

## BDX 66, A, B, C

### PNP SILICON DARLINGTONS

High current power darlingtons designed for power amplification and switching applications.

#### ABSOLUTE MAXIMUM RATINGS

| Symbol    | Ratings                   |                                                           | Value       | Unit          |
|-----------|---------------------------|-----------------------------------------------------------|-------------|---------------|
| $V_{CEO}$ | Collector-Emitter Voltage | BDX66                                                     | -60         | V             |
|           |                           | BDX66A                                                    | -80         |               |
|           |                           | BDX66B                                                    | -100        |               |
|           |                           | BDX66C                                                    | -120        |               |
| $V_{CBO}$ | Collector-Base Voltage    | BDX66                                                     | -60         | V             |
|           |                           | BDX66A                                                    | -80         |               |
|           |                           | BDX66B                                                    | -100        |               |
|           |                           | BDX66C                                                    | -120        |               |
| $V_{EBO}$ | Emitter-Base Voltage      | BDX66<br>BDX66A<br>BDX66B<br>BDX66C                       | -5.0        | V             |
| $I_C$     | Collector Current         | $I_{C(RMS)}$<br>BDX66<br>BDX66A<br>BDX66B<br>BDX66C       | -16         | A             |
|           |                           | $I_{CM}$<br>BDX66<br>BDX66A<br>BDX66B<br>BDX66C           | -20         |               |
| $I_B$     | Base Current              | BDX66<br>BDX66A<br>BDX66B<br>BDX66C                       | -0.25       | A             |
| $P_T$     | Power Dissipation         | @ $T_C = 25^\circ$<br>BDX66<br>BDX66A<br>BDX66B<br>BDX66C | 150         | Watts<br>W/°C |
| $T_J$     | Junction Temperature      | BDX66<br>BDX66A<br>BDX66B<br>BDX66C                       | -55 to +200 | °C            |
| $T_S$     | Storage Temperature       |                                                           |             |               |

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## THERMAL CHARACTERISTICS

| Symbol      | Ratings                              |                                     | Value | Unit |
|-------------|--------------------------------------|-------------------------------------|-------|------|
| $R_{thJ-C}$ | Thermal Resistance, Junction to Case | BDX66<br>BDX66A<br>BDX66B<br>BDX66C | 1.17  | °C/W |

## ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

| Symbol         | Ratings                                 | Test Condition(s)      |        | Min  | Typ | Mx | Unit |
|----------------|-----------------------------------------|------------------------|--------|------|-----|----|------|
| $V_{CEO(SUS)}$ | Collector-Emitter Breakdown Voltage (*) | $I_C = -0.1$ A, L=25mH | BDX66  | -60  | -   | -  | V    |
|                |                                         |                        | BDX66A | -80  | -   | -  |      |
|                |                                         |                        | BDX66B | -100 | -   | -  |      |
|                |                                         |                        | BDX66C | -120 | -   | -  |      |
| $I_{CEO}$      | Collector Cutoff Current                | $V_{CE} = -30$ V       | BDX66  | -    | -   | -3 | mA   |
|                |                                         | $V_{CE} = -40$ V       | BDX66A | -    | -   |    |      |
|                |                                         | $V_{CE} = -50$ V       | BDX66B | -    | -   |    |      |
|                |                                         | $V_{CE} = -60$ V       | BDX66C | -    | -   |    |      |

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| Symbol        | Ratings                                  | Test Condition(s)                                                     |                                     | Min | Typ | Mx   | Unit          |
|---------------|------------------------------------------|-----------------------------------------------------------------------|-------------------------------------|-----|-----|------|---------------|
| $I_{EBO}$     | Emitter Cutoff Current                   | $V_{BE} = -5 \text{ V}$                                               | BDX66<br>BDX66A<br>BDX66B<br>BDX66C | -   | -   | -5.0 | mA            |
| $I_{CBO}$     | Collector-Base Cutoff Current            | $T_{CASE} = 25^{\circ}\text{C}, V_{CB} = -40 \text{ V}$               | BDX66                               | -   | -   | -1   | mA            |
|               |                                          | $T_{CASE} = 150^{\circ}\text{C}$                                      |                                     | -   | -   | -5   |               |
|               |                                          | $T_{CASE} = 25^{\circ}\text{C}, V_{CB} = -50 \text{ V}$               | BDX66A                              | -   | -   | -1   |               |
|               |                                          | $T_{CASE} = 150^{\circ}\text{C}$                                      |                                     | -   | -   | -5   |               |
|               |                                          | $T_{CASE} = 25^{\circ}\text{C}, V_{CB} = -60 \text{ V}$               | BDX66B                              | -   | -   | -1   |               |
|               |                                          | $T_{CASE} = 150^{\circ}\text{C}$                                      |                                     | -   | -   | -5   |               |
|               |                                          | $T_{CASE} = 25^{\circ}\text{C}, V_{CB} = -70 \text{ V}$               | BDX66C                              | -   | -   | -1   |               |
|               |                                          | $T_{CASE} = 150^{\circ}\text{C}$                                      |                                     | -   | -   | -5   |               |
| $V_{CE(SAT)}$ | Collector-Emitter saturation Voltage (*) | $I_C = -10 \text{ A}, I_B = -40 \text{ mA}$                           | BDX66<br>BDX66A<br>BDX66B<br>BDX66C | -   | -   | -2   | V             |
| $C_{22b}$     |                                          | $I_E = 0 \text{ A}, V_{CB} = -10 \text{ V}, f = 1 \text{ MHz}$        | BDX66<br>BDX66A<br>BDX66B<br>BDX66C | -   | 300 | -    | pF            |
| $t_{on}$      | Switching characteristics                | $V_{CC} = 12 \text{ V}, I_C = -10 \text{ A}, I_{B1} = -I_{B2} = 0.04$ | BDX66<br>BDX66A<br>BDX66B<br>BDX66C | -   | 1   | -    | $\mu\text{s}$ |
| $t_{off}$     |                                          |                                                                       |                                     | -   | 3.5 | -    |               |

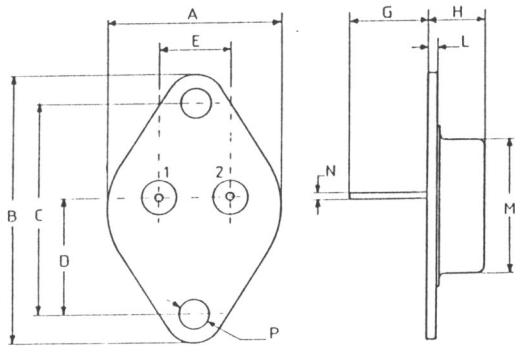
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| Symbol         | Ratings | Test Condition(s)                                    | Min | Typ | Mx | Unit |
|----------------|---------|------------------------------------------------------|-----|-----|----|------|
| f <sub>c</sub> |         | V <sub>CE</sub> =-3 V, I <sub>C</sub> =-5 A, f=1 MHz |     | 60  | -  | kHz  |

(\*) Pulse Width ≈ 300 μs, Duty Cycle < 2.0%  
(1) collector-Emitter voltage limited et V<sub>CEci</sub> = V<sub>rated</sub> 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   |