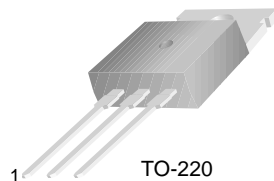


## BDW23/A/B/C

### Hammer Drivers, Audio Amplifiers Applications

- Power Darlington TR
- Complement to BDW24, BDW24A, BDW24B and BDW24C 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		
	: BDW23	45	V
	: BDW23A	60	V
	: BDW23B	80	V
	: BDW23C	100	V
$V_{CEO}$	Collector-Emitter Voltage		
	: BDW23	45	V
	: BDW23A	60	V
	: BDW23B	80	V
	: BDW23C	100	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current (DC)	6	A
$I_{CP}$	*Collector Current (Pulse)	8	A
$I_B$	Base Current	0.2	A
$P_C$	Collector Dissipation ( $T_C=25^\circ\text{C}$ )	50	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 60 80 100			V V V V
	: BDW23					
	: BDW23A					
	: BDW23B : BDW23C					
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 45\text{V}, I_E = 0$ $V_{CB} = 60\text{V}, I_E = 0$ $V_{CB} = 80\text{V}, I_E = 0$ $V_{CB} = 100\text{V}, I_E = 0$			200 200 200 200	$\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$
	: BDW23					
	: BDW23A					
	: BDW23B : BDW23C					
$I_{CEO}$	Collector Cut-off Current	$V_{CE} = 22\text{V}, I_B = 0$ $V_{CE} = 30\text{V}, I_B = 0$ $V_{CE} = 40\text{V}, I_B = 0$ $V_{CE} = 50\text{V}, I_B = 0$			500 500 500 500	$\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$
	: BDW23					
	: BDW23A					
	: BDW23B : BDW23C					
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			2	mA
$h_{FE}$	* DC Current Gain	$V_{CE} = 3\text{V}, I_C = 1\text{A}$	1000		20000	
		$V_{CE} = 3\text{V}, I_C = 2\text{A}$	750			
		$V_{CE} = 3\text{V}, I_C = 6\text{A}$	100			
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = 2\text{A}, I_B = 8\text{mA}$			2	V
		$I_C = 6\text{A}, I_B = 60\text{mA}$			3	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = 2\text{A}, I_B = 8\text{mA}$			2.5	V
$V_{BE(on)}$	* Base-Emitter ON Voltage	$V_{CE} = 3\text{V}, I_C = 1\text{A}$			2.5	V
		$V_{CE} = 3\text{V}, I_C = 6\text{A}$			3	V
$V_F$	* Parallel Diode Forward Voltage	$I_F = 2\text{A}$			1.8	V

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

# Typical Characteristics

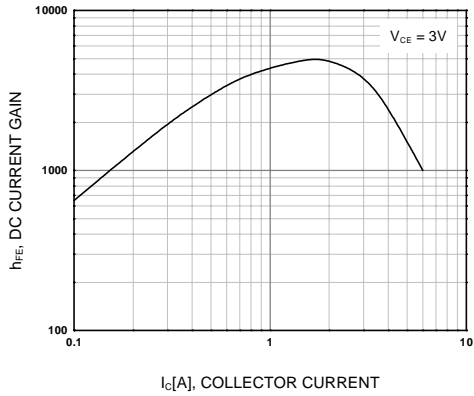


Figure 1. DC current Gain

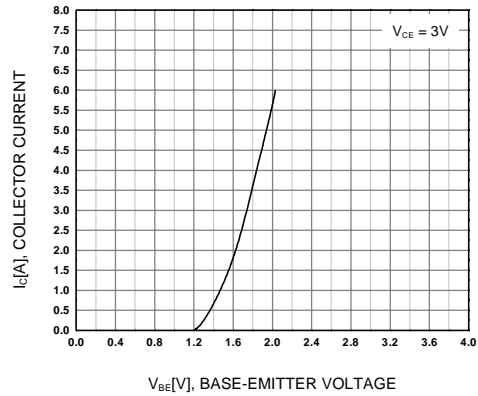


Figure 2. Collector-Emitter Saturation Voltage

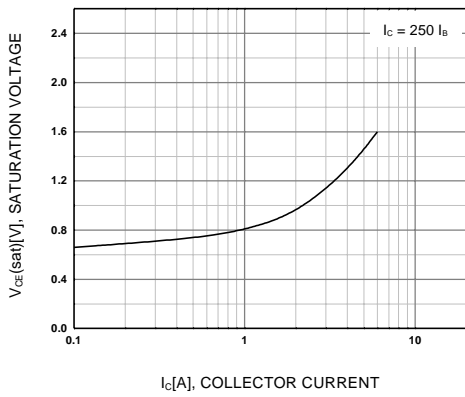


Figure 3. Base-Emitter On Voltage

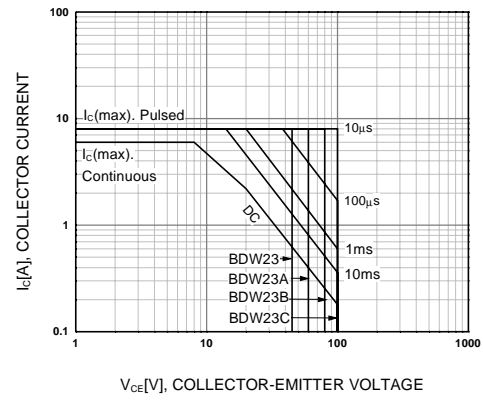


Figure 4. Safe Operating Area

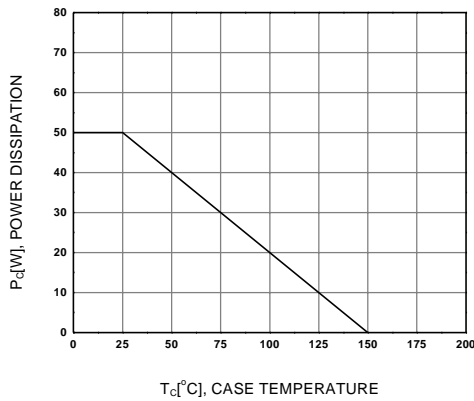


Figure 5. Power Derating

# Package Dimensions

BDW23/A/B/C

## TO-220



Dimensions in Millimeters

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