

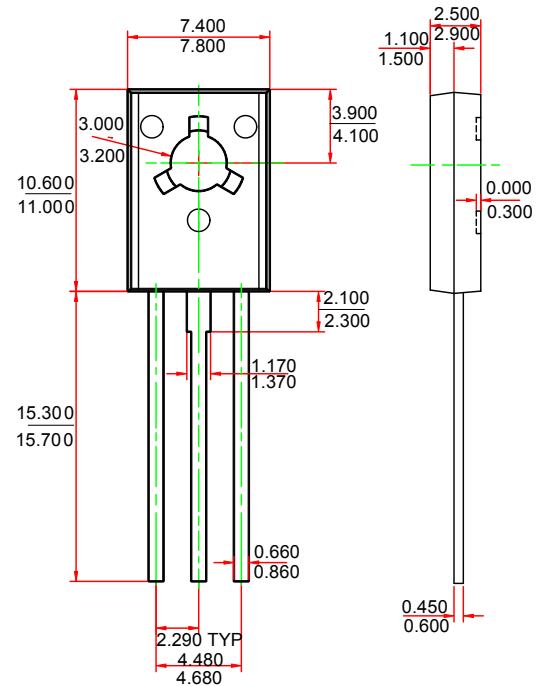
1. EMITTER
2. COLLECOTR
3. BASE

Features

- ◇ Amplifier and switching applications

MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V _{CB0}	Collector-Base Voltage	BD438	-45
		BD440	-60
		BD442	-80
V _{CEO}	Collector-Emmitter Voltage	BD438	-45
		BD440	-60
		BD442	-80
V _{EBO}	Emitter-Base Voltage	-5	V
I _C	Collector Current –Continuous	-4	A
P _C	Collector Power Dissipation	1.25	W
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55-150	°C



Dimensions in inches and (millimeters)

ELECTRICAL CHARACTERISTICS (T_{amb}=25°C 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 _{CEO(SUS)} ⁽¹⁾	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)} ⁽¹⁾	V _{CE} =-5V, I _C =-10mA	BD438	30		
			BD440	20		
			BD442	15		
	h _{FE(2)} ⁽¹⁾	V _{CE} =-1V, I _C =-500mA	BD438	85	375	
			BD440/BD442	40	475	
	h _{FE(3)} ⁽¹⁾	V _{CE} =-1V, I _C =-2A	BD438	40		
			BD440	25		
			BD442	15		
Collector-emitter saturation voltage	V _{CE(sat)} ⁽¹⁾	I _C =-3A, I _B =-300mA	BD438		-0.7	V
			BD440/BD442		-0.8	
Base-emitter voltage	V _{BE} ⁽¹⁾	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

⁽¹⁾Pulse test.

Typical Characteristics

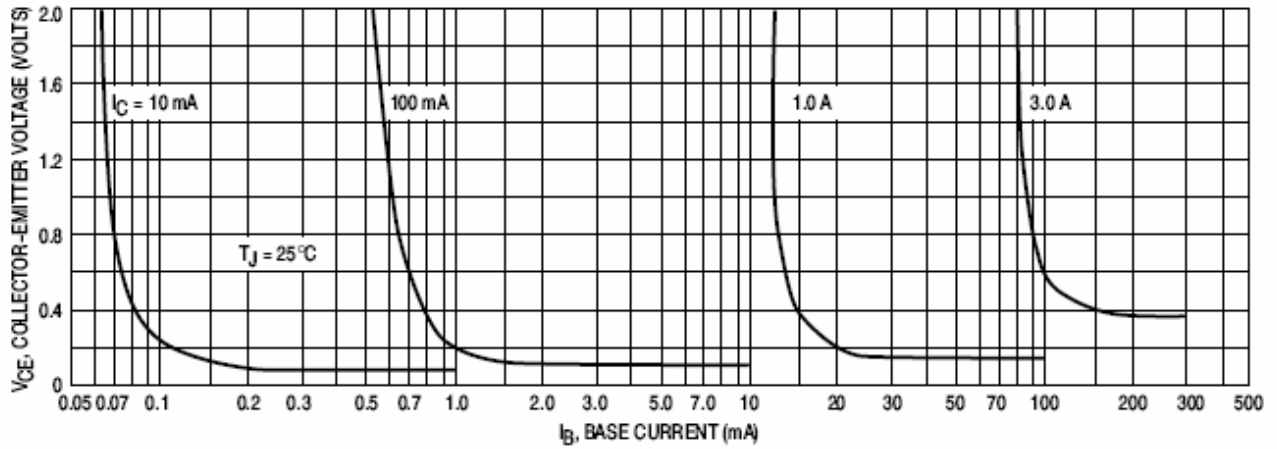


Figure 1. Collector Saturation Region

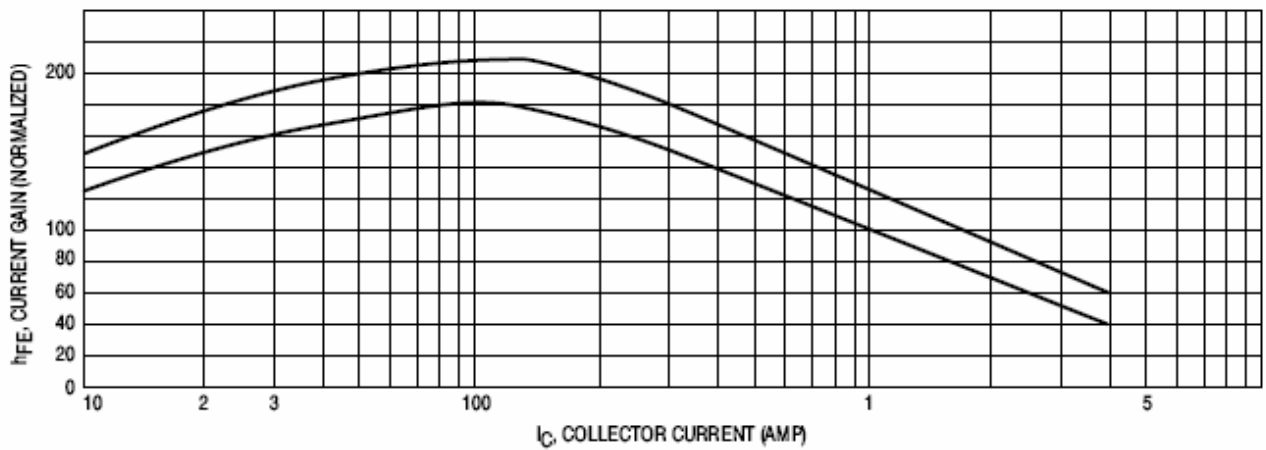


Figure 2. Current Gain

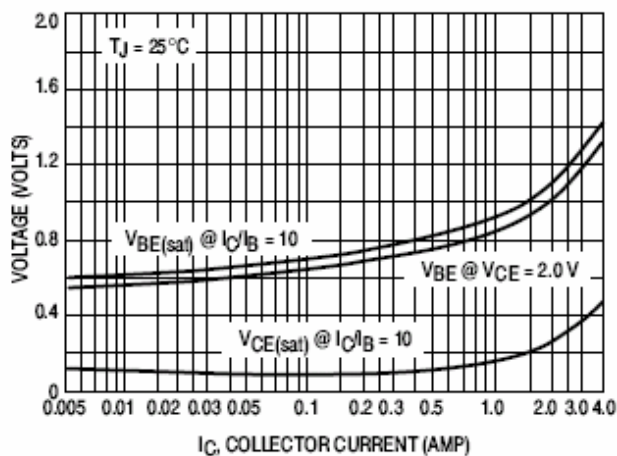


Figure 3. "On" Voltage

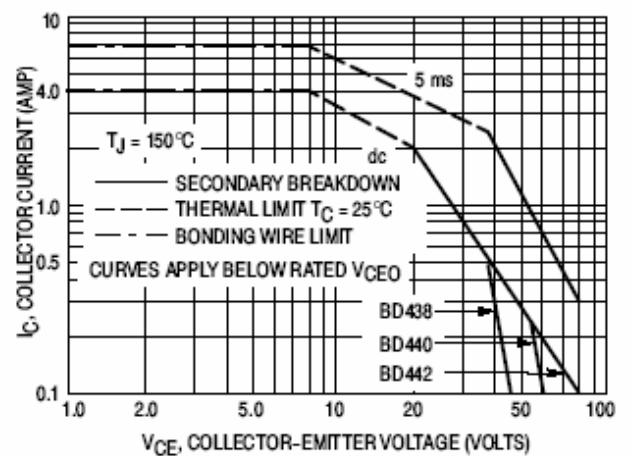


Figure 4. Active Region Safe Operating Area