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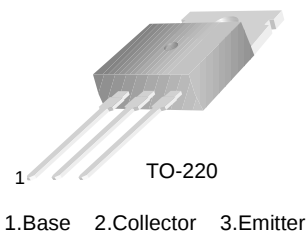
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BDW93/A/B/C

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

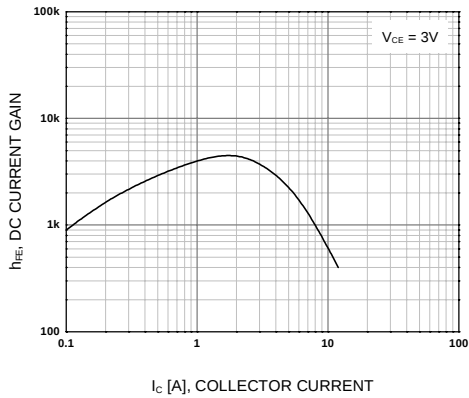


Figure 1. DC Current Gain

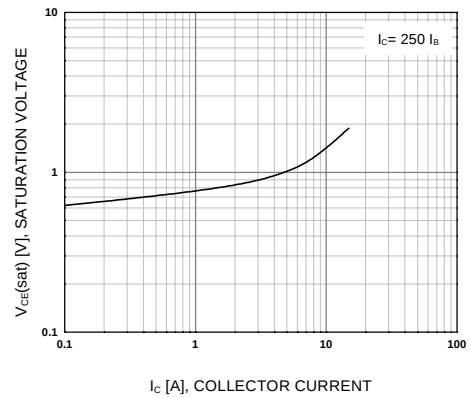


Figure 2. Collector-Emitter Saturation Voltage

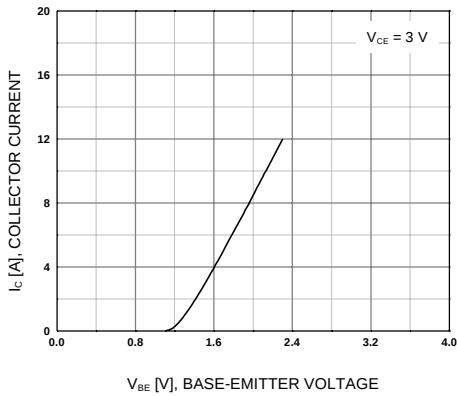


Figure 3. Base-Emitter On Voltage

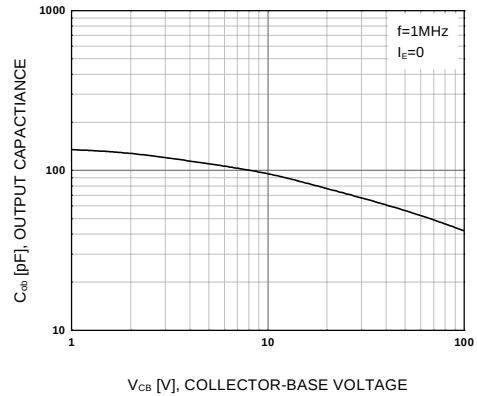


Figure 4. Collector Output Capacitance

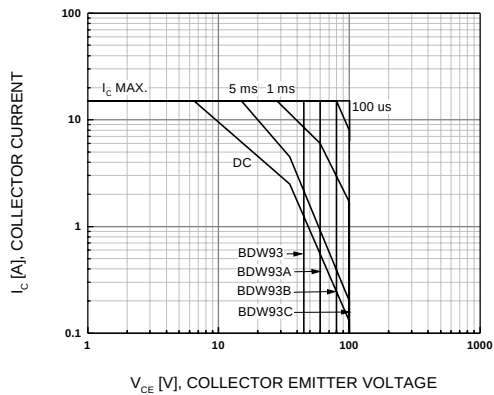


Figure 5. Safe Operating Area

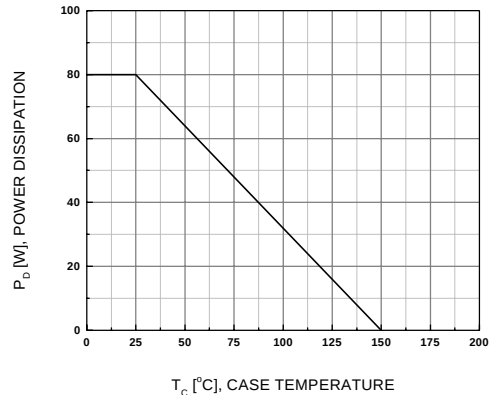


Figure 6. Power Derating

BDW93/A/B/C

Technical drawing of a 3-pin connector with dimensions in millimeters. The drawing includes a front view, a side view, and a top view.

Front View Dimensions:

- Overall width: 9.90 ± 0.20
- Pin spacing (center-to-center): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter: $\varnothing 3.60 \pm 0.10$
- Overall height: 18.95 MAX.
- Pin height: 13.08 ± 0.20
- Pin diameter at base: 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at top: 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at base (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at top (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at base (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at top (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at base (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at top (alternative): 1.27 ± 0.10 and 1.52 ± 0.10

Side View Dimensions:

- Overall width: 4.50 ± 0.20
- Pin diameter at base: 1.30 ± 0.10
- Pin diameter at top: 1.30 ± 0.10
- Pin diameter at base (alternative): 1.30 ± 0.10
- Pin diameter at top (alternative): 1.30 ± 0.10
- Pin diameter at base (alternative): 1.30 ± 0.10
- Pin diameter at top (alternative): 1.30 ± 0.10
- Pin diameter at base (alternative): 1.30 ± 0.10
- Pin diameter at top (alternative): 1.30 ± 0.10
- Pin diameter at base (alternative): 1.30 ± 0.10
- Pin diameter at top (alternative): 1.30 ± 0.10

Top View Dimensions:

- Overall width: 10.00 ± 0.20
- Pin diameter at base: 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at top: 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at base (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at top (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at base (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at top (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at base (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at top (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at base (alternative): 1.27 ± 0.10 and 1.52 ± 0.10
- Pin diameter at top (alternative): 1.27 ± 0.10 and 1.52 ± 0.10

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