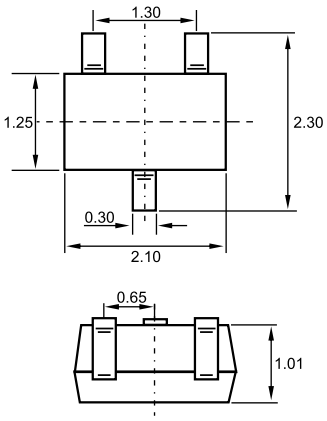
# BC846AW,BW
# BC847AW,BW,CW
# BC848AW,BW,CW

## SOT-323 Bipolar Transistor(NPN)


1. BASE
2. EMITTER
3. COLLECTOR

**SOT-323**




**Dimensions in inches and (millimeters)**

## Features

- ✧ Ideally suited for automatic insertion
- ✧ For Switching and AF Amplifier Applications

**MAXIMUM RATINGS ($T_A$=25℃ unless otherwise noted)**

| Symbol | Parameter | | Value | Units |
|---|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | BC846W | 80 | V |
| | | BC847W | 50 | |
| | | BC848W | 30 | |
| $V_{CEO}$ | Collector-Emitter Voltage | BC846W | 65 | V |
| | | BC847W | 45 | |
| | | BC848W | 30 | |
| $V_{EBO}$ | Emitter-Base Voltage | BC846W | 6 | V |
| | | BC847W | 6 | |
| | | BC848W | 5 | |
| $I_C$ | Collector Current –Continuous | | 0.1 | A |
| $P_C$ | Collector Power Dissipation | | 150 | mW |
| $T_J$ | Junction Temperature | | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | | -55-150 | ℃ |

**DEVICE MARKING**

**BC846AW=1A; BC846BW=1B;**
**BC847AW=1E; BC847BW=1F; BC847CW=1G;**
**BC848AW=1J; BC848BW=1K: BC848CW=1L**

# BC846AW,BW
# BC847AW,BW,CW
# BC848AW,BW,CW

**SOT-323 Bipolar Transistor(NPN)**

## ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

| Parameter | | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | BC846W | $V_{CBO}$ | $I_C$= 10μA, $I_E$=0 | 80 | | | V |
| | BC847W | | | 50 | | | |
| | BC848W | | | 30 | | | |
| Collector-emitter breakdown voltage | BC846W | $V_{CEO}$ | $I_C$= 10mA, $I_B$=0 | 65 | | | V |
| | BC847W | | | 45 | | | |
| | BC848W | | | 30 | | | |
| Emitter-base breakdown voltage | BC846W | $V_{EBO}$ | $I_E$= 1 μA, $I_C$=0 | 6 | | | V |
| | BC847W | | | 6 | | | |
| | BC848W | | | 5 | | | |
| Collector Cutoff Current | | $I_{CBO}$ | $V_{CB}$=30V | | | 15 | nA |
| DC current gain | BC846AW,847AW,848AW | $h_{FE}$ | $V_{CE}$= 5V, $I_C$= 10μA | | 90 | | |
| | BC846BW,847BW,848BW | | | | 150 | | |
| | BC847CW,BC848CW | | | | 270 | | |
| | BC846AW,847AW,848AW | | $V_{CE}$= 5V, $I_C$= 2mA | 110 | | 220 | |
| | BC846BW,847BW,848BW | | | 200 | | 450 | |
| | BC847CW,BC848CW | | | 420 | | 800 | |
| Collector-emitter saturation voltage | | $V_{CE(sat)}$ | $I_C$=10mA, $I_B$=0. 5mA | | | 0.25 | V |
| | | | $I_C$=100mA, $I_B$= 5mA | | | 0.6 | |
| Base-emitter saturation voltage | | $V_{BE(sat)}$ | $I_C$=10mA, $I_B$=0. 5mA | | 0.7 | | V |
| | | | $I_C$=100mA, $I_B$= 5mA | | 0.9 | | |
| Base-emitter voltage | | $V_{BE(on)}$ | $V_{CE}$= 5V, $I_C$= 2mA | 580 | 660 | 700 | mV |
| | | | $V_{CE}$= 5V, $I_C$= 10mA | | | 770 | |
| Transition frequency | | $f_T$ | $V_{CE}$= 5 V, $I_C$= 10mA f=100MHz | 100 | | | MHz |
| Collector output capacitance | | $C_{ob}$ | $V_{CB}$=10V,f=1MHz | | | 4.5 | pF |
| Noise figure | BC846AW,847AW,848AW | NF | $V_{CE}$=5V,$I_c$=0.2mA, f=1KHz,$R_S$=2KΩ BW=200Hz | | | | dB |
| | BC846BW,847BW,848BW | | | | | 10 | |
| | BC847CW,BC848CW | | | | | 4 | |

## Typical Characteristics

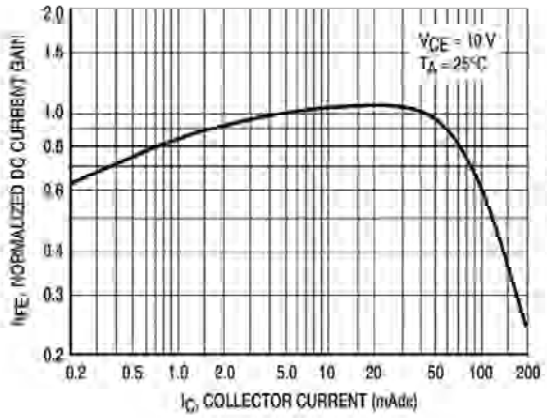



Figure 1. Normalized DC Current Gain

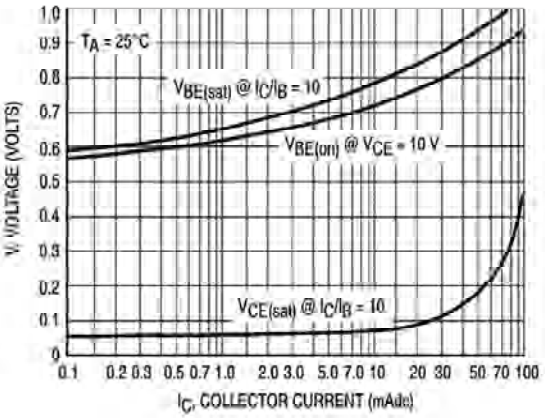



Figure 2. "Saturation" and "On" Voltages

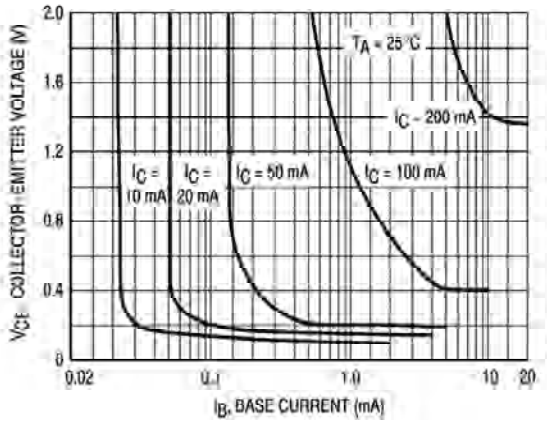



Figure 3. Collector Saturation Region

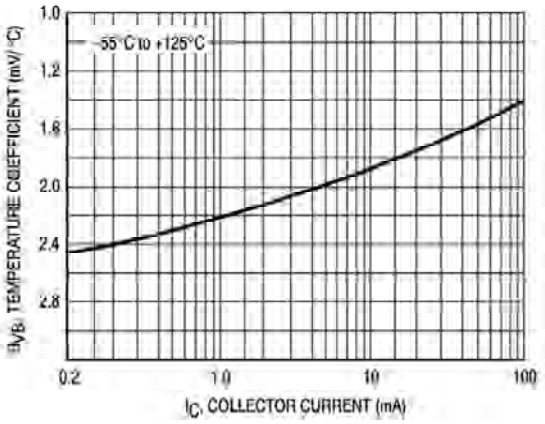



Figure 4. Base–Emitter Temperature Coefficient

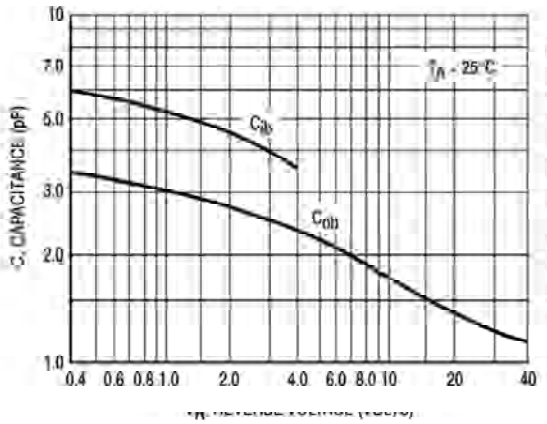



Figure 5. Capacitances

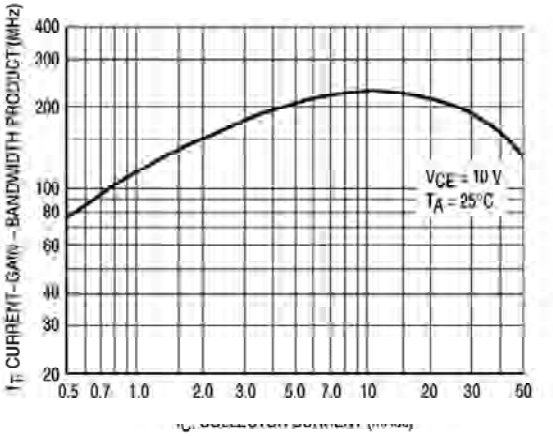



Figure 6. Current–Gain – Bandwidth Product

## Typical Characteristics

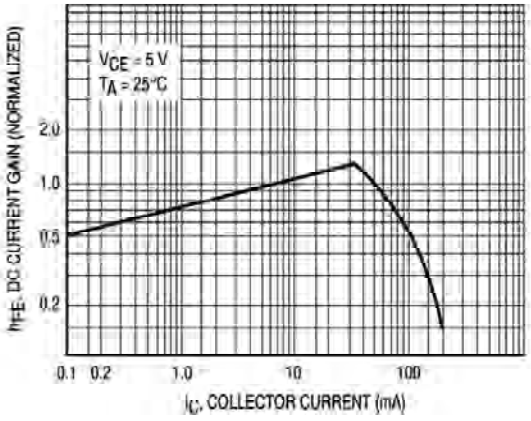



Figure 7. DC Current Gain

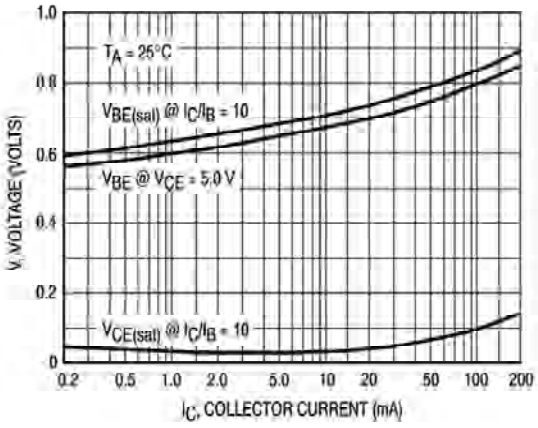



Figure 8. "On" Voltage

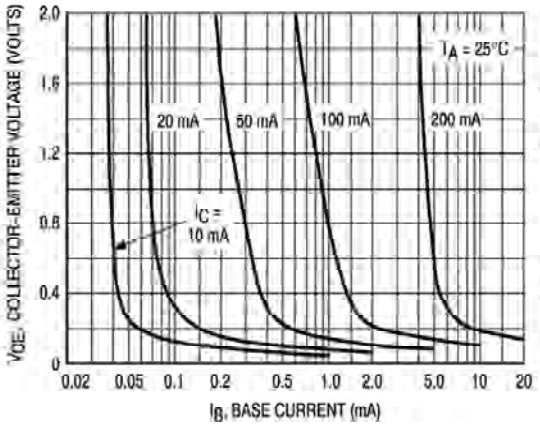



Figure 9. Collector Saturation Region

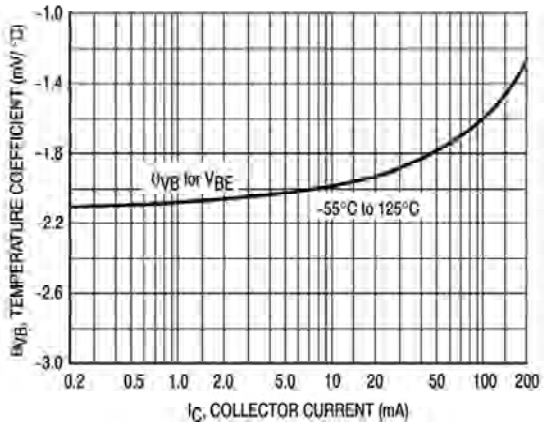
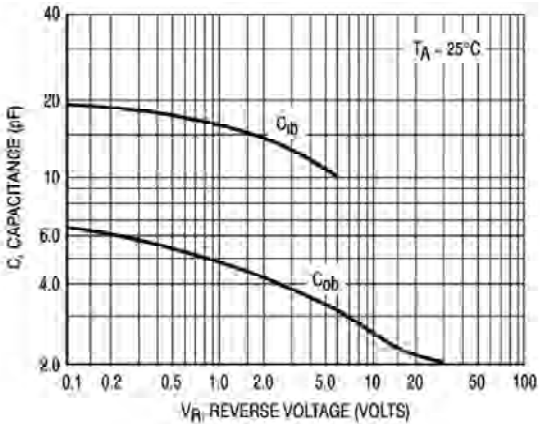
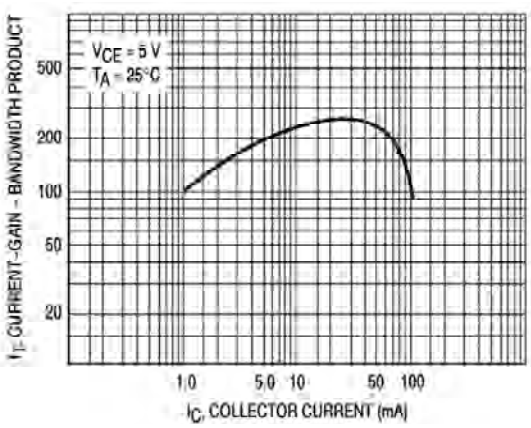



Figure 10. Base–Emitter Temperature Coefficient




| Package | Reel | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) |
|---|---|---|---|---|---|---|
| SOT -323 | 3000pcs | 7inch | 45,000pcs | 203×203×195 | 180,000pcs | 438×438×220 |