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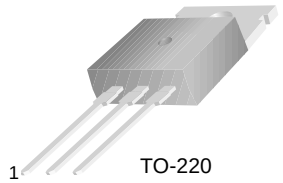
Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

FAIRCHILD SEMICONDUCTOR™

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°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°C)	80	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 ~ 150	°C

Thermal Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter		Value	Units
$R_{\theta jc}$	Thermal Resistance	Junction to Case	1.5	°C/W

Electrical Characteristics T_C=25°C unless otherwise noted

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

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

Typical characteristics

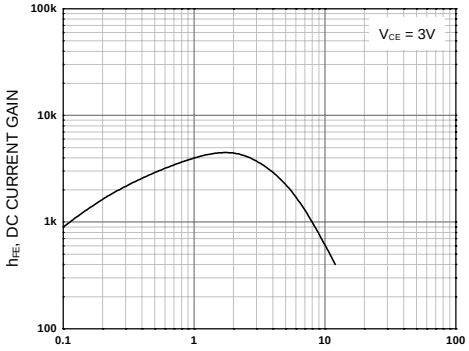


Figure 1. DC Current Gain

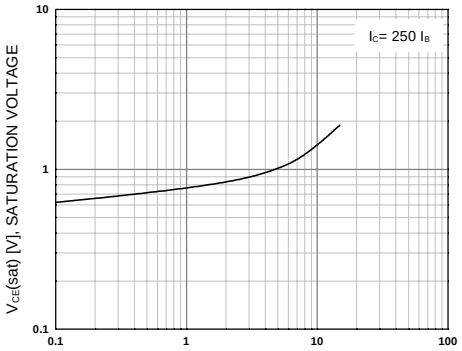


Figure 2. Collector-Emitter Saturation Voltage

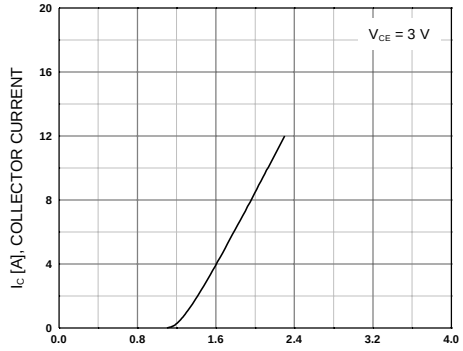


Figure 3. Base-Emitter On Voltage

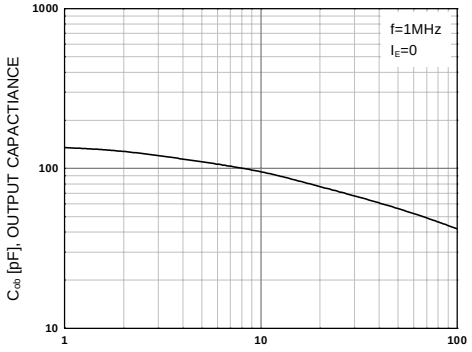


Figure 4. Collector Output Capacitance

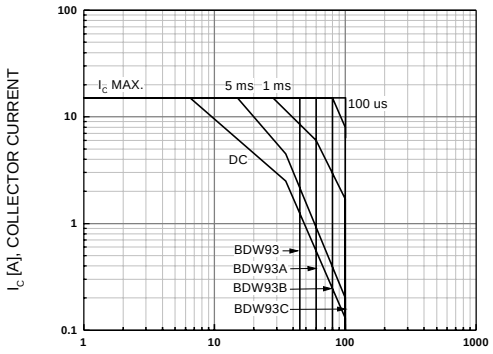


Figure 5. Safe Operating Area

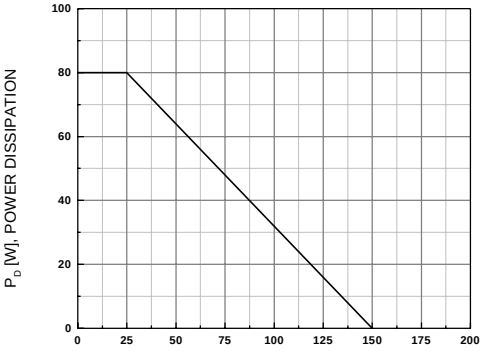
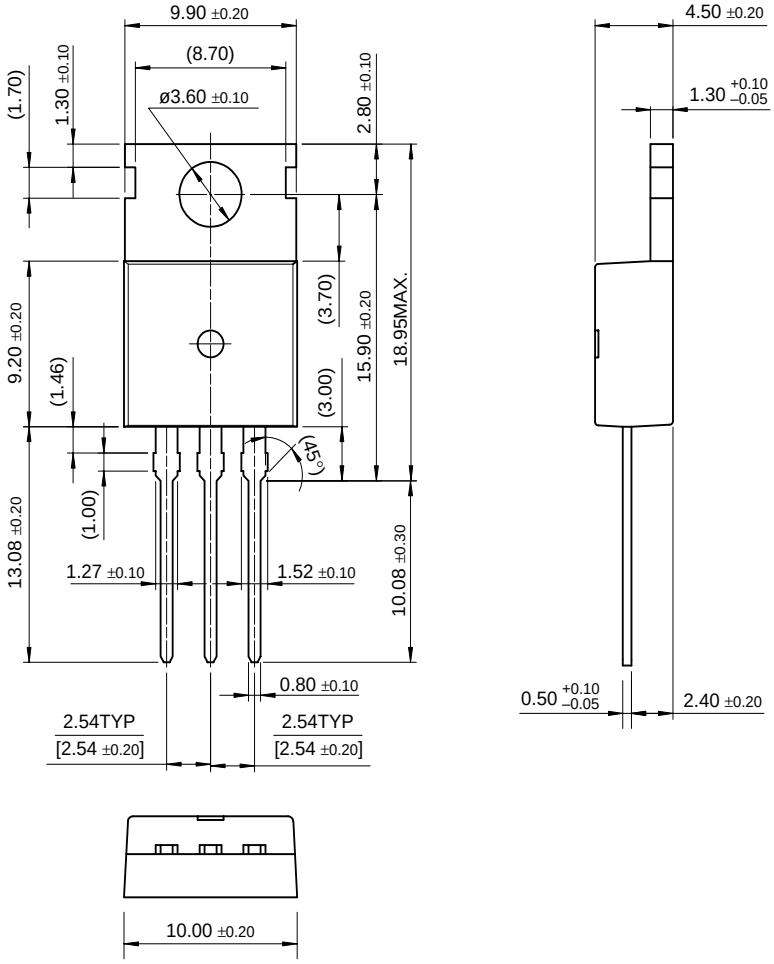


Figure 6. Power Derating

Package Demensions

TO-220



Dimensions in Millimeters

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