

BC817-16-AU / BC817-25-AU / BC817-40-AU

Silicon NPN General Purpose Transistors

Voltage

45V

Current

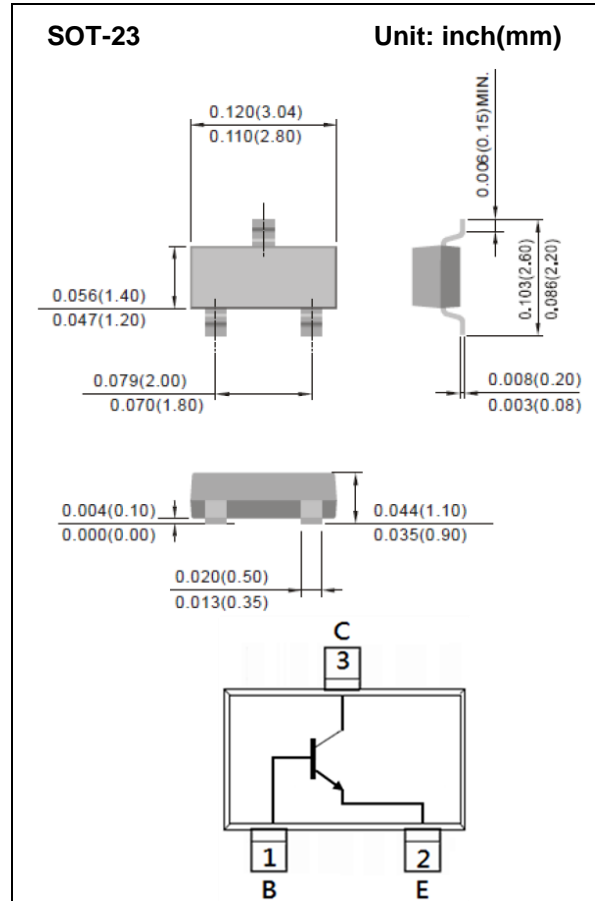
500mA

Features

- Silicon NPN Epitaxial type
- Excellent DC current gain characteristics
- General purpose amplifier application
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 Standard
- PNP complement: BC807-AU series

Mechanical Data

- Case: SOT-23 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0003 ounces, 0.0084grams
- Marking: BC817-16-AU: 8A
BC817-25-AU: 8B
BC817-40-AU: 8C



Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

| PARAMETER | SYMBOL | LIMIT | UNITS |
|---|-----------------------------------|---------|-------|
| Collector-Base Voltage | V _{CBO} | 50 | V |
| Collector-Emitter Voltage | V _{CEO} | 45 | V |
| Emitter-Base Voltage | V _{EBO} | 5 | V |
| Collector Current (DC) | I _C | 500 | mA |
| Collector Current (Pulse) | I _{CP} | 1000 | mA |
| Total Power Dissipation | P _{TOT} | 330 | mW |
| Operating Junction and Storage Temperature Range | T _J , T _{STG} | -55~150 | °C |
| Thermal Resistance from Junction to Ambient ^(Note) | R _{θJA} | 375 | °C/W |

Note: Mounted on minimum pad mount on FR-4 board.

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Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNITS | |
|--------------------------------------|---------------|--------------------------------------|--------------------------------------|------|------|---------------|--|
| OFF Characteristics | | | | | | | |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | $I_C=10\text{mA}, I_B=0\text{A}$ | 45 | - | - | V | |
| Collector-Base Breakdown Voltage | BV_{CBO} | $I_C=10\mu\text{A}, I_E=0\text{A}$ | 50 | - | - | V | |
| Emitter-Base Breakdown Voltage | BV_{EBO} | $I_E=1\mu\text{A}, I_C=0\text{A}$ | 5 | - | - | V | |
| Collector-Base Cutoff Current | I_{CBO} | $V_{CB}=20\text{V}, I_E=0\text{A}$ | - | - | 100 | nA | |
| Collector-Base Cutoff Current | I_{CBO} | $T_j=125^\circ\text{C}$ | - | - | 5 | μA | |
| Emitter-Base Cutoff Current | I_{EBO} | $V_{EB}=5\text{V}$ | - | - | 100 | nA | |
| ON characteristics | | | | | | | |
| DC Current Gain | BC817-16-AU | h_{FE} | $V_{CE}=1\text{V}, I_C=100\text{mA}$ | 100 | - | 250 | |
| | BC817-25-AU | | | 160 | - | 400 | |
| | BC817-40-AU | | | 250 | - | 600 | |
| DC Current Gain | | | $V_{CE}=1\text{V}, I_C=500\text{mA}$ | 40 | - | - | |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$ | - | - | 0.7 | V | |
| Base-Emitter Turn-on voltage | $V_{BE(on)}$ | $I_C=500\text{mA}, V_{CE}=1\text{V}$ | - | - | 1.2 | V | |
| Transition Frequency | f_T | $I_C=10\text{mA}, V_{CE}=5\text{V}$ | 100 | - | - | MHz | |
| Collector Output Capacitance | C_{OB} | $V_{CB}=10\text{V}, f=1\text{MHz}$ | - | 7 | - | pF | |

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TYPICAL CHARACTERISTIC CURVES

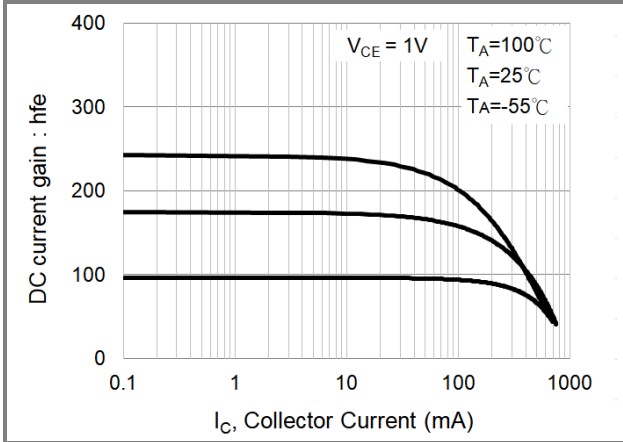


Fig.1 DC Current Gain(-16)

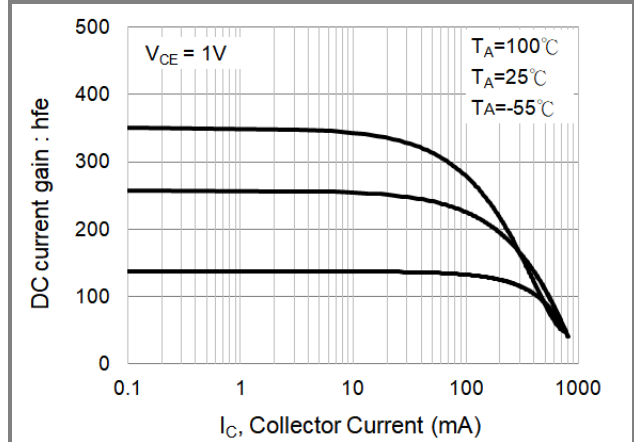


Fig.2 DC Current Gain (-25)

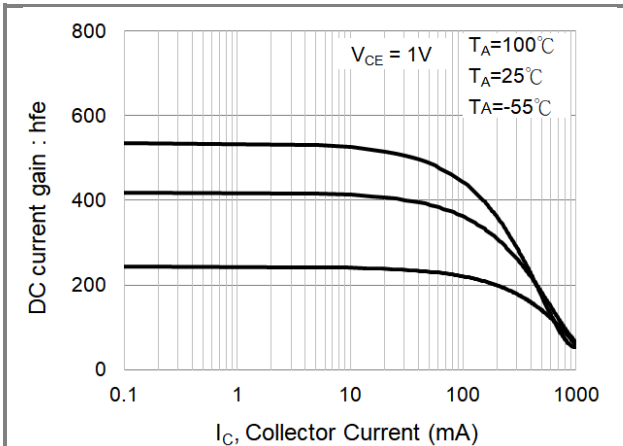


Fig.3 DC Current Gain (-40)

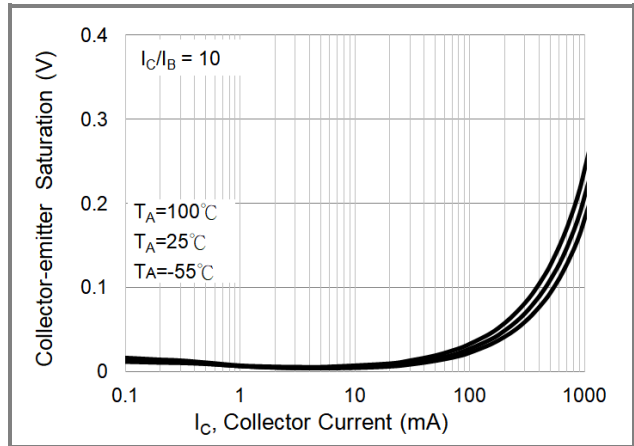


Fig.4 Collector-Emitter Saturation Voltage (-16)

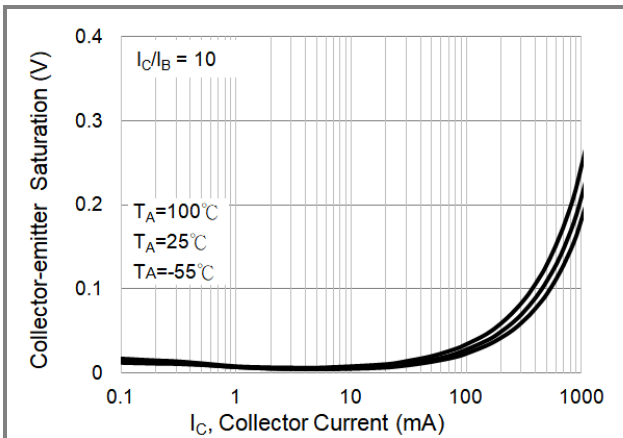


Fig.5 Collector-Emitter Saturation Voltage (-25)

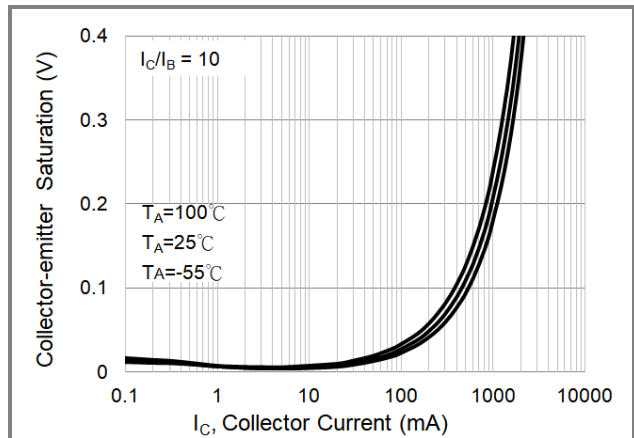


Fig.6 Collector-Emitter Saturation Voltage (-40)

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TYPICAL CHARACTERISTIC CURVES

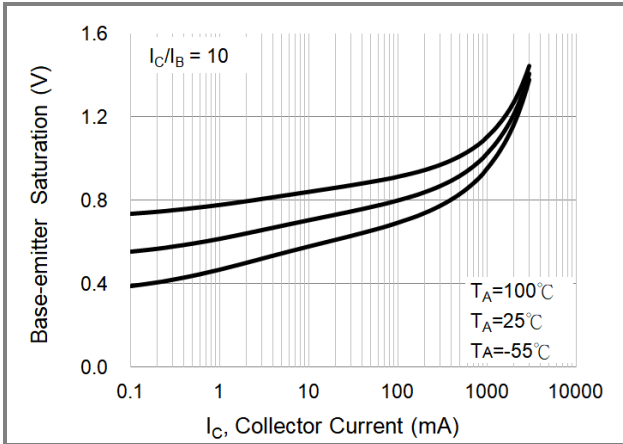


Fig.7 Base-Emitter Saturation Voltage (-16)

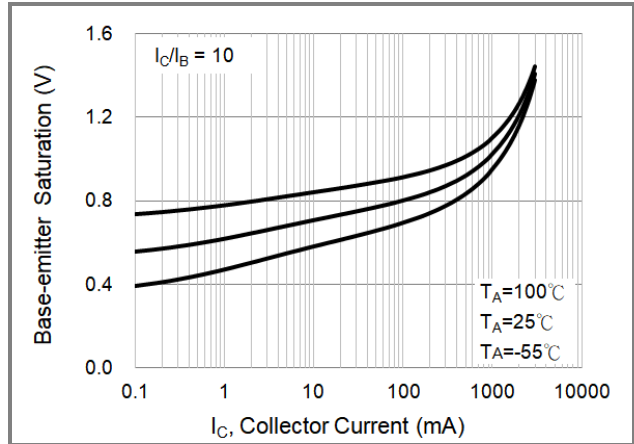


Fig.8 Base-Emitter Saturation Voltage (-25)

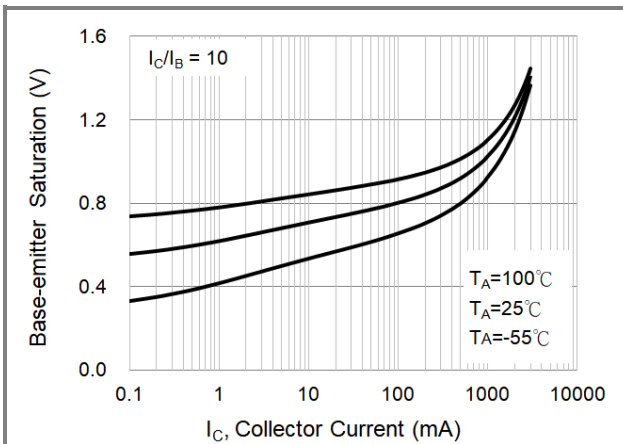


Fig.9 Base-Emitter Saturation Voltage (-40)

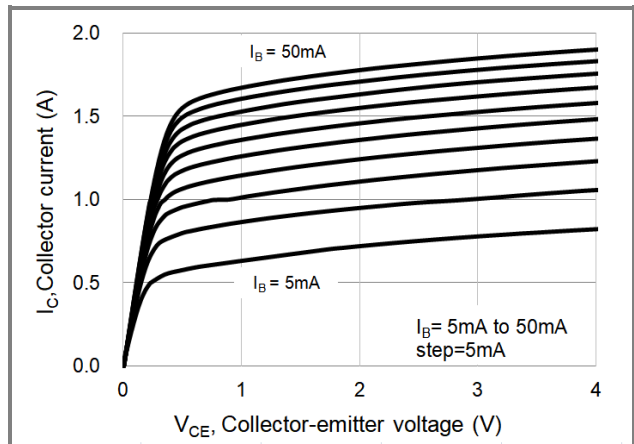


Fig.10 Collector Current (-16)

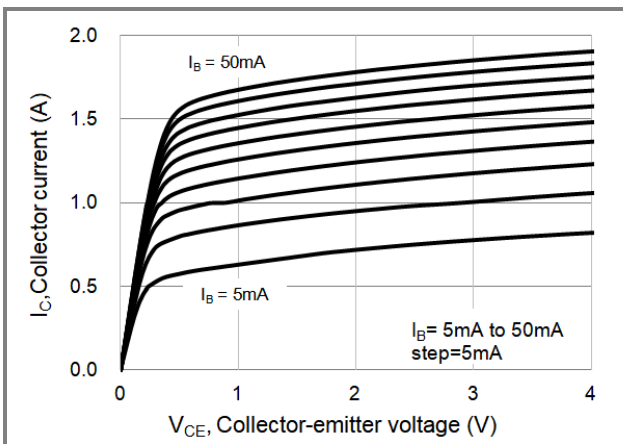


Fig.11 Collector Current (-25)

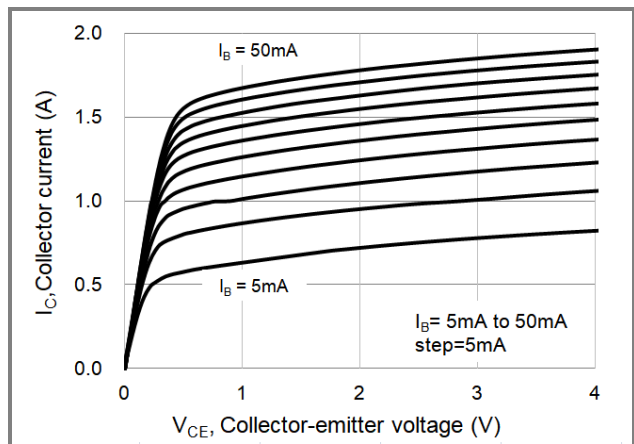


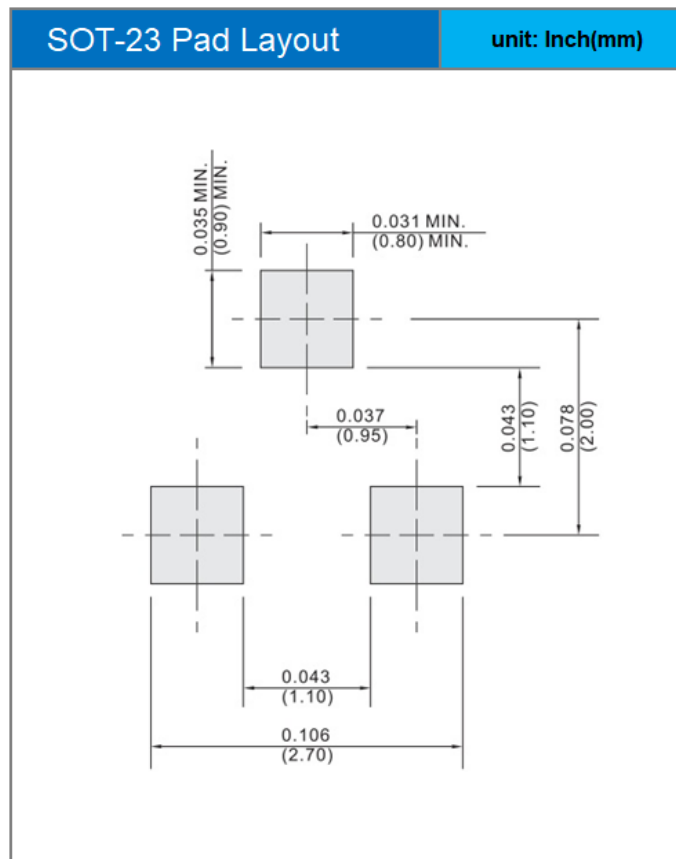
Fig.12 Collector Current (-40)

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Product and Packing Information

| Part No. | Package Type | Packing type | Marking |
|-------------|--------------|------------------|---------|
| BC817-16-AU | SOT-23 | 3K pcs / 7" reel | 8A |
| BC817-25-AU | SOT-23 | 3K pcs / 7" reel | 8B |
| BC817-40-AU | SOT-23 | 3K pcs / 7" reel | 8C |

Mounting Pad Layout



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