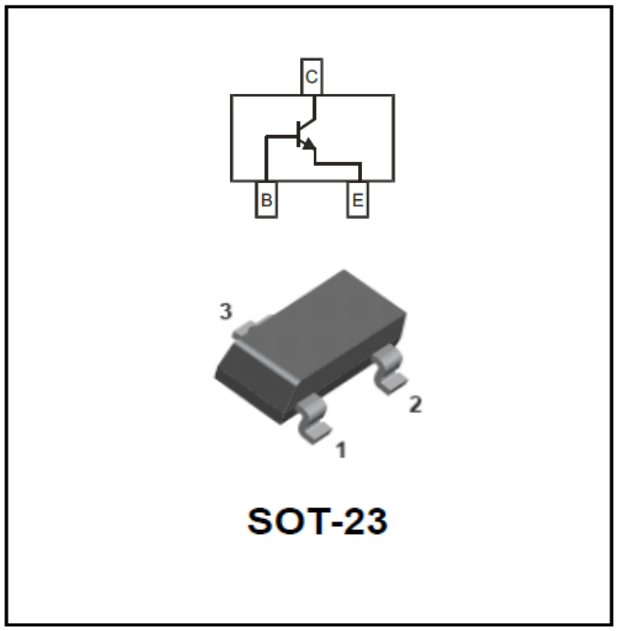
# NPN General Purpose Amplifier




## Features

- ●Capable of 0.3Watts(TA=25℃) of Power Dissipation
- ●Epoxy meets UL-94 V-0 flammability rating
- ●Halogen free available upon request by adding suffix "HF"
- ●Moisture Sensitivity Level 1
- ●Device Marking: BC817-16 6A
  BC817-25 6B
  BC817-40 6C

## ■ Maximum Rating

| Item | Symbol | Unit | Value |
|---|---|---|---|
| Collector-Emitter Saturation Voltage | $V_{CEO}$ | V | 45 |
| Emitter –Base Voltage | $V_{EBO}$ | V | 5 |
| Collector-Emitter Saturation Voltage | $I_C$ | mA | 500 |
| Peak Collector Current | $I_{CM}$ | mA | 1000 |
| Peak Emitter Current | $I_{EM}$ | mA | 1000 |

## ■ Off Characteristics

| Item | Symbol | Unit | Conditions | MIN | MAX |
|---|---|---|---|---|---|
| Collector-Emitter Voltage* | $V_{CEO}$ | V | $I_C$=10mAdc, $I_B$=0 | 45 | |
| Collector-Base Voltage | $V_{CBO}$ | V | $I_C$=10uAdc, $I_E$=0 | 50 | |
| Emitter-Base Voltage | $V_{EBO}$ | V | $I_E$=1.0uAdc, $I_C$=0 | 5.0 | |
| Emitter Cutoff Current | $I_{EBO}$ | uAdc | $V_{EB}$=4.0Vdc, $I_C$=0 | | 0.1 |
| Collector Cutoff Current | $I_{CBO}$ | uAdc | $V_{CB}$=45Vdc, $I_E$=0 | | 0.1 |
| Power Dissipation | $P_D$ | mW | | 300 | |
| Operation Junction Temperature | $T_J$ | ℃ | | -55 to +150 | |
| Storage Temperature | $T_{STG}$ | ℃ | | -55 to +150 | |

## ■ On Characteristics

| Item | Symbol | Unit | Conditions | Min | Max |
|---|---|---|---|---|---|
| DC Current Gain | $h_{FE(1)}$ | | $I_C$=100mAdc, $V_{CE}$=1.0Vdc | 100 | 600 |
| | $h_{FE(2)}$ | | $I_C$=500mAdc, $V_{CE}$=1.0Vdc | 40 | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | V | $I_C$=500mAdc, $I_B$=50mAdc | | 0.7 |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | V | $I_C$=500mAdc, $I_B$=50mAdc | | 1.2 |

## ■ Small-signal Characteristics

| Item | Symbol | Unit | Conditions | Min | Max |
|---|---|---|---|---|---|
| Transition frequency | $f_T$ | MHz | $I_C$=10mAdc,$V_{CE}$=5.0Vdc, f=100MHz | 100 | |

## ■ Classification of $h_{FE}$

| Rank | BC817-16 | BC817-25 | BC817-40 |
|---|---|---|---|
| Range | 100-250 | 160-400 | 200-600 |

## ■ Ordering Information (Example)

| PREFERED P/N | PACKING CODE | UNIT WEIGHT(g) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---|---|---|---|---|---|---|
| BC817-16 Thru BC817-40 | F2 | Approximate 0.008 | 3000 | 30000 | 120000 | 7” reel |

## ■ Characteristics (Typical)

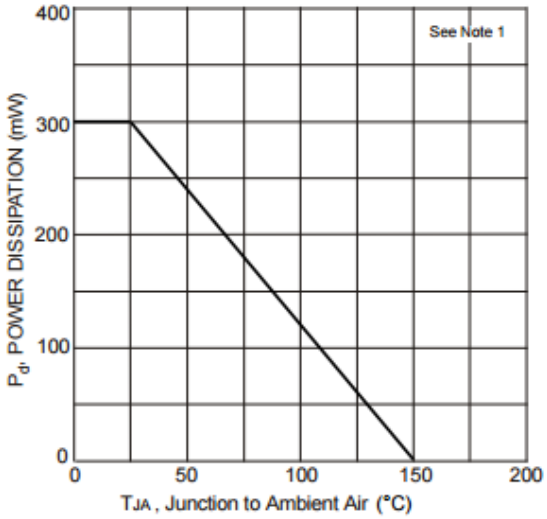



Fig. 1, Power Derating Curve

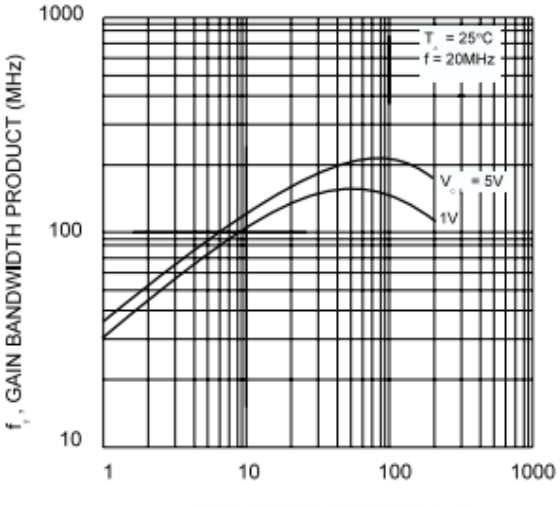



Fig. 2, Gain-Bandwidth Product vs Collector Current

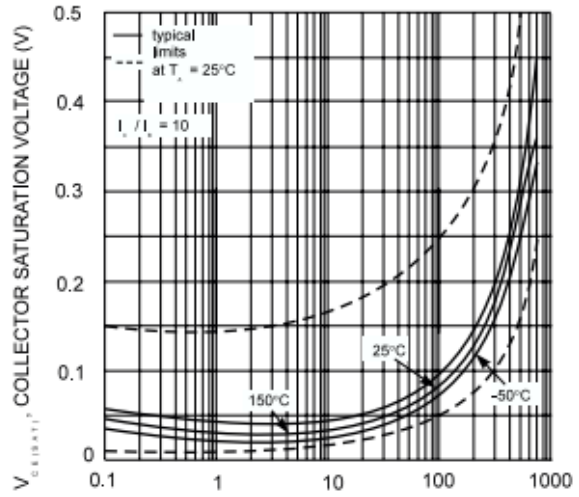



Fig. 3, Collector Sat. Voltage vs Collector Current

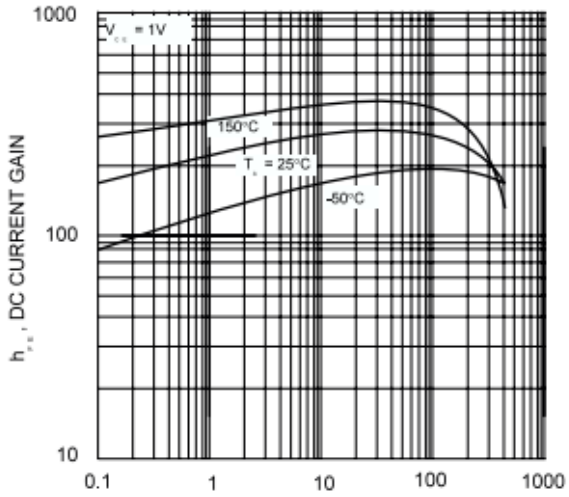



Fig. 4, DC Current Gain vs Collector Current

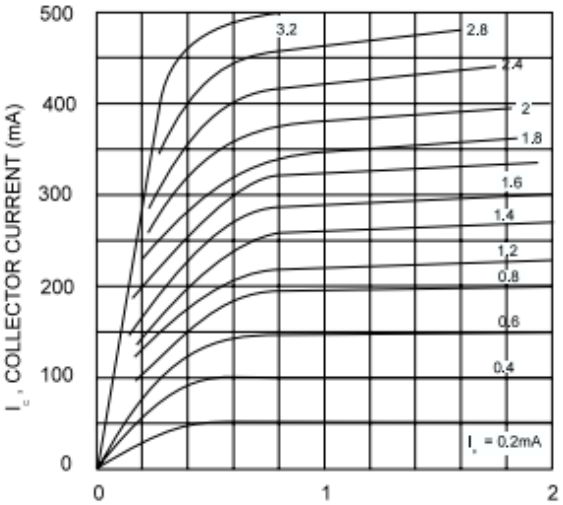



Fig. 5, Typical Emitter-Collector Characteristics

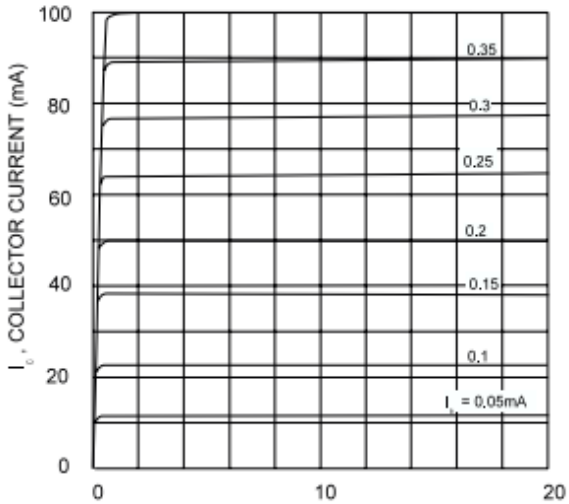
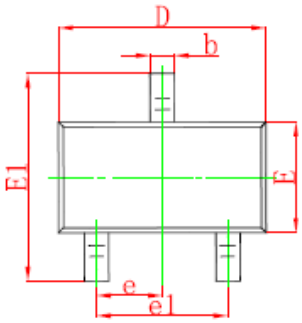
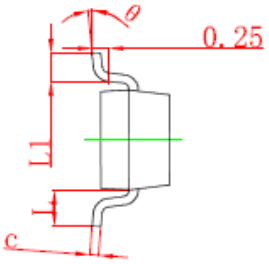
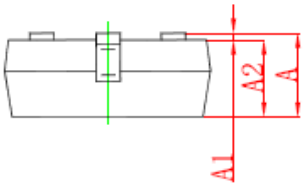



Fig. 6, Typical Emitter-Collector Characteristics

## ■ SOT-23 Package Outline Dimensions

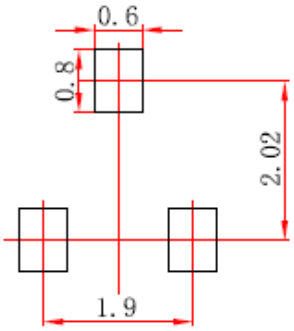



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| 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:±0.05mm.
3.The pad layout is for reference purposes only.

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