

COMSET  
SEMICONDUCTORS

**BDX20**

## PNP SILICON TRANSISTORS EPITAXIAL BASE

LF Large Signal Power Amplification  
High Current Fast Switching  
Thermal Fatigue Inspection

### ABSOLUTE MAXIMUM RATINGS

| Symbol    | Ratings                                  | Value       | Unit  |
|-----------|------------------------------------------|-------------|-------|
| $V_{CBO}$ | Collector to Base Voltage                | -60         | V     |
| $V_{CEO}$ | #Collector-Emitter Voltage               | -140        | V     |
| $V_{CEX}$ | Collector-Emitter Voltage $V_{BE}=1.5$ V | -160        | V     |
| $V_{EBO}$ | Emitter-Base Voltage                     | -7          | V     |
| $I_C$     | Collector Current – Continuous           | -10         | A     |
| $I_B$     | Base Current – Continuous                | -7          | A     |
| $P_{TOT}$ | Total Device Dissipation                 | 117         | Watts |
| $T_J$     | Junction Temperature                     | 200         | °C    |
| $T_S$     | Storage Temperature                      | -65 to +200 | °C    |

### THERMAL CHARACTERISTICS

| Symbol     | Ratings                              | Value | Unit |
|------------|--------------------------------------|-------|------|
| $R_{thJC}$ | Thermal Resistance, Junction to Case | 1.5   | °C/W |

# BDX20

## ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

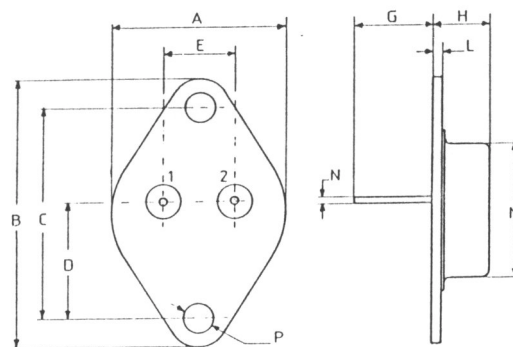
| Symbol         | Ratings                                   | Test Condition(s)                                                             | Min  | Typ  | Mx   | Unit |
|----------------|-------------------------------------------|-------------------------------------------------------------------------------|------|------|------|------|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage (*)  | $I_C=-200\text{ mA}$ , $I_B=0$                                                | -140 | -    | -    | V    |
| $V_{CEX}$      | Collector-Emitter Breakdown Voltage (*)   | $I_C=-100\text{ mA}$ , $V_{BE}=1.5\text{ V}$                                  | -160 | -    | -    | V    |
| $I_{CEX}$      | Collector Cutoff Current                  | $V_{CE}=-140\text{ V}$ , $V_{BE}=1.5\text{ V}$                                | -    | -    | -1.0 | mA   |
|                |                                           | $V_{CE}=-140\text{ V}$ , $V_{BE}=1.5\text{ V}$ , $T_{CASE}=150^\circ\text{C}$ | -    | -    | -10  |      |
| $I_{CBO}$      | Collector-Base Cutoff Current             | $V_{CB}=-140\text{ V}$ , $I_E=0$                                              | -    | -    | -1.0 | mA   |
| $I_{EBO}$      | Emitter-Base Cutoff Current               | $V_{BE}=-7.0\text{ V}$ , $I_C=0$                                              | -    | -    | -5.0 | mA   |
| $h_{21E}$      | Static Forward Current Transfer Ratio (*) | $I_C=-3.0\text{ A}$ , $V_{CE}=-4.0\text{ V}$                                  | 20   | -    | 70   | -    |
|                |                                           | $I_C=10\text{ A}$ , $V_{CE}=-4.0\text{ V}$                                    | -    | 10   | -    |      |
| $V_{CE(SAT)}$  | Collector-Emitter Saturation Voltage (*)  | $I_C=-3.0\text{ A}$ , $I_B=-0.3\text{ A}$                                     | -    | -    | -1.0 | V    |
|                |                                           | $I_C=-10\text{ A}$ , $I_B=-2\text{ A}$                                        | -    | -    | -5.0 |      |
| $V_{BE}$       | Base-Emitter Voltage (*)                  | $I_C=-3.0\text{ A}$ , $V_{CE}=-4.0\text{ V}$                                  | -    | -1.7 | -    | V    |
|                |                                           | $I_C=-10\text{ A}$ , $V_{CE}=-4.0\text{ V}$                                   | -    | -5.7 | -    |      |
| $f_T$          | Transition Frequency                      | $V_{CE}=-10\text{ V}$ , $I_C=-1.0\text{ A}$ , $f=1.0\text{ MHz}$              | 4    | -    | -    | MHz  |

In accordance with JEDEC Registration Data

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

## 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   |