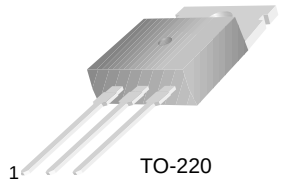
FAIRCHILD SEMICONDUCTOR™

BDX33/A/B/C

Power Linear and Switching Applications

- High Gain General Purpose
- Power Darlington TR
- Complement to BDX34/34A/34B/34C 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		
	: BDX33	45	V
	: BDX33A	60	V
	: BDX33B	80	V
	: BDX33C	100	V
V_{CEO}	Collector-Emitter Voltage		
	: BDX33	45	V
	: BDX33A	60	V
	: BDX33B	80	V
	: BDX33C	100	V
I_C	Collector Current (DC)	10	A
I_{CP}	*Collector Current (Pulse)	15	A
I_B	Base Current	0.25	A
P_C	Collector Dissipation (T_C=25°C)	70	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 ~ 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					
	: BDX33	I_C = 100mA I_B = 0	45			V
	: BDX33A		60			V
	: BDX33B		80			V
	: BDX33C		100			V
V_{CER}(sus)	* Collector-Emitter Sustaining Voltage					
	: BDX33	I_C = 100mA, I_B = 0	45			V
	: BDX33A	R_{BE} = 100Ω	60			V
	: BDX33B		80			V
	: BDX33C		100			V
V_{CEV}(sus)	* Collector-Emitter Sustaining Voltage					
	: BDX33	I_C = 100mA, I_B = 0	45			V
	: BDX33A	V_{BE} = 1.5V	60			V
	: BDX33B		80			V
	: BDX33C		100			V
I_{CBO}	Collector Cut-off Current					
	: BDX33	V_{CB} = 45V, I_E = 0			0.2	mA
	: BDX33A	V_{CB} = 60V, I_E = 0			0.2	mA
	: BDX33B	V_{CB} = 80V, I_E = 0			0.2	mA
	: BDX33C	V_{CB} = 100V, I_E = 0			0.2	mA
I_{CEO}	Collector Cut-off Current					
	: BDX33	V_{CE} = 22V, I_B = 0			0.5	mA
	: BDX33A	V_{CE} = 30V, I_B = 0			0.5	mA
	: BDX33B	V_{CE} = 40V, I_B = 0			0.5	mA
	: BDX33C	V_{CE} = 50V, I_B = 0			0.5	mA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 5V, I_C = 0			5	mA
h_{FE}	* DC Current Gain					
	: BDX33/34	V_{CE} = 3V, I_C = 4A	750			
	: BDX33B/33C	V_{CE} = 3V, I_C = 3A	750			
V_{CE}(sat)	* Collector-Emitter Saturation Voltage					
	: BDX33/33A	I_C = 4A, I_B = 8mA			2.5	V
	: BDX33B/33C	I_C = 3A, I_B = 6mA			2.5	V
V_{BE}(on)	* Base-Emitter ON Voltage					
	: BDX33/33A	V_{CE} = 3V, I_C = 4A			2.5	V
	: BDX33B/33C	V_{CE} = 3V, I_C = 3A			2.5	V
V_F	* Parallel Diode Forward Voltage	I_F = 8A			4	V

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

Typical Characteristics

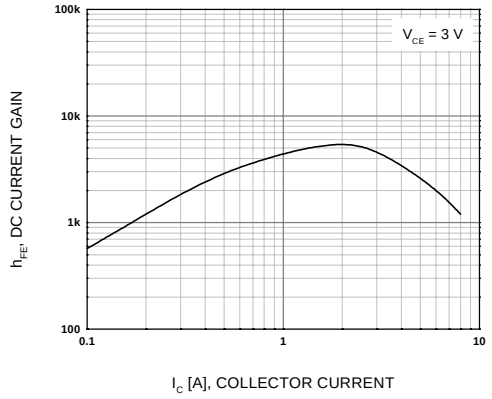


Figure 1. DC Current Gain

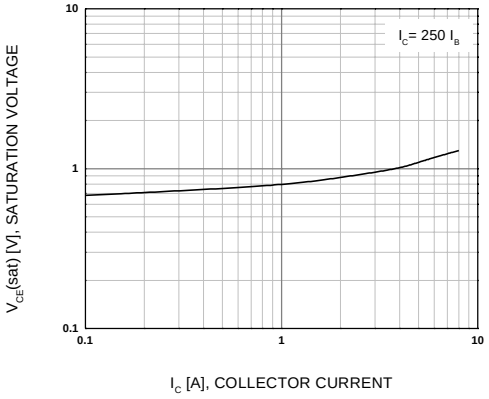


Figure 2. Collector-Emitter Saturation Voltage

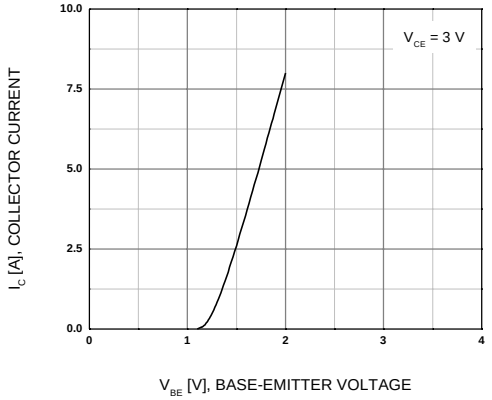


Figure 3. Base-Emitter On Voltage

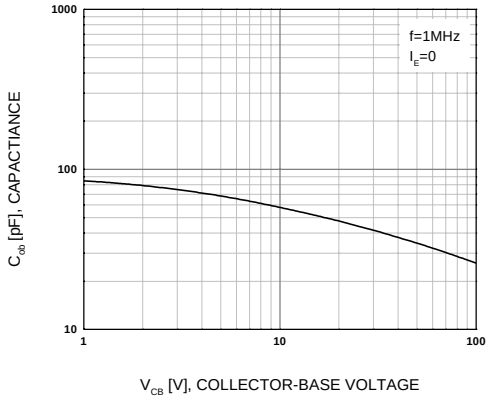


Figure 4. Output Capacitance

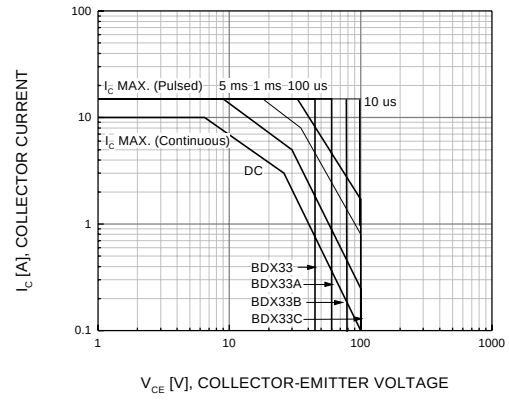


Figure 5. Safe Operating Area

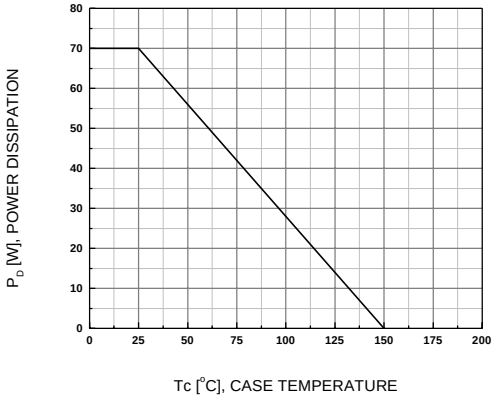


Figure 6. Power Derating

Package Demensions

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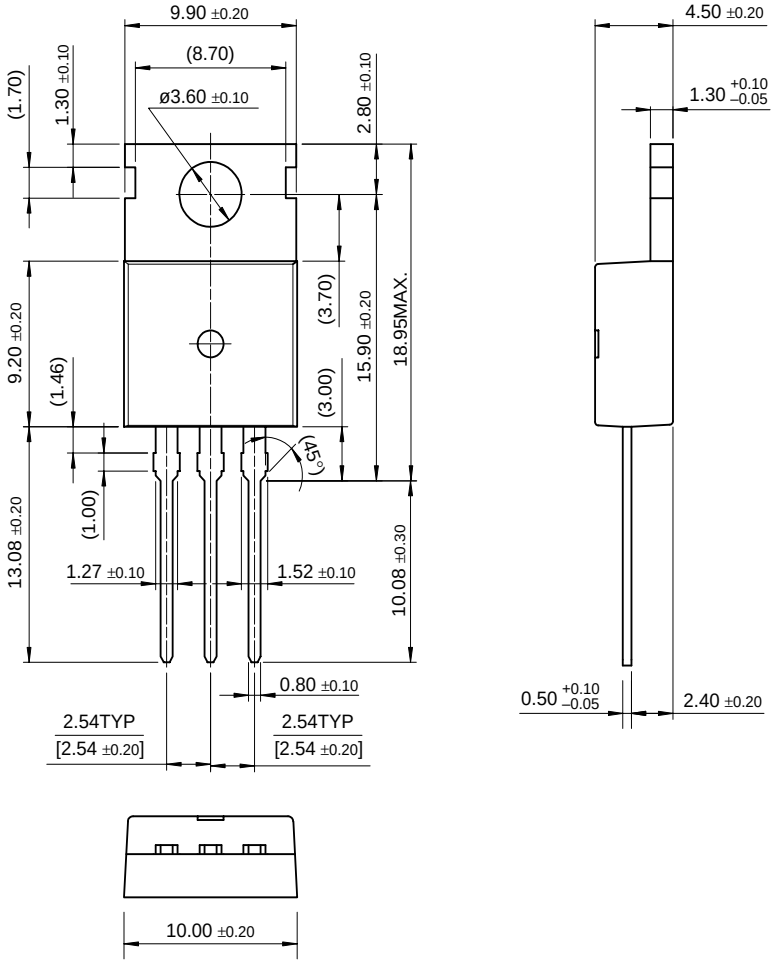

Dimensions in Millimeters

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