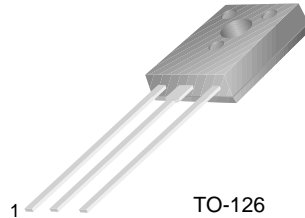


BD440/442

Medium Power Linear and Switching Applications

- Complement to BD439, BD441 respectively



TO-126
1. Emitter 2. Collector 3. Base

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		
	: 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 ($T_C=25^\circ\text{C}$)	36	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					
	: BD440	$I_C = -100\text{mA}, I_B = 0$	-60			V
	: BD442		-80			V
I_{CBO}	Collector Cut-off Current					
	: BD440	$V_{CB} = -60\text{V}, I_E = 0$			- 100	μA
	: BD442	$V_{CB} = -80\text{V}, I_E = 0$			- 100	μA
I_{CES}	Collector Cut-off Current					
	: BD440	$V_{CE} = -60\text{V}, V_{BE} = 0$			- 100	μA
	: BD442	$V_{CE} = -80\text{V}, V_{BE} = 0$			- 100	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = -5\text{V}, I_C = 0$			- 1	mA
h_{FE}	* DC Current Gain					
	: BD440	$V_{CE} = -5\text{V}, I_C = -10\text{mA}$	20	140		
	: BD442		15	140		
	: BD440	$V_{CE} = -1\text{V}, I_C = -500\text{mA}$	40	140		
	: BD442		40	140		
	: BD440	$V_{CE} = -1\text{V}, I_C = -2\text{A}$	25			
	: BD442		15			
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = -2\text{A}, I_B = -0.2\text{A}$			- 0.8	V
$V_{BE(on)}$	* Base-Emitter ON Voltage					
	: BD440	$V_{CE} = -5\text{V}, I_C = -10\text{mA}$		-0.58		V
	: BD442	$V_{CE} = -1\text{V}, I_C = -2\text{A}$			- 1.5	V
f_T	Current Gain Bandwidth Product	$V_{CE} = -1\text{V}, I_C = -250\text{mA}$	3			MHz

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

Typical Characteristics

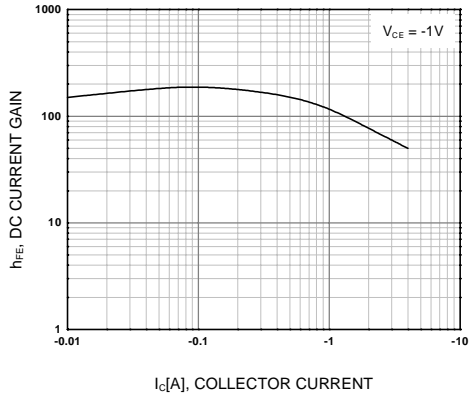


Figure 1. DC current Gain

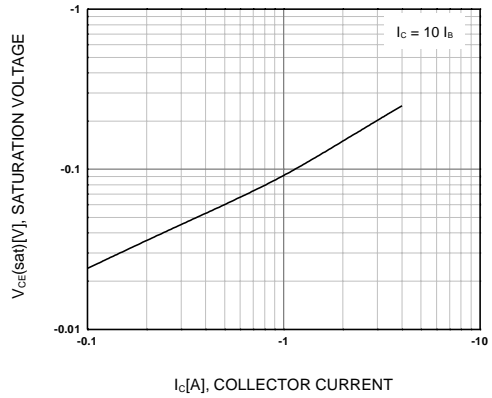


Figure 2. Collector-Emitter Saturation Voltage

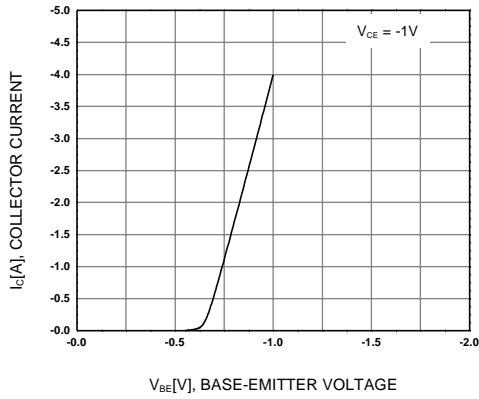


Figure 3. Base-Emitter On Voltage

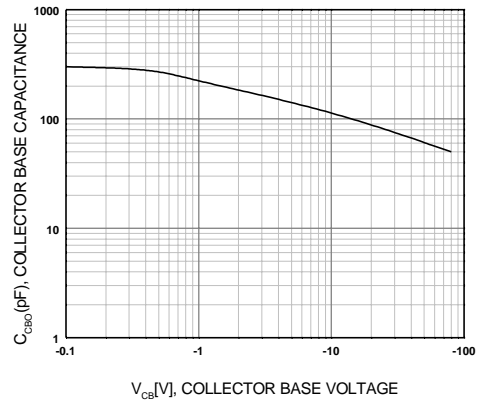


Figure 4. Collector-Base Capacitance

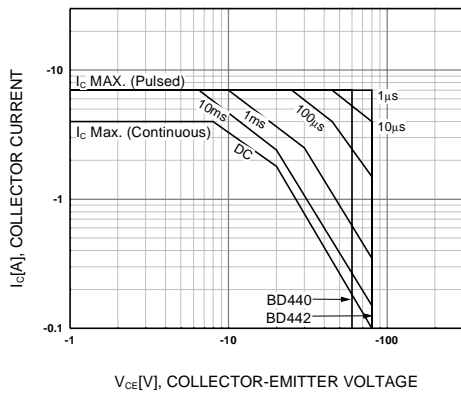


Figure 5. Safe Operating Area

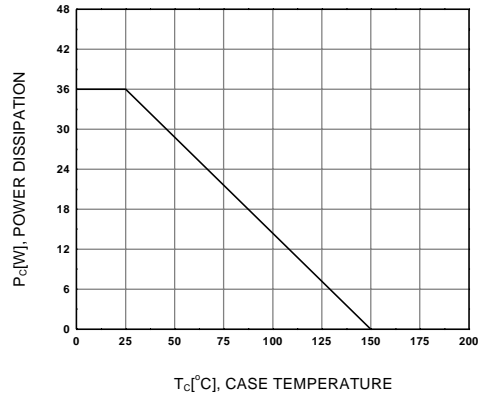
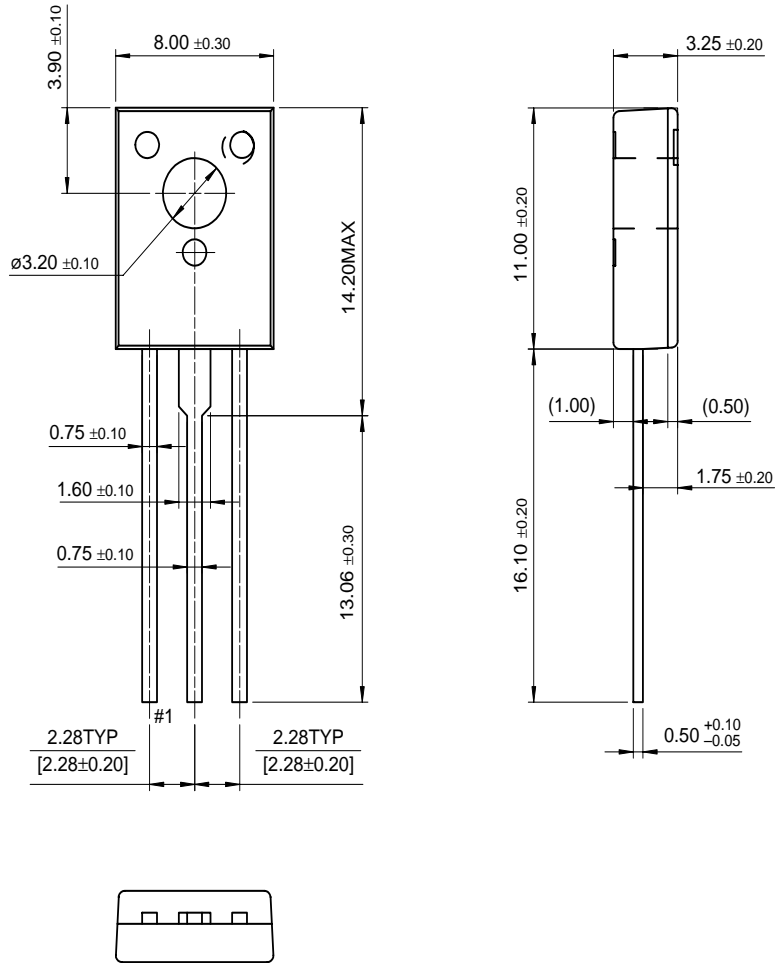


Figure 6. Power Derating

Package Dimensions

TO-126



Dimensions in Millimeters

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DenseTrench™	GTO™	QFET™	TinyLogic™
DOME™	HiSeC™	QS™	UHC™
EcoSPARK™	ISOPLANAR™	QT Optoelectronics™	UltraFET [®]
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