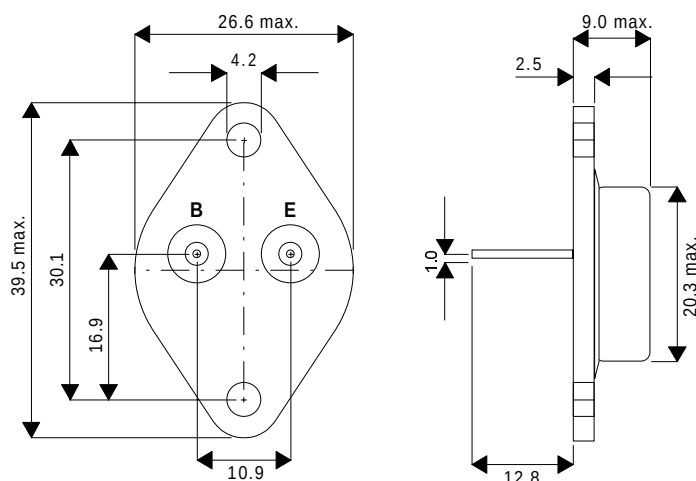


## MECHANICAL DATA

Dimensions in mm



## NPN EPITAXIAL BASE DARLINGTON POWER TRANSISTOR

NPN epitaxial base transistors in monolithic Darlington circuit for audio output stages and general amplifier and switching applications.

PNP complements are:  
 BDX66, BDX66A, BDX66B, BDX66C.

### TO3 Package.

Case connected to collector.

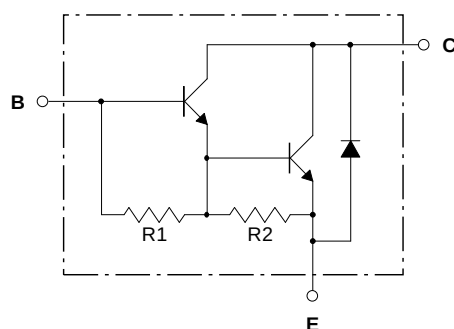
## ABSOLUTE MAXIMUM RATINGS ( $T_{case}=25^{\circ}C$ unless otherwise stated)

|               |                                                 | BDX 67      | BDX 67A | BDX 67B | BDX 67C |             |
|---------------|-------------------------------------------------|-------------|---------|---------|---------|-------------|
| $V_{CEO}$     | Collector - emitter voltage (open base)         | 60          | 80      | 100     | 120     | V           |
| $V_{CBO}$     | Collector - base voltage (open emitter)         | 80          | 100     | 120     | 140     | V           |
| $V_{EBO}$     | Emitter - base voltage (open collector)         | 5           | 5       | 5       | 5       | V           |
| $I_C$         | Collector current                               | 16          |         |         |         | A           |
| $I_{CM}$      | Collector current (peak)                        | 20          |         |         |         | A           |
| $I_B$         | Base current                                    | 250         |         |         |         | mA          |
| $P_{tot}$     | Total power dissipation at $T_{mb}=25^{\circ}C$ | 150         |         |         |         | W           |
| $T_j$         | Maximum junction temperature                    | 200         |         |         |         | $^{\circ}C$ |
| $T_{stj}$     | Storage junction temperature                    | -65 to +200 |         |         |         | $^{\circ}C$ |
| $R_{th j-mb}$ | Thermal resistance, junction to mounting base.  | 1.17        |         |         |         | K/ W        |

## ELECTRICAL CHARACTERISTICS ( $T_j = 25^\circ\text{C}$ , unless otherwise stated)

| Parameter                                                                  | Test Conditions                                                                                               | Min. | Typ. | Max.   | Unit. |
|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------|------|--------|-------|
| $I_{CBO}$ Collector cut-off current                                        | $I_E = 0$ , $V_{CB} = V_{CEOmax}$<br>$I_E = 0$ , $V_{CB} = \frac{1}{2}V_{CBOmax}$ , $T_j = 200^\circ\text{C}$ |      |      | 1<br>5 | mA    |
| $I_{CEO}$ Collector cut-off current                                        | $I_B = 0$ , $V_{CE} = \frac{1}{2}V_{CEOmax}$                                                                  |      |      | 1      | mA    |
| $I_{EBO}$ Emitter cut-off current                                          | $I_C = 0$ , $V_{EB} = 5V$                                                                                     |      |      | 5      | mA    |
| $h_{FE}$ D.C. current gain (note 1)                                        | $I_C = 1A$ , $V_{CE} = 3V$                                                                                    |      | 5200 |        |       |
|                                                                            | $I_C = 10A$ , $V_{CE} = 3V$                                                                                   | 1000 |      |        |       |
|                                                                            | $I_C = 16A$ , $V_{CE} = 3V$                                                                                   |      | 4000 |        |       |
| $V_{BE}$ Base - emitter voltage (note 1)                                   | $I_C = 10A$ , $V_{CE} = 3V$                                                                                   |      |      | 2.5    | V     |
| <b><math>V_{CEsat}</math> Collector - emitter saturation voltage</b>       | <b><math>I_C = 10A</math>, <math>I_B = 40mA</math></b>                                                        |      |      | 2      | V     |
| $C_c$ Collector capacitance                                                | $I_E = I_e = 0$ , $V_{CB} = 10V$ $f = 1MHz$                                                                   |      | 300  |        | pF    |
| $f_{hfe}$ Cut-off frequency                                                | $I_C = 5A$ , $V_{CE} = 3V$                                                                                    |      | 50   |        | kHz   |
| <b><math>E_{(BR)}</math> Turn-off breakdown energy with inductive load</b> | $-I_{Boff} = 0$ , $I_{CC} = 7.8 A$<br>$t_p = 1ms$ , $\delta < 1\%$                                            | 150  |      |        | mJ    |
| $h_{fe}$ Small signal current gain                                         | $I_C = 5A$ , $V_{CE} = 3V$ , $f = 1MHz$                                                                       |      | 20   |        | V     |
| $V_F$ Diode, forward voltage                                               | $I_F = 10A$                                                                                                   |      | 2.5  |        |       |

**Note 1:** Measured under pulse conditions ,  $t_p < 300\mu s$ ,  $\delta < 2\%$



**R1 typ. 3K $\Omega$**   
**R2 typ. 80 $\Omega$**

Circuit Diagram