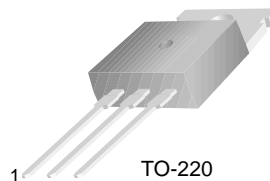


BDX53/A/B/C

Hammer Drivers, Audio Amplifiers Applications Power Liner and Switching Applications

- Power Darlington TR
- Complement to BDX54, BDX54A, BDX54B and BDX54C respectively



TO-220
1.Base 2.Collector 3.Emitter

NPN Epitaxial Silicon Transistor

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

| Symbol | Parameter | Value | Units |
|-----------|--|------------|------------------|
| V_{CBO} | Collector-Base Voltage : BDX53 | 45 | V |
| | : BDX53A | 60 | V |
| | : BDX53B | 80 | V |
| | : BDX53C | 100 | V |
| V_{CEO} | Collector-Emitter Voltage : BDX53 | 45 | V |
| | : BDX53A | 60 | V |
| | : BDX53B | 80 | V |
| | : BDX53C | 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 | $I_C = 100\text{mA}, I_B = 0$ | 45 | | | V |
| | : BDX53A | | 60 | | | V |
| | : BDX53B | | 80 | | | V |
| | : BDX53C | | 100 | | | V |
| I_{CBO} | Collector Cut-off Current : BDX53 | $V_{CB} = 45\text{V}, I_E = 0$ | | | 200 | μA |
| | : BDX53A | $V_{CB} = 60\text{V}, I_E = 0$ | | | 200 | μA |
| | : BDX53B | $V_{CB} = 80\text{V}, I_E = 0$ | | | 200 | μA |
| | : BDX53C | $V_{CB} = 100\text{V}, I_E = 0$ | | | 200 | μA |
| I_{CEO} | Collector Cut-off Current : BDX53 | $V_{CE} = 22\text{V}, I_B = 0$ | | | 500 | μA |
| | : BDX53A | $V_{CE} = 30\text{V}, I_B = 0$ | | | 500 | μA |
| | : BDX53B | $V_{CE} = 40\text{V}, I_B = 0$ | | | 500 | μA |
| | : BDX53C | $V_{CE} = 50\text{V}, I_B = 0$ | | | 500 | μA |
| 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 μs , duty Cycle =1.5% Pulsed

Typical Characteristics

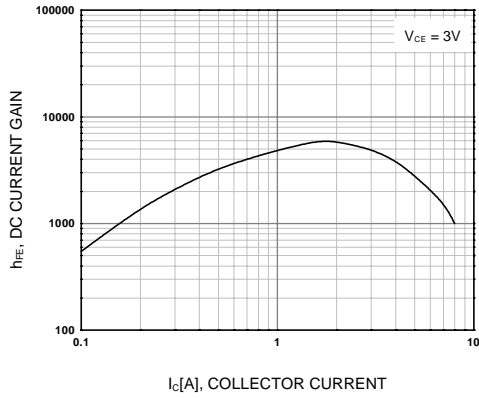


Figure 1. DC current Gain

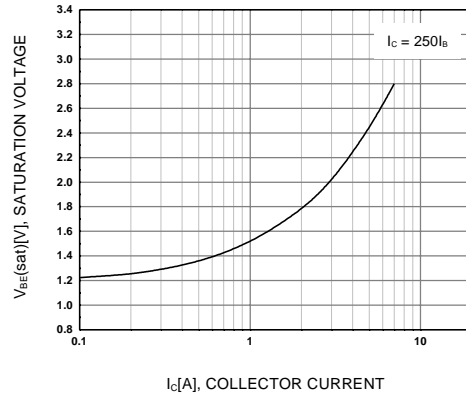


Figure 2. Base-Emitter Saturation Voltage

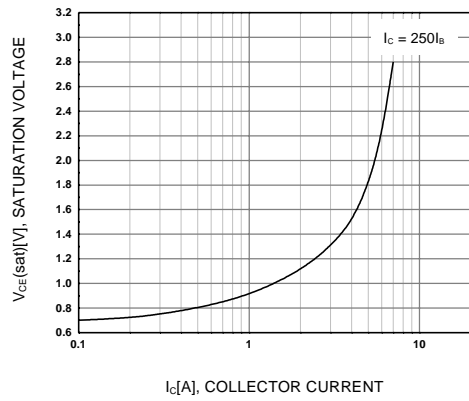


Figure 3. Collector-Emitter Saturation Voltage

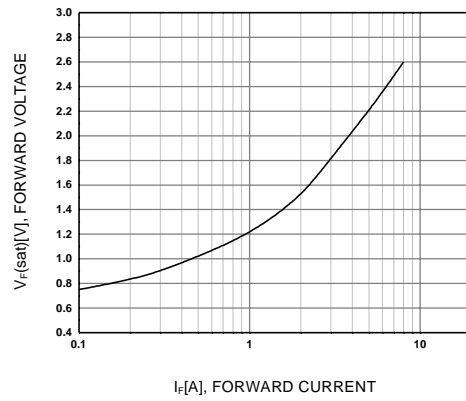


Figure 4. Damper Diode Forward Voltage

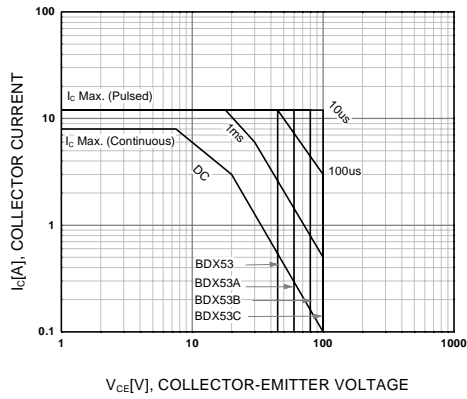


Figure 5. Safe Operating Area

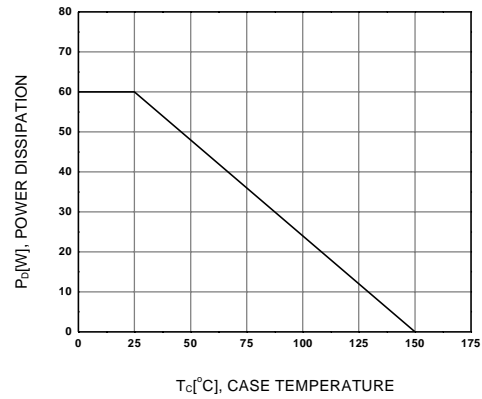
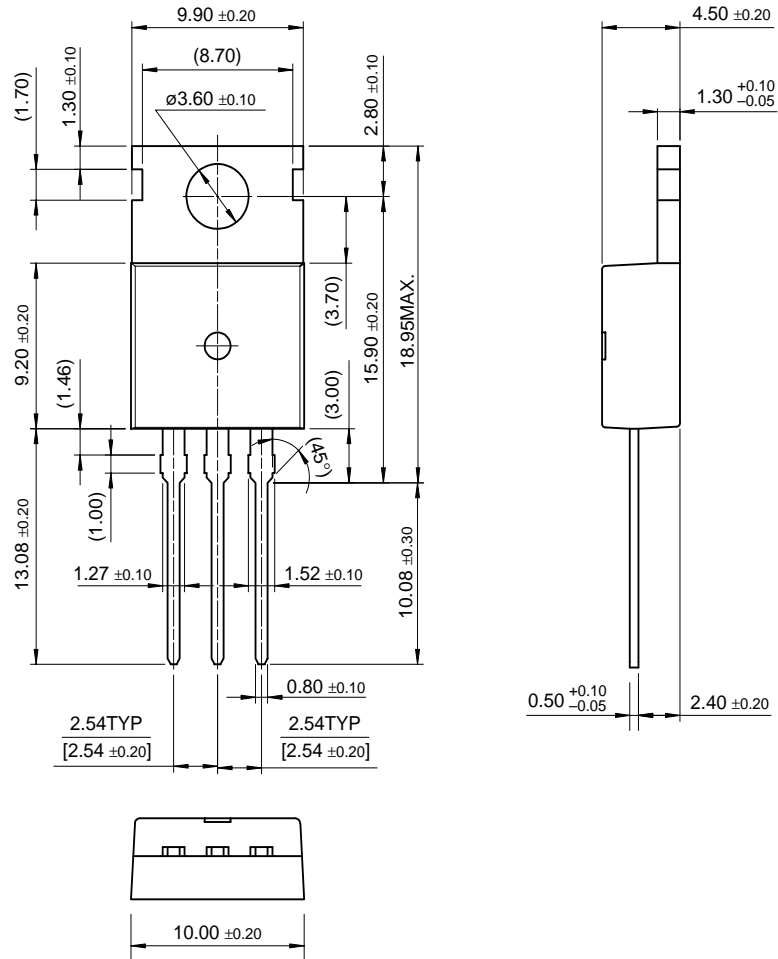


Figure 6. Power Derating

Package Dimensions

BDX53/A/B/C

TO-220



Dimensions in Millimeters

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