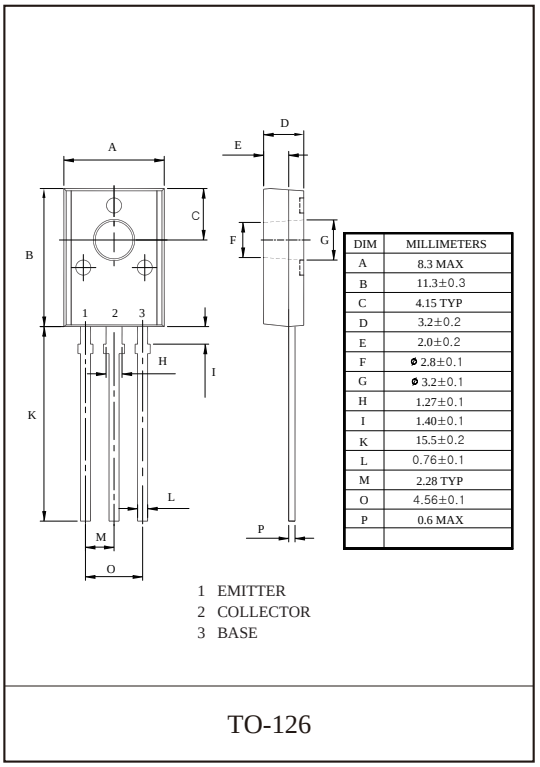
BD433/435/437 TRANSISTOR (NPN)

FEATURES

Amplifier and Switching Applications



DIM	MILLIMETERS
A	8.3 MAX
B	11.3±0.3
C	4.15 TYP
D	3.2±0.2
E	2.0±0.2
F	ø 2.8±0.1
G	ø 3.2±0.1
H	1.27±0.1
I	1.40±0.1
K	15.5±0.2
L	0.76±0.1
M	2.28 TYP
O	4.56±0.1
P	0.6 MAX

TO-126

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	BD433 BD435 BD437	22 32 45	V
V_{CEO}	Collector-Emitter Voltage	BD433 BD435 BD437	22 32 45	V
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	℃
T_{stg}	Storage Temperature		-55-150	℃

ELECTRICAL CHARACTERISTICS (Ta=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	BD433 BD435 BD437	22 32 45			V
Collector-emitter breakdown voltage	$V_{CE(SUS)}$(1)	I_C=100mA,I_B=0	BD433 BD435 BD437	22 32 45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=100μA,I_C=0		5			V
Collector cut-off current	I_{CBO}	V_{CB}=22V,I_E=0 V_{CB}=32V,I_E=0 V_{CB}=45V,I_E=0	BD433 BD435 BD437			1	μA
Collector cut-off current	I_{CEO}	V_{CE}=22V,I_E=0 V_{CE}=32V,I_E=0 V_{CE}=45V,I_E=0	BD433 BD435 BD437			10	μA
Emitter cut-off current	I_{EBO}	V_{EB}=5V,I_E=0				1	μA
DC current gain	$h_{FE(1)}$ (1)	V_{CE}=1V,I_C=500mA		85			
	$h_{FE(2)}$ (1)	V_{CE}=5V,I_C=10mA	BD433/BD435 BD437	40 30			
	$h_{FE(3)}$ (1)	V_{CE}=1V,I_C=2A	BD433/BD435 BD437	50 40			
Collector-emitter saturation voltage	$V_{CE(sat)}$ (1)	I_C=2A,I_B=0.2A	BD433/BD435 BD437			0.5 0.6	V
Base-emitter voltage	V_{BE}(1)	V_{CE}=1V,I_C=2A	BD433/BD435 BD437			1.1 1.2	V
Transition frequency	f_T	V_{CE}=1V,I_C=250mA		3			MHz

(1)Pulse test.

Typical Characteristics

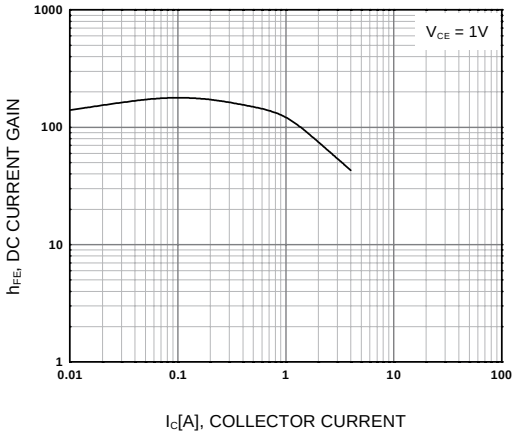


Figure 1. DC current Gain

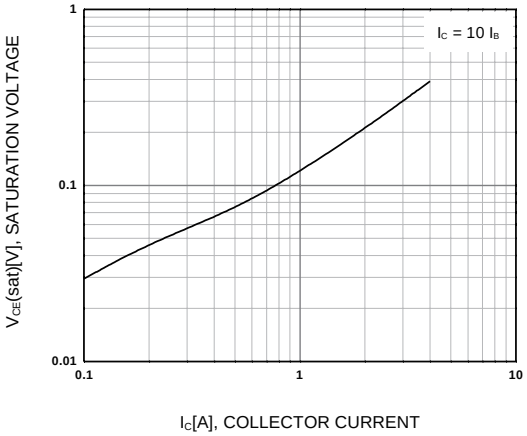


Figure 2. Collector-Emitter Saturation Voltage

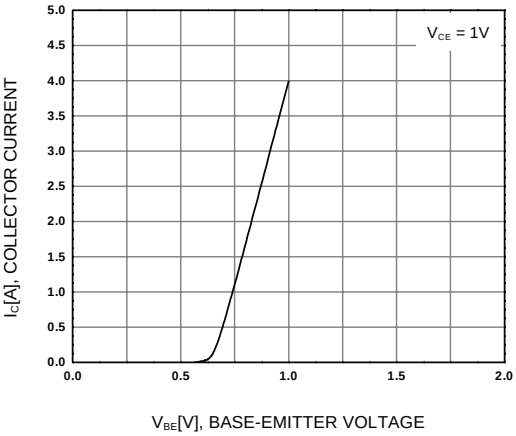


Figure 3. Base-Emitter On Voltage

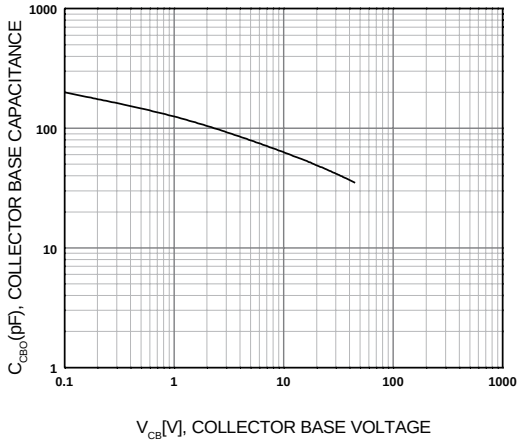


Figure 4. Collector-Base Capacitance

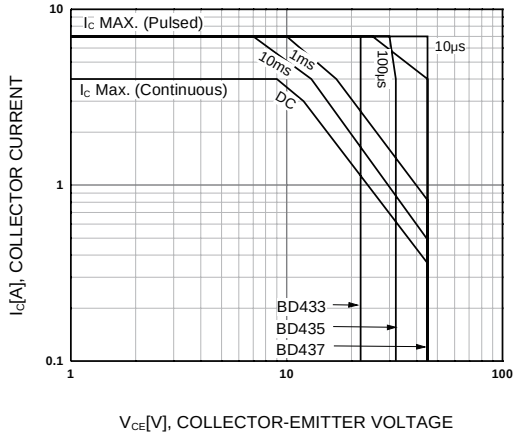


Figure 5. Safe Operating Area

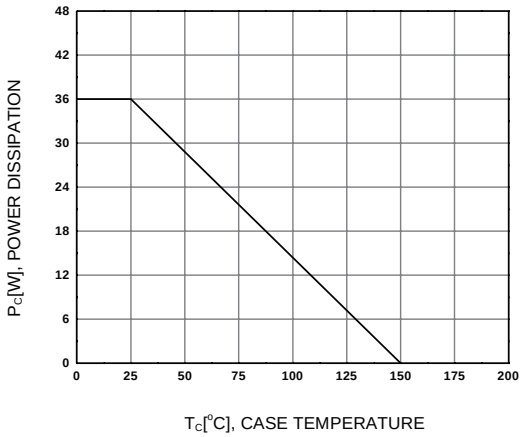


Figure 6. Power Derating