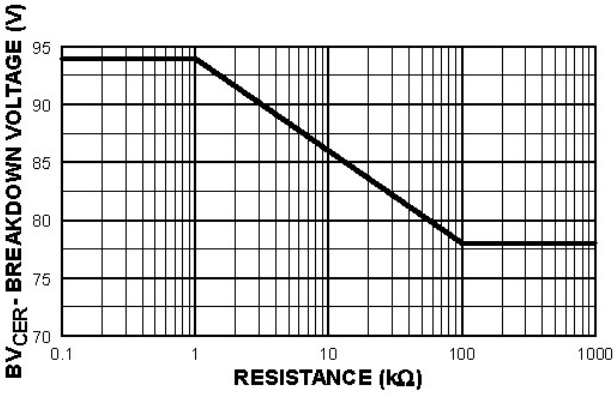
Base Emitter ON Voltage vs Collector Current



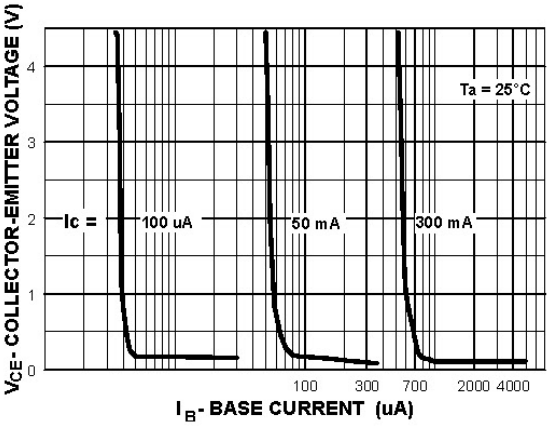
Collector-Cutoff Current Vs. Ambient Temperature



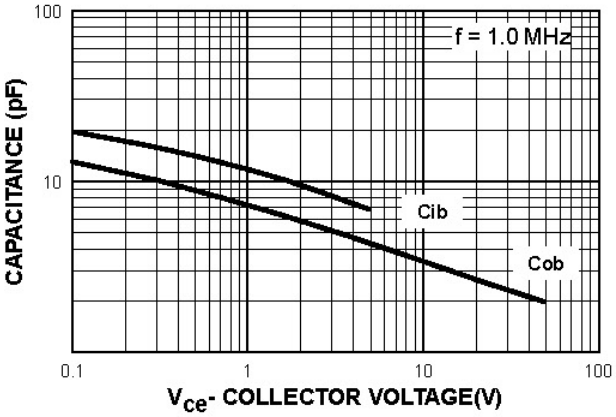
Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base



Collector Saturation Region

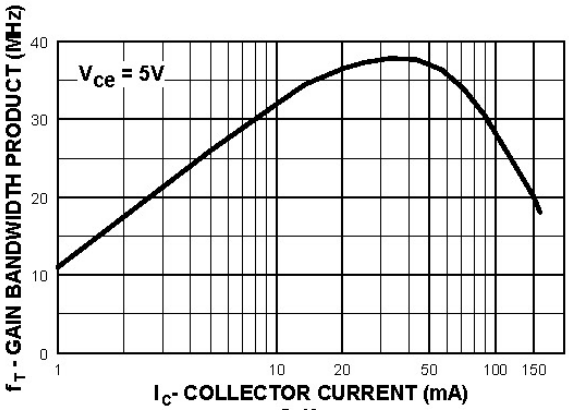


Input and Output Capacitance Vs Reverse Voltage



Typical Characteristics (continued)

Gain Bandwidth Product Vs Collector Current



Power Dissipation vs Ambient Temperature