

Plastic Medium Power Silicon NPN Transistor

... for amplifier and switching applications. Complementary types are BD438 and BD442.

**BD437
BD439
BD441**

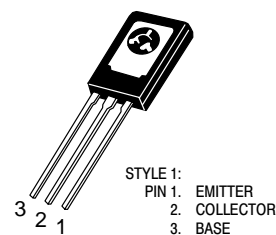
**4.0 AMPERES
POWER TRANSISTORS
NPN SILICON**

MAXIMUM RATINGS

Rating		Symbol	Value	Unit
Collector–Emitter Voltage	BD437	V_{CEO}	45	Vdc
	BD439		60	
	BD441		80	
Collector–Base Voltage	BD437	V_{CBO}	45	Vdc
	BD439		60	
	BD441		80	
Emitter–Base Voltage		V_{EBO}	5.0	Vdc
Collector Current		I_C	4.0	Adc
Base Current		I_B	1.0	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C		P_D	36	Watts
			288	
Operating and Storage Junction Temperature Range		T_J, T_{stg}	–55 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	3.5	$^\circ\text{C}/\text{W}$



**CASE 77–09
TO–225AA TYPE**

BD437 BD439 BD441

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Collector–Emitter Breakdown Voltage (I _C = 100 mA, I _B = 0)	V _{(BR)CEO} BD437 BD439 BD441	45 60 80	– – –	– – –	V _{dc}
Collector–Base Breakdown Voltage (I _C = 100 μA, I _B = 0)	V _{(BR)CBO} BD437 BD439 BD441	45 60 80	– – –	– – –	V _{dc}
Emitter–Base Breakdown Voltage (I _E = 100 μA, I _C = 0)	V _{(BR)EBO}	5.0	–	–	V _{dc}
Collector Cutoff Current (V _{CB} = 45 V, I _E = 0) (V _{CB} = 60 V, I _E = 0) (V _{CB} = 80 V, I _E = 0)	I _{CBO} BD437 BD439 BD441	– – –	– – –	0.1 0.1 0.1	mAdc
Emitter Cutoff Current (V _{EB} = 5.0 V)	I _{EBO}	–	–	1.0	mAdc
DC Current Gain (I _C = 10 mA, V _{CE} = 5.0 V)	h _{FE} BD437 BD439 BD441	30 20 15	– – –	– – –	
DC Current Gain (I _C = 500 mA, V _{CE} = 1.0 V)	h _{FE} BD437 BD439, BD441	85 40	– –	375 475	
DC Current Gain (I _C = 2.0 A, V _{CE} = 1.0 V)	h _{FE} BD437 BD439 BD441	40 25 15	– – –	– – –	
Collector Saturation Voltage (I _C = 3.0 A, I _B = 0.3 A)	V _{CE(sat)} BD437, BD439, BD441	–	–	0.8	V _{dc}
Base–Emitter On Voltage (I _C = 2.0 A, V _{CE} = 1.0 V)	V _{BE(on)}	–	–	1.1	V _{dc}
Current–Gain – Bandwidth Product (V _{CE} = 1.0 V, I _C = 250 mA, f = 1.0 MHz)	f _T	3.0	–	–	MHz

BD437 BD439 BD441

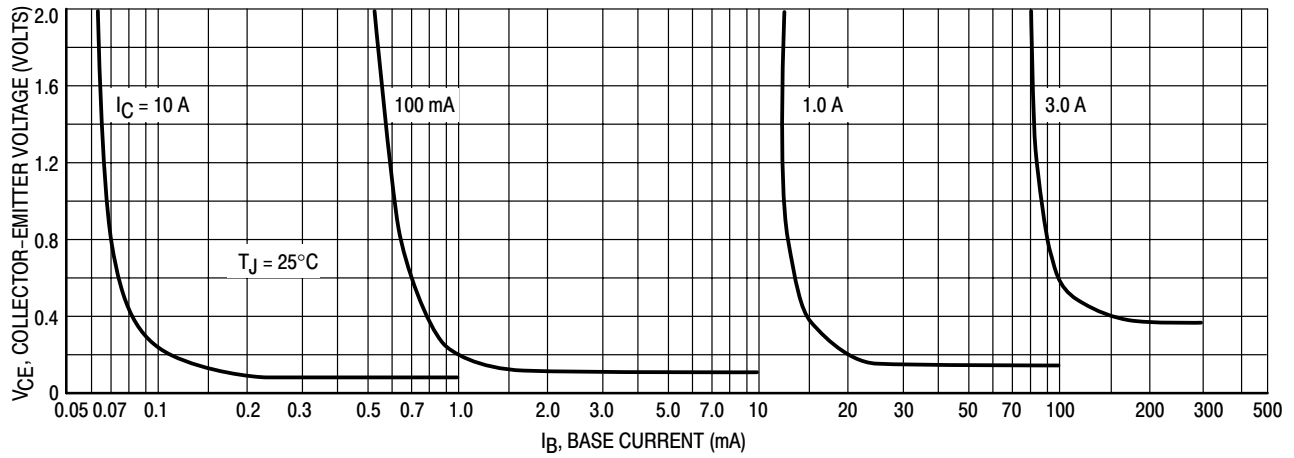


Figure 1. Collector Saturation Region

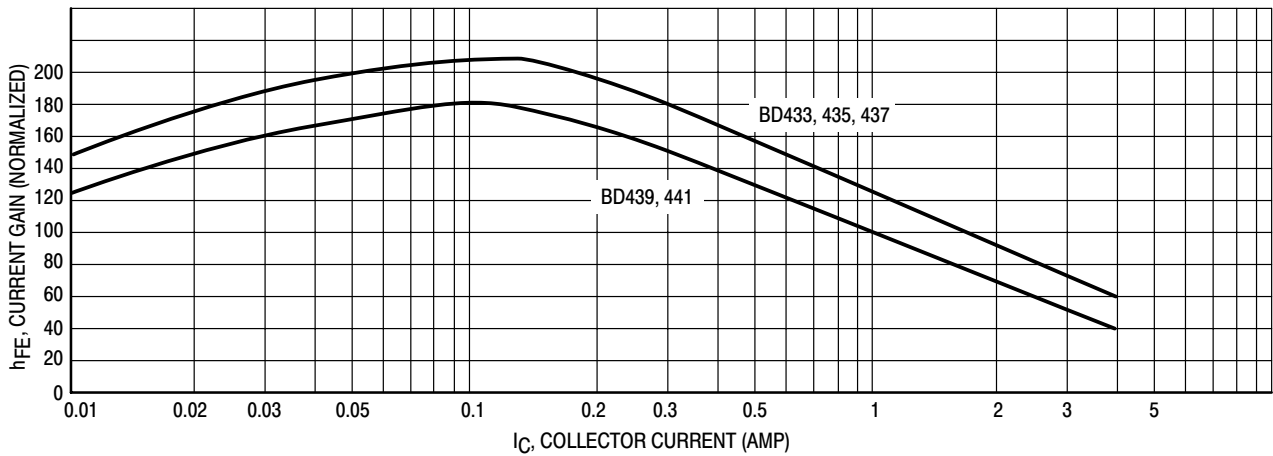


Figure 2. Current Gain

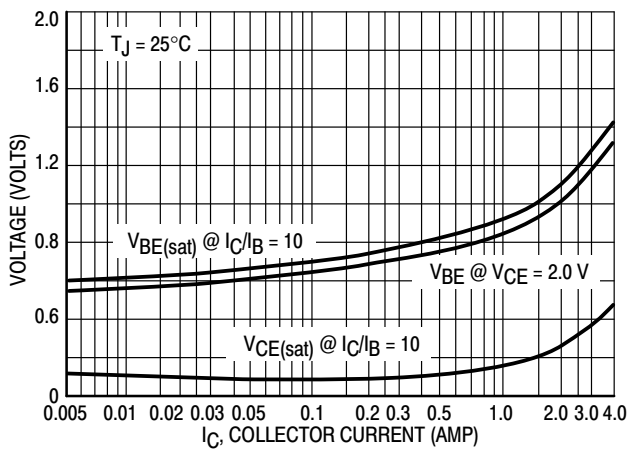


Figure 3. "On" Voltage

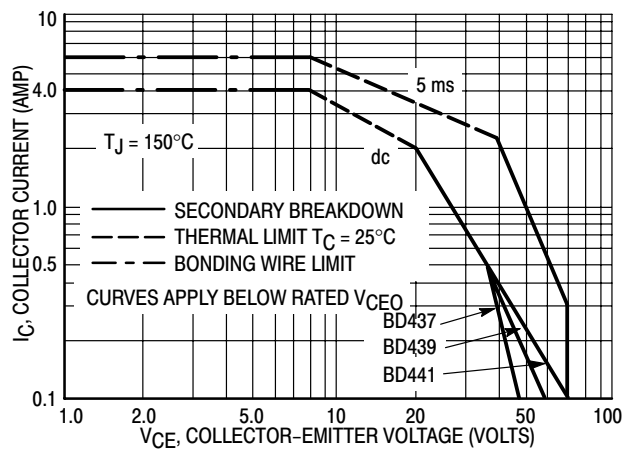
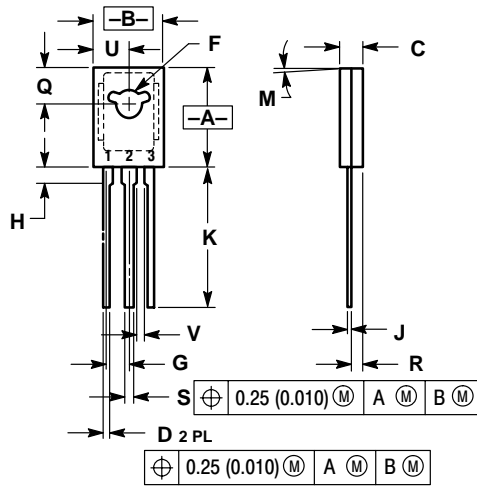


Figure 4. Active Region Safe Operating Area

BD437 BD439 BD441

PACKAGE DIMENSIONS

TO-225AA CASE 77-09 ISSUE W




NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.425	0.435	10.80	11.04
B	0.295	0.305	7.50	7.74
C	0.095	0.105	2.42	2.66
D	0.020	0.026	0.51	0.66
F	0.115	0.130	2.93	3.30
G	0.094 BSC		2.39 BSC	
H	0.050	0.095	1.27	2.41
J	0.015	0.025	0.39	0.63
K	0.575	0.655	14.61	16.63
M	5° TYP		5° TYP	
Q	0.148	0.158	3.76	4.01
R	0.045	0.065	1.15	1.65
S	0.025	0.035	0.64	0.88
U	0.145	0.155	3.69	3.93
V	0.040	---	1.02	---

STYLE 1:
PIN 1. EMITTER
2. COLLECTOR
3. BASE

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