

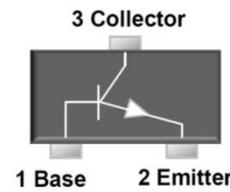
## Small Signal Product

**200mW, NPN Small Signal Transistor**
**FEATURES**

- Epitaxial planar die construction
- Surface mount device type
- Moisture sensitivity level 1
- Matte Tin(Sn) lead finish with Nickel(Ni) under plate
- Pb free and RoHS compliant
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21


**SOT-23**
**MECHANICAL DATA**

- Case: SOT- 23 small outline plastic package
- Terminal: Matte tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
- High temperature soldering guaranteed: 260°C/10s
- Weight: 8mg (approximately)



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)				
PARAMETER		SYMBOL	VALUE	UNIT
Power dissipation		P <sub>D</sub>	200	mW
Collector-Base Voltage	BC846	V <sub>CBO</sub>	80	V
	BC847		50	
	BC848		30	
Collector-Emitter Voltage	BC846	V <sub>CEO</sub>	65	V
	BC847		45	
	BC848		30	
Emitter-Base Voltage	BC846	V <sub>EBO</sub>	6	V
	BC847		6	
	BC848		5	
Collector Current		I <sub>C</sub>	0.1	A
Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

Notes: 1. Valid provided that electrodes are kept at ambient temperature

PARAMETER		SYMBOL	MIN	MAX	UNIT	
Collector-Base Breakdown Voltage	BC846	V <sub>(BR)CBO</sub>	80	-	V	
	BC847		I <sub>C</sub> = 10μA I <sub>E</sub> = 0			50
	BC848		30			
Collector-Emitter Breakdown Voltage	BC846	V <sub>(BR)CEO</sub>	65	-	V	
	BC847		I <sub>C</sub> = 10mA I <sub>B</sub> = 0			45
	BC848		30			
Emitter-Base Breakdown Voltage	BC846	V <sub>(BR)EBO</sub>	6	-	V	
	BC847		I <sub>E</sub> = 1μA I <sub>C</sub> = 0			6
	BC848		5			
Collector Cut-off Current		V <sub>CB</sub> = 30V I <sub>E</sub> = 0	I <sub>CBO</sub>	-	100	nA
Emitter Cut-off Current		V <sub>EB</sub> = 5 V I <sub>C</sub> = 0	I <sub>EBO</sub>	-	0.1	μA
DC Current Gain	BC846A, BC847A, BC848A	h <sub>FE</sub>	110	220		
	BC846B, BC847B, BC848B		V <sub>CE</sub> = 5V I <sub>C</sub> = 2mA	200		450
	BC847C, BC848C		420	800		
Collector-Emitter Saturation Voltage		I <sub>C</sub> = 100mA I <sub>B</sub> = 5mA	V <sub>CE(sat)</sub>	-	0.5	V
Base-Emitter Saturation Voltage		I <sub>C</sub> = 100mA I <sub>B</sub> = 5mA	V <sub>BE(sat)</sub>	-	1.1	V
Transition frequency		V <sub>CE</sub> = 5V I <sub>C</sub> = 10 mA f= 100MHz	f <sub>T</sub>	100	-	MHz

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RATINGS AND CHARACTERISTICS CURVES

( $T_A=25^\circ\text{C}$  unless otherwise noted)

Fig.1 Static Characteristic

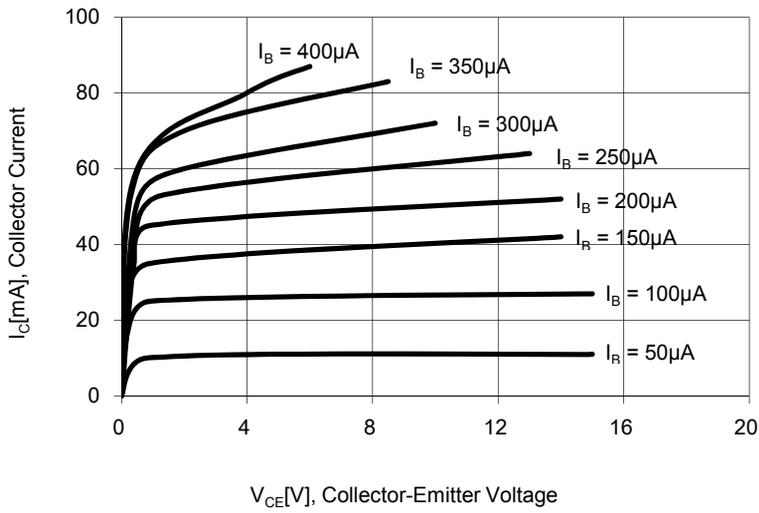


Fig.2 DC Current Gain

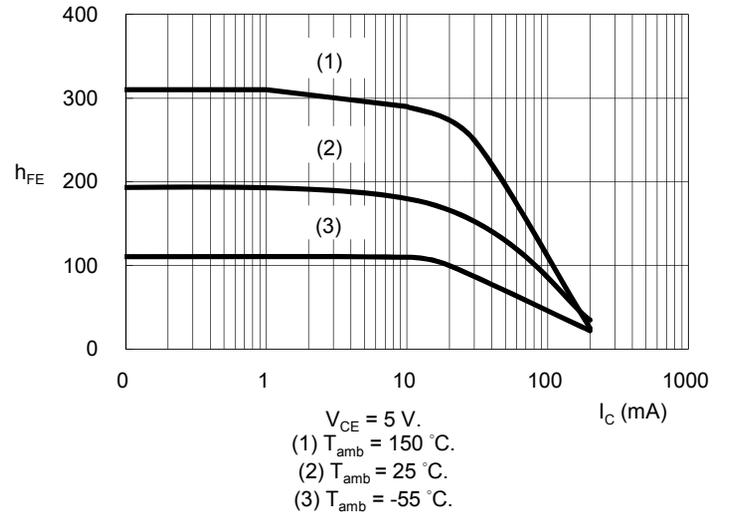


Fig.3 Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

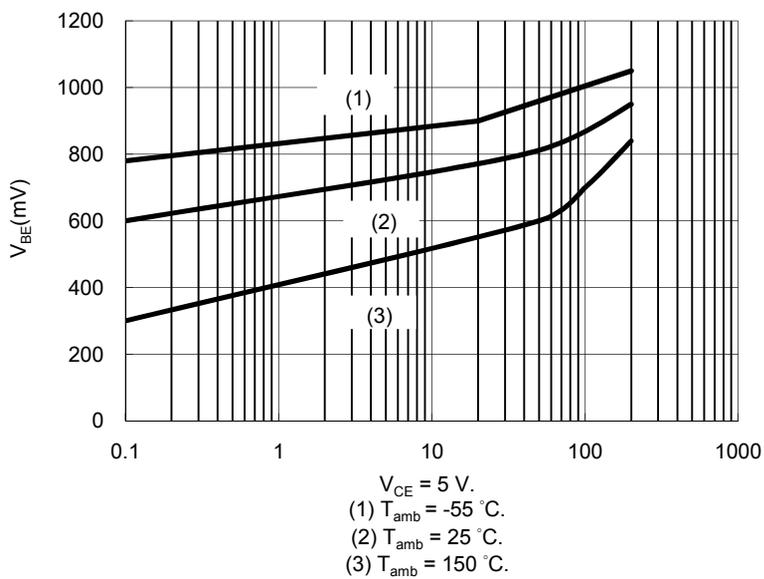


Fig. 4 Base-Emitter On Voltage

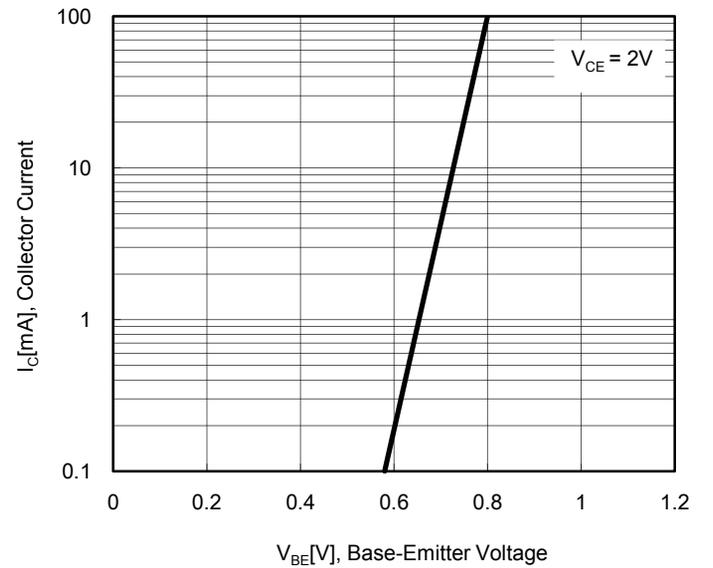


Fig.5 Collector Output Capacitance

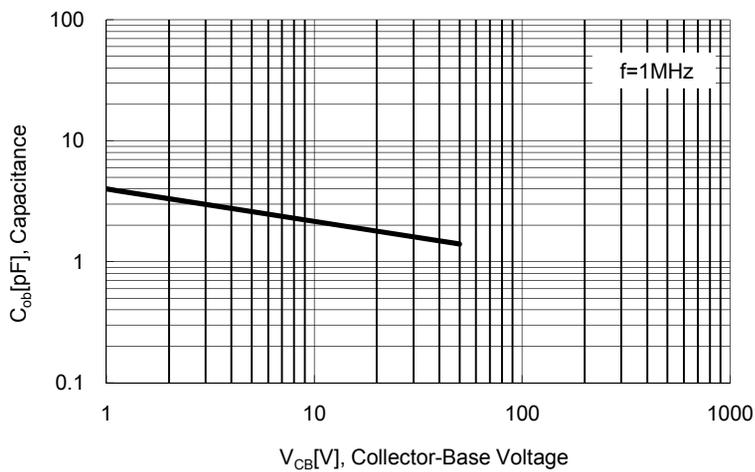
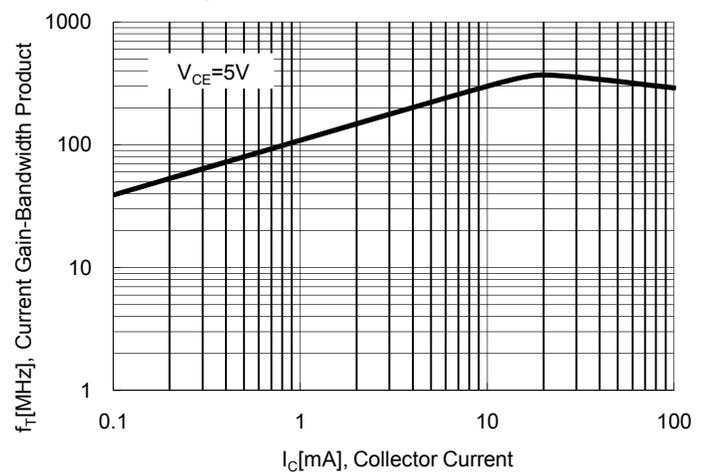


Fig. 6 Current Gain Bandwidth Product



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**ORDERING INFORMATION**

PART NO.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
BC84xx (Note 1)	RF	G	SOT-23	3K / 7" Reel
	R5			10K / 13" Reel

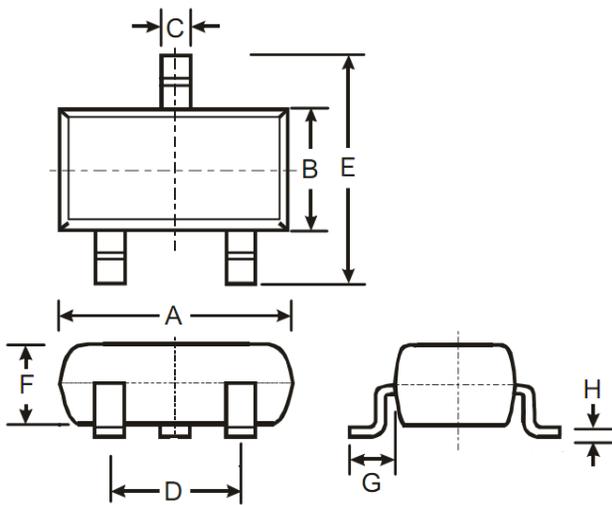
Note 1: "xx" is device code from "BC846A" ~ "BC848C", detail could follow the previous page

**EXAMPLE**

EXAMPLE P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
BC846A RFG	BC846A	RF	G	Green compound

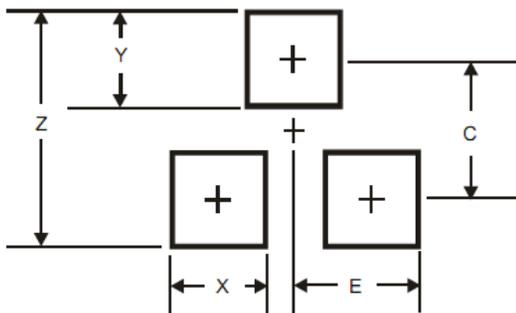
DIMENSIONS

**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	2.10	2.64	0.083	0.104
F	0.89	1.30	0.035	0.051
G	0.55 REF		0.022 REF	
H	0.1 REF		0.004 REF	

SUGGEST PAD LAYOUT



DIM.	Unit (mm)	Unit (inch)
	Typ.	Typ.
Z	2.90	0.114
X	0.80	0.031
Y	0.90	0.035
C	2.00	0.079
E	1.35	0.053

MARKING CODE

PART NO.	MARKING
BC846A	1A
BC846B	1B
BC847A	1E
BC847B	1F
BC847C	1G
BC848A	1J
BC848B	1K
BC848C	1L

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[BC846CW RF](#) [BC847AW RF](#) [BC847BW RF](#) [BC847CW RF](#) [BC848AW RF](#) [BC848BW RF](#) [BC848CW RF](#) [BC847B](#)  
[RF](#) [BC847B RFG](#) [BC847C RF](#) [BC847CW RFG](#) [BC848BW RFG](#) [BC848AW RFG](#) [BC847BW RFG](#) [BC847AW RFG](#)  
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[BC846B RFG](#)