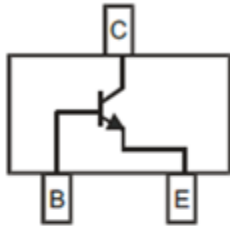


NPN General Purpose Amplifier



SOT-23

Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- Part no. with suffix "Q" means AEC-Q101 qualified

Mechanical Data

- **Case:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:**

| | Marking |
|-----------|---------|
| BC817-16Q | 6A |
| BC817-25Q | 6B |
| BC817-40Q | 6C |

■ Maximum Ratings (Ta=25°C unless otherwise noted)

| Item | Symbol | Unit | Value |
|--|------------|------|-------------|
| Collector-Emitter Voltage | V_{CEO} | V | 45 |
| Collector-Base Voltage | V_{CBO} | V | 50 |
| Emitter-Base Voltage | V_{EBO} | V | 5 |
| Collector Current -Continuous | I_C | mA | 500 |
| Total Device Dissipation (*) | P_D | mW | 300 |
| Thermal Resistance Junction to Ambient (*) | R_{thJA} | K/W | 417 |
| Junction Temperature | T_j | °C | -55 to +150 |
| Storage Temperature | T_{STG} | °C | -55 to +150 |

(*) Device mounted on FR-4 PCB 1.0 x 1.0 x 0.06 inch.



BC817-16Q THRU BC817-40Q

RoHS
COMPLIANT

■ Off Characteristics (Ta=25°C unless otherwise noted)

| Item | Symbol | Unit | Conditions | Min | Max |
|-------------------------------------|-----------|---------------|-----------------------------------|-----|-----|
| Collector-emitter breakdown voltage | V_{CEO} | V | $I_C = 10\text{mA}, I_B = 0$ | 45 | - |
| Collector-base breakdown voltage | V_{CBO} | V | $I_C = 10\mu\text{A}, I_E = 0$ | 50 | - |
| Emitter-base breakdown voltage | V_{EBO} | V | $I_E = 1.0\mu\text{A}, I_C = 0$ | 5.0 | - |
| Emitter cut-off current | I_{EBO} | μA | $V_{EB} = 4.0\text{Vdc}, I_C = 0$ | - | 0.1 |
| Collector cut-off current | I_{CBO} | μA | $V_{CB} = 45\text{Vdc}, I_E = 0$ | - | 0.1 |

■ On Characteristics (Ta=25°C unless otherwise noted)

| Item | Symbol | Unit | Conditions | Min | Max |
|--------------------------------------|---------------|------|--|-----|-----|
| DC Current Gain | h_{FE} | - | $I_C = 100\text{mA}, V_{CE} = 1.0\text{Vdc}$ | 100 | 250 |
| | | | | 160 | 400 |
| | | | | 250 | 600 |
| DC Current Gain | h_{FE} | - | $I_C = 500\text{mA}, V_{CE} = 1.0\text{Vdc}$ | 40 | - |
| Collector-emitter Saturation Voltage | $V_{CE(sat)}$ | V | $I_C = 500\text{mA}, I_B = 50\text{mA}$ | - | 0.7 |
| Base-emitter Saturation Voltage | $V_{BE(sat)}$ | V | $I_C = 500\text{mA}, I_B = 50\text{mA}$ | - | 1.2 |

■ Small-signal Characteristics (Ta=25°C unless otherwise noted)

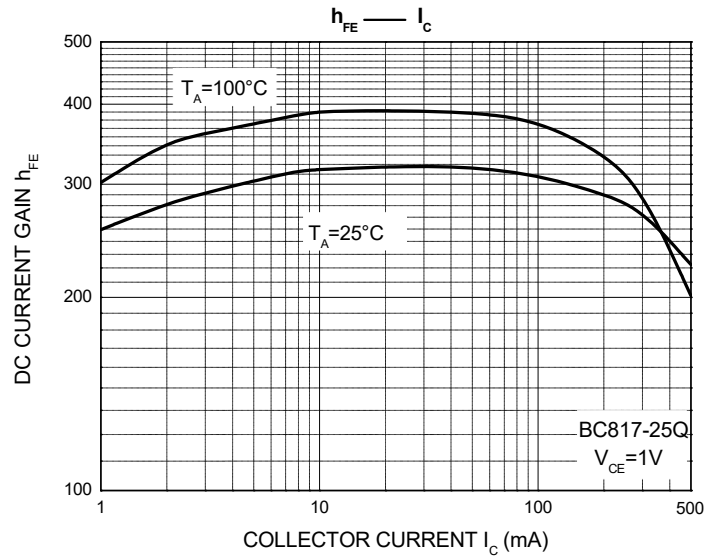
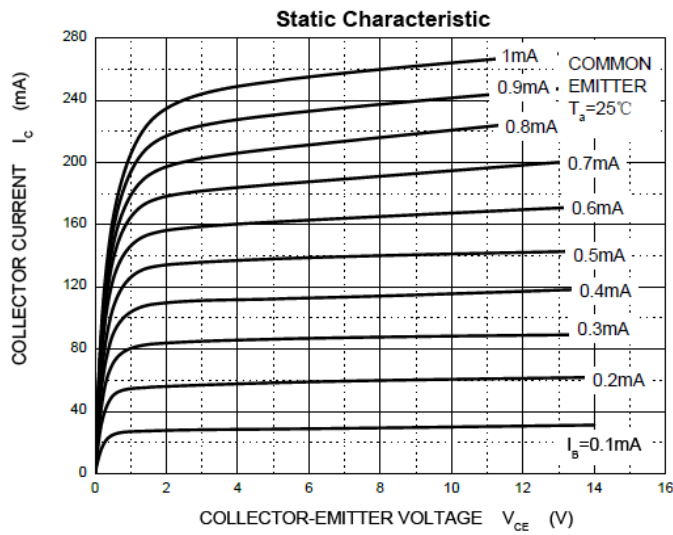
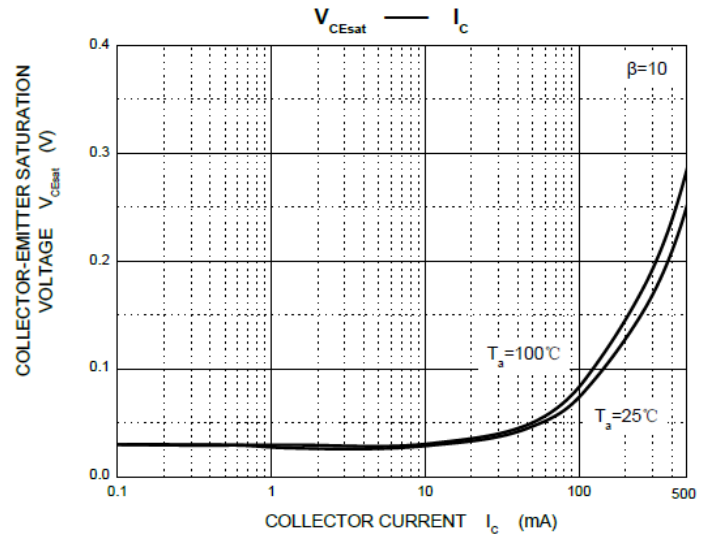
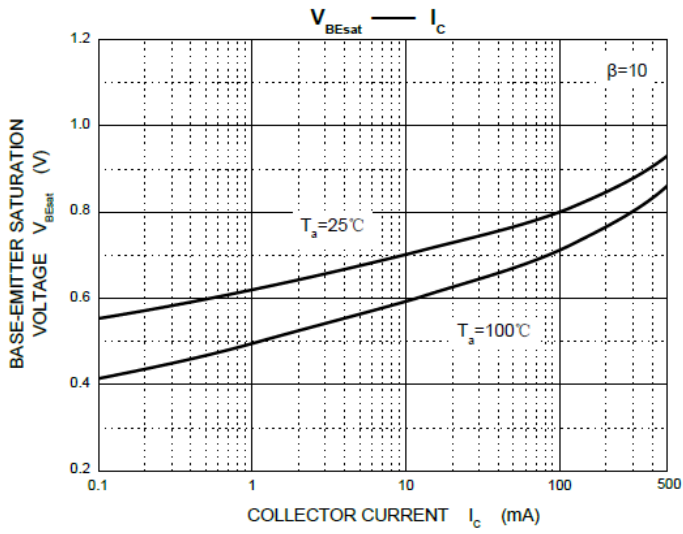
| Item | Symbol | Unit | Conditions | Min | Max |
|--------------------------------|--------|------|--|-----|-----|
| Current Gain-bandwidth Product | f_T | MHz | $I_C = 10\text{mA}, V_{ce} = 5.0\text{Vdc}, f = 100\text{MHz}$ | 100 | - |

■ Ordering Information (Example)

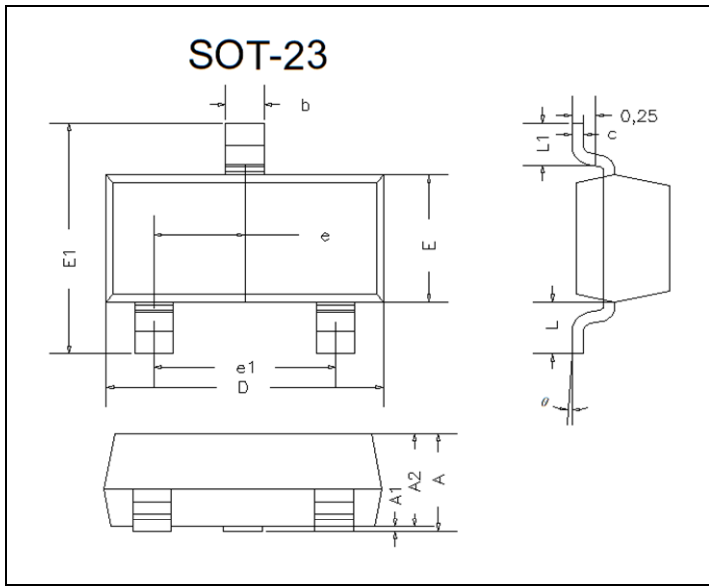
| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(g) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|--------------------------|--------------|------------------|----------------------|-------------------------|----------------------------|---------------|
| BC817-16Q THRU BC817-40Q | F2 | Approximate 0.01 | 3000 | 30000 | 120000 | 7" reel |



■ Characteristics (Typical)

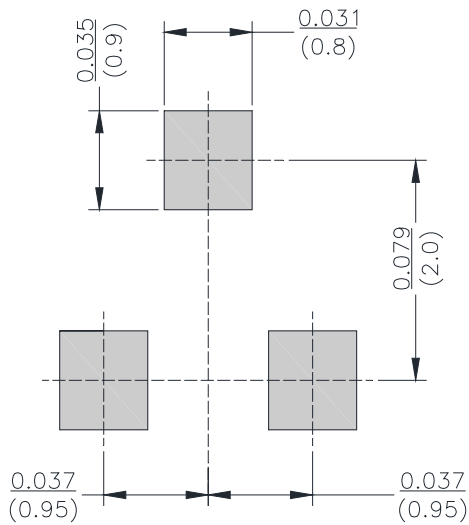


■ SOT-23 Package Outline Dimensions



| DIM | INCHES | | MM | | NOTE |
|-----|----------|-------|---------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.035 | 0.045 | 0.90 | 1.15 | |
| A1 | 0.000 | 0.004 | 0.00 | 0.10 | |
| A2 | 0.035 | 0.041 | 0.90 | 1.05 | |
| b | 0.012 | 0.020 | 0.30 | 0.50 | |
| c | 0.004 | 0.008 | 0.10 | 0.20 | |
| D | 0.110 | 0.118 | 2.80 | 3.00 | |
| E | 0.047 | 0.055 | 1.20 | 1.40 | |
| E1 | 0.089 | 0.100 | 2.25 | 2.55 | |
| e | 0.370TYP | | 0.95TYP | | |
| e1 | 0.071 | 0.079 | 1.80 | 2.00 | |
| L | 0.220REF | | 0.55REF | | |
| L1 | 0.012 | 0.020 | 0.30 | 0.50 | |
| θ | 0° | 8° | 0° | 8° | |

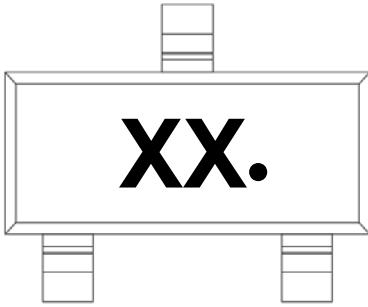
■ SOT-23 Suggested Pad Layout



Unit: $\frac{\text{inch}}{\text{mm}}$



■ Marking Information



Note:

1. All marking is at middle of the product body
2. All marking is in laser marking
3. XX is Marking Code determined by specific model
4. Body color: Black



Disclaimer

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