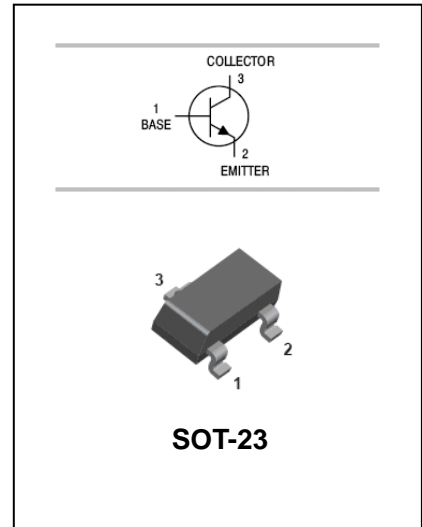


# BC846/847/848

## NPN general purpose Transistor

### FEATURES

- High current gain.
- Excellent  $h_{FE}$  linearity .
- Low noise between 30Hz and 15kHz.
- For AF input stages and driver applications.



### APPLICATIONS

- General purpose switching and amplification.

### ORDERING INFORMATION

Type No.	Marking	Package Code
BC846A/B	1A/1B	SOT-23
BC847A/B/C	1E/1F/1G	SOT-23
BC848A/B/C	1J/1K/1L	SOT-23

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	BC846	80
		BC847	50
		BC848	30
$V_{CEO}$	Collector-Emitter Voltage	BC846	65
		BC847	45
		BC848	30
$V_{EBO}$	Emitter-Base Voltage	BC846	6
		BC847	6
		BC848	6
$I_C$	Collector Current -Continuous	0.1	A
$P_C$	Collector Dissipation	200	mW
$T_j, T_{stg}$	Junction and Storage Temperature	-65~150	°C

## BC846/847/848

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	BC846 BC847 BC848	$V_{(BR)CBO}$ $I_C=10\mu A, I_E=0$	80 50 30			V
Collector-emitter breakdown voltage	BC846 BC847 BC848	$V_{(BR)CEO}$ $I_C=10mA, I_B=0$	65 45 30			V
Emitter-base breakdown voltage	BC846 BC847 BC848	$V_{(BR)EBO}$ $I_E=10\mu A, I_C=0$	6 6 6			V
Collector cut-off current	BC846 BC847 BC848	$I_{CBO}$ $V_{CB}=70V, I_E=0$ $V_{CB}=50V, I_E=0$ $V_{CB}=30V, I_E=0$			0.1	$\mu A$
Emitter cut-off current		$I_{EBO}$ $V_{EB}=5V, I_C=0$			0.1	$\mu A$
DC current gain	BC846A,847A,848A BC846B,847B,848B BC847C,848C	$h_{FE}$ $V_{CE}=5V, I_C=2mA$	110 200 420		220 450 800	
Collector-emitter saturation voltage		$V_{CE(sat)}$ $I_C=100mA, I_B=5mA$			0.5	V
Base-emitter saturation voltage		$V_{BE(sat)}$ $I_C=100mA, I_B=5mA$			1.1	V
Transition frequency		$f_T$ $V_{CE}=5V, I_C=10mA$ $f=100MHz$	100			MHz

# BC846/847/848

TYPICAL CHARACTERISTICS @  $T_A=25^\circ\text{C}$  unless otherwise specified

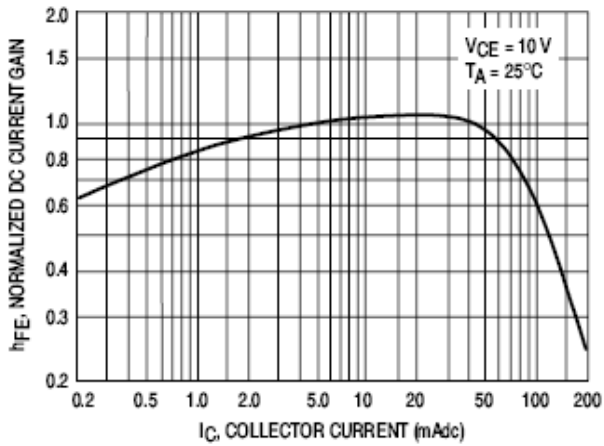


Figure 1. Normalized DC Current Gain

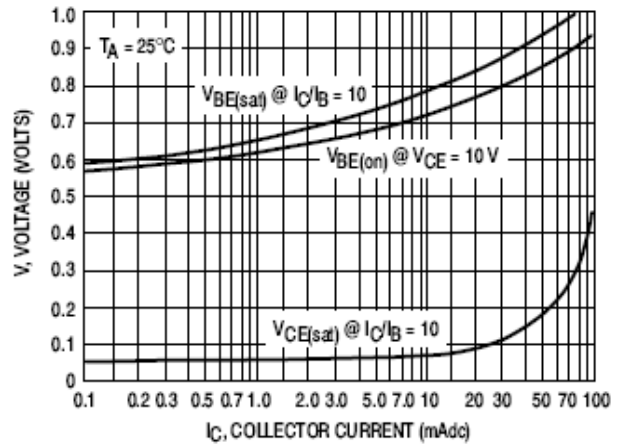


Figure 2. "Saturation" and "On" Voltages

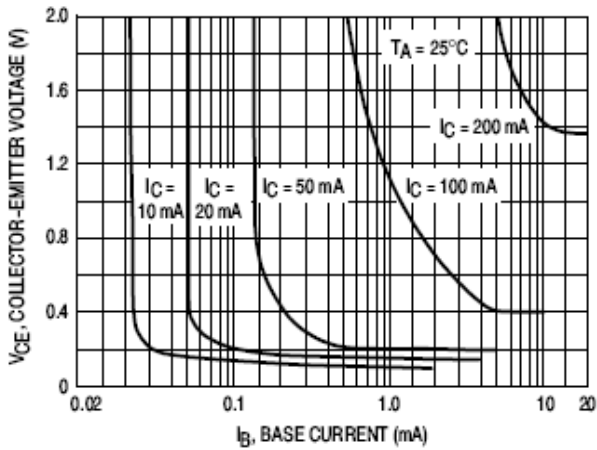


Figure 3. Collector Saturation Region

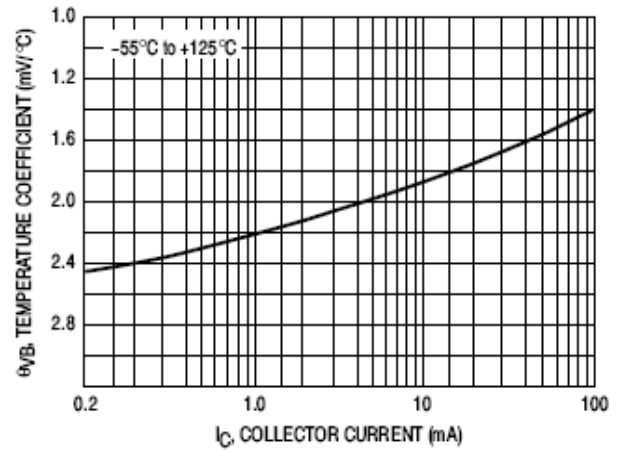


Figure 4. Base-Emitter Temperature Coefficient

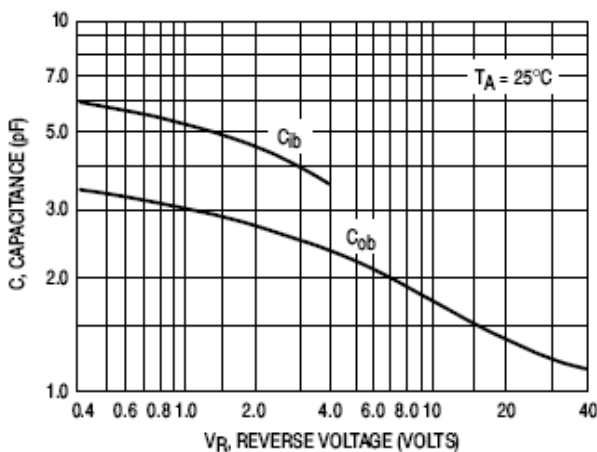


Figure 5. Capacitances

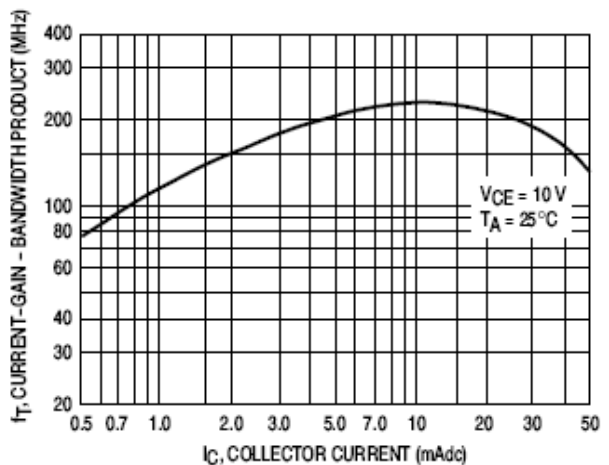
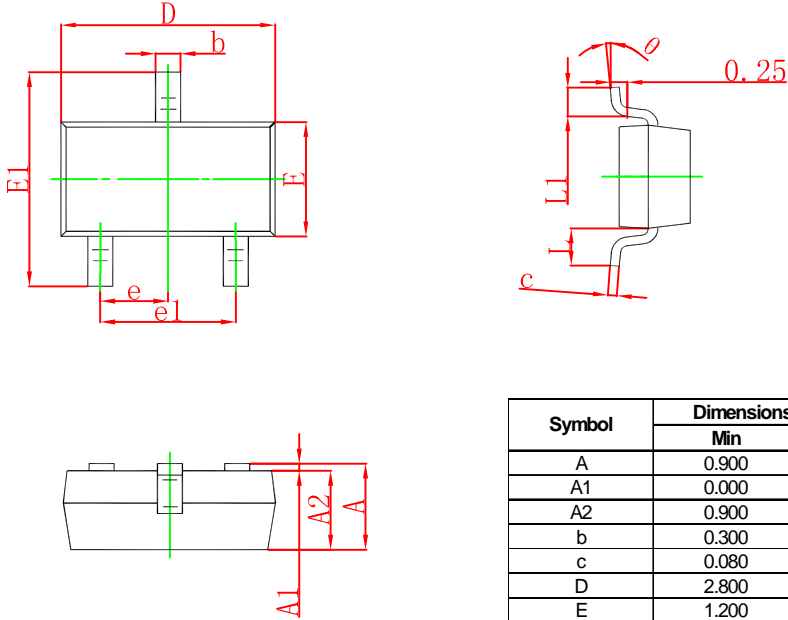


Figure 6. Current-Gain - Bandwidth Product

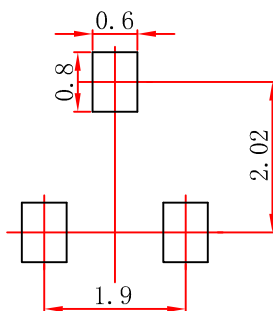
# BC846/847/848

## SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

## SOT-23 Suggested Pad Layout



**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.