200mW, PNP Small Signal Transistor

FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

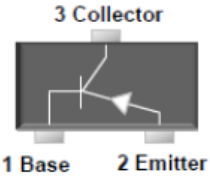
- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

MECHANICAL DATA

- Case: SOT-23
- Molding compound meets UL 94 V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Weight: 0.008 grams (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
V_{CBO}	-80	V
V_{CEO}	-65	V
V_{EBO}	-5	V
I_C	-0.1	A
h_{FE}	250-800	
Package	SOT-23	
Configuration	Single Dice	

Pb-Free RoHS COMPLIANT



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER		**SYMBOL**	**VALUE**	**UNIT**
Marking code on the device	BC856A		3A	
	BC856B		3B	
	BC857A		3E	
	BC857B		3F	
	BC857C		3G	
	BC858A		3E	
	BC858B		3F	
	BC858C		3G	
Power dissipation		P_D	200	mW

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER		**SYMBOL**	**VALUE**	**UNIT**
Collector-base voltage, emitter open	BC856	V_{CBO}	-80	V
	BC857		-50	
	BC858		-30	
Collector-emitter voltage, base open	BC856	V_{CEO}	-65	V
	BC857		-45	
	BC858		-30	
Emitter-base voltage, collector open		V_{EBO}	-5	V
Collector current, dc		I_C	-0.1	A
Junction temperature		T_J	-55 to +150	°C
Storage temperature		T_{STG}	-55 to +150	°C

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)							
PARAMETER	**CONDITIONS**		**SYMBOL**	**MIN**	**TYP**	**MAX**	**UNIT**
Collector cutoff current, emitter open	V_{CB} = -70 V, I_E = 0	BC856	I_{CBO}	-	-	-100	nA
	V_{CB} = -45 V, I_E = 0	BC857		-	-	-100	
	V_{CB} = -25 V, I_E = 0	BC858		-	-	-100	
Emitter cutoff current, collector open	V_{EB} = -5 V, I_C = 0		I_{EBO}	-	-	-0.1	µA
Collector-base voltage, emitter open	I_C = -10 µA, I_E = 0	BC856	V_{CBO}	-80	-	-	V
		BC857		-50	-	-	
		BC858		-30	-	-	
Collector-emitter voltage, base open	I_C= -10 mA, I_B = 0	BC856	V_{CEO}	-65	-	-	V
		BC857		-45	-	-	
		BC858		-30	-	-	
Emitter-base voltage, collector open	I_E = -1 µA, I_C = 0		V_{EBO}	-5	-	-	V
DC current gain	V_{CE}= -5 V, I_C = -2 mA	BC856A/BC857A/BC858A	h_{FE}	125	-	250	
		BC856B/BC857B/BC858B		220	-	475	
		BC857C/BC858C		420	-	800	

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)						
PARAMETER	**CONDITIONS**	**SYMBOL**	**MIN**	**TYP**	**MAX**	**UNIT**
Collector-emitter saturation voltage	I_C = -100 mA, I_B = -5 mA	$V_{CE(sat)}$	-	-	-0.65	V
Base-emitter saturation voltage	I_C = -100 mA, I_B = -5 mA	$V_{BE(sat)}$	-	-	-1.10	V
Transition frequency	V_{CE} = -5 V , I_C = -10 mA, f= 100MHz	f_T	100	-	-	MHz

ORDERING INFORMATION				
PART NO.	**PACKING CODE**	**PACKING CODE SUFFIX(*)**	**PACKAGE**	**PACKING**
BC85XX (Note 1)	RF	G	SOT-23	3K / 7" Reel

Notes:

1. "xx" is device code from "6A" to "8C"

*: optional available

EXAMPLE				
EXAMPLE P/N	**PART NO.**	**PACKING CODE**	**PACKING CODE SUFFIX**	**DESCRIPTION**
BC856A RFG	BC856A	RF	G	Green compound

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Static Characteristic

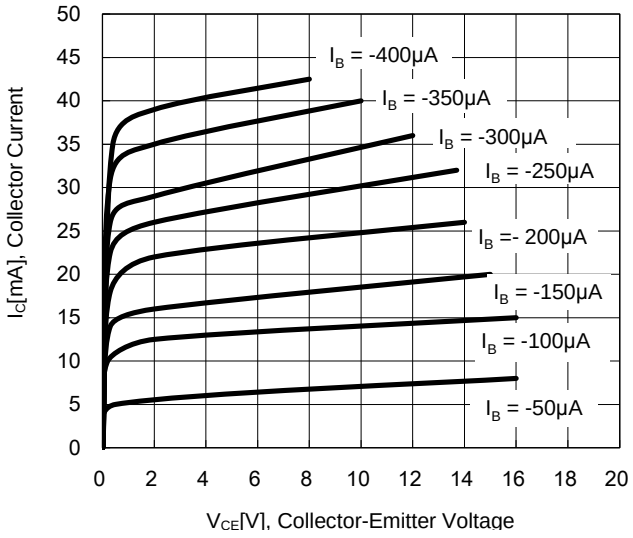


Fig. 2 DC Current Gain

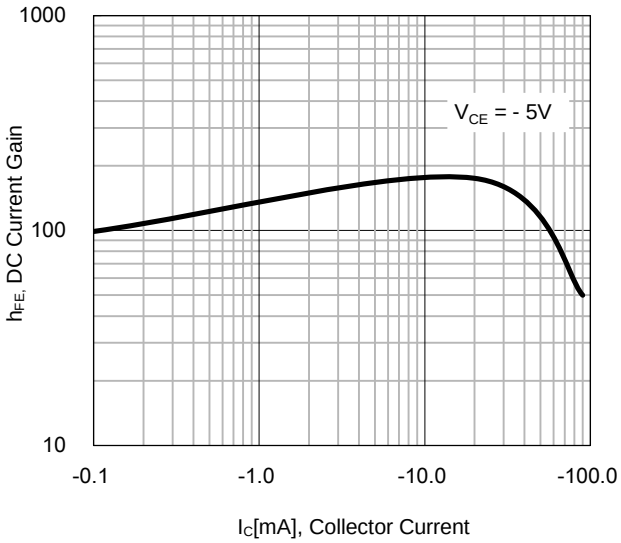


Fig.3 Base-Emitter Saturation Voltage VS. Collector-Emitter Saturation

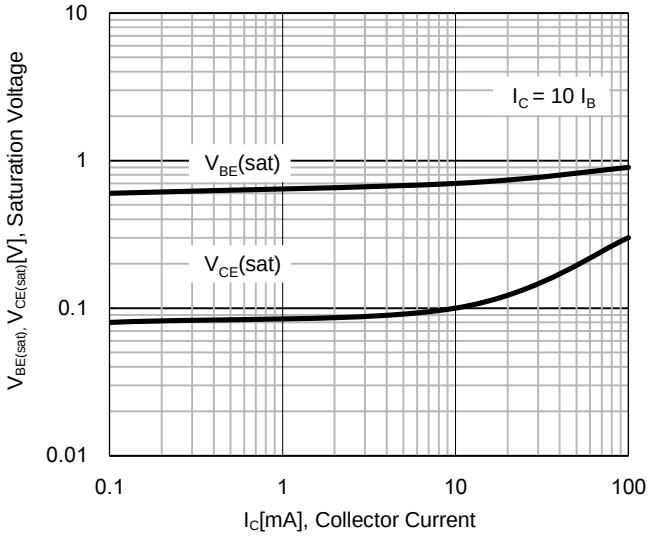
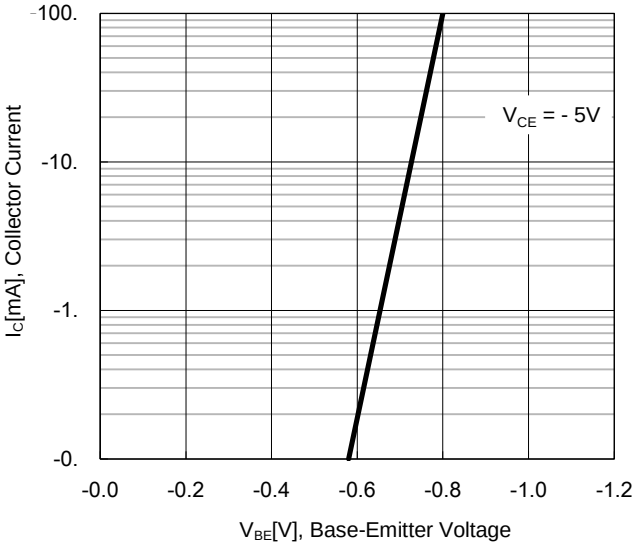


Fig.4 Base-Emitter On Voltage



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Collector Output Capacitance

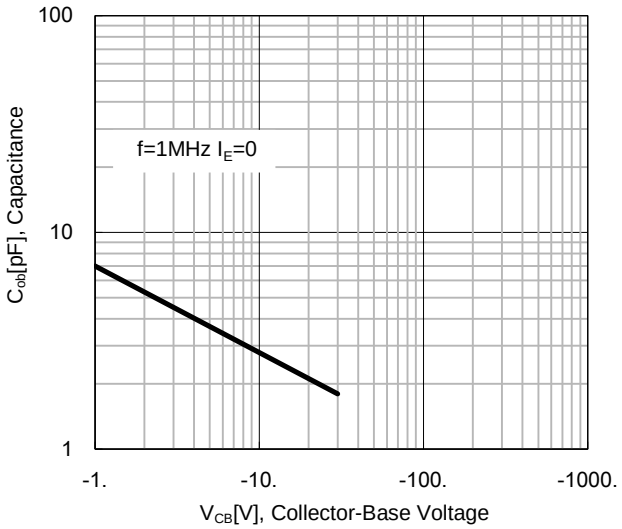
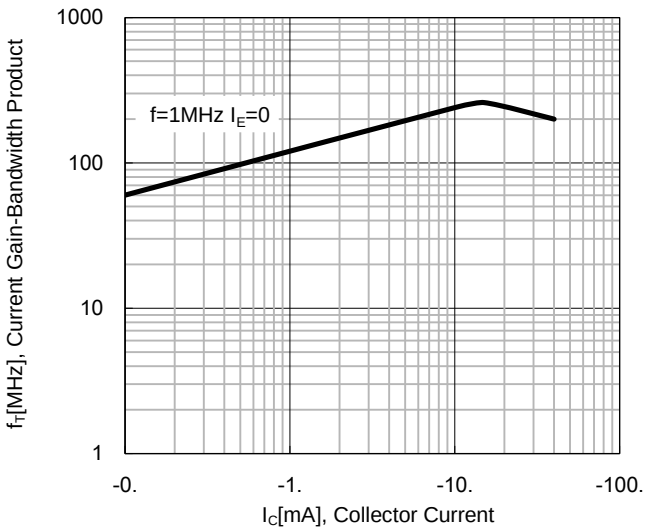
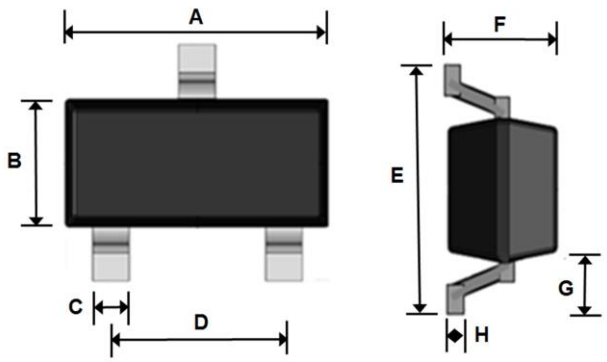


Fig. 6 Current Gain Bandwidth Product



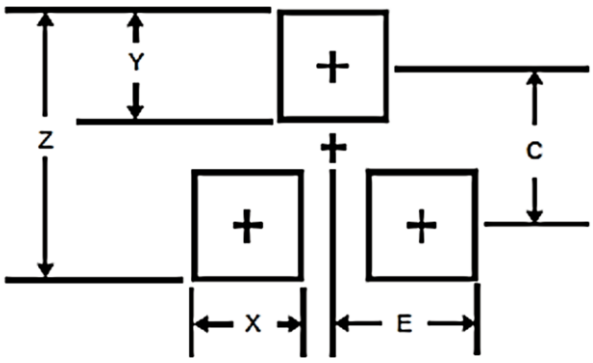
PACKAGE OUTLINE DIMENSION

SOT-23



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	2.70	3.10	0.106	0.122
B	1.10	1.50	0.043	0.059
C	0.30	0.51	0.012	0.020
D	1.78	2.04	0.070	0.080
E	2.20	2.60	0.087	0.102
F	0.90	1.30	0.035	0.051
G	0.55 REF		0.022 REF	
H	0.10 REF		0.004 REF	

SUGGEST PAD LAYOUT



DIM.	Unit(mm)	Unit(inch)
	Typ.	Typ.
Z	2.80	0.110
X	0.70	0.028
Y	0.90	0.035
C	1.90	0.075
E	1.00	0.039

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