FAIRCHILD SEMICONDUCTOR®

March 2011

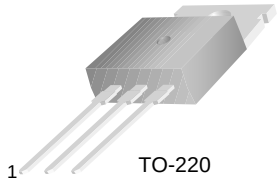
BDX53/A/B/C
NPN Epitaxial Silicon Transistor

Applications

- Hammer Drivers, Audio Amplifiers Applications
- Power Liner and Switching Applications

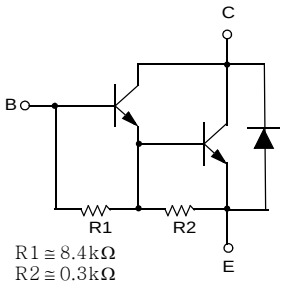
Features

- Power Darlington TR
- Complement to BDX54, BDX54A, BDX54B and BDX54C respectively



1.Base 2.Collector 3.Emitter

Equivalent Circuit



$R1 \cong 8.4k\Omega$
$R2 \cong 0.3k\Omega$

Absolute Maximum Ratings T_C = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : BDX53	45	V
	: BDX53A	60	V
	: BDX53B	80	V
	: BDX53C	100	V
V_{CEO}	Collector-Emitter Voltage : BDX53	45	V
	: BDX53A	60	V
	: BDX53B	80	V
	: BDX53C	100	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current (DC)	8	A
I_{CP}	*Collector Current (Pulse)	12	A
I_B	Base Current	0.2	A
P_C	Collector Dissipation (T_C = 25°C)	60	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 to 150	°C

Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V_{CEO}(sus)	* Collector-Emitter Sustaining Voltage					
	: BDX53	I_C = 100mA, I_B = 0	45			V
	: BDX53A		60			V
	: BDX53B		80			V
	: BDX53C		100			V
I_{CBO}	Collector Cut-off Current : BDX53	V_{CB} = 45V, I_E = 0			200	μA
	: BDX53A	V_{CB} = 60V, I_E = 0			200	μA
	: BDX53B	V_{CB} = 80V, I_E = 0			200	μA
	: BDX53C	V_{CB} = 100V, I_E = 0			200	μA
I_{CEO}	Collector Cut-off Current : BDX53	V_{CE} = 22V, I_B = 0			500	μA
	: BDX53A	V_{CE} = 30V, I_B = 0			500	μA
	: BDX53B	V_{CE} = 40V, I_B = 0			500	μA
	: BDX53C	V_{CE} = 50V, I_B = 0			500	μA
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	750			
V_{CE}(sat)	* Collector-Emitter Saturation Voltage	I_C = 3A, I_B = 12mA			2	V
V_{BE}(sat)	* Base-Emitter Saturation Voltage	I_C = 3A, I_B = 12mA			2.5	V
V_F	* Parallel Diode Forward Voltage	I_F = 3A		1.8	2.5	V
		I_F = 8A		2.5		V

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

Typical Performance Characteristics

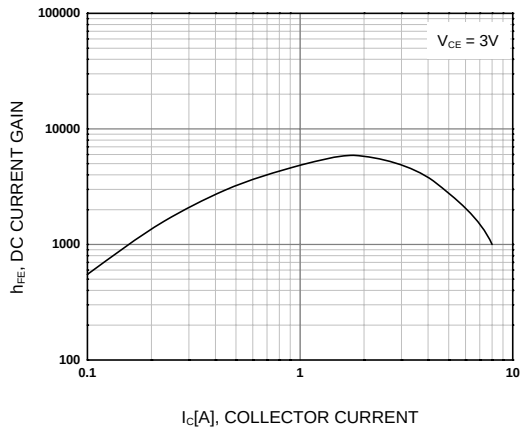


Figure 1. DC current Gain

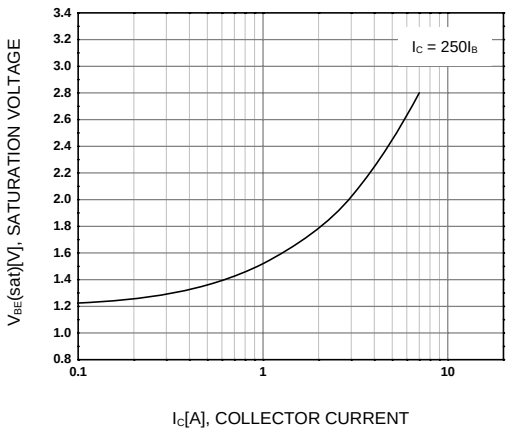


Figure 2. Base-Emitter Saturation Voltage

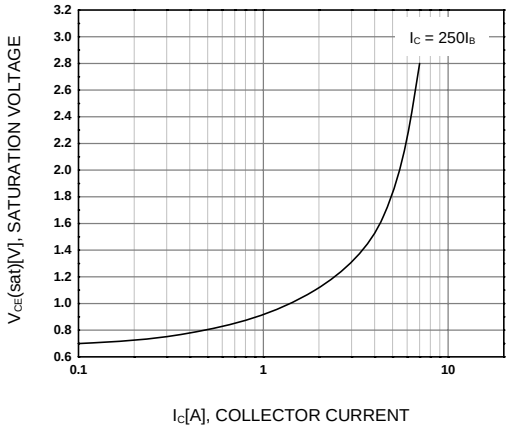


Figure 3. Collector-Emitter Saturation Voltage

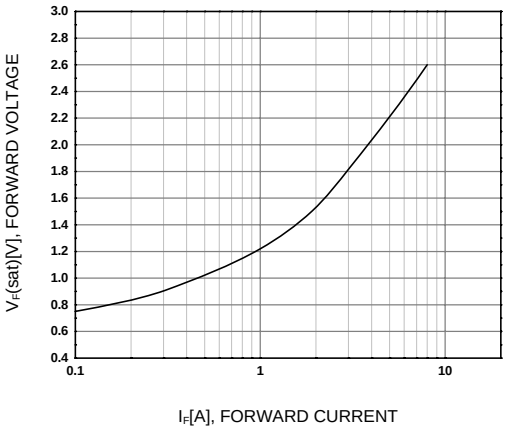


Figure 4. Damper Diode Forward Voltage

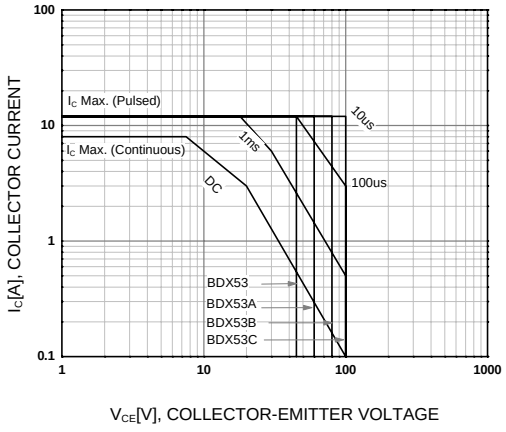


Figure 5. Safe Operating Area

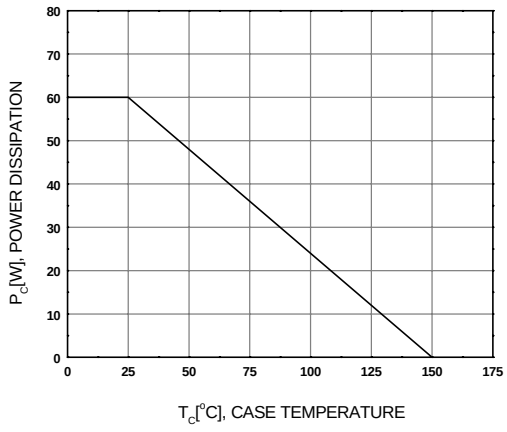
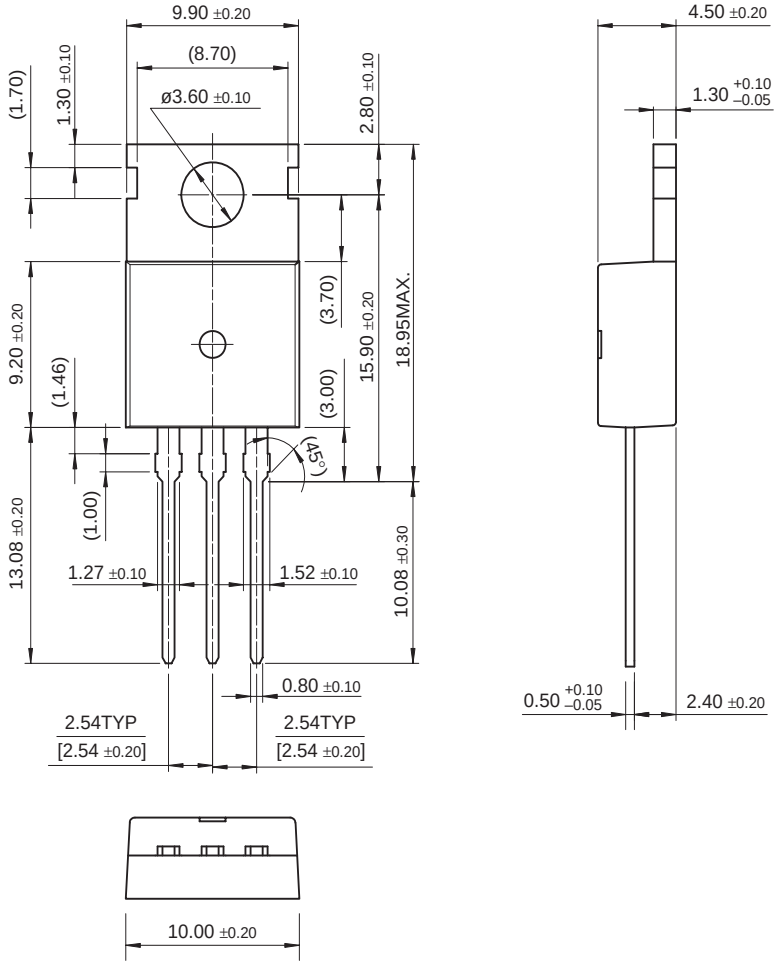


Figure 6. Power Derating

Physical Dimensions

TO-220



Dimensions in Millimeters

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