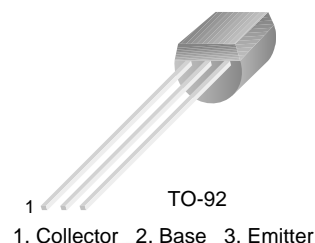


# BC556/557/558/559/560

## PNP Epitaxial Silicon Transistor

### Features

- Switching and Amplifier
- High Voltage: BC556,  $V_{CEO} = -65V$
- Low Noise: BC559, BC560
- Complement to BC546 ... BC 550



### Absolute Maximum Ratings $T_a = 25^\circ C$ unless otherwise noted

| Symbol    | Parameter                   | Value     | Units      |
|-----------|-----------------------------|-----------|------------|
| $V_{CBO}$ | Collector-Base Voltage      |           |            |
|           | : BC556                     | -80       | V          |
|           | : BC557/560                 | -50       | V          |
|           | : BC558/559                 | -30       | V          |
| $V_{CEO}$ | Collector-Emitter Voltage   |           |            |
|           | : BC556                     | -65       | V          |
|           | : BC557/560                 | -45       | V          |
|           | : BC558/559                 | -30       | V          |
| $V_{EBO}$ | Emitter-Base Voltage        | -5        | V          |
| $I_C$     | Collector Current (DC)      | -100      | mA         |
| $P_C$     | Collector Power Dissipation | 500       | mW         |
| $T_J$     | Junction Temperature        | 150       | $^\circ C$ |
| $T_{STG}$ | Storage Temperature         | -65 ~ 150 | $^\circ C$ |

### Electrical Characteristics $T_a = 25^\circ C$ unless otherwise noted

| Symbol        | Parameter                            | Test Condition                         | Min.  | Typ. | Max. | Units |
|---------------|--------------------------------------|--|---|------|------|-------|
| $I_{CBO}$     | Collector Cut-off Current            | $V_{CB} = -30V, I_E = 0$               |   |      | -15  | nA    |
| $h_{FE}$      | DC Current Gain                      | $V_{CE} = -5V, I_C = 2mA$              | 110   |      | 800  |       |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = -10mA, I_B = -0.5mA$            |   | -90  | -300 | mV    |
|               |                                      | $I_C = -100mA, I_B = -5mA$             |   | -250 | -650 | mV    |
| $V_{BE(sat)}$ | Collector-Base Saturation Voltage    | $I_C = -10mA, I_B = -0.5mA$            |   | -700 |      | mV    |
|               |                                      | $I_C = -100mA, I_B = -5mA$             |   | -900 |      | mV    |
| $V_{BE(on)}$  | Base-Emitter On Voltage              | $V_{CE} = -5V, I_C = -2mA$             | -600  | -660 | -750 | mV    |
|               |                                      | $V_{CE} = -5V, I_C = -10mA$            |   |      | -800 | mV    |
| $f_T$         | Current Gain Bandwidth Product       | $V_{CE} = -5V, I_C = -10mA, f = 10MHz$ |   | 150  |      | MHz   |
| $C_{ob}$      | Output Capacitance                   | $V_{CB} = -10V, I_E = 0, f = 1MHz$     |   |      | 6    | pF    |
| NF            | Noise Figure                         | : BC556/557/558                        |   | 2    | 10   | dB    |
|               |                                      | : BC559/560                            | $V_{CE} = -5V, I_C = -200\mu A, f = 1KHz, R_G = 2K\Omega$ | 1    | 4    | dB    |
|               |                                      | : BC559                                | $V_{CE} = -5V, I_C = -200\mu A$                           | 1.2  | 4    | dB    |
|               |                                      | : BC560                                | $R_G = 2K\Omega, f = 30 \sim 15000MHz$                    | 1.2  | 2    | dB    |

### $h_{FE}$ Classification

| Classification | A         | B         | C         |
|----------------|-----------|-----------|-----------|
| $h_{FE}$       | 110 ~ 220 | 200 ~ 450 | 420 ~ 800 |

## Typical Performance Characteristics

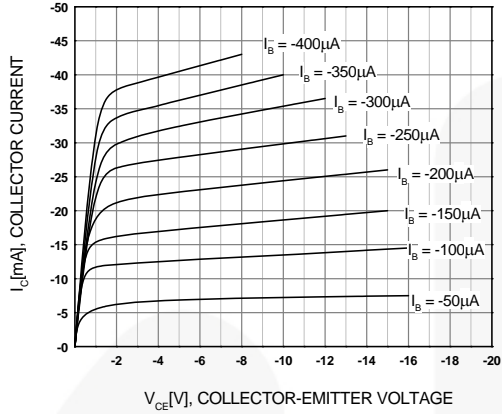


Figure 1. Static Characteristic

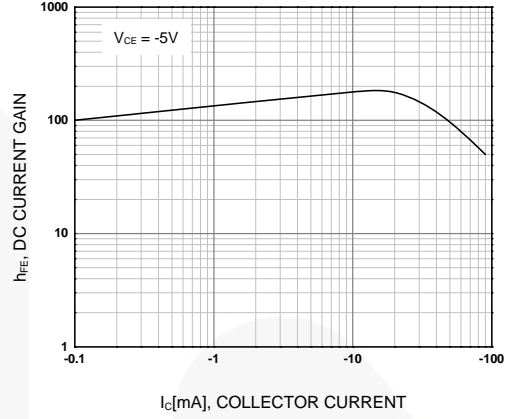


Figure 2. DC current Gain

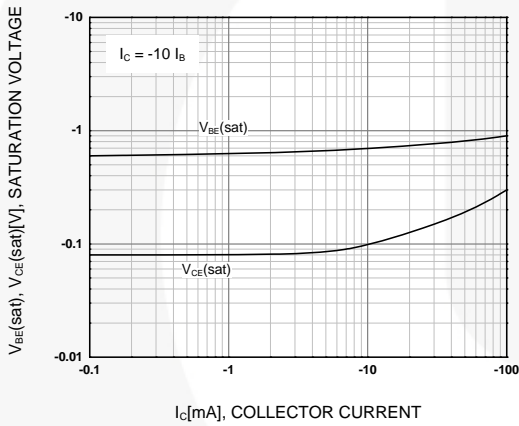


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emmitter Saturation Voltage

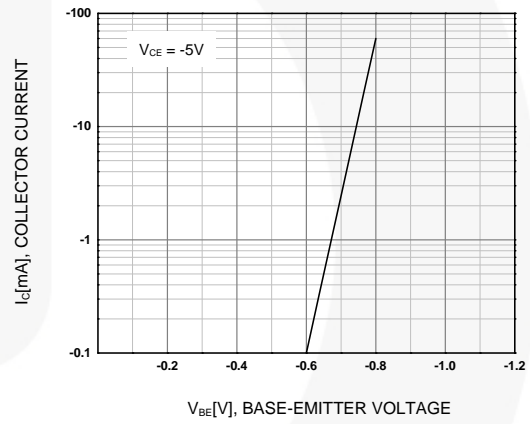


Figure 4. Base-Emitter On Voltage

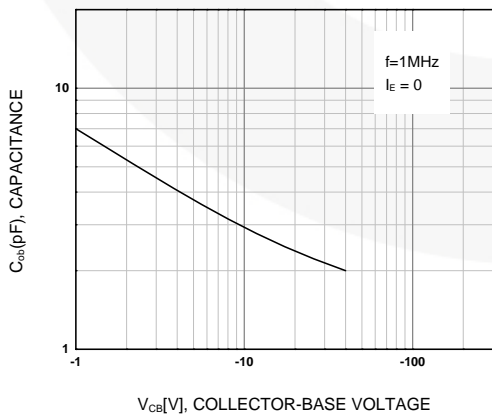


Figure 5. Collector Output Capacitance

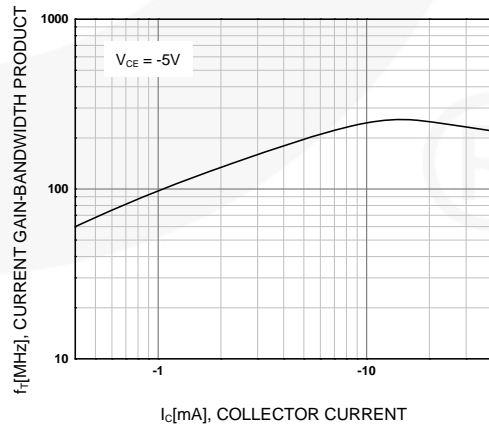
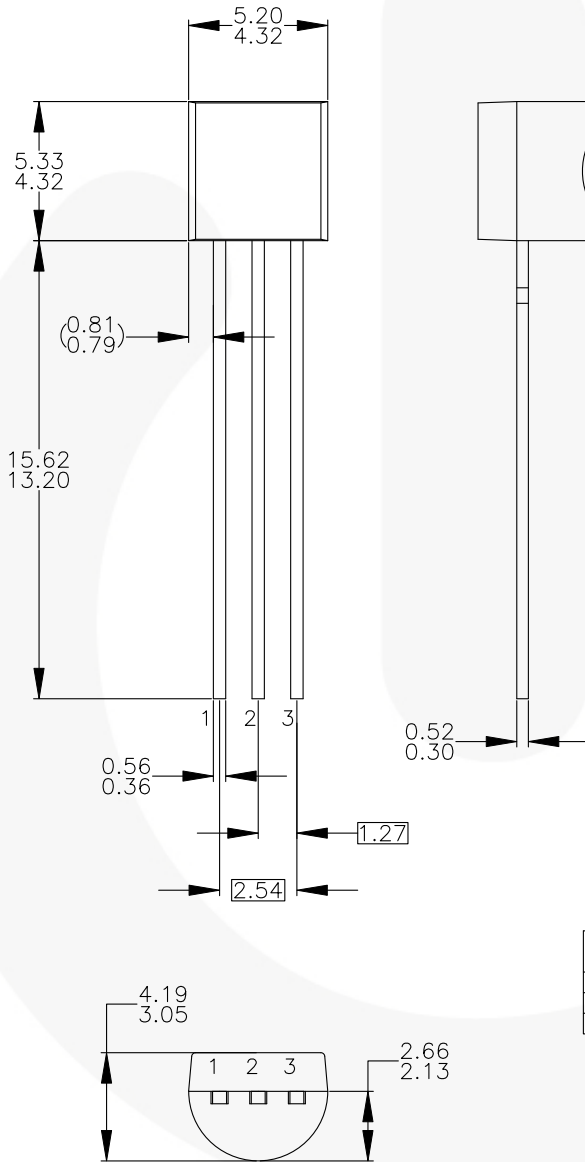


Figure 6. Current Gain Bandwidth Product

Physical Dimensions

TO-92



NOTES: UNLESS OTHERWISE SPECIFIED

- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DRAWING CONFORMS TO ASME Y14.5M-1994.
- D) TO-92 (92,94,96,97,98) PIN CONFIGURATION:

| Pin | 92 |   |   | 94 |   |   | 96 |   |   | 97 |   |   | 98 |   |   |
|-----|----|---|---|----|---|---|----|---|---|----|---|---|----|---|---|
|     | P  | F | M | P  | F | M | B  | F | M | P  | F | M | P  | F | M |
| 1   | E  | S | S | E  | S | S | B  | D | G | C  | G | D | C  | G | D |
| 2   | B  | D | G | C  | G | D | E  | S | S | B  | D | G | E  | S | S |
| 3   | C  | G | D | B  | D | G | C  | G | D | E  | S | S | B  | D | G |

LEGEND:

- P - BIPOLAR
- F - JFET
- M - DMOS
- E - EMITTER
- B - BASE
- C - COLLECTOR
- D - DRAIN
- S - SOURCE
- G - GATE





- E) FOR PACKAGE 92, 94, 96, 97 AND 98: PIN CONFIGURATION DRAIN "D" AND SOURCE "S" ARE INTERCHANGEABLE AT JFET "F" OPTION.
- F) DRAWING FILENAME: MKT-ZA03DREV3.

Dimensions in Millimeters



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| BitSiC™  | GreenBridge™                                   | QFET®  | TinyBuck™   |
| Build it Now™  | Green FPS™                                     | QS™  | TinyCalc™   |
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| CROSSVOLT™   | GTO™   |  ™                | TinyPower™  |
| CTL™   | IntelliMAX™                                    | Saving our world, 1mW/W/kW at a time™  | TinyPwm™  |
| Current Transfer Logic™  | ISOPLANAR™                                     | SignalWise™  | TinyWire™   |
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| EfficientMax™  | MicroFET™                                      | SPM®   | µSerDes™  |
| ESBC™  | MicroPak™                                      | STEALTH™   |  SerDes™ |
|  Fairchild® | MicroPak2™                                     | SuperFET®  | UHC®  |
| Fairchild Semiconductor®   | MillerDrive™                                   | SuperSOT™-3  | Ultra FRFET™  |
| FACT Quiet Series™   | MotionMax™                                     | SuperSOT™-6  | UniFET™   |
| FACT®  | mWSaver™                                       | SuperSOT™-8  | VCX™  |
| FAST®  | OptoHiT™                                       | SupreMOS®  | VisualMax™  |
| FastvCore™   | OPTOLOGIC®                                     | SyncFET™   | VoltagePlus™  |
| FETBench™  | OPTOPLANAR®                                    | Sync-Lock™   | XS™   |
| FlashWriter®*  |  |  SYSTEM GENERAL®* |   |
| FPS™   |  |  |   |

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Rev. 162



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