

## NPN general purpose Transistor

BC846/847/848

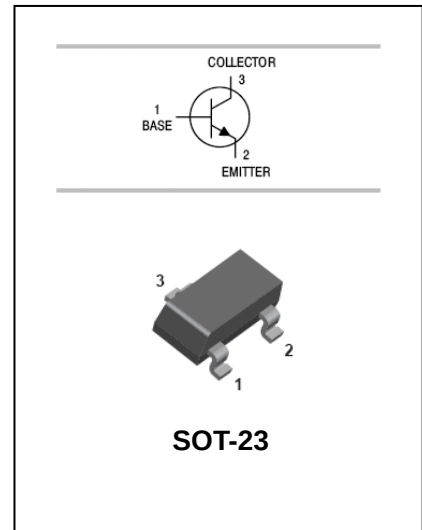
### FEATURES

- 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 | V     |
|                |                                  | BC847 50 |       |
|                |                                  | BC848 30 |       |
| $V_{CEO}$      | Collector-Emitter Voltage        | BC846 65 | V     |
|                |                                  | BC847 45 |       |
|                |                                  | BC848 30 |       |
| $V_{EBO}$      | Emitter-Base Voltage             | BC846 6  | V     |
|                |                                  | BC847 6  |       |
|                |                                  | BC848 5  |       |
| $I_C$          | Collector Current -Continuous    | 0.1      | A     |
| $P_C$          | Collector Dissipation            | 200      | mW    |
| $T_j, T_{stg}$ | Junction and Storage Temperature | -65~150  | °C    |

# NPN general purpose Transistor

BC846/847/848

## ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

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

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

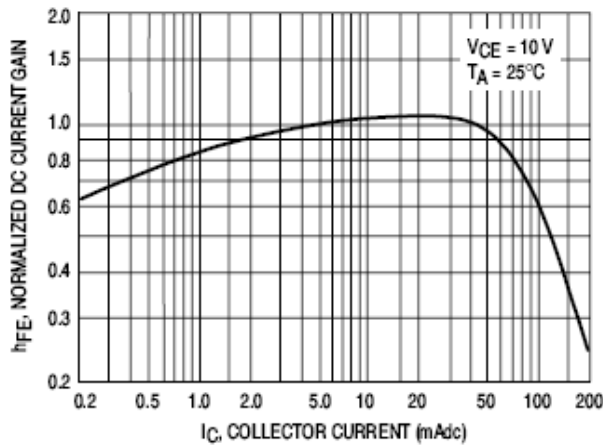


Figure 1. Normalized DC Current Gain

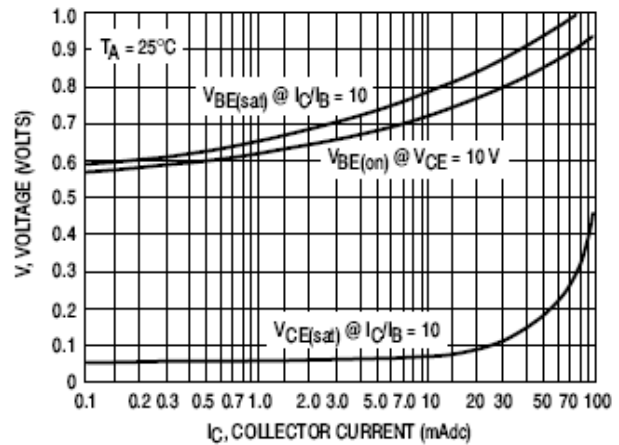


Figure 2. "Saturation" and "On" Voltages

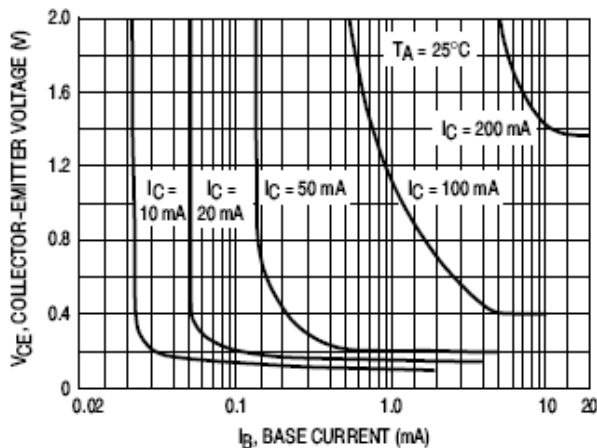


Figure 3. Collector Saturation Region

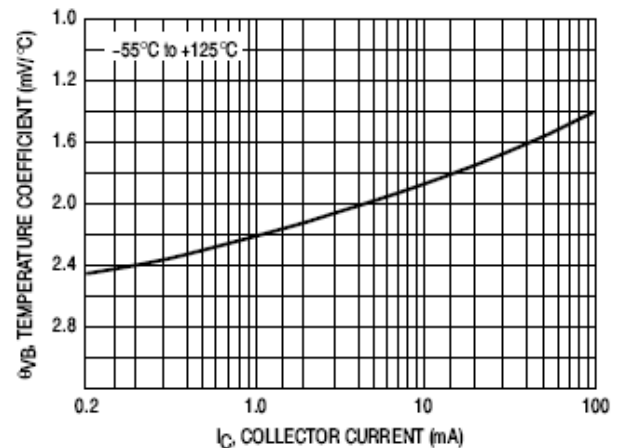


Figure 4. Base-Emitter Temperature Coefficient

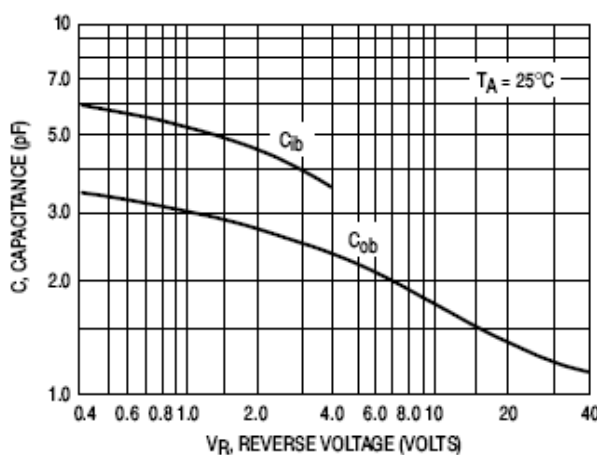


Figure 5. Capacitances

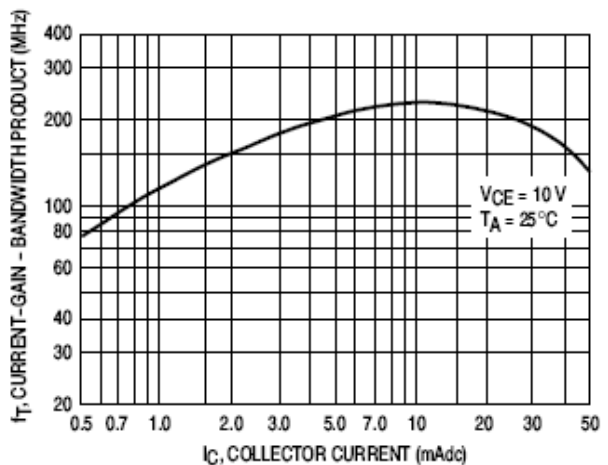
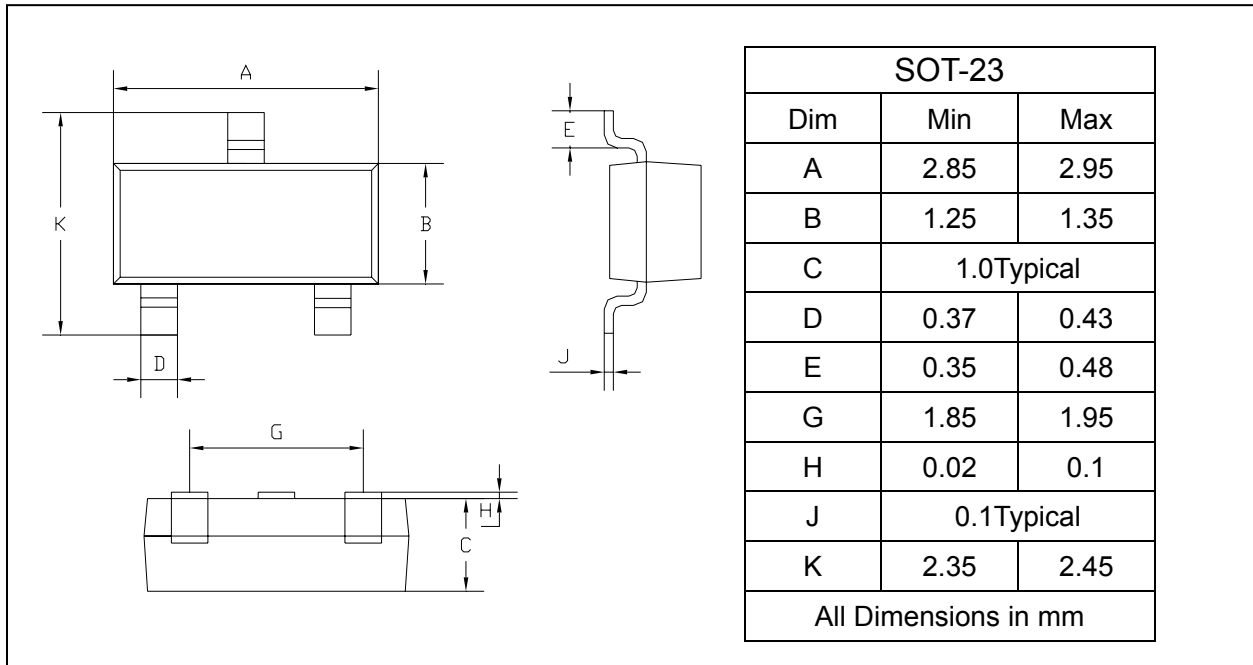


Figure 6. Current-Gain - Bandwidth Product

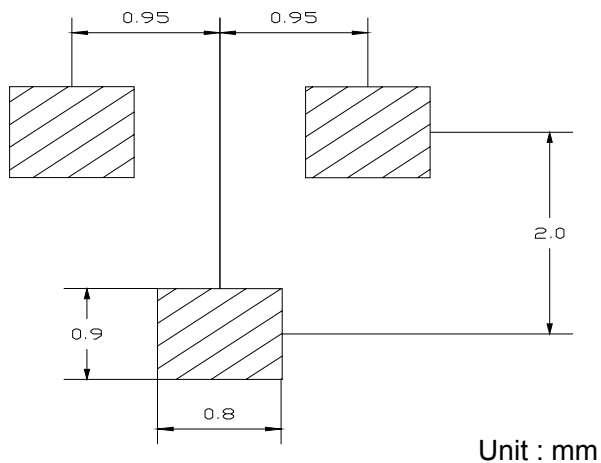
## PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



## SOLDERING FOOTPRINT



## PACKAGE INFORMATION

| Device        | Package | Shipping       |
|---------------|---------|----------------|
| BC846/847/848 | SOT-23  | 3000/Tape&Reel |