

## BD130

### NPN SILICON TRANSISTOR POWER LINERAR AND SWITCHING APPLICATIONS

The BD130 is a silicon epitaxial-base NPN transistor in JEDEC TO-3 metal case. It is intended for power switching circuits, series and shunt regulators, output stages and high fidelity amplifiers.

#### ABSOLUTE MAXIMUM RATINGS

| Symbol           | Ratings                   |                         | Value       | Unit  |
|------------------|---------------------------|-------------------------|-------------|-------|
| V <sub>CEO</sub> | Collector-Emitter Voltage |                         | 60          | V     |
| V <sub>CBO</sub> | Collector-Base Voltage    |                         | 100         | V     |
| V <sub>CEX</sub> | Collector-Emitter Voltage | V <sub>BE</sub> =-1.5 V | 100         | V     |
| I <sub>C</sub>   | Collector Current         |                         | 15          | A     |
| I <sub>B</sub>   | Base Current              |                         | 7           | A     |
| P <sub>T</sub>   | Power Dissipation         | @ T <sub>C</sub> = 45°  | 100         | Watts |
| T <sub>J</sub>   | Junction Temperature      |                         | -55 to +200 | °C    |
| T <sub>S</sub>   | Storage Temperature       |                         |             |       |

# BD130

## THERMAL CHARACTERISTICS

| Symbol      | Ratings                              | Value | Unit |
|-------------|--------------------------------------|-------|------|
| $R_{thJ-C}$ | Thermal Resistance, Junction to Case | 1.55  | °C/W |

## ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

| Symbol        | Ratings                                  | Test Condition(s)                                                               | Min | Typ  | Mx  | Unit |
|---------------|------------------------------------------|---------------------------------------------------------------------------------|-----|------|-----|------|
| $V_{CEO(BR)}$ | Collector-Emitter Breakdown Voltage (*)  | $I_C=200\text{ mA}$ , $I_B=0$                                                   | 60  |      |     | V    |
| $V_{CE(SAT)}$ | Collector-Emitter Saturation Voltage (*) | $I_C=4\text{ A}$ , $I_B=0.4\text{ A}$                                           | -   | 0.5  | 1.1 | V    |
| $I_{CEX}$     | Collector-Emitter Cutoff Current         | $V_{CE}=100\text{ V}$<br>$V_{BE}=-1.5\text{ V}$                                 | -   | -    | 0.5 | mA   |
|               |                                          | $V_{CE}=100\text{ V}$<br>$V_{BE}=-1.5\text{ V}$<br>$T_{CASE}=150^\circ\text{C}$ | -   | -    | 30  |      |
| $I_{EBO}$     | Emitter-Base Cutoff Current              | $V_{EB}=7\text{ V}$                                                             | -   | -    | 5.0 | mA   |
| $V_{BE}$      | Base-Emitter Voltage (*)                 | $I_C=4.0\text{ A}$ , $V_{CE}=4.0\text{ V}$                                      | -   | 0.95 | 1.8 | V    |
| $f_T$         | Transition Frequency                     | $I_C=0.1\text{ A}$ , $V_{CE}=4\text{ V}$                                        |     | 1.1  |     | MHz  |

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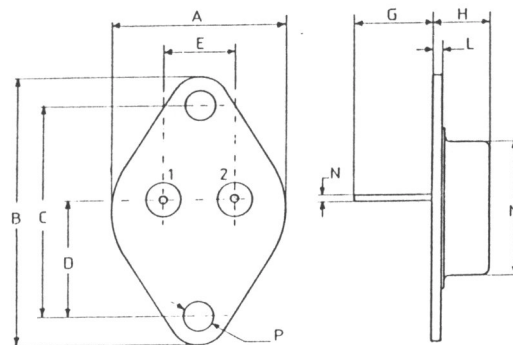
| Symbol    | Ratings                                   | Test Condition(s)                          | Min | Typ | Mx | Unit |
|-----------|-------------------------------------------|--------------------------------------------|-----|-----|----|------|
| $h_{21E}$ | Static Forward Current Transfer Ratio (*) | $V_{CE}=4.0\text{ V}$ , $I_C=4.0\text{ A}$ | 20  | -   | 70 | -    |

(\*) Pulse Width  $\approx 300\text{ }\mu\text{s}$ , Duty Cycle  $\angle 2.0\%$

(1) collector-Emitter voltage limited et  $V_{CEci} = V_{\text{rated}}$  by an auxiliary circuit

### MECHANICAL DATA CASE TO-3

| DIMENSIONS |       |        |
|------------|-------|--------|
|            | mm    | inches |
| A          | 25,51 | 1,004  |
| B          | 38,93 | 1,53   |
| C          | 30,12 | 1,18   |
| D          | 17,25 | 0,68   |
| E          | 10,89 | 0,43   |
| G          | 11,62 | 0,46   |
| H          | 8,54  | 0,34   |
| L          | 1,55  | 0,6    |
| M          | 19,47 | 0,77   |
| N          | 1     | 0,04   |
| P          | 4,06  | 0,16   |



|         |           |
|---------|-----------|
| Pin 1 : | Base      |
| Pin 2 : | Collector |
| Case :  | Emitter   |