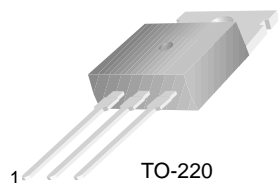


## BDW93/A/B/C

### Hammer Drivers, Audio Amplifiers Applications

- Power Darlington TR
- Complement to BDW94, BDW94A, BDW94B and BDW94C 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		
	: 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	1.5	$^\circ\text{C/W}$
	Junction to Case		

**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	$\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$
$I_{CEO}$	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

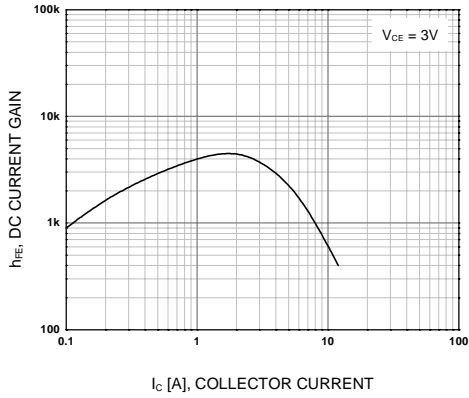


Figure 1. DC Current Gain

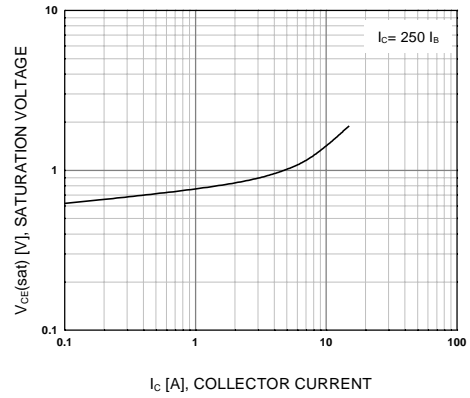


Figure 2. Collector-Emitter Saturation Voltage

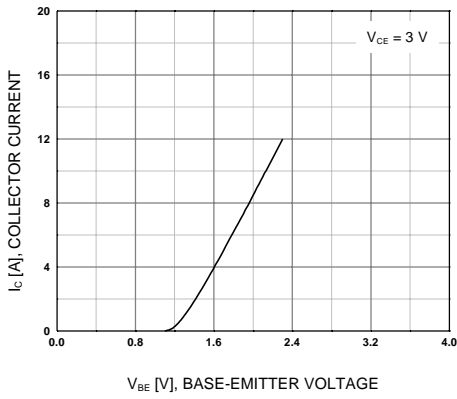


Figure 3. Base-Emitter On Voltage

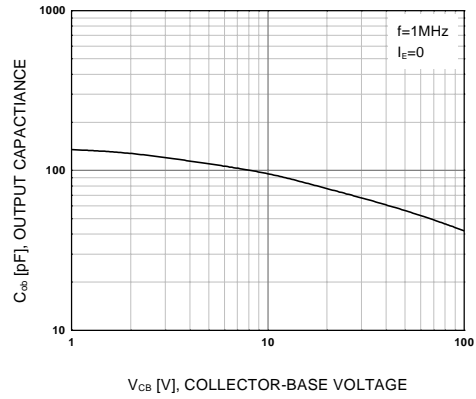


Figure 4. Collector Output Capacitance

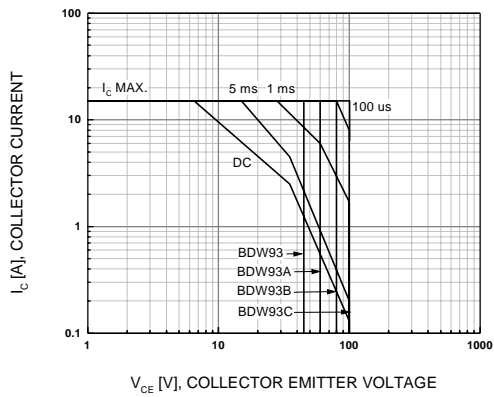


Figure 5. Safe Operating Area

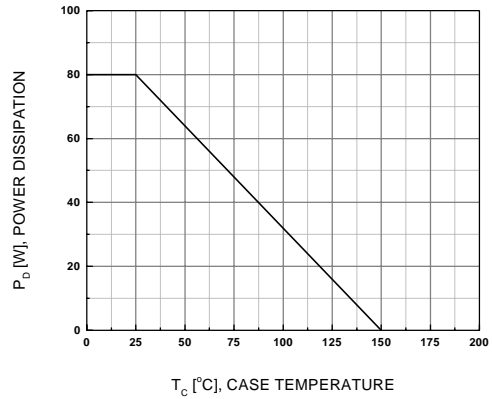


Figure 6. Power Derating

# Package Dimensions

## TO-220

BDW93/A/B/C



Dimensions in Millimeters

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