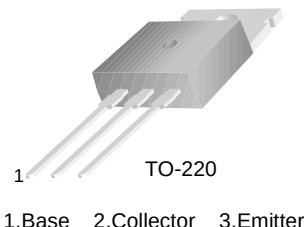


## BDX54/A/B/C

### Hammer Drivers, Audio Amplifiers Applications Power Liner and Switching Applications

- Power Darlington TR
- Complement to BDX53, BDX53A, BDX53B and BDX53C respectively



### PNP Epitaxial Silicon Transistor

#### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter                                        | Value      | Units            |
|-----------|--------------------------------------------------|------------|------------------|
| $V_{CBO}$ | Collector-Base Voltage : BDX54                   | - 45       | V                |
|           | : BDX54A                                         | - 60       | V                |
|           | : BDX54B                                         | - 80       | V                |
|           | : BDX54C                                         | - 100      | V                |
| $V_{CEO}$ | Collector-Emitter Voltage : BDX54                | - 45       | V                |
|           | : BDX54A                                         | - 60       | V                |
|           | : BDX54B                                         | - 80       | V                |
|           | : BDX54C                                         | - 100      | V                |
| $V_{EBO}$ | Emitter-Base Voltage                             | - 5        | V                |
| $I_C$     | Collector Current (DC)                           | - 8        | A                |
| $I_{CP}$  | *Collector Current (Pulse)                       | - 12       | A                |
| $I_B$     | Base Current                                     | - 0.2      | A                |
| $P_C$     | Collector Dissipation ( $T_C=25^\circ\text{C}$ ) | 60         | W                |
| $T_J$     | Junction Temperature                             | 150        | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature                              | - 65 ~ 150 | $^\circ\text{C}$ |

#### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter                                      | Test Condition                            | Min.  | Typ.  | Max.  | Units         |
|----------------|------------------------------------------------|-------------------------------------------|-------|-------|-------|---------------|
| $V_{CEO(SUS)}$ | * Collector-Emitter Sustaining Voltage : BDX54 | $I_C = - 100\text{mA}, I_B = 0$           | - 45  |       |       | V             |
|                | : BDX54A                                       |                                           | - 60  |       |       | V             |
|                | : BDX54B                                       |                                           | - 80  |       |       | V             |
|                | : BDX54C                                       |                                           | - 100 |       |       | V             |
| $I_{CBO}$      | Collector Cut-off Current : BDX54              | $V_{CB} = - 45\text{V}, I_E = 0$          |       |       | - 200 | $\mu\text{A}$ |
|                | : BDX54A                                       | $V_{CB} = - 60\text{V}, I_E = 0$          |       |       | - 200 | $\mu\text{A}$ |
|                | : BDX54B                                       | $V_{CB} = - 80\text{V}, I_E = 0$          |       |       | - 200 | $\mu\text{A}$ |
|                | : BDX54C                                       | $V_{CB} = - 100\text{V}, I_E = 0$         |       |       | - 200 | $\mu\text{A}$ |
| $I_{CEO}$      | Collector Cut-off Current : BDX54              | $V_{CE} = - 22\text{V}, I_B = 0$          |       |       | - 500 | $\mu\text{A}$ |
|                | : BDX54A                                       | $V_{CE} = - 30\text{V}, I_B = 0$          |       |       | - 500 | $\mu\text{A}$ |
|                | : BDX54B                                       | $V_{CE} = - 40\text{V}, I_B = 0$          |       |       | - 500 | $\mu\text{A}$ |
|                | : BDX54C                                       | $V_{CE} = - 50\text{V}, I_B = 0$          |       |       | - 500 | $\mu\text{A}$ |
| $I_{EBO}$      | Emitter Cut-off Current                        | $V_{EB} = - 5\text{V}, I_C = 0$           |       |       | - 2   | mA            |
| $h_{FE}$       | * DC Current Gain                              | $V_{CE} = - 3\text{V}, I_C = - 3\text{A}$ | 750   |       |       |               |
| $V_{CE(sat)}$  | * Collector-Emitter Saturation Voltage         | $I_C = - 3\text{A}, I_B = - 12\text{mA}$  |       |       | - 2   | V             |
| $V_{BE(sat)}$  | * Base-Emitter Saturation Voltage              | $I_C = - 3\text{A}, I_B = - 12\text{mA}$  |       |       | - 2.5 | V             |
| $V_F$          | * Parallel Diode Forward Voltage               | $I_F = - 3\text{A}$                       |       | - 1.8 | - 2.5 | V             |
|                |                                                | $I_F = - 8\text{A}$                       |       | - 2.5 |       | V             |

\* Pulse Test: PW=300 $\mu\text{s}$ , duty Cycle =1.5% Pulsed

## Typical Characteristics

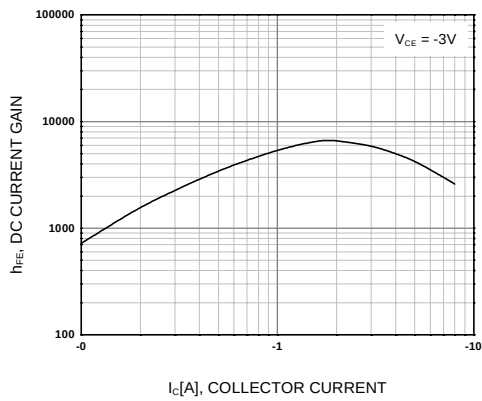


Figure 1. DC current Gain

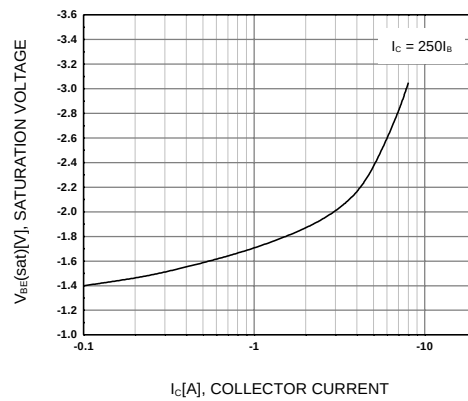


Figure 2. Base-Emitter Saturation Voltage

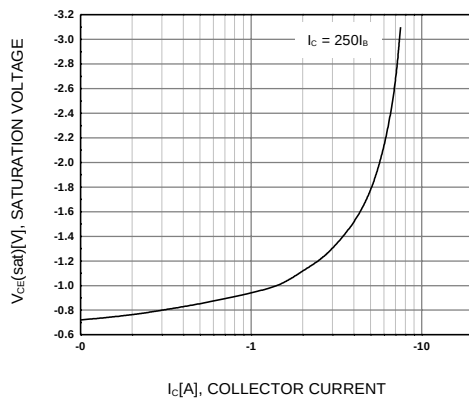


Figure 3. Collector-Emitter Saturation Voltage

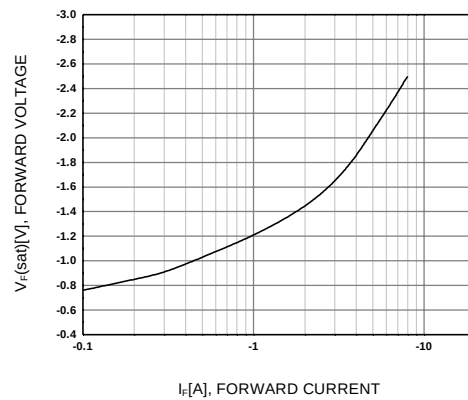


Figure 4. Damper Diode Forward Voltage

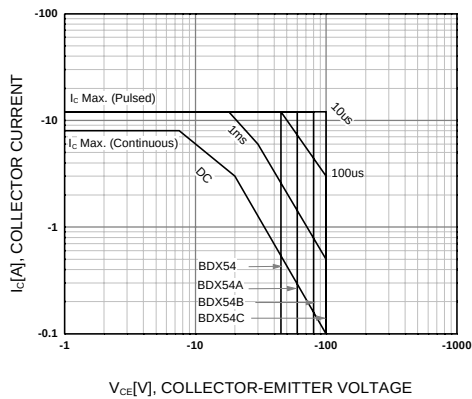


Figure 5. Safe Operating Area

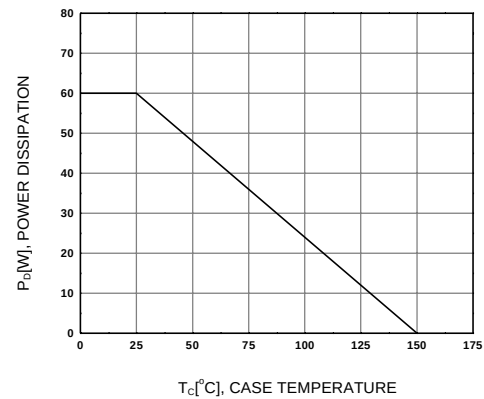
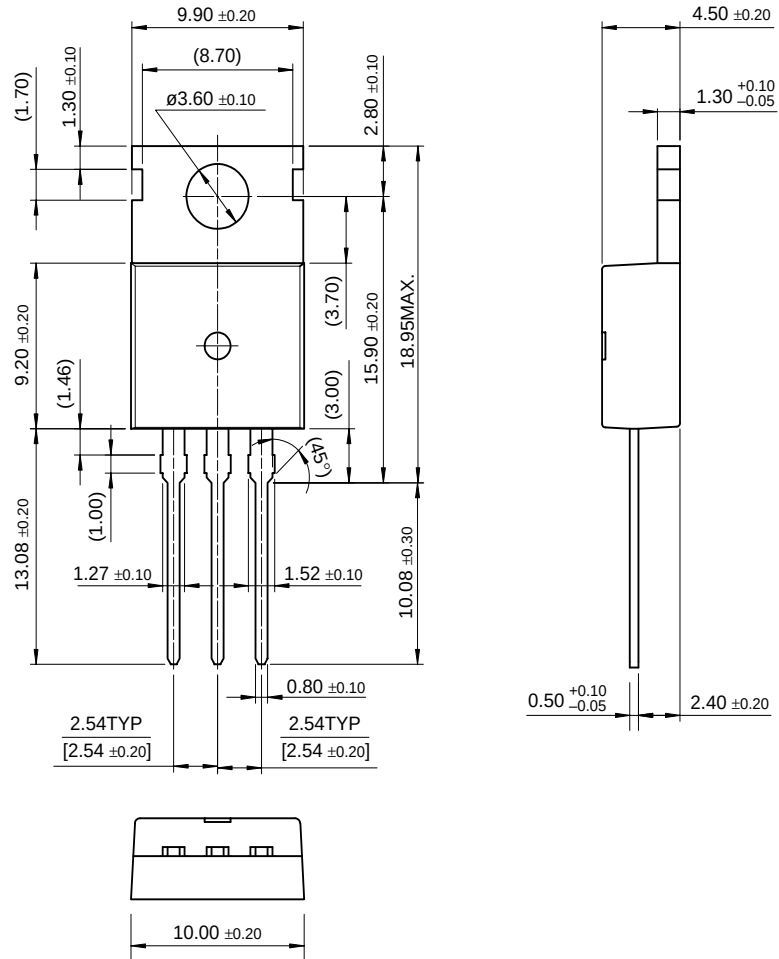


Figure 6. Power Derating

# Package Dimensions

## TO-220



Dimensions in Millimeters

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