



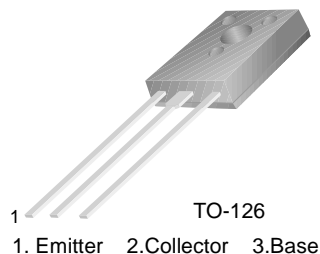
THE DATASHEET OF BD438STU



BD434/436/438

Medium Power Linear and Switching Applications

- Complement to BD433, BD435 and BD437 respectively



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		
	: BD434	- 22	V
	: BD436	- 32	V
	: BD438	- 45	V
V_{CES}	Collector-Emitter Voltage		
	: BD434	- 22	V
	: BD436	- 32	V
	: BD438	- 45	V
V_{CEO}	Collector-Emitter Voltage		
	: BD434	- 22	V
	: BD436	- 32	V
	: BD438	- 45	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	$I_C = -100\text{mA}, I_B = 0$	-22 -32 -45			V V V		
	: BD434							
	: BD436 : BD438							
I_{CBO}	Collector Cut-off Current	$V_{CB} = -22\text{V}, I_E = 0$			-100 -100 -100	μA μA μA		
	: BD434	$V_{CB} = -32\text{V}, I_E = 0$						
	: BD436 : BD438	$V_{CB} = -45\text{V}, I_E = 0$						
I_{CEO}	Collector Cut-off Current	$V_{CE} = -22\text{V}, V_{BE} = 0$			-100 -100 -100	μA μA μA		
	: BD434	$V_{CE} = -32\text{V}, V_{BE} = 0$						
	: BD436 : BD438	$V_{CE} = -45\text{V}, V_{BE} = 0$						
I_{EBO}	Emitter Cut-off Current	$V_{EB} = -5\text{V}, I_C = 0$			-1	mA		
h_{FE}	* DC Current Gain	$V_{CE} = -5\text{V}, I_C = -10\text{mA}$	40 30 85 50 40	140 140 140				
							: BD434/436	
							: BD438	
							: ALL DEVICE	$V_{CE} = -1\text{V}, I_C = -500\text{mA}$
							: BD434/436 : BD438	$V_{CE} = -1\text{V}, I_C = -2\text{A}$
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = -2\text{A}, I_B = -0.2\text{A}$			-0.2 -0.2 -0.2	V V V		
							: BD434	
							: BD436 : BD438	
$V_{BE(on)}$	* Base-Emitter ON Voltage	$V_{CE} = -1\text{V}, I_C = -2\text{A}$			-1.1 -1.1 -1.2	V V V		
							: BD434	
							: BD436 : BD438	
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

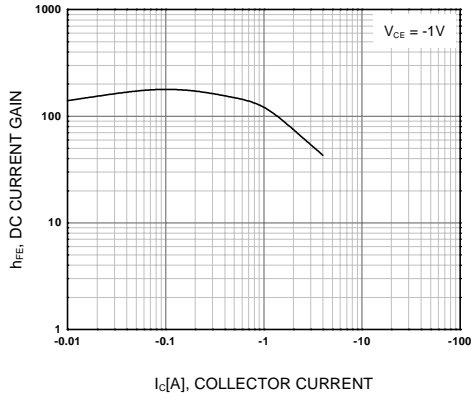


Figure 1. DC current Gain

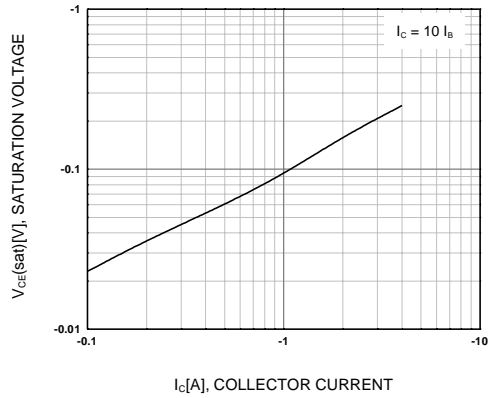


Figure 2. Collector-Emitter Saturation Voltage

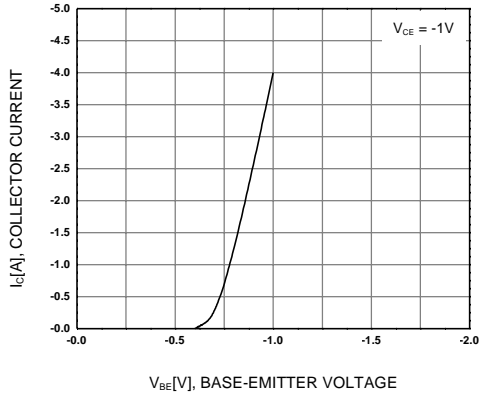


Figure 3. Base-Emitter On Voltage

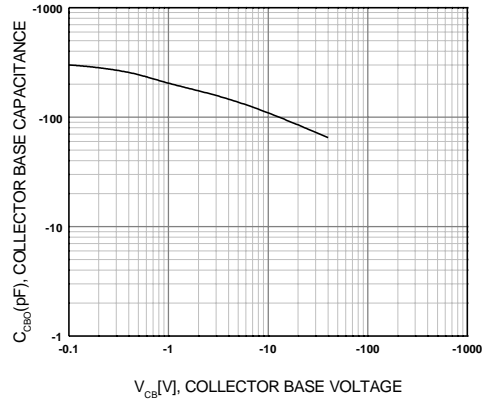


Figure 4. Collector-Base Capacitance

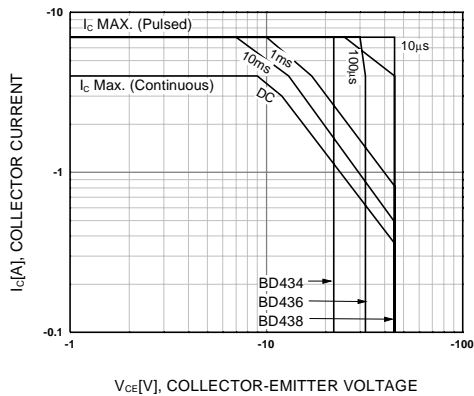


Figure 5. Safe Operating Area

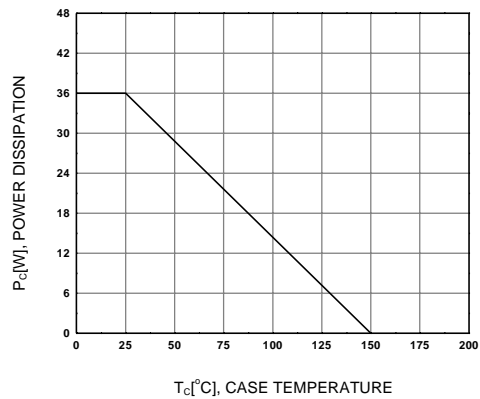


Figure 6. Power Derating

Package Dimensions

TO-126

BD434/436/438



Dimensions in Millimeters

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