

Features

- For Switching and AF Amplifier Applications
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 320°C/W Junction to Solder-point (Note2)
- Thermal Resistance: 403°C/W Junction to Ambient (Note2)

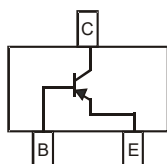
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	-80	V
Collector-Emitter Voltage	V_{CEO}	-65	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-100	mA
Peak Collector Current	I_{CM}	-200	mA
Peak Emitter Current	I_{EM}	-200	mA
Power Dissipation $T_S=50^\circ\text{C}$ (Note2)	P_D	310	mW

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

2. Package Mounted 1.0*1.0mm Pad Layout 1oz Copper That is On a Single-sided FR4 PCB.

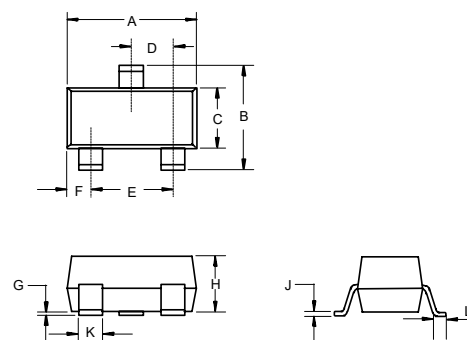
Part Number	BC856A	BC856B
Marking	3A	3B

Internal Structure



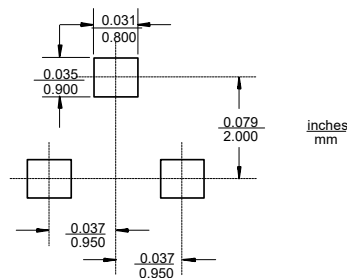
PNP Small Signal Transistor

SOT-23



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.014	0.020	0.35	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter		Symbol	Min	Typ	Max	Units	Conditions	
Collector-Base Breakdown Voltage ^(Note3)		V _{(BR)CBO}	-80			V	I _C =-10μA, I _E =0	
Collector-Emitter Breakdown Voltage ^(Note3)		V _{(BR)CEO}	-65			V	I _C =-10mA, I _B =0	
Emitter-Base Breakdown Voltage ^(Note3)		V _{(BR)EBO}	-5			V	I _E =-1μA, I _C =0	
Collector-Cutoff Current ^(Note3)		I _{CES}			-15	nA	V _{CE} =-80V	
		I _{CBO}			-15	nA	V _{CB} =-30V	
					-4	μA	V _{CB} =-30V, T _A =150°C	
DC Current Gain ^(Note3)	BC856 A	h _{FE}	125	180	250		V _{CE} =-5Vdc, I _C =-2mA	
	BC856 B		220	290	475			
Small Signal Current Gain	BC856 A	h _{fe}		200			V _{CE} =-5V I _C =-2mA f=1KHz	
	BC856 B			330				
Input Impedance	BC856 A	h _{ie}		2.7		KΩ		
	BC856 B			4.5				
Output Admittance	BC856 A	h _{oe}		18		μS		
	BC856 B			30				
Reverse Voltage Transfer Ratio	BC856 A	h _{re}		1.5x10 ⁻⁴				
	BC856 B			2x10 ⁻⁴				
Collector-Emitter Saturation Voltage ^(Note3)		V _{CE(sat)}		-75	-300	mV	I _C =-10mA, I _B =-0.5mA	
				-250	-650	mV	I _C =-100mA, I _B =-5mA	
Base-Emitter Saturation Voltage ^(Note3)		V _{BE(sat)}		-700		mV	I _C =-10mA, I _B =-0.5mA	
				-850		mV	I _C =-100mA, I _B =-5mA	
Base-Emitter Voltage ^(Note3)		V _{BE}	-600	-650	-750	mV	V _{CE} =-5V, I _C =-2mA	
					-820	mV	V _{CE} =-5V, I _C =-10mA	
Current Gain-Bandwidth Product		f _T	100	200		MHz	V _{CE} =-5V, I _C =-10mA, f=100MHz	
Collector-Base Capacitance		C _{CBO}		3		pF	V _{CB} =-10V, f=1MHz	
Noise Figure		NF		2	10	dB	V _{CE} =-5V, I _C =-200μA R _S =2KΩ, f=1KHz, Δf=200Hz	

Note: 3. Short Duration Pulse Test to Minimize Self-heating Effect.

Curve Characteristics

Fig. 1 - Static Characteristics

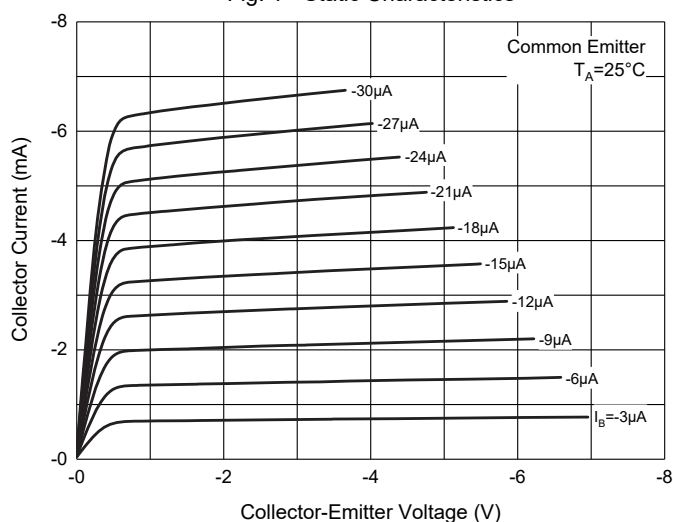


Fig. 2 - DC Current Gain Characteristics

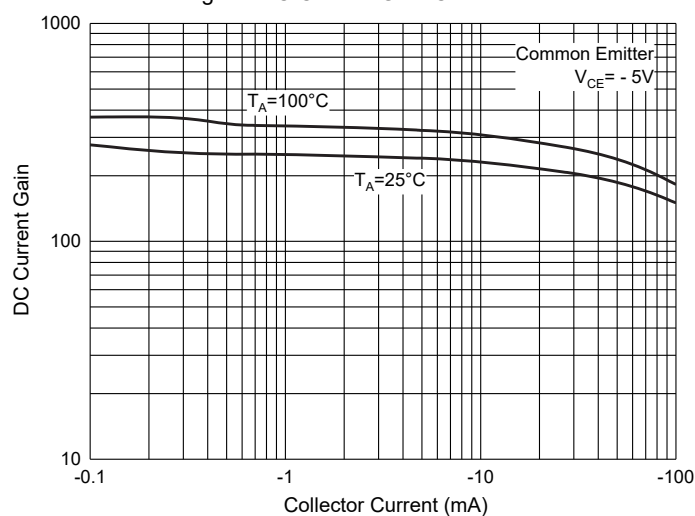


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

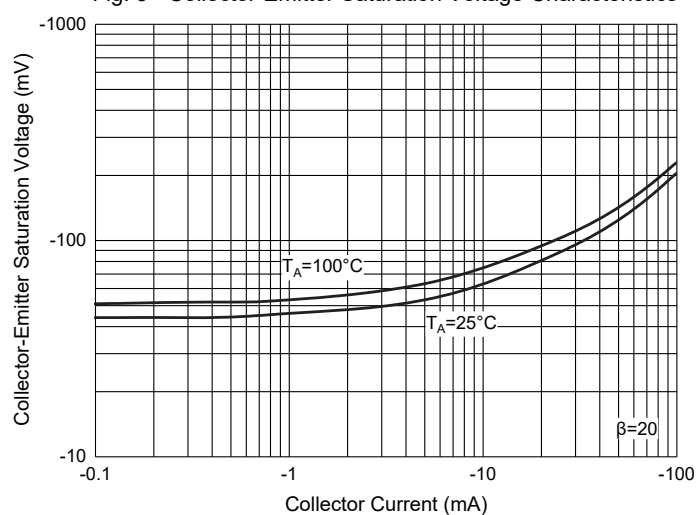


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

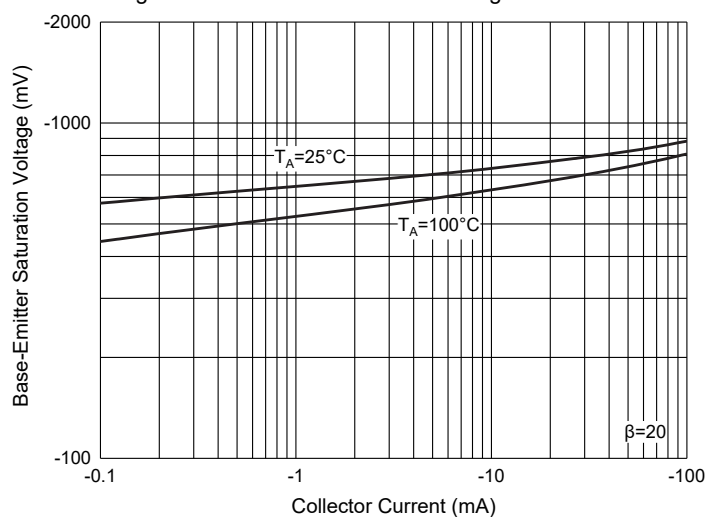


Fig. 5 - Base-Emitter Voltage Characteristics

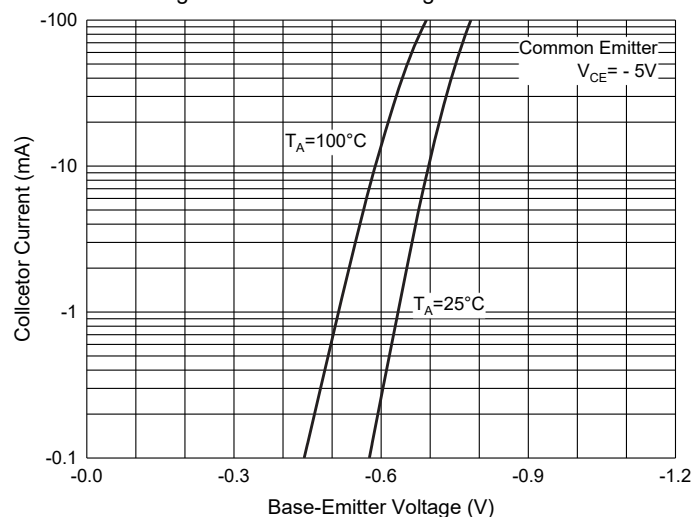
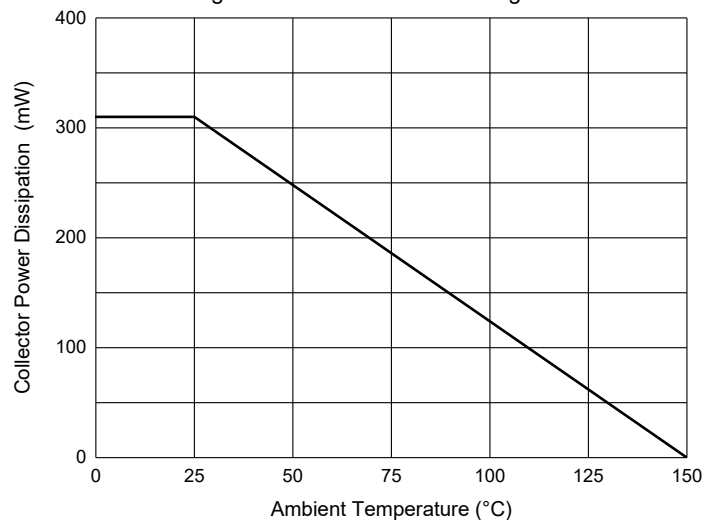


Fig. 6 - Collector Power Derating Curve



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel
Part Number-13P	Tape&Reel:10Kpcs/Reel

For packaging details, go to our website at https://www.mccsemi.com/pdf/productpackaging/SOT-23_Packing_Rev_1.pdf

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