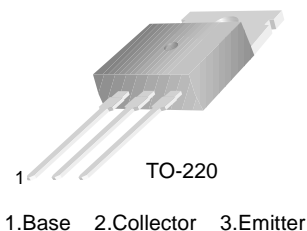


BDW93/A/B/C

Hammer Drivers, Audio Amplifiers Applications

- Power Darlington TR
- Complement to BDW94, BDW94A, BDW94B and BDW94C respectively



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 | | |
| | : BDW93 | 45 | V |
| | : BDW93A | 60 | V |
| | : BDW93B | 80 | V |
| | : BDW93C | 100 | V |
| V_{CEO} | Collector-Emitter Voltage | | |
| | : BDW93 | 45 | V |
| | : BDW93A | 60 | V |
| | : BDW93B | 80 | V |
| | : BDW93C | 100 | V |
| I_C | Collector Current (DC) | 12 | A |
| I_{CP} | *Collector Current (Pulse) | 15 | A |
| I_B | Base Current | 0.2 | A |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 80 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | - 65 ~ 150 | $^\circ\text{C}$ |

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

| Symbol | Parameter | | Value | Units |
|-----------------|--------------------|------------------|-------|--------------------|
| $R_{\theta jc}$ | Thermal Resistance | Junction to Case | 1.5 | $^\circ\text{C/W}$ |

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

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|-----------------|---|---|-----------------------|------------|--------------------------|--|
| $BV_{CEO(sus)}$ | * Collector-Emitter Sustaining Voltage : BDW93 : BDW93A : BDW93B : BDW93C | $I_C = 100\text{mA}, I_B = 0$ | 45 60 80 100 | | | V V V V |
| I_{CBO} | Collector Cut-off Current : BDW93 : BDW93A : BDW93B : BDW93C | $V_{CB} = 45\text{V}, I_E = 0$ $V_{CB} = 60\text{V}, I_E = 0$ $V_{CB} = 80\text{V}, I_E = 0$ $V_{CB} = 100\text{V}, I_E = 0$ | | | 100 100 100 100 | μA μA μA μA |
| I_{CEO} | Collector Cut-off Current : BDW93 : BDW93A : BDW93B : BDW93C | $V_{CE} = 45\text{V}, I_B = 0$ $V_{CE} = 60\text{V}, I_B = 0$ $V_{CE} = 80\text{V}, I_B = 0$ $V_{CE} = 100\text{V}, I_B = 0$ | | | 1 1 1 1 | mA mA mA mA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 5\text{V}, I_C = 0$ | | | 2 | mA |
| h_{FE} | * DC Current Gain | $V_{CE} = 3\text{V}, I_C = 3\text{A}$ $V_{CE} = 3\text{V}, I_C = 5\text{A}$ $V_{CE} = 3\text{V}, I_C = 10\text{A}$ | 1000 750 100 | | 20000 | |
| $V_{CE(sat)}$ | * Collector-Emitter Saturation Voltage | $I_C = 5\text{A}, I_B = 20\text{mA}$ $I_C = 10\text{A}, I_B = 100\text{mA}$ | | | 2 3 | V V |
| $V_{BE(sat)}$ | * Base-Emitter Saturation Voltage | $I_C = 5\text{A}, I_B = 20\text{mA}$ $I_C = 10\text{A}, I_B = 100\text{mA}$ | | | 2.5 4 | V V |
| V_F | * Parallel Diode Forward Voltage | $I_F = 5\text{A}$ $I_F = 10\text{A}$ | | 1.3 1.8 | 2 4 | V V |

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

Typical characteristics

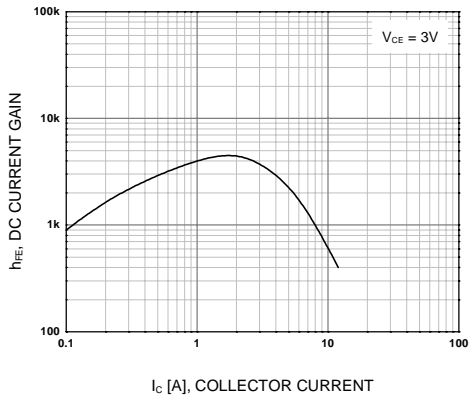


Figure 1. DC Current Gain

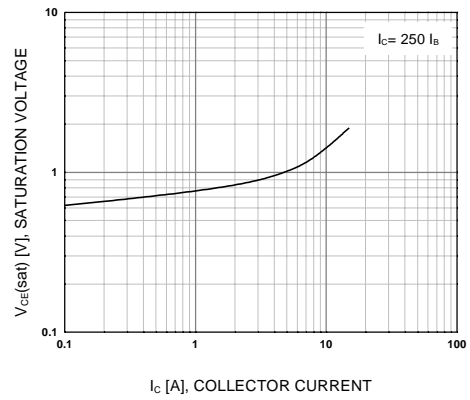


Figure 2. Collector-Emitter Saturation Voltage

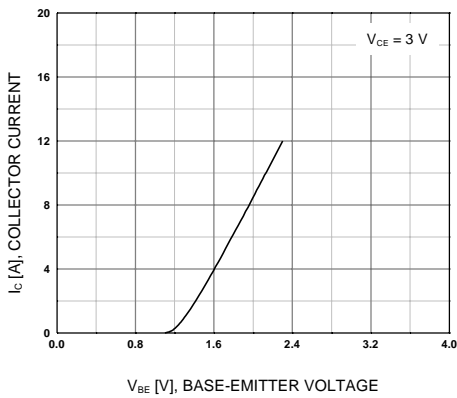


Figure 3. Base-Emitter On Voltage

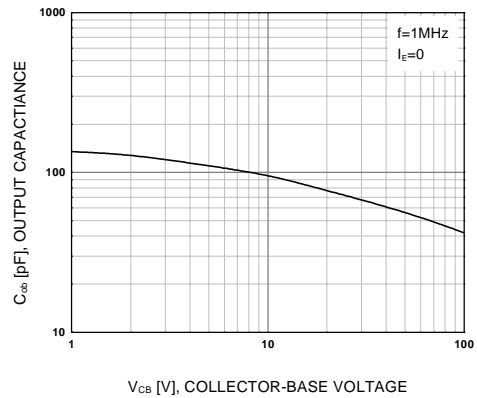


Figure 4. Collector Output Capacitance

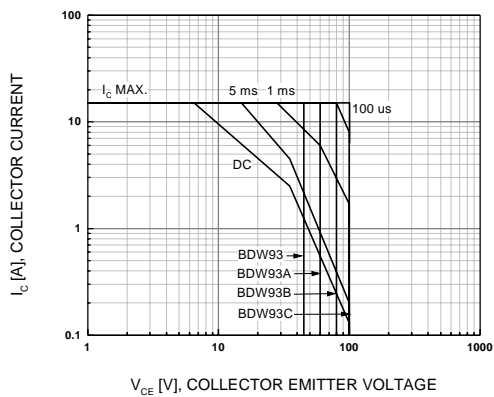


Figure 5. Safe Operating Area

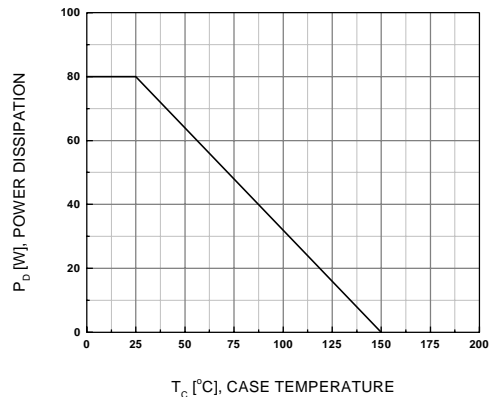
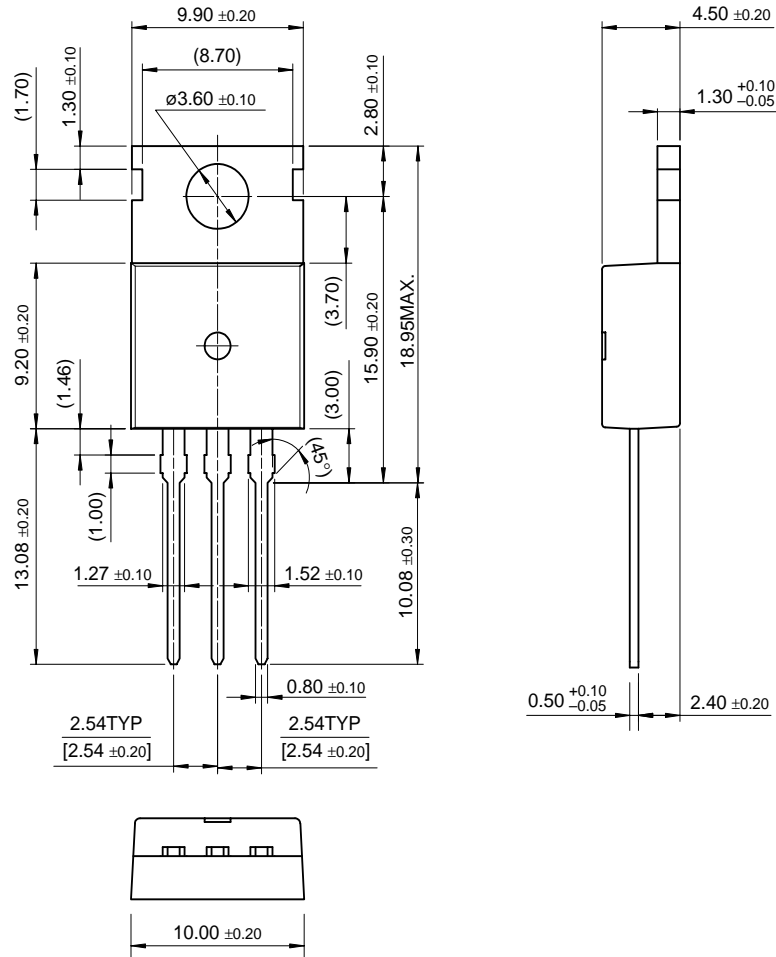


Figure 6. Power Derating

Package Dimensions

TO-220

BDW93/A/B/C



Dimensions in Millimeters

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