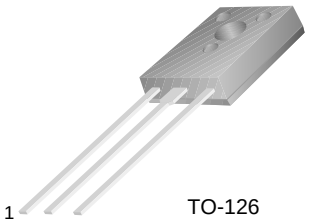
FAIRCHILD SEMICONDUCTOR®

July 2011

BD433/435/437
NPN Epitaxial Silicon Transistor

Features

- Medium Power Linear and Switching Applications
- Complement to BD434, BD436 and BD438 respectively



TO-126

1. Emitter 2.Collector 3.Base

Ordering Information

Part Number	Marking	Package	Packing Method	Remarks
BD433S	BD433	TO-126	BULK	
BD435S	BD435	TO-126	BULK	
BD435STU	BD435	TO-126	RAIL	
BD437S	BD437	TO-126	BULK	

* The suffix "S" of FSID denotes TO126 package.

Absolute Maximum Ratings T_A = 25°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°C)	36	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 to 150	°C

Electrical Characteristics T_A = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V_{CEO}(sus)	Collector-Emitter Sustaining Voltage					
	: BD433	I_C = 100mA, I_B = 0	22			V
	: BD435		32			V
	: BD437		45			V
I_{CBO}	Collector Cut-off Current					
	: BD433	V_{CB} = 22V, I_E = 0			100	μA
	: BD435	V_{CB} = 32V, I_E = 0			100	μA
	: BD437	V_{CB} = 45V, I_E = 0			100	μA
I_{CEO}	Collector Cut-off Current					
	: BD433	V_{CE} = 22V, V_{BE} = 0			100	μA
	: BD435	V_{CE} = 32V, V_{BE} = 0			100	μA
	: BD437	V_{CE} = 45V, V_{BE} = 0			100	μA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 5V, I_C = 0			1	mA
h_{FE}	* DC Current Gain					
	: BD433/435	V_{CE} = 5V, I_C = 10mA	40	130		
	: BD437		30	130		
	: ALL DEVICE	V_{CE} = 1V, I_C = 500mA	85	140		
	: BD433/435	V_{CE} = 1V, I_C = 2A	50			
	: BD437		40			
V_{CE}(sat)	* Collector-Emitter Saturation Voltage					
	: BD433	I_C = 2A, I_B = 0.2A		0.2	0.5	V
	: BD435			0.2	0.5	V
	: BD437			0.2	0.6	V
V_{BE}(on)	* Base-Emitter ON Voltage					
	: BD433	V_{CE} = 1V, I_C = 2A			1.1	V
	: BD435				1.1	V
	: BD437				1.2	V
f_T	Current Gain Bandwidth Product	V_{CE} = 1V, I_C = 250mA	3			MHz

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

Typical Performance Characteristics

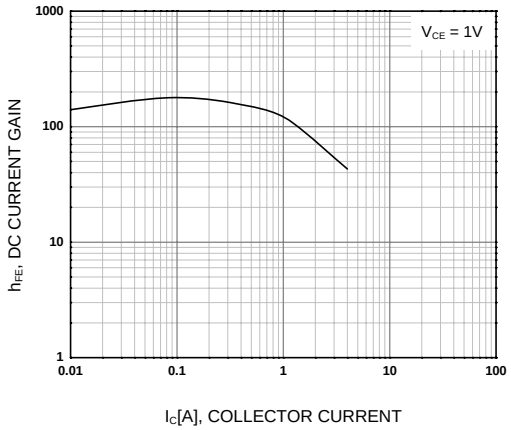


Figure 1. DC current Gain

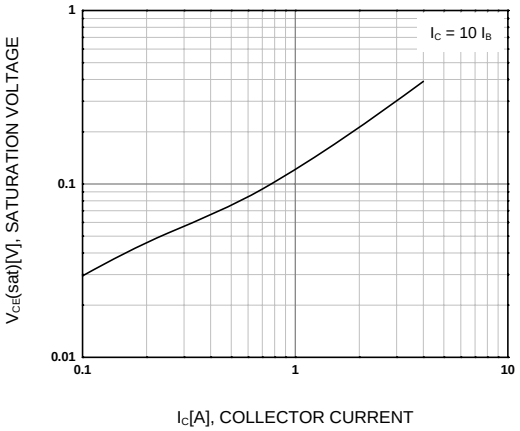


Figure 2. Collector-Emitter Saturation Voltage

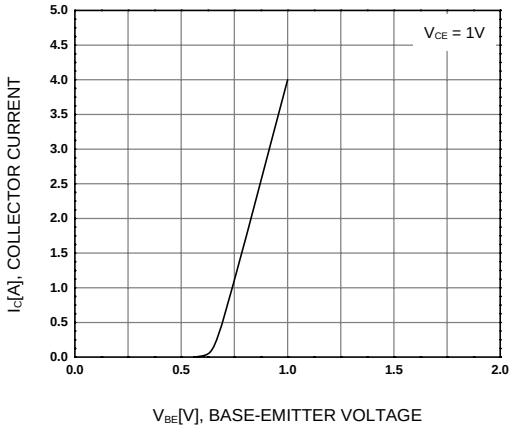


Figure 3. Base-Emitter On Voltage

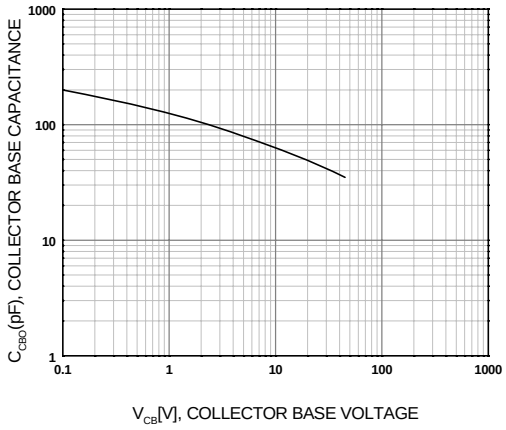


Figure 4. Collector-Base Capacitance

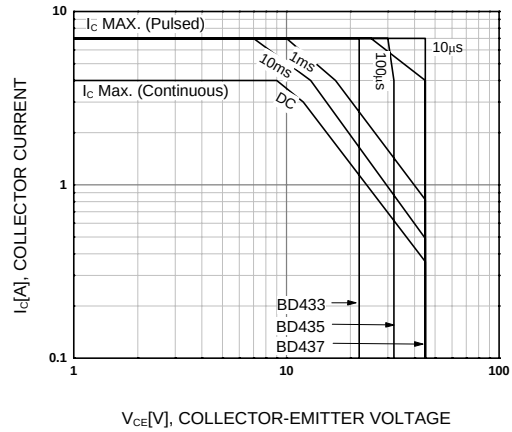


Figure 5. Safe Operating Area

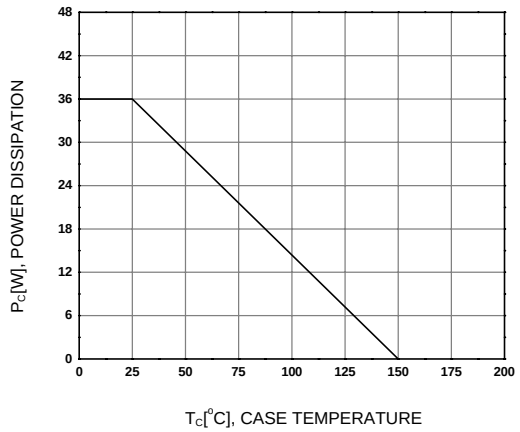
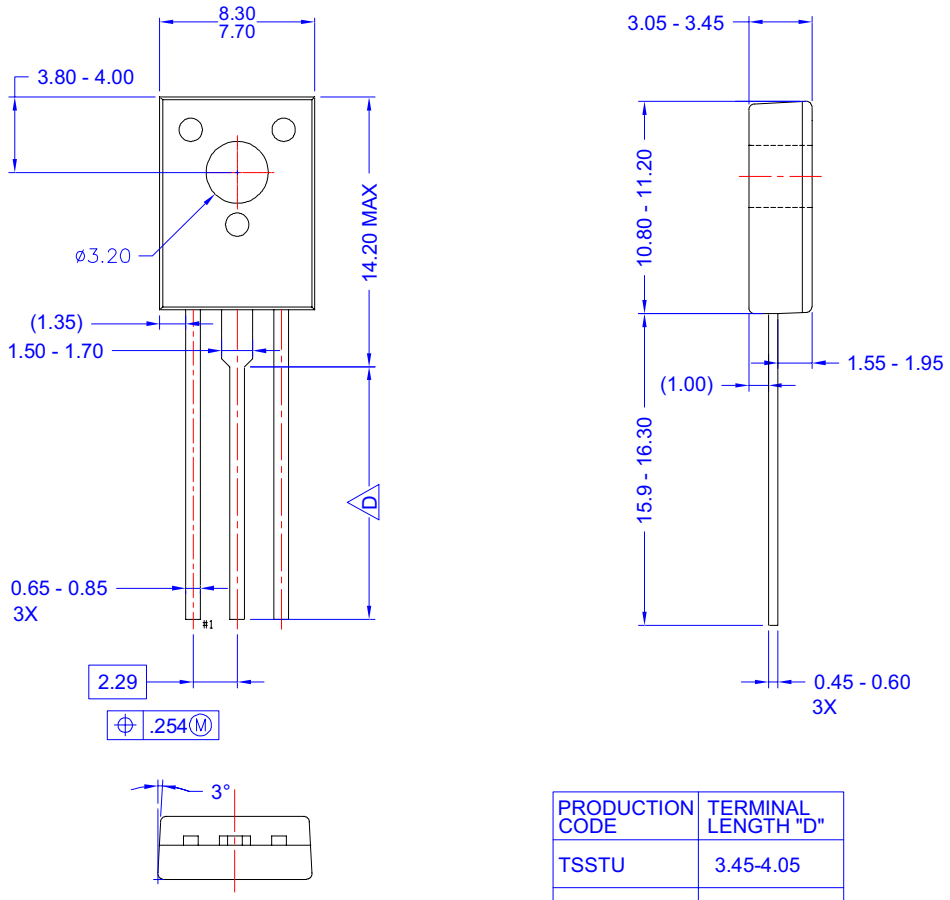


Figure 6. Power Derating

Physical Dimension

TO-126



PRODUCTION CODE	TERMINAL LENGTH "D"
TSSTU	3.45-4.05
TSTU	2.36-2.96
NONE (STD LENGTH)	12.76-13.36

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C) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.
D) FOR TERMINAL LENGTH SEE TABLE
E) DRAWING FILE NAME AND REVISION : MKT-TO126AArev1

Dimensions in Millimeters

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