

Plastic Medium Power Silicon NPN Transistor

... designed for use in 5.0 to 10 Watt audio amplifiers and drivers utilizing complementary or quasi complementary circuits.

- DC Current Gain —
 $h_{FE} = 40$ (Min) @ $I_C = 0.15$ Adc

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	80	Vdc
Collector–Base Voltage	V_{CBO}	100	Vdc
Emitter–Base Voltage	V_{EBO}	5.0	Vdc
Collector Current	I_C	2.0	Adc
Base Current	I_B	1.0	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$	P_D	25	Watts
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}	5.0	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

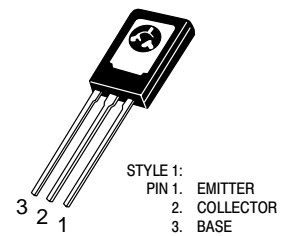
Characteristic	Symbol	Min	Max	Unit
Collector–Emitter Sustaining Voltage* ($I_C = 0.1$ Adc, $I_B = 0$)	$V_{(BR)CEO}$	80	—	Vdc
Collector Cutoff Current ($V_{CB} = 100$ Vdc, $I_E = 0$)	I_{CBO}	—	0.1	mAdc
Emitter Cutoff Current ($V_{BE} = 5.0$ Vdc, $I_C = 0$)	I_{EBO}	—	1.0	mAdc
DC Current Gain ($I_C = 0.15$ A, $V_{CE} = 2.0$ V) ($I_C = 1.0$ A, $V_{CE} = 2.0$ V)	h_{FE1} h_{FE2}	40 25	— —	
Collector–Emitter Saturation Voltage* ($I_C = 1.0$ Adc, $I_B = 0.1$ Adc)	$V_{CE(sat)}$	—	0.6	Vdc
Base–Emitter On Voltage* ($I_C = 1.0$ Adc, $V_{CE} = 2.0$ Vdc)	$V_{BE(on)}$	—	1.3	Vdc
Current–Gain — Bandwidth Product ($I_C = 250$ mAdc, $V_{CE} = 10$ Vdc, $f = 1.0$ MHz)	f_T	3.0	—	MHz

*Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

**NPN
BD237
PNP
BD238**

*ON Semiconductor Preferred Device

**2.0 AMPERES
POWER TRANSISTORS
NPN SILICON
80 VOLTS
25 WATTS**



**CASE 77–09
TO–225AA TYPE**

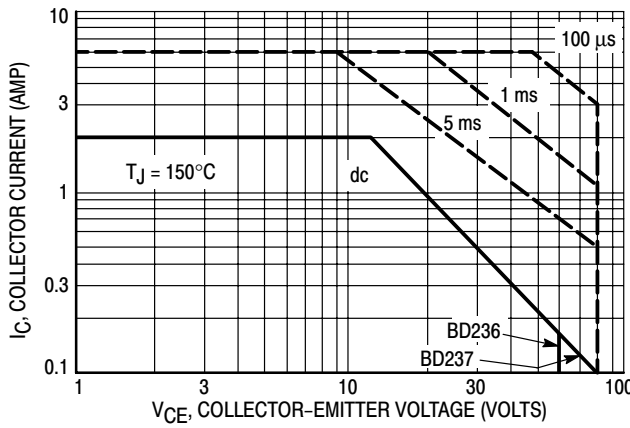


Figure 1. Active Region Safe Operating Area

The Safe Operating Area Curves indicate $I_C - V_{CE}$ limits below which the device will not enter secondary breakdown. Collector load lines for specific circuits must fall within the applicable Safe Area to avoid causing a catastrophic failure. To insure operation below the maximum T_J , power-temperature derating must be observed for both steady state and pulse power conditions.

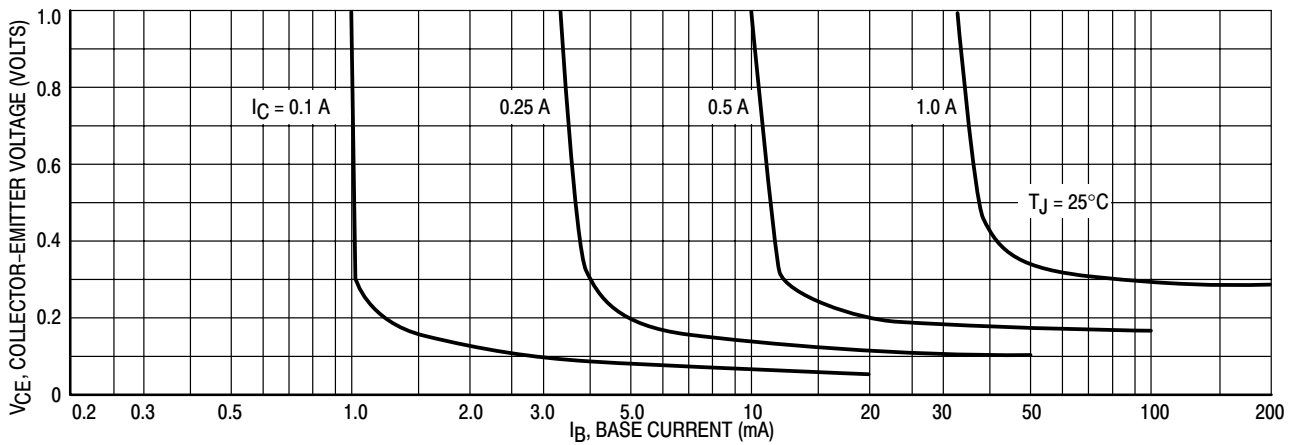


Figure 2. Collector Saturation Region

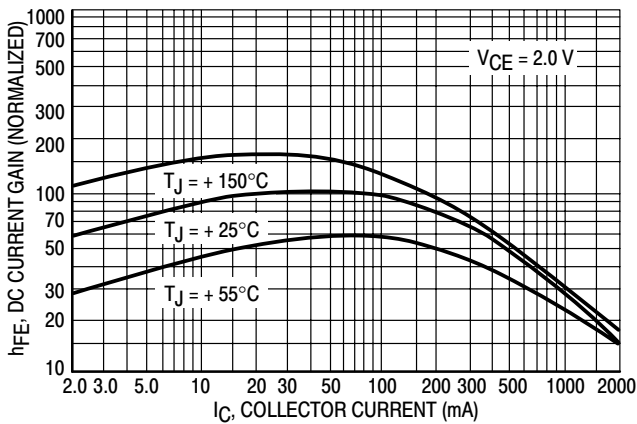


Figure 3. Current Gain

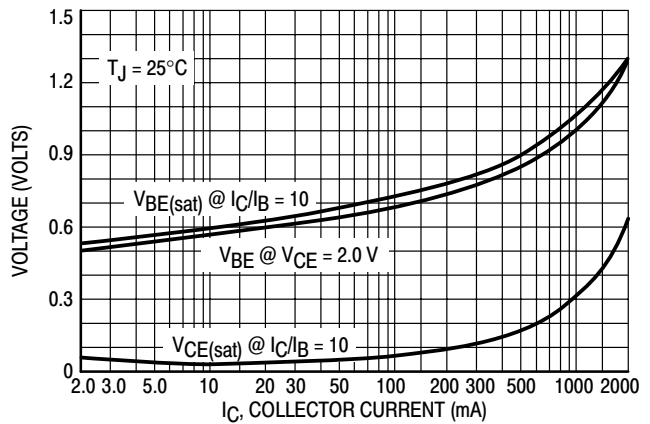


Figure 4. "On" Voltages

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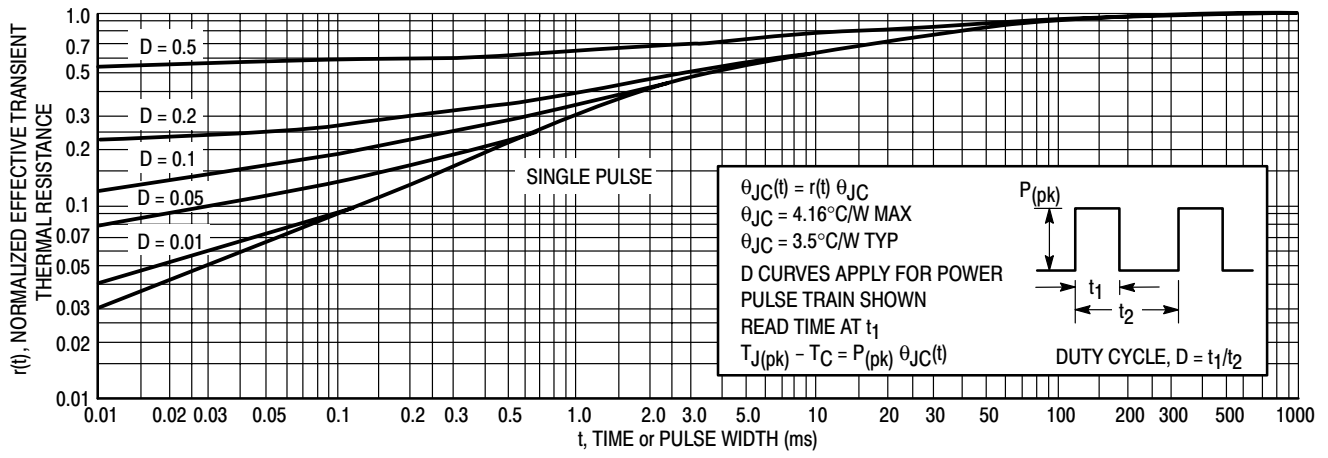
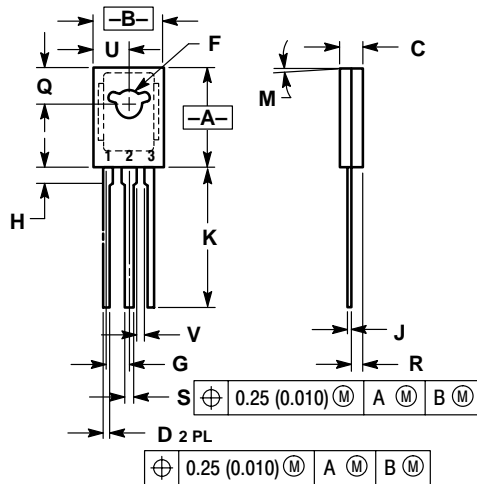


Figure 5. Thermal Response

BD238

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:

1. EMITTER
2. COLLECTOR
3. BASE

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