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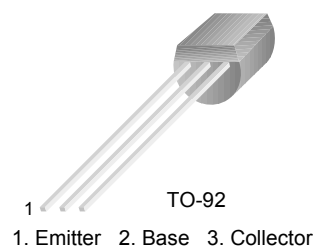
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# 2N6517

## NPN Epitaxial Silicon Transistor

### Features

- High Voltage Transistor
- Collector Dissipation:  $P_C(\text{max}) = 625\text{mW}$
- Complement to 2N6520
- Suffix “-C” means Center Collector (1. Emitter 2. Collector 3. Base)



### Absolute Maximum Ratings $T_a = 25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter                   | Value     | Units            |
|-----------|-----------------------------|-----------|------------------|
| $V_{CBO}$ | Collector-Base Voltage      | 2N6517    | 350              |
|           |                             | 2N6517C   | 400              |
| $V_{CEO}$ | Collector-Emitter Voltage   | 2N6517    | 350              |
|           |                             | 2N6517C   | 400              |
| $V_{EBO}$ | Emitter-Base Voltage        | 6         | V                |
| $I_C$     | Collector Current           | 500       | mA               |
| $P_C$     | Collector Power Dissipation | 625       | mW               |
| $T_J$     | Junction Temperature        | 150       | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature         | -55 ~ 150 | $^\circ\text{C}$ |

### Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

| Symbol     | Parameter                             | Conditions   | Min. | Max. | Units |
|------------|---------------------------------------|--|------|------|-------|
| $BV_{CBO}$ | Collector-Base Breakdown Voltage      | 2N6517 $I_C = 100\mu\text{A}, I_E = 0$                   | 350  |      | V     |
|            |                                       | 2N6517C $I_C = 100\mu\text{A}, I_E = 0$                  | 400  |      | V     |
| $BV_{CEO}$ | Collector-Emitter Breakdown Voltage * | 2N6517 $I_C = 1\text{mA}, I_B = 0$                       | 350  |      | V     |
|            |                                       | 2N6517C $I_C = 1\text{mA}, I_B = 0$                      | 400  |      | V     |
| $BV_{EBO}$ | Emitter-Base Breakdown Voltage        | $I_E = 10\mu\text{A}, I_C = 0$                           | 6    |      | V     |
| $I_{CBO}$  | Collector Cut-off Current             | $V_{CB} = 250\text{V}, I_E = 0$                          |      | 50   | nA    |
| $I_{EBO}$  | Emitter Cut-off Current               | $V_{EB} = 5\text{V}, I_C = 0$                            |      | 50   | nA    |
| $h_{FE}$   | DC Current Gain *                     | 2N6517/2N6517C $V_{CE} = 10\text{V}, I_C = 1\text{mA}$   | 20   |      |       |
|            |                                       | 2N6517/2N6517C $V_{CE} = 10\text{V}, I_C = 10\text{mA}$  | 30   |      |       |
|            |                                       | 2N6517/2N6517C $V_{CE} = 10\text{V}, I_C = 30\text{mA}$  | 30   | 200  |       |
|            |                                       | 2N6517/2N6517C $V_{CE} = 10\text{V}, I_C = 50\text{mA}$  | 20   | 200  |       |
|            |                                       | 2N6517/2N6517C $V_{CE} = 10\text{V}, I_C = 100\text{mA}$ | 15   |      |       |
|            |                                       | 2N6517C $V_{CE} = 10\text{V}, I_C = 5\text{mA}$          | 50   | 200  |       |

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

| Symbol        | Parameter                            | Conditions   | Min. | Max. | Units |
|---------------|--------------------------------------|--|------|------|-------|
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 10\text{mA}, I_B = 1\text{mA}$                      |      | 0.3  | V     |
|               |                                      | $I_C = 20\text{mA}, I_B = 2\text{mA}$                      |      | 0.35 | V     |
|               |                                      | $I_C = 30\text{mA}, I_B = 3\text{mA}$                      |      | 0.5  | V     |
|               |                                      | $I_C = 50\text{mA}, I_B = 5\text{mA}$                      |      | 1    | V     |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage      | $I_C = 10\text{mA}, I_B = 1\text{mA}$                      |      | 0.75 | V     |
|               |                                      | $I_C = 20\text{mA}, I_B = 2\text{mA}$                      |      | 0.85 | V     |
|               |                                      | $I_C = 30\text{mA}, I_B = 3\text{mA}$                      |      | 0.9  | V     |
| $C_{ob}$      | Output Capacitance                   | $V_{CB} = 20\text{V}, I_E = 0, f = 1\text{MHz}$            |      | 6    | pF    |
| $f_T$         | Current Gain Bandwidth Product *     | $I_C = 10\text{mA}, V_{CE} = 20\text{V}, f = 20\text{MHz}$ | 40   | 200  | MHz   |
| $V_{BE(on)}$  | Base-Emitter On Voltage              | $I_C = 100\text{mA}, V_{CE} = 10\text{V}$                  |      | 2    | V     |

\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

Typical Performance Characteristics

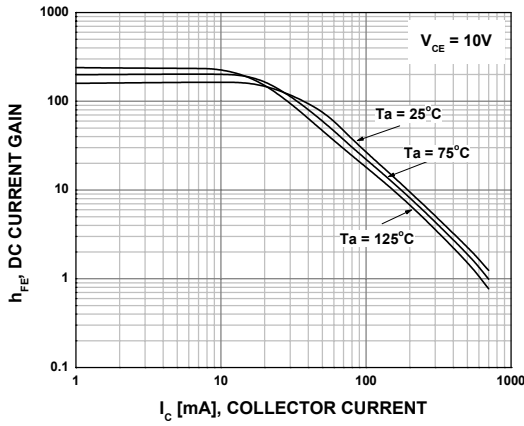


Figure 1. DC Current Gain

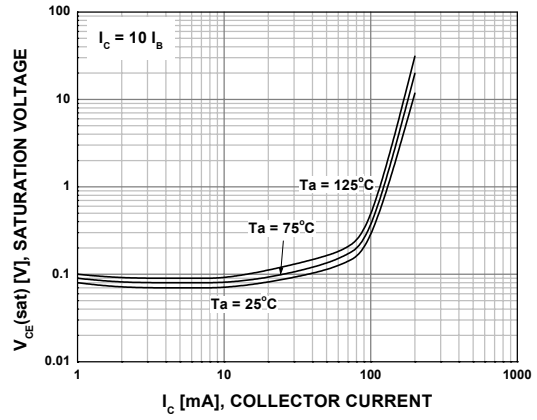


Figure 2. Saturation Voltage

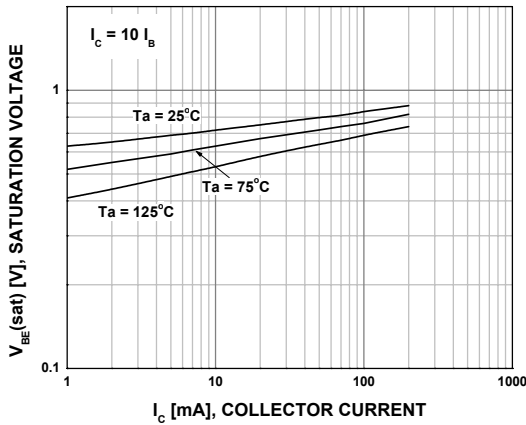


Figure 3. Saturation Voltage

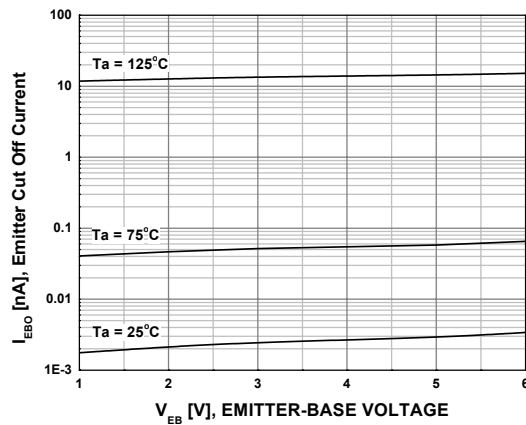


Figure 4. Emitter Cut Off Current

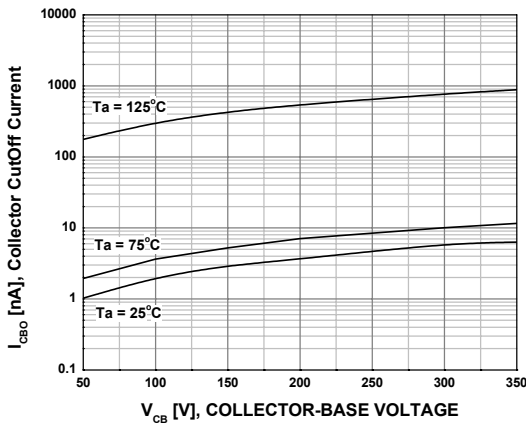


Figure 5. Collector CutOff Current

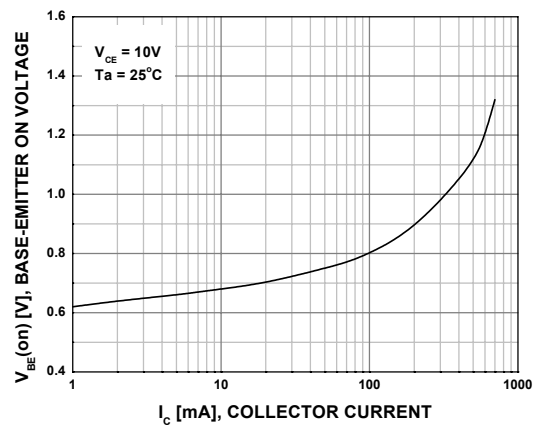
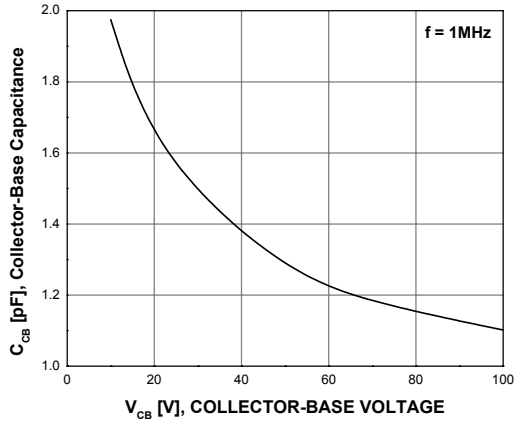
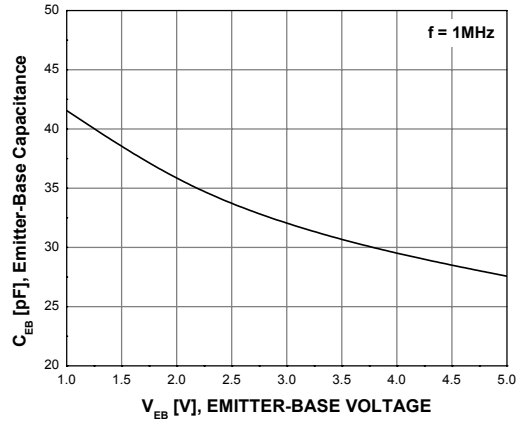


Figure 6. Base-Emitter On Voltage

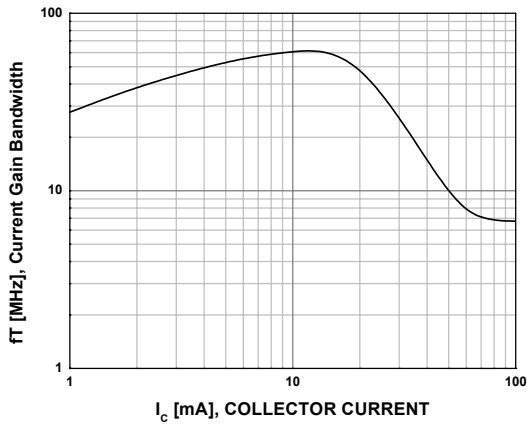
**Typical Performance Characteristics (Continued)**



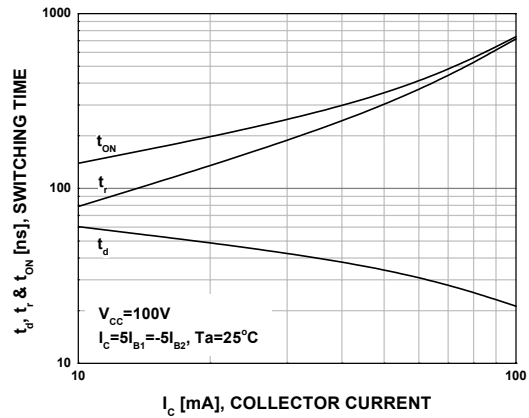
**Figure 7. Output Capacitance**



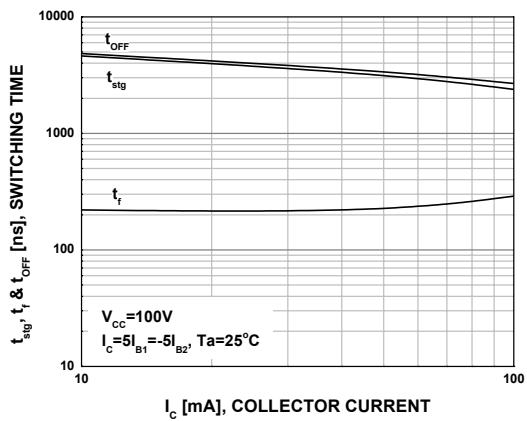
**Figure 8. Input Capacitance**



**Figure 9. Current Gain Bandwidth Product**



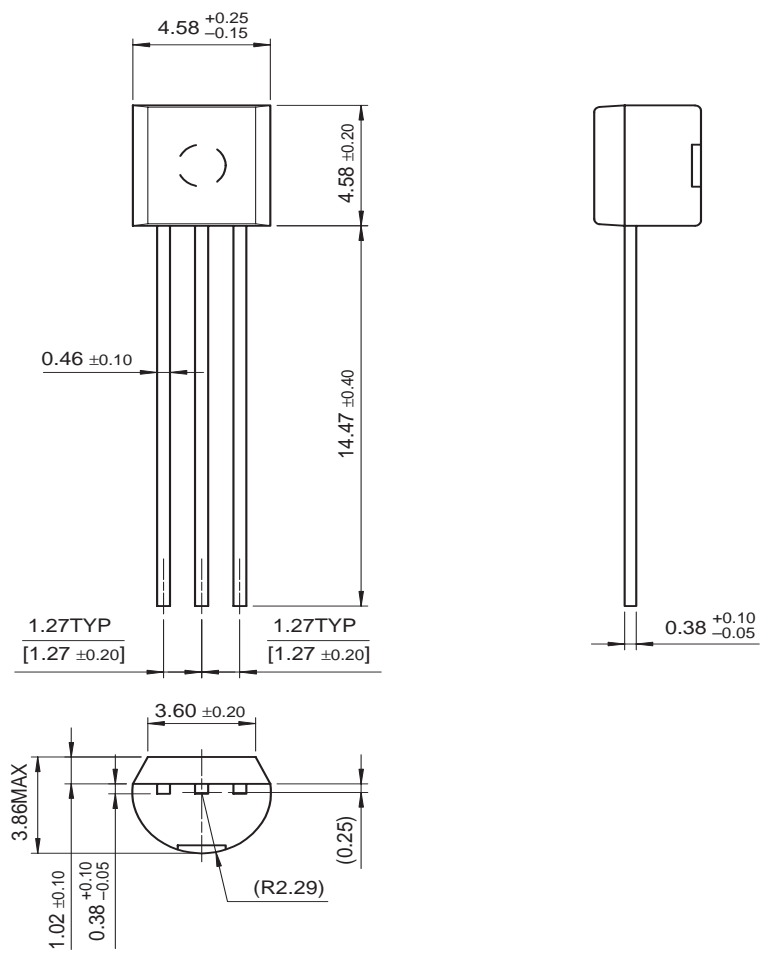
**Figure 10. Resistive Load Switching**



**Figure 11. Resistive Load Switching**

### Physical Dimensions

## TO-92



Dimensions in Millimeters



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