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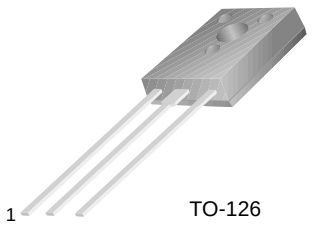
FAIRCHILD
SEMICONDUCTOR®

BD440/442

Medium Power Linear and Switching Applications

- Complement to BD439, BD441 respectively



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TO-126

1. Emitter 2.Collector 3.Base

PNP Epitaxial Silicon Transistor

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage		
	: BD440	- 60	V
	: BD442	- 80	V
V_{CES}	Collector-Emitter Voltage		
	: BD440	- 60	V
	: BD442	- 80	V
V_{CEO}	Collector-Emitter Voltage		
	: BD440	- 60	V
	: BD442	- 80	V
V_{EBO}	Emitter-Base Voltage	- 5	V
I_C	Collector Current (DC)	- 4	A
I_{CP}	*Collector Current (Pulse)	- 7	A
I_B	Base Current	- 1	A
P_C	Collector Dissipation (T_C=25°C)	36	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 ~ 1 50	°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					
	: BD440	I_C = - 100mA, I_B = 0	-60			V
	: BD442		-80			V
I_{CBO}	Collector Cut-off Current : BD440	V_{CB} = - 60V, I_E = 0			- 100	µA
	: BD442	V_{CB} = - 80V, I_E = 0			- 100	µA
I_{CES}	Collector Cut-off Current : BD440	V_{CE} = - 60V, V_{BE} = 0			- 100	µA
	: BD442	V_{CE} = - 80V, V_{BE} = 0			- 100	µA
I_{EBO}	Emitter Cut-off Current	V_{EB} = - 5V, I_C = 0			- 1	mA
h_{FE}	* DC Current Gain : BD440	V_{CE} = - 5V, I_C = - 10mA	20	140		
	: BD442		15	140		
	: BD440	V_{CE} = - 1V, I_C = - 500mA	40	140		
	: BD442		40	140		
	: BD440	V_{CE} = - 1V, I_C = - 2A	25			
	: BD442		15			
V_{CE}(sat)	* Collector-Emitter Saturation Voltage	I_C = - 2A, I_B = - 0.2A			- 0.8	V
V_{BE}(on)	* Base-Emitter ON Voltage	V_{CE} = - 5V, I_C = - 10mA		-0.58		V
		V_{CE} = -1 V, I_C = - 2A			- 1.5	V
f_T	Current Gain Bandwidth Product	V_{CE} = - 1V, I_C = - 250mA	3			MHz

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

Typical Characteristics

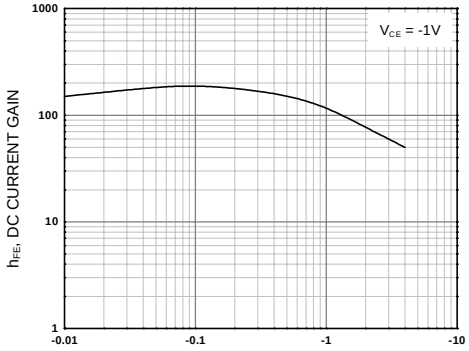


Figure 1. DC current Gain

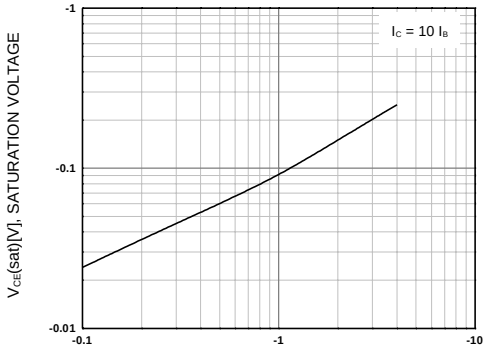


Figure 2. Collector-Emitter Saturation Voltage

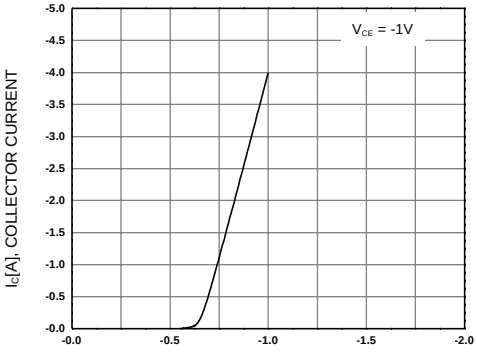


Figure 3. Base-Emitter On Voltage

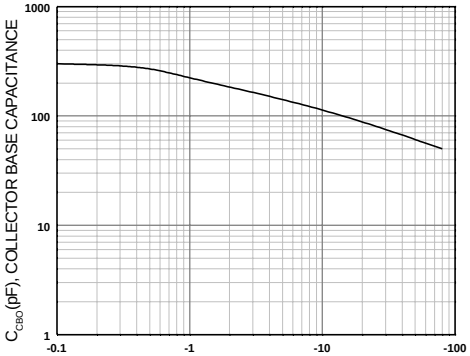


Figure 4. Collector-Base Capacitance

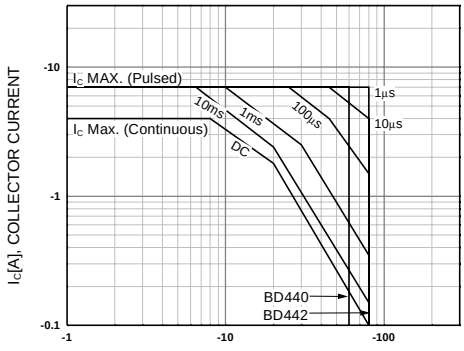


Figure 5. Safe Operating Area

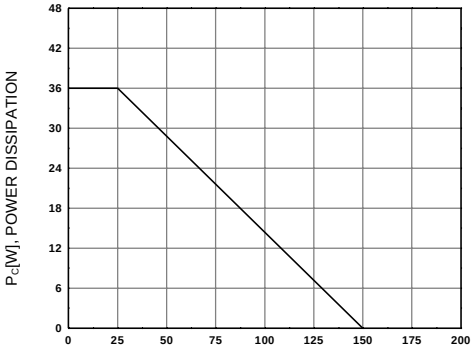
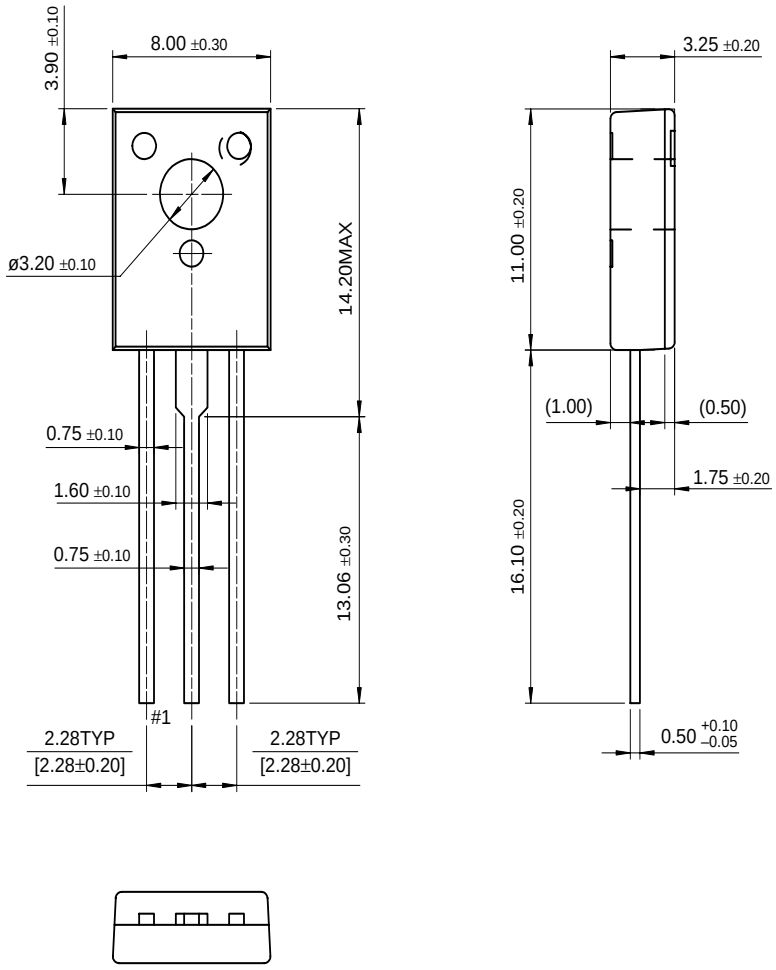


Figure 6. Power Derating

Package Demensions

TO-126



Dimensions in Millimeters

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