

RoHS Compliant Product

A suffix of "-C" specifies halogen & lead-free

## FEATURES

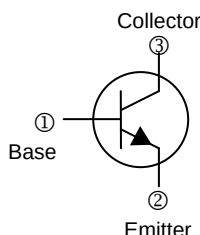
- For general AF applications
- High collector current
- High current gain
- Low collector-emitter saturation voltage

## PACKAGE INFORMATION

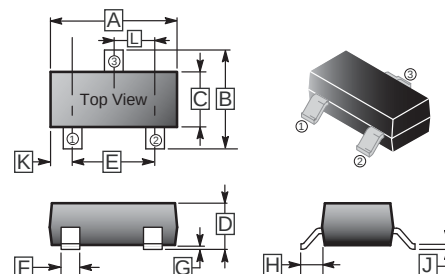
Weight: 0.0074 g (approximately)

## MARKING

BC817-16W: **6A**  
BC817-25W: **6B**  
BC817-40W: **6C, YM**



## SOT-323



| REF. | Millimeter |      | REF. | Millimeter |      |
|------|------------|------|------|------------|------|
|      | Min.       | Max. |      | Min.       | Max. |
| A    | 1.80       | 2.20 | G    | 0.100 REF. |      |
| B    | 1.80       | 2.45 | H    | 0.525 REF. |      |
| C    | 1.15       | 1.35 | J    | 0.08       | 0.25 |
| D    | 0.80       | 1.10 | K    | -          | -    |
| E    | 1.20       | 1.40 | L    | 0.650 TYP. |      |
| F    | 0.20       | 0.40 |      |            |      |

## ABSOLUTE MAXIMUM RATINGS at Ta = 25°C

| Parameter                     | Symbol         | Ratings    | Unit |
|-------------------------------|----------------|------------|------|
| Collector to Base Voltage     | $V_{CBO}$      | 50         | V    |
| Collector to Emitter Voltage  | $V_{CEO}$      | 45         | V    |
| Emitter to Base Voltage       | $V_{EBO}$      | 5          | V    |
| Collector Current             | $I_C$          | 500        | mA   |
| Collector Power Dissipation   | $P_C$          | 300        | mW   |
| Junction, Storage Temperature | $T_J, T_{STG}$ | -55 ~ +150 | °C   |

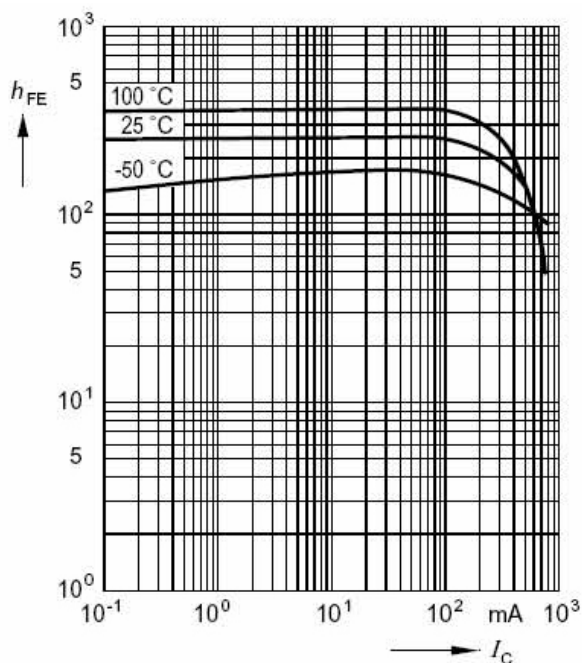
## CHARACTERISTICS at Ta = 25°C

| Parameter                            | Symbol        | Min. | Max. | Unit    | Test Conditions                                       |
|--------------------------------------|---------------|------|------|---------|-------------------------------------------------------|
| Collector-base Breakdown Voltage     | $BV_{CBO}$    | 50   | -    | V       | $I_C = 10 \mu A, I_E = 0$                             |
| Collector-emitter Breakdown Voltage  | $BV_{CEO}$    | 45   | -    | V       | $I_C = 10 \text{ mA}, I_B = 0$                        |
| Emitter-base Breakdown Voltage       | $BV_{EBO}$    | 5    | -    | V       | $I_E = 1 \mu A, I_C = 0$                              |
| Collector Cut-off Current            | $I_{CBO}$     | -    | 0.1  | $\mu A$ | $V_{CB} = 20V, I_E = 0$                               |
| Emitter Cut-off Current              | $I_{EBO}$     | -    | 0.1  | $\mu A$ | $V_{EB} = 5V, I_C = 0$                                |
| 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                 | $V_{BE(on)}$  | -    | 1.2  | V       | $V_{CE} = 1V, I_C = 500\text{mA}$                     |
| DC Current Gain                      | $h_{FE(1)}$   | 100  | 600  |         | $V_{CE} = 1V, I_C = 100 \text{ mA}$                   |
| DC Current Gain                      | $h_{FE(2)}$   | 40   | -    |         | $V_{CE} = 1V, I_C = 500 \text{ mA}$                   |
| Transition Frequency                 | $f_T$         | 100  | -    | MHz     | $V_{CE} = 5V, I_C = 10 \text{ mA}, f = 100\text{MHz}$ |
| Collector Capacitance                | $C_C$         | -    | 5    | pF      | $V_{CB} = 10V, f=1\text{MHz}$                         |

## CLASSIFICATION OF $h_{FE(1)}$

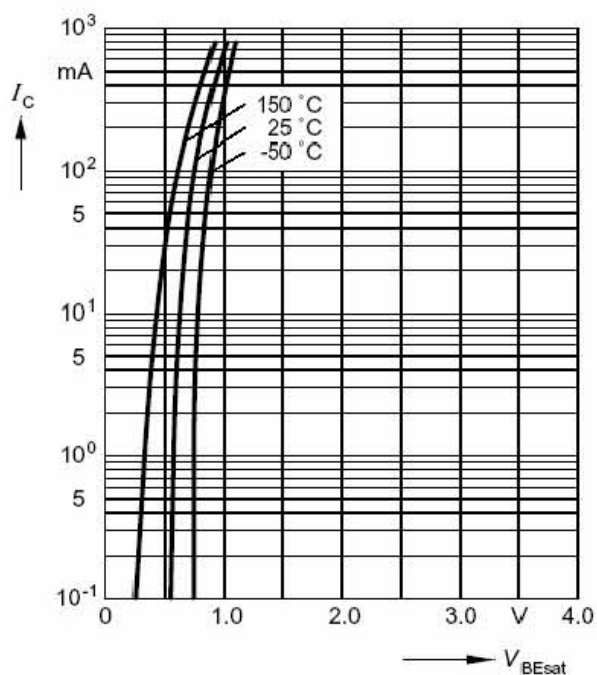
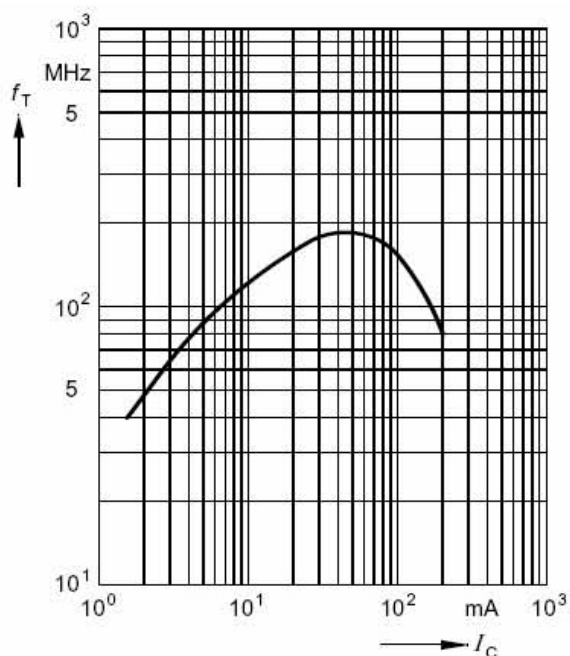
| Rank  | BC817-16W | BC817-25W | BC817-40W |
|-------|-----------|-----------|-----------|
| Range | 100 - 250 | 160 - 400 | 250 - 600 |

## CHARACTERISTIC CURVES



**Base-emitter saturation voltage**

$$I_C = f(V_{BEsat}), h_{FE} = 10$$



**Collector-emitter saturation voltage**

$$I_C = f(V_{CEsat}), h_{FE} = 10$$

