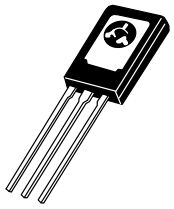
BD136
BD138
BD140
BD140-10

Plastic Medium Power Silicon PNP Transistor

. . . designed for use as audio amplifiers and drivers utilizing complementary or quasi complementary circuits.

- DC Current Gain — h_{FE} = 40 (Min) @ I_C = 0.15 Adc
- BD 136, 138, 140 are complementary with BD 135, 137, 139

1.5 AMPERE
POWER TRANSISTORS
PNP SILICON
45, 60, 80 VOLTS
10 WATTS



CASE 77–08
TO–225AA TYPE

MAXIMUM RATINGS

Rating	Symbol	Type	Value	Unit
Collector–Emitter Voltage	V_{CEO}	BD 136 BD 138 BD 140	45 60 80	Vdc
Collector–Base Voltage	V_{CBO}	BD 136 BD 138 BD 140	45 60 100	Vdc
Emitter–Base Voltage	V_{EBO}		5	Vdc
Collector Current	I_C		1.5	Adc
Base Current	I_B		0.5	Adc
Total Device Dissipation@ T_A = 25°C Derate above 25°C	P_D		1.25 10	Watts mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D		12.5 100	Watt mW/°C
Operating and Storage Junction Temperarture Range	T_J, T_{stg}		−55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	10	°C/W
Thermal Resistance, Junction to Ambient	θ_{JA}	100	°C/W

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

Characteristic		Symbol	Type	Min	Max	Unit
Collector–Emitter Sustaining Voltage* (I_C = 0.03 Adc, I_B = 0)		BV_{CEO}	BD 136 BD 138 BD 140	45 60 80	— — —	Vdc
Collector Cutoff Current (V_{CB} = 30 Vdc, I_E = 0) (V_{CB} = 30 Vdc, I_E = 0, T_C = 125 °C)		I_{CBO}		— —	0.1 10	μAdc
Emitter Cutoff Current (V_{BE} = 5.0 Vdc, I_C = 0)		I_{EBO}		—	10	μAdc
DC Current Gain (I_C = 0.005 A, V_{CE} = 2 V) (I_C = 0.15 A, V_{CE} = 2 V) (I_C = 0.5 A, V_{CE} = 2 V)	 ALL ALL BD140–10	h_{FE}*		 25 40 63 25	 — 250 160 —	—
Collector–Emitter Saturation Voltage* (I_C = 0.5 Adc, I_B = 0.05 Adc)		$V_{CE(sat)}$*		—	0.5	Vdc
Base–Emitter On Voltage* (I_C = 0.5 Adc, V_{CE} = 2.0 Vdc)		$V_{BE(on)}$*		—	1	Vdc

* Pulse Test: Pulse Width ≦ 300 μs, Duty Cycle ≦ 2.0%.

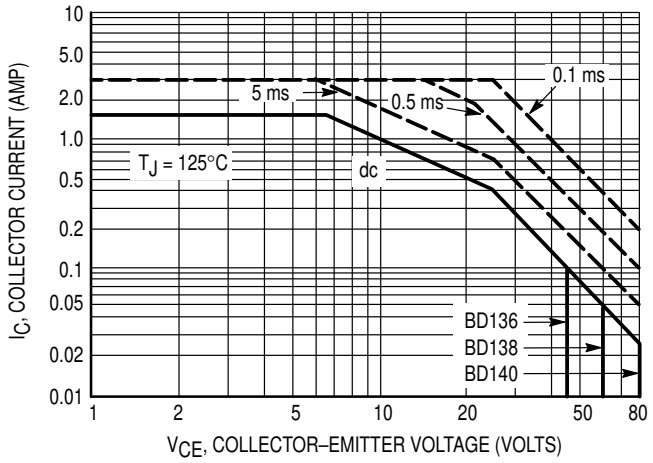
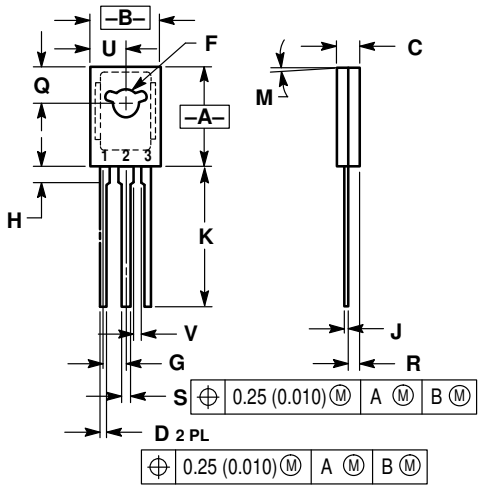


Figure 1. Active–Region Safe Operating Area

PACKAGE DIMENSIONS



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

	INCHES		MILLIMETERS	
DIM	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	0.055	1.15	1.39
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

CASE 77–08
TO–225AA TYPE
ISSUE V

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