

BD433/435/437

Medium Power Linear and Switching Applications

- Complement to BD434, BD436 and BD438 respectively



NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage		
	: BD433	22	V
	: BD435	32	V
	: BD437	45	V
V_{CES}	Collector-Emitter Voltage		
	: BD433	22	V
	: BD435	32	V
	: BD437	45	V
V_{CEO}	Collector-Emitter Voltage		
	: BD433	22	V
	: BD435	32	V
	: BD437	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			V
	: BD433					
	: BD435					
	: BD437	45			V	
I_{CBO}	Collector Cut-off Current	$V_{CB} = 22\text{V}, I_E = 0$			100	μA
	: BD433					
	: BD435					
	: BD437	$V_{CB} = 32\text{V}, I_E = 0$			100	μA
		$V_{CB} = 45\text{V}, I_E = 0$			100	μA
I_{CEO}	Collector Cut-off Current	$V_{CE} = 22\text{V}, V_{BE} = 0$			100	μA
	: BD433					
	: BD435					
	: BD437	$V_{CE} = 32\text{V}, V_{BE} = 0$			100	μA
		$V_{CE} = 45\text{V}, V_{BE} = 0$			100	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			1	mA
h_{FE}	* DC Current Gain	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	40	130		
	: BD433/435					
	: BD437					
	: ALL DEVICE					
	: BD433/435					
	: BD437	$V_{CE} = 1\text{V}, I_C = 500\text{mA}$	85	140		
		$V_{CE} = 1\text{V}, I_C = 2\text{A}$	50			
			40			
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = 2\text{A}, I_B = 0.2\text{A}$			0.2	0.5
	: BD433					
	: BD435					
	: BD437	0.2	0.6	V		
$V_{BE(on)}$	* Base-Emitter ON Voltage	$V_{CE} = 1\text{V}, I_C = 2\text{A}$			1.1	V
	: BD433					
	: BD435					
	: BD437	1.1	1.2	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

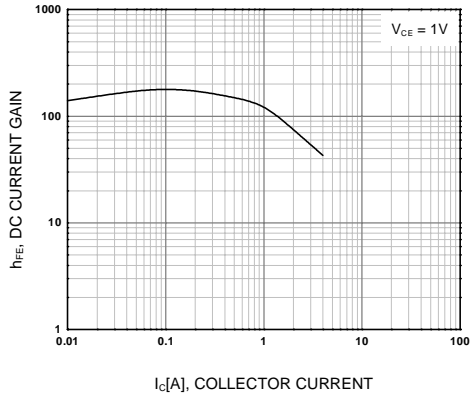


Figure 1. DC current Gain

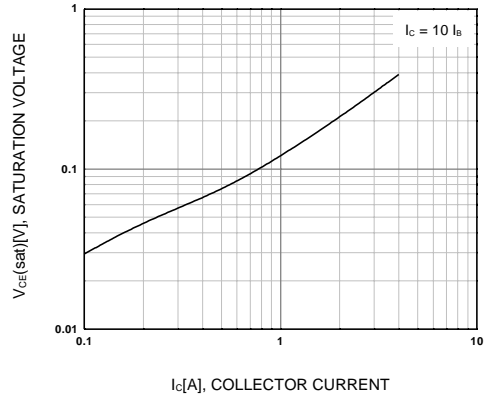


Figure 2. Collector-Emitter Saturation Voltage

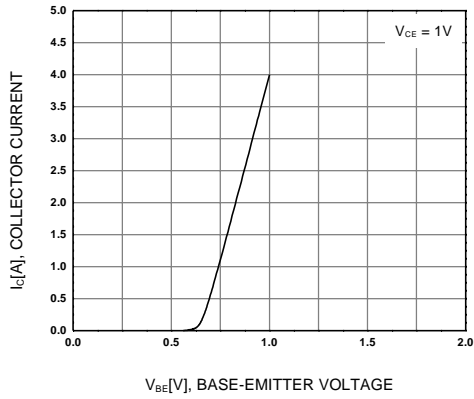


Figure 3. Base-Emitter On Voltage

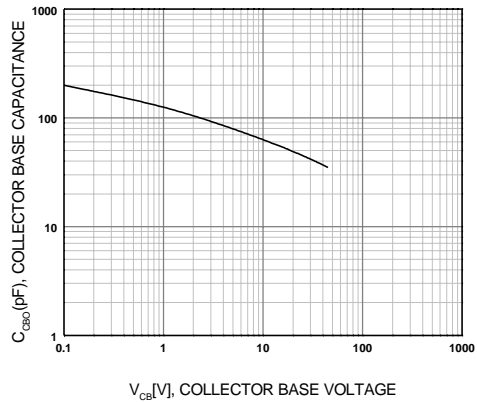


Figure 4. Collector-Base Capacitance

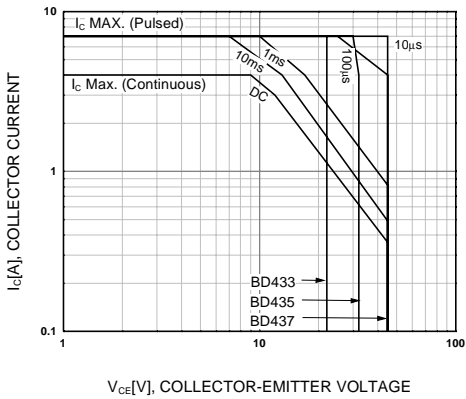


Figure 5. Safe Operating Area

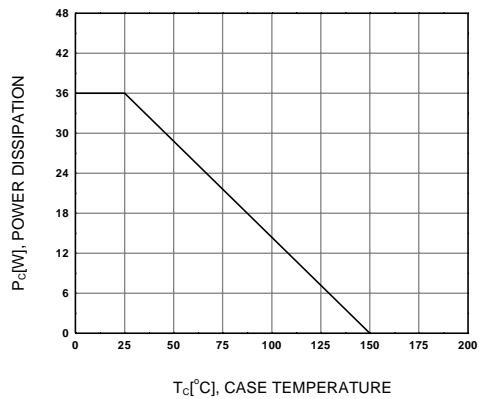


Figure 6. Power Derating

Package Dimensions

TO-126

BD433/435/437



Dimensions in Millimeters

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