

BDW94/A/B/C

Power Linear and Switching Applications

- Power Darlington TR
- Complement to BDW93, BDW93A, BDW93B and BDW93C respectively



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

PNP Epitaxial Silicon Transistor

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage		
	: BDW94	- 45	V
	: BDW94A	- 60	V
	: BDW94B	- 80	V
	: BDW94C	- 100	V
V_{CEO}	Collector-Emitter Voltage		
	: BDW94	- 45	V
	: BDW94A	- 60	V
	: BDW94B	- 80	V
	: BDW94C	- 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	$^\circ\text{C}$

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	$I_C = -100\text{mA}, I_E = 0$				V		
	: BDW94						- 45	
	: BDW94A						- 60	
	: BDW94B						- 80	
	: BDW94C	- 100						
I_{CBO}	Collector Cut-off Current					μA		
	: BDW94						$V_{CB} = -45\text{V}, I_E = 0$	- 100
	: BDW94A						$V_{CB} = -60\text{V}, I_E = 0$	- 100
	: BDW94B						$V_{CB} = -80\text{V}, I_E = 0$	- 100
	: BDW94C	$V_{CB} = -100\text{V}, I_E = 0$	- 100					
I_{CEO}	Collector Cut-off Current					mA		
	: BDW94						$V_{CE} = -45\text{V}, I_B = 0$	- 1
	: BDW94A						$V_{CE} = -60\text{V}, I_B = 0$	- 1
	: BDW94B						$V_{CE} = -80\text{V}, I_B = 0$	- 1
	: BDW94C	$V_{CE} = -100\text{V}, I_B = 0$	- 1					
I_{EBO}	Emitter Cut-off Current	$V_{EB} = -5\text{V}, I_C = 0$			- 2	mA		
h_{FE}	* DC Current Gain	$V_{CE} = -3\text{V}, I_C = -3\text{A}$	1000		20000			
		$V_{CE} = -3\text{V}, I_C = -5\text{A}$	750					
		$V_{CE} = -3\text{V}, I_C = -10\text{A}$	100					
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = -5\text{A}, I_B = -20\text{mA}$			- 2	V		
		$I_C = -10\text{A}, I_B = -100\text{mA}$			- 3	V		
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = -5\text{A}, I_B = -20\text{mA}$			- 2.5	V		
		$I_C = -10\text{A}, I_B = -100\text{mA}$			- 4	V		
V_F	* Parallel Diode Forward Voltage	$I_F = -5\text{A}$		- 1.3	- 2	V		
		$I_F = -10\text{A}$		- 1.8	- 4	V		

* Pulse Test: PW=300 μs , duty Cycle =1.5% Pulsed

Typical Characteristics

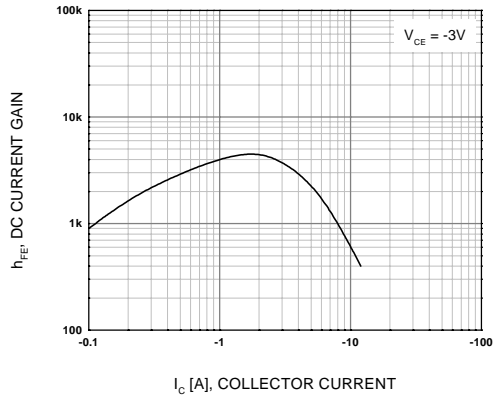


Figure 1. DC Current Gain

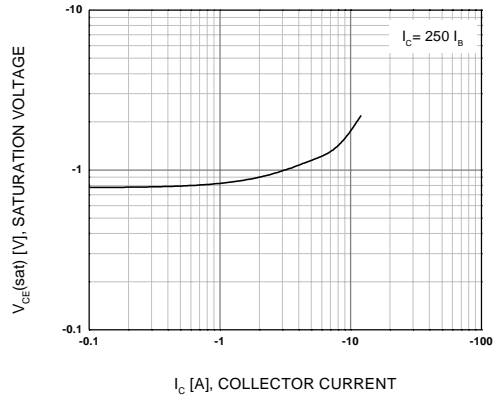


Figure 2. Collector-Emitter Saturation Voltage

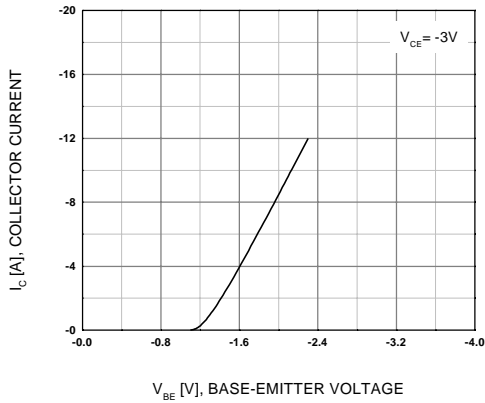


Figure 3. Base-Emitter On Voltage

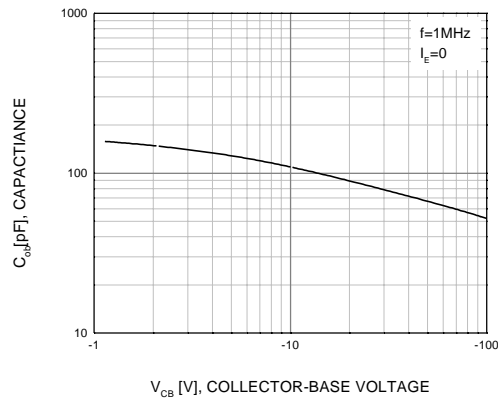


Figure 4. Output Capacitance

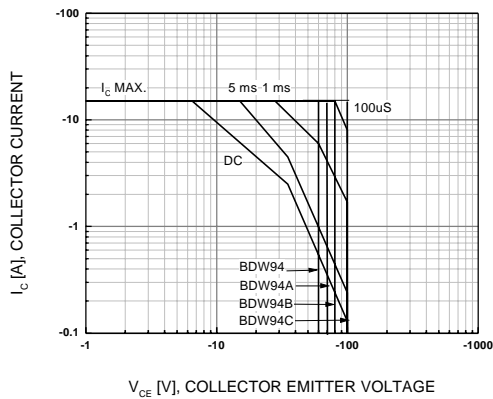


Figure 5. Safe Operating Area

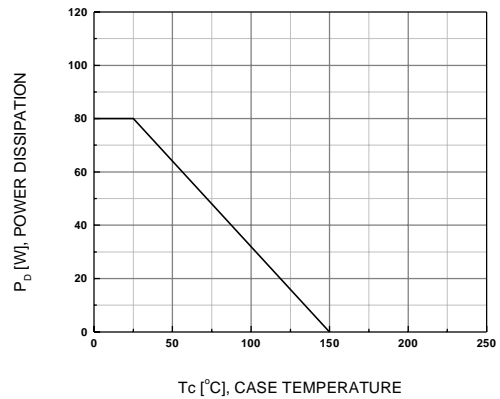


Figure 6. Power Derating

Package Dimensions

BDW94/A/B/C

TO-220



Dimensions in Millimeters

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