

Plastic High Power Silicon PNP Transistor

... designed for use in high power audio amplifiers utilizing complementary or quasi complementary circuits.

- DC Current Gain — $h_{FE} = 30$ (Min) @ $I_C = 2.0$ Adc
- BD 808, 810 are complementary with BD 807, 890

MAXIMUM RATINGS

Rating	Symbol	Type	Value	Unit
Collector-Emitter Voltage	V_{CEO}	BD808 BD810	60 80	Vdc
Collector-Base Voltage	V_{CBO}	BD808 BD810	70 80	Vdc
Emitter-Base Voltage	V_{EBO}		5.0	Vdc
Collector Current	I_C		10	Adc
Base Current	I_B		6.0	Adc
Total Device Dissipation $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D		90 720	Watts mW/ $^\circ\text{C}$
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}	1.39	$^\circ\text{C/W}$

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

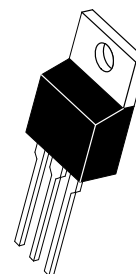
Characteristic	Symbol	Type	Min	Max	Unit
Collector-Emitter Sustaining Voltage* ($I_C = 0.1$ Adc, $I_B = 0$)	BV_{CEO}	BD808 BD810	60 80	— —	Vdc
Collector Cutoff Current ($V_{CB} = 70$ Vdc, $I_E = 0$) ($V_{CB} = 80$ Vdc, $I_E = 0$)	I_{CBO}	BD808 BD810	— —	1.0 1.0	mAdc
Emitter Cutoff Current ($V_{BE} = 5.0$ Vdc, $I_C = 0$)	I_{EBO}		—	2.0	mAdc
DC Current Gain ($I_C = 2.0$ A, $V_{CE} = 2.0$ V) ($I_C = 4.0$ A, $V_{CE} = 2.0$ V)	h_{FE}		30 15	— —	
Collector-Emitter Saturation Voltage* ($I_C = 3.0$ Adc, $I_B = 0.3$ Adc)	$V_{CE(sat)}$		—	1.1	Vdc
Base-Emitter On Voltage* ($I_C = 4.0$ Adc, $V_{CE} = 2.0$ Vdc)	$V_{BE(on)}$		—	1.6	Vdc
Current-Gain Bandwidth Product ($I_C = 1.0$ Adc, $V_{CE} = 10$ Vdc, $f = 1.0$ MHz)	f_T		1.5	—	MHz

* Pulse Test: Pulse Width ≤ 300 μs , Duty Cycle $\leq 2.0\%$.

**BD808
BD810***

*Motorola Preferred Device

**10 AMPERE
POWER TRANSISTORS
PNP SILICON
60, 80 VOLTS
90 WATTS**



CASE 221A-06
TO-220AB

Preferred devices are Motorola recommended choices for future use and best overall value.

REV 7

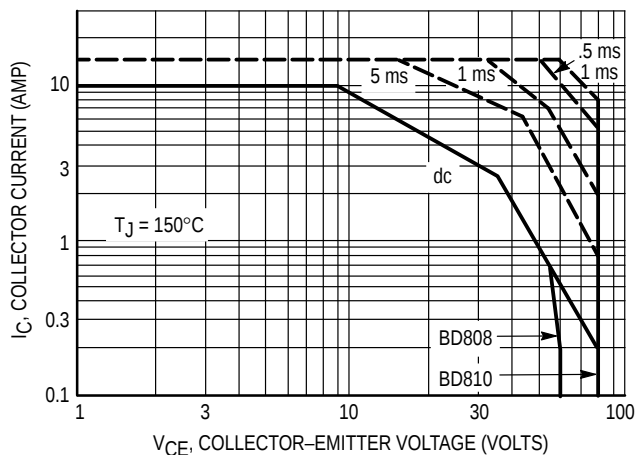


Figure 1. Active Region DC Safe Operating Area
(see Note 1)

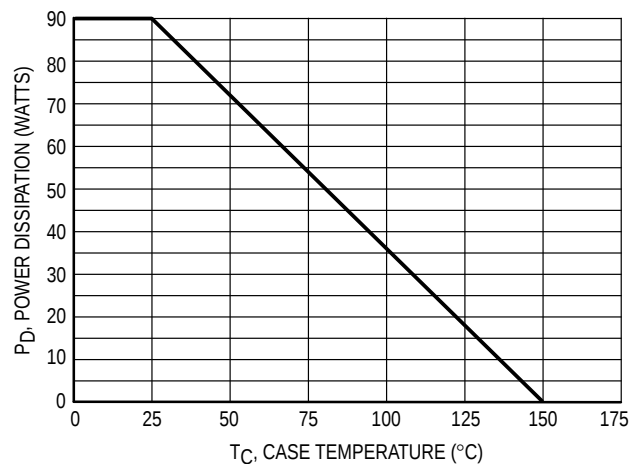


Figure 2. Power-Temperature Derating Curve

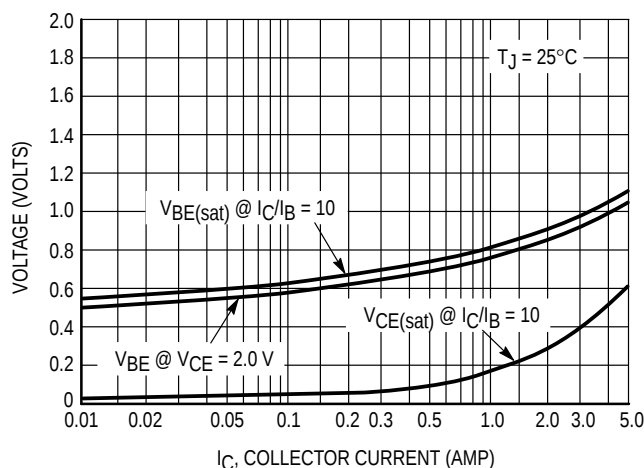


Figure 3. "On" Voltages

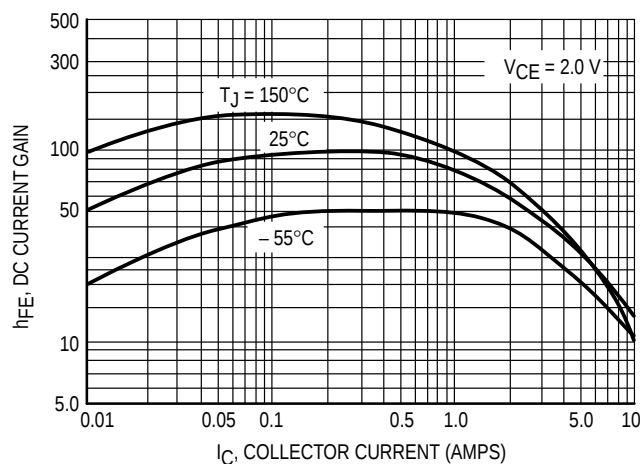


Figure 4. Current Gain

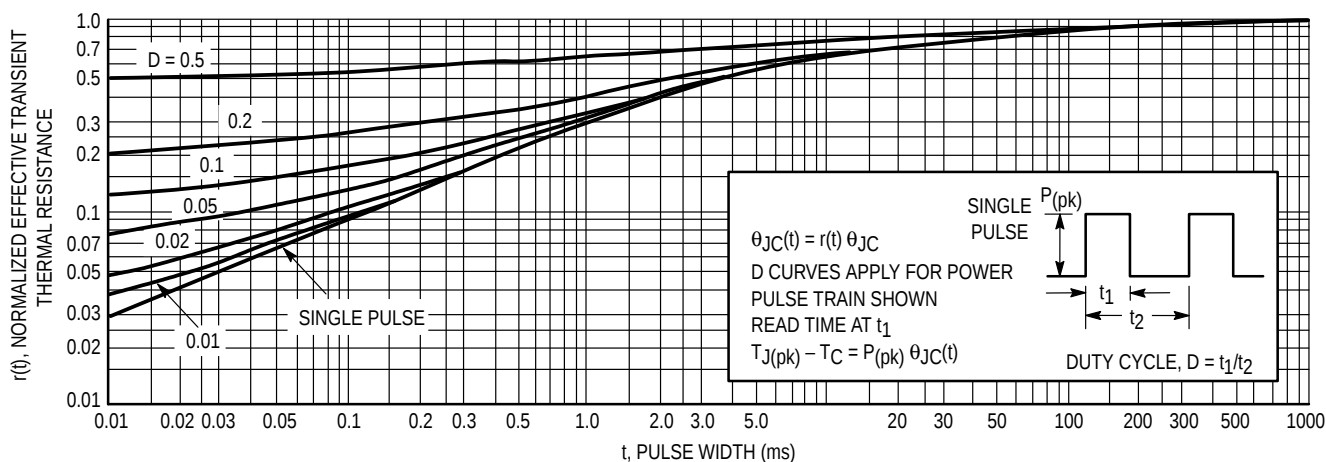


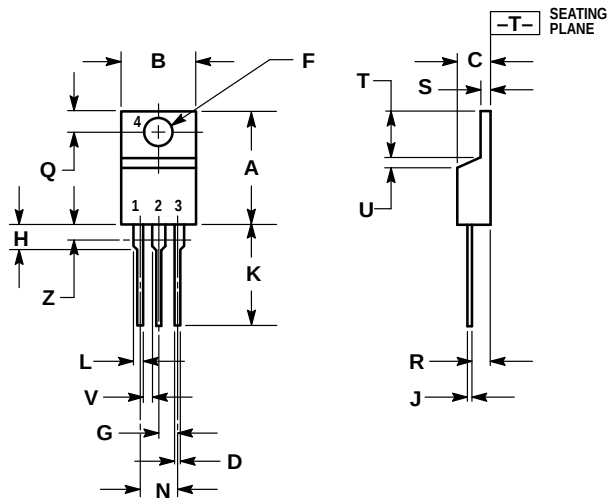
Figure 5. Thermal Response

Note 1:

There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown. Safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation, i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure 1 is based on $T_{J(pk)} = 150^\circ\text{C}$; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(pk)} \leq 150^\circ\text{C}$. At high case temperatures, thermal limitations will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

PACKAGE DIMENSIONS



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	—	1.15	—
Z	—	0.080	—	2.04

STYLE 1:

- PIN 1: BASE
 2. COLLECTOR
 3. EMITTER
 4. COLLECTOR

CASE 221A-06
 TO-220AB
 ISSUE Y

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**MOTOROLA****BD808/D**