

Features

- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings @ 25°C Unless Otherwise Specified

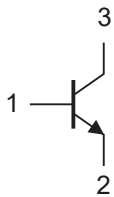
| Parameter | Symbol | Rating | Unit |
|------------------------------|-----------|--------|------|
| Collector-Base Voltage | V_{CBO} | 50 | V |
| Collector-Emitter Voltage | V_{CEO} | 45 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Continuous Collector Current | I_C | 500 | mA |
| Power Dissipation | P_D | 200 | mW |

Thermal characteristics

| Parameter | Symbol | Rating | Unit |
|---|---------------|----------|------|
| Operating Junction Temperature Range | T_J | -55~+150 | °C |
| Storage Temperature Range | T_{stg} | -55~+150 | °C |
| Thermal Resistance from Junction to Ambient | $R_{th(J-A)}$ | 625 | °C/W |

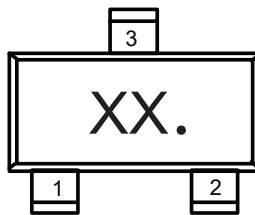
Note:
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure



- 1.BASE
- 2.EMITTER
- 3.COLLECTOR

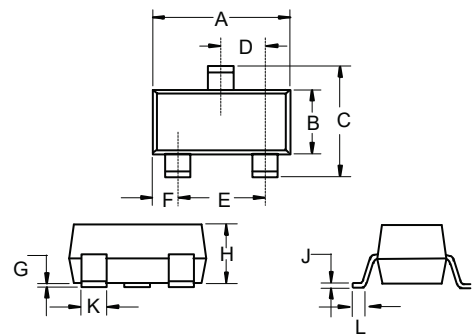
Marking Code



| Part NO. | Marking code |
|-----------|--------------|
| BC817-16W | 6A |
| BC817-25W | 6B |
| BC817-40W | 6C |

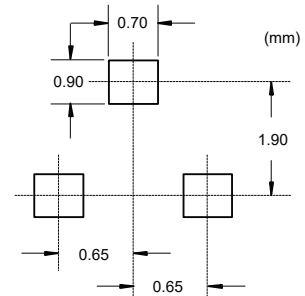
**NPN Silicon
General Purpose
Transistors**

SOT-323



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.071 | 0.087 | 1.80 | 2.20 | |
| B | 0.045 | 0.053 | 1.15 | 1.35 | |
| C | 0.083 | 0.096 | 2.10 | 2.45 | |
| D | 0.026 | | 0.65 | | TYP. |
| E | 0.047 | 0.055 | 1.20 | 1.40 | |
| F | 0.012 | 0.016 | 0.30 | 0.40 | |
| G | 0.000 | 0.004 | 0.00 | 0.10 | |
| H | 0.035 | 0.044 | 0.90 | 1.10 | |
| J | 0.002 | 0.010 | 0.05 | 0.25 | |
| K | 0.006 | 0.016 | 0.15 | 0.40 | |
| L | 0.010 | 0.018 | 0.26 | 0.46 | |

Suggested Solder Pad Layout



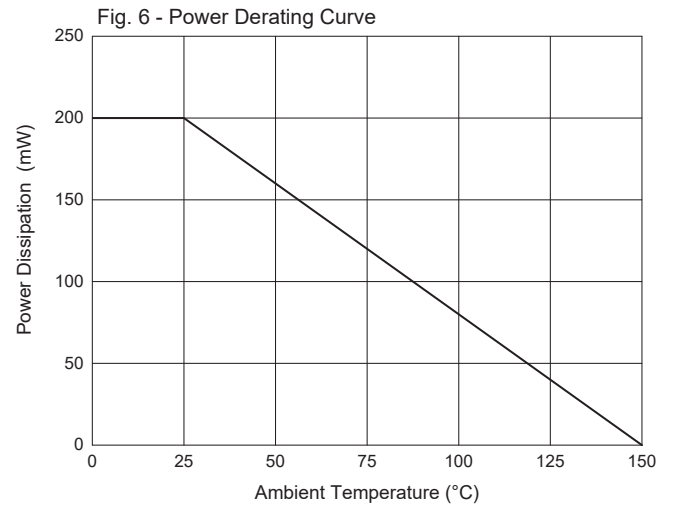
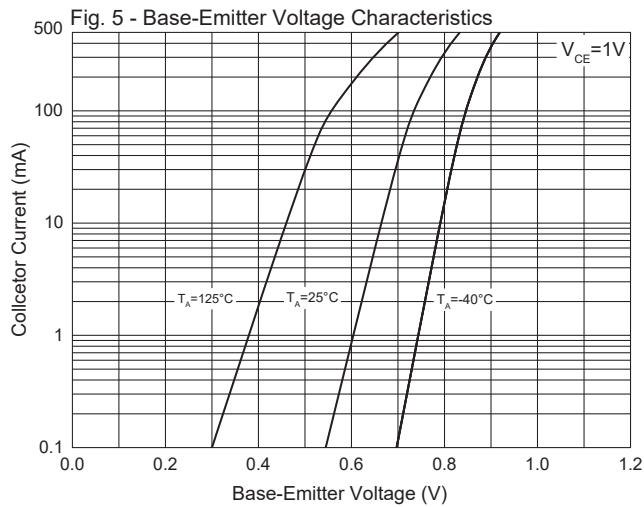
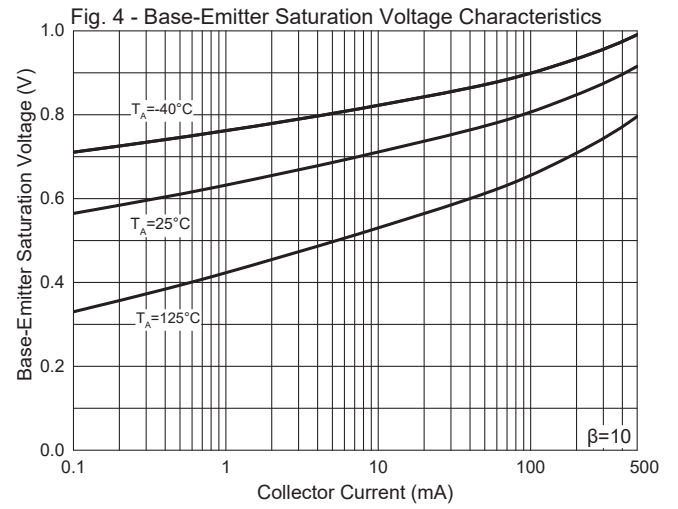
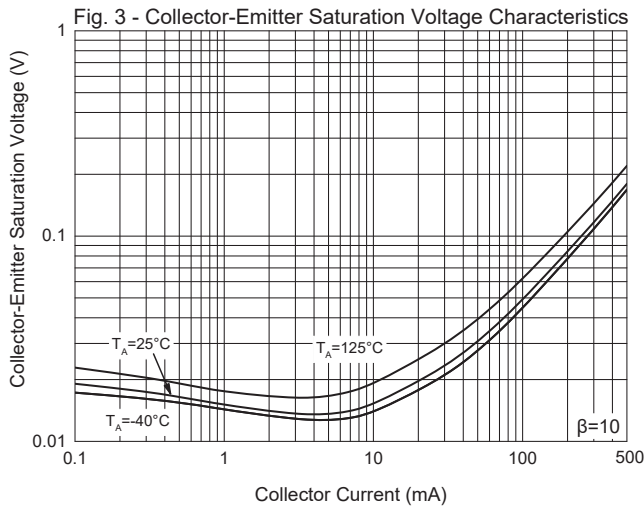
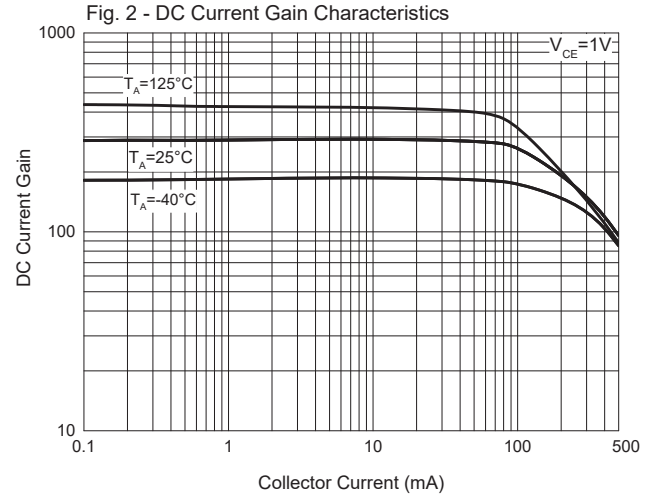
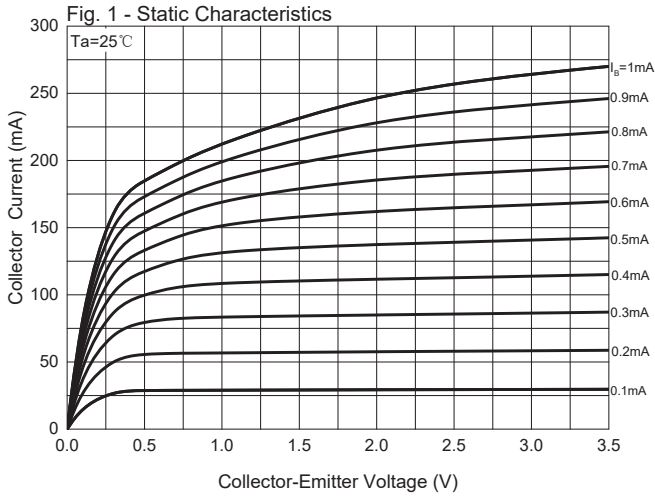
Electrical Characteristics @ $T_A=25^\circ\text{C}$ Unless Otherwise Specified

| Parameter | Symbol | Min | Typ | Max | Units | Conditions |
|--------------------------------------|---------------|-----|-----|-----|---------------|--|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 50 | | | V | $I_C=10\mu\text{A}, I_E=0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 45 | | | V | $I_C=10\text{mA}, I_B=0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 5 | | | V | $I_E=1\mu\text{A}, I_C=0$ |
| Collector Cutoff Current | I_{CBO} | | | 0.1 | μA | $V_{CB}=20\text{V}, I_E=0$ |
| Emitter Cutoff Current | I_{EBO} | | | 0.1 | μA | $V_{EB}=5\text{V}, I_C=0$ |
| DC Current Gain | $h_{FE(1)}$ | 100 | | 600 | | $V_{CE}=1\text{V}, I_C=100\text{mA}$ |
| | $h_{FE(2)}$ | 40 | | | | $V_{CE}=1\text{V}, I_C=500\text{mA}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | | 0.7 | V | $I_C=500\text{mA}, I_B=50\text{mA}$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | | 1.2 | V | $I_C=500\text{mA}, I_B=50\text{mA}$ |
| Base-Emitter Voltage | V_{BE} | | | 1.2 | V | $V_{CE}=1\text{V}, I_C=500\text{mA}$ |
| Transition Frequency | f_T | 100 | | | MHz | $V_{CE}=5\text{V}, I_C=10\text{mA}, f=100\text{MHz}$ |
| Collector Capacitance | C_C | | | 5 | pF | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$ |

Classification of $h_{FE(1)}$

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

Curve Characteristics



Ordering Information

| Device | Packing |
|-----------------|-----------------------|
| Part Number-TP | Tape&Reel:3Kpcs/Reel |
| Part Number-13P | Tape&Reel:10Kpcs/Reel |

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