

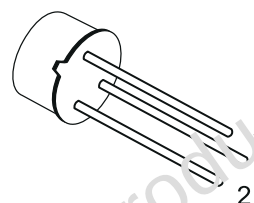
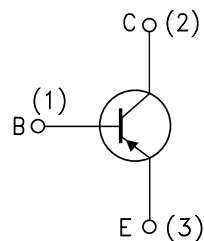
**BC161-16****GENERAL PURPOSE TRANSISTOR**

PRELIMINARY DATA

**DESCRIPTION**

The BC161-16 is a silicon Planar Epitaxial PNP transistor in Jedec TO-39 metal case. It is particularly designed for audio amplifiers and switching application up to 1A.

The complementary NPN type is the BC141-16.

**TO-39****INTERNAL SCHEMATIC DIAGRAM****ABSOLUTE MAXIMUM RATINGS**

| Symbol    | Parameter                                                                                                  | Value       | Unit               |
|-----------|------------------------------------------------------------------------------------------------------------|-------------|--------------------|
| $V_{CBO}$ | Collector-Base Voltage ( $I_E = 0$ )                                                                       | -60         | V                  |
| $V_{CEO}$ | Collector-Emitter Voltage ( $I_B = 0$ )                                                                    | -60         | V                  |
| $V_{EBO}$ | Emitter-Base Voltage ( $I_C = 0$ )                                                                         | -5          | V                  |
| $I_C$     | Collector Current                                                                                          | -1          | A                  |
| $I_B$     | Base Current                                                                                               | -0.1        | A                  |
| $P_{tot}$ | Total Dissipation at $T_{amb} \leq 25\text{ }^{\circ}\text{C}$<br>at $T_C \leq 25\text{ }^{\circ}\text{C}$ | 0.65<br>3.7 | W<br>W             |
| $T_{stg}$ | Storage Temperature                                                                                        | -55 to 175  | $^{\circ}\text{C}$ |
| $T_J$     | Max. Operating Junction Temperature                                                                        | 175         | $^{\circ}\text{C}$ |

## THERMAL DATA

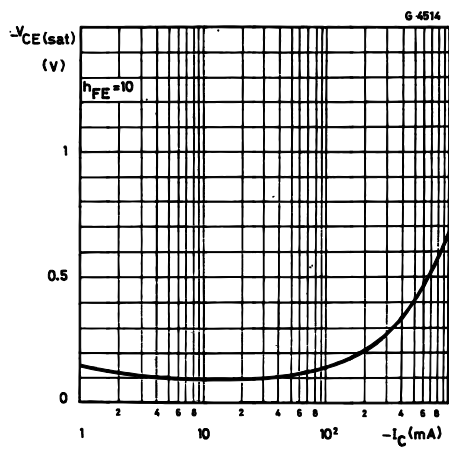
|                |                                     |     |     |               |
|----------------|-------------------------------------|-----|-----|---------------|
| $R_{thj-case}$ | Thermal Resistance Junction-Case    | Max | 35  | $^{\circ}C/W$ |
| $R_{thj-amb}$  | Thermal Resistance Junction-Ambient | Max | 200 | $^{\circ}C/W$ |

ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$  unless otherwise specified)

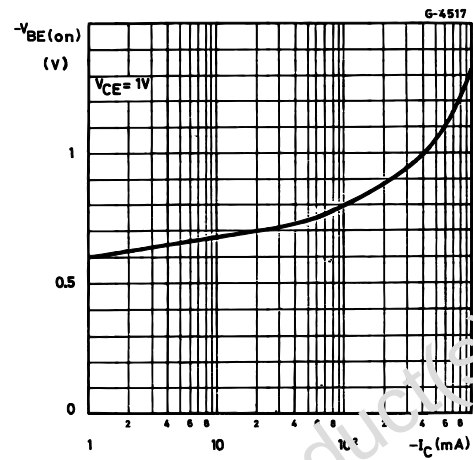
| Symbol            | Parameter                                         | Test Conditions                                                                                       | Min. | Typ.                  | Max.         | Unit          |
|-------------------|---------------------------------------------------|-------------------------------------------------------------------------------------------------------|------|-----------------------|--------------|---------------|
| $I_{CES}$         | Collector Cut-off Current ( $V_{BE} = 0$ )        | $V_{CE} = -60 V$<br>$V_{CE} = -60 V$ $T_{amb} = 150^{\circ}C$                                         |      |                       | -100<br>-100 | nA<br>$\mu A$ |
| $V_{(BR)CBO}^{*}$ | Collector-Base Breakdown Voltage ( $I_E = 0$ )    | $I_C = -100 \mu A$                                                                                    | -60  |                       |              | V             |
| $V_{(BR)CEO}^{*}$ | Collector-Emitter Breakdown Voltage ( $I_B = 0$ ) | $I_C = -10 mA$                                                                                        | -60  |                       |              | V             |
| $V_{(BR)EBO}^{*}$ | Emitter-Base Breakdown Voltage ( $I_C = 0$ )      | $I_E = -100 \mu A$                                                                                    | -5   |                       |              | V             |
| $V_{CE(sat)}^{*}$ | Collector-Emitter Saturation Voltage              | $I_C = -100 mA$ $I_B = -10 mA$<br>$I_C = -500 mA$ $I_B = -50 mA$<br>$I_C = -1 A$ $I_B = -100 mA$      |      | -0.1<br>-0.35<br>-0.6 | -1           | V<br>V<br>V   |
| $V_{BE(on)}^{*}$  | Base-Emitter On Voltage                           | $I_C = -1 A$ $V_{CE} = -1 V$                                                                          |      | -1                    | -1.7         | V             |
| $h_{FE}^{*}$      | DC Current Gain                                   | $I_C = -100 \mu A$ $V_{CE} = -1 V$<br>$I_C = -100 mA$ $V_{CE} = -1 V$<br>$I_C = -1 A$ $V_{CE} = -1 V$ | 100  | 120<br>160<br>30      | 250          |               |
| $f_T$             | Transition Frequency                              | $I_C = -50 mA$ $V_{CE} = -10 V$                                                                       | 50   |                       |              | MHz           |
| $C_{CBO}$         | Collector-Base Capacitance                        | $I_E = 0$ $V_{CB} = -20 V$ $f = 1 MHz$                                                                |      | 15                    | 30           | pF            |
| $C_{EBO}$         | Emitter-Base Capacitance                          | $I_C = 0$ $V_{CB} = -0.5 V$ $f = 1 MHz$                                                               |      |                       | 180          | pF            |
| $t_{on}$          | Turn-on Time                                      | $I_C = -100 mA$ $I_{B1} = -5 mA$                                                                      |      |                       | 500          | ns            |
| $t_{off}$         | Turn-off Time                                     | $I_C = -100 mA$ $I_{B1} = I_{B2} = -5 mA$                                                             |      |                       | 650          | ns            |

\* Pulsed: Pulse duration = 300  $\mu s$ , duty cycle  $\leq 1\%$

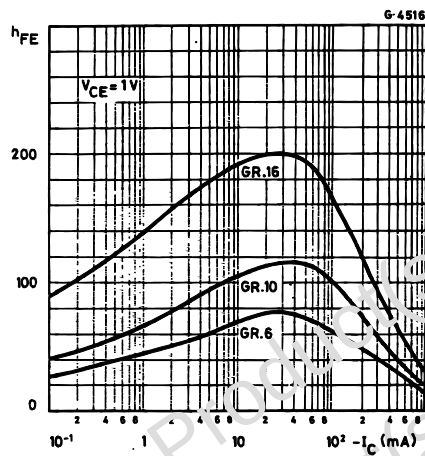
Collector-emitter Saturation Voltage.



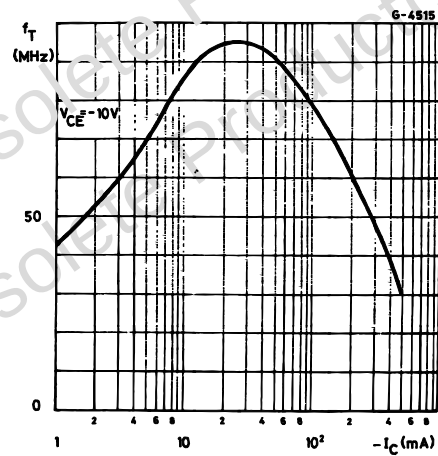
Base-emitter Voltage.



DC Current Gain.

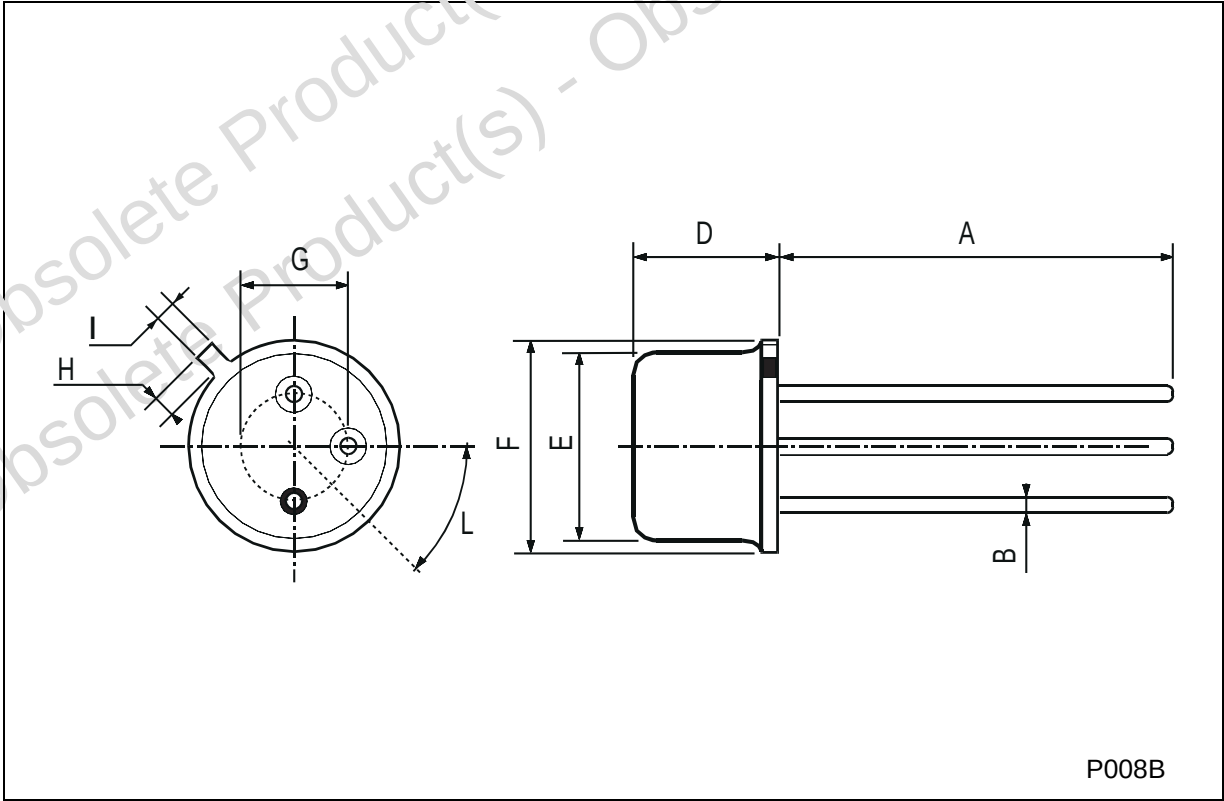


Transition Frequency.



TO-39 MECHANICAL DATA

| DIM. | mm         |      |      | inch  |      |       |
|------|------------|------|------|-------|------|-------|
|      | MIN.       | TYP. | MAX. | MIN.  | TYP. | MAX.  |
| A    | 12.7       |      |      | 0.500 |      |       |
| B    |            |      | 0.49 |       |      | 0.019 |
| D    |            |      | 6.6  |       |      | 0.260 |
| E    |            |      | 8.5  |       |      | 0.334 |
| F    |            |      | 9.4  |       |      | 0.370 |
| G    | 5.08       |      |      | 0.200 |      |       |
| H    |            |      | 1.2  |       |      | 0.047 |
| I    |            |      | 0.9  |       |      | 0.035 |
| L    | 45° (typ.) |      |      |       |      |       |



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