Elektronische Bauelemente

BD438/BD440/BD442

PNP Type

Plastic Encapsulate Transistors

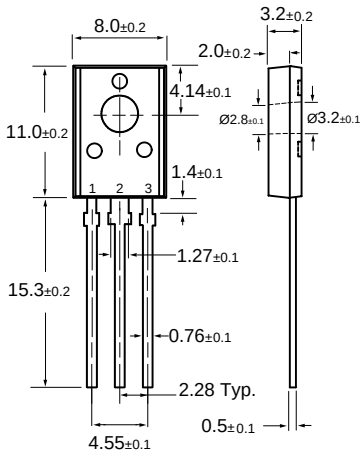
RoHS Compliant Product

A suffix of "-C" specifies halogen & lead-free

Features

* Amplifier and switching applications

TO-126



1: Emitter
2: Collector
3: Base

Dimensions in Millimeters

MAXIMUM RATINGS* T_A=25℃ unless otherwise noted

Symbol	Parameter		Value	Units
V_{CBO}	Collector-Base Voltage	BD438	-45	V
		BD440	-60	
		BD442	-80	
V_{CEO}	Collector-Emitter Voltage	BD438	-45	V
		BD440	-60	
		BD442	-80	
V_{EBO}	Emitter-Base Voltage		-5	V
I_C	Collector Current –Continuous		-4	A
P_C	Collector Dissipation		1.25	W
T_J	Junction Temperature		150	
T_{stg}	Storage Temperature		-55-150	

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions		MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=-100μA, I_E=0	BD438	-45			V
			BD440	-60			
			BD442	-80			
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=-100mA, I_B=0	BD438	-45			V
			BD440	-60			
			BD442	-80			
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-100μA, I_C=0		-5			V
Collector cut-off current	I_{CBO}	V_{CB}=-45V, I_E=0	BD438			-0.1	μA
		V_{CB}=-60V, I_E=0	BD440				
		V_{CB}=-80V, I_E=0	BD442				
Emitter cut-off current	I_{EBO}	V_{EB}=-5V, I_C=0				-1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=-5V, I_C=-10mA	BD438	30			
			BD440	20			
			BD442	15			
	$h_{FE(2)}$	V_{CE}=-1V, I_C=-500mA	BD438	85		375	
			BD440/BD442	40		475	
	$h_{FE(3)}$	V_{CE}=-1V, I_C=-2A	BD438	40			
			BD440	25			
			BD442	15			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-3A, I_B=-300mA	BD438			-0.7	V
			BD440/BD442			-0.8	
Base-emitter voltage	V_{BE}	V_{CE}=-1V, I_C=-2A	BD438			-1.1	V
			BD440/BD442			-1.5	
Transition frequency	f_T	V_{CE}=-1V, I_C=-250mA, f=1MHz		3			MHz

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Typical Characteristics BD438,440,442

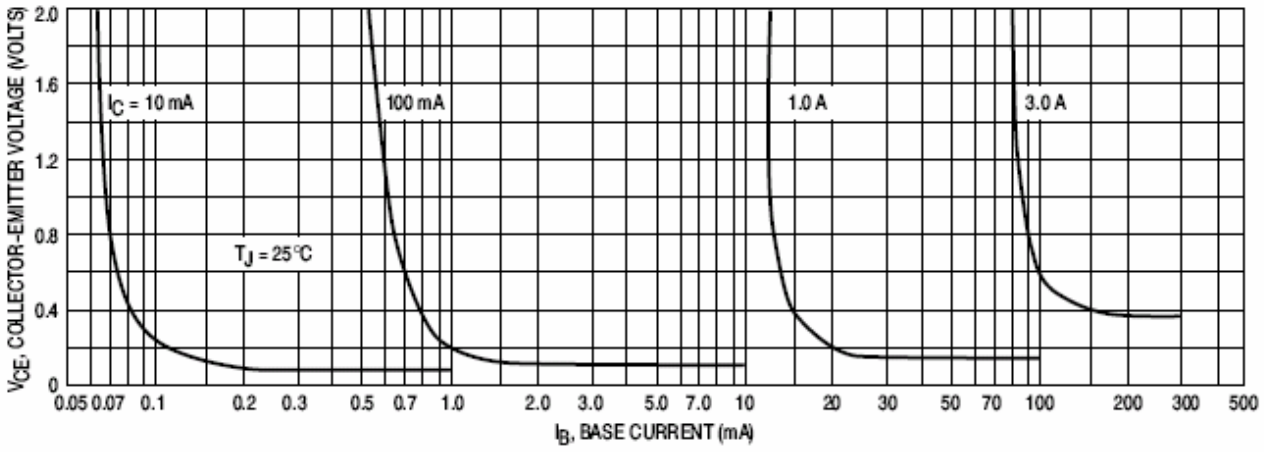

Figure 1. Collector Saturation Region

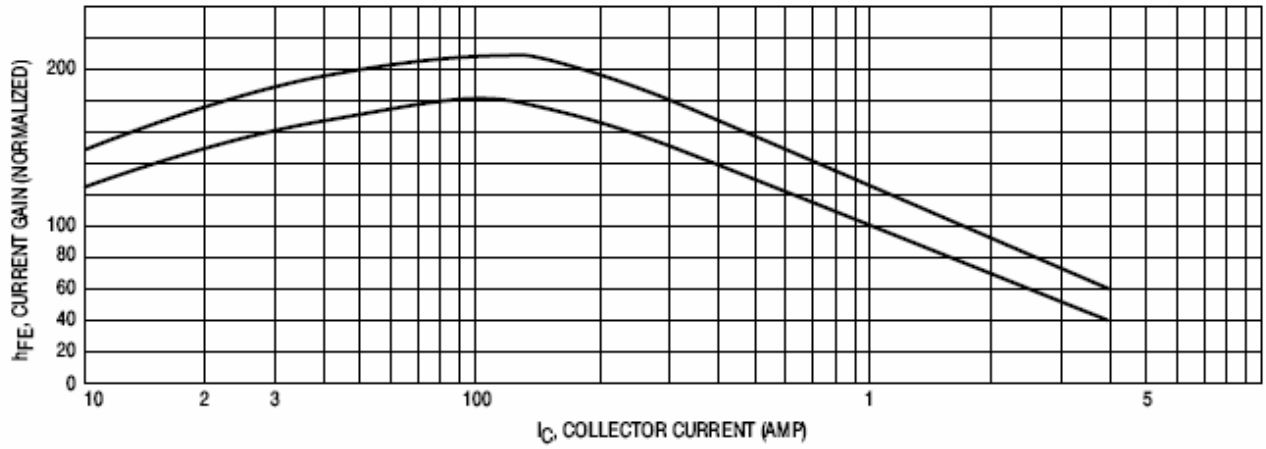

Figure 2. Current Gain

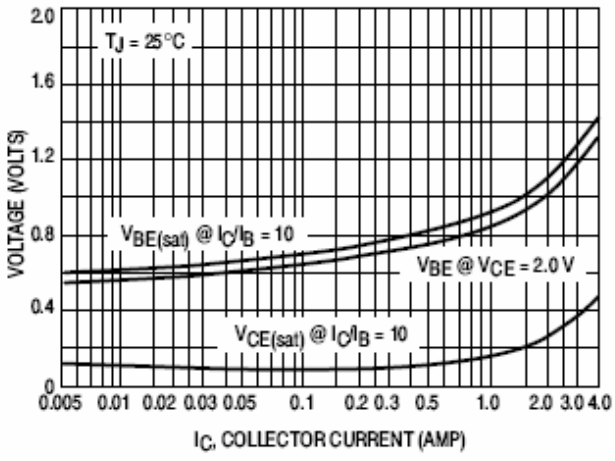

Figure 3. "On" Voltage

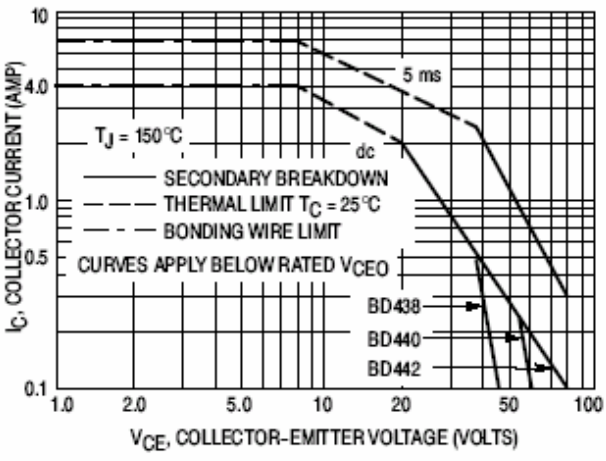

Figure 4. Active Region Safe Operating Area