Plastic High Power Silicon PNP Transistor

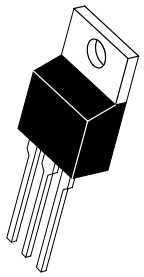
BD808
BD810*

*ON Semiconductor Preferred Device

. . . 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

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



CASE 221A–06
TO–220AB

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°C Derate above 25°C	P_D		90 720	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}		–55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	1.39	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°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 ≦ 2.0%.

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

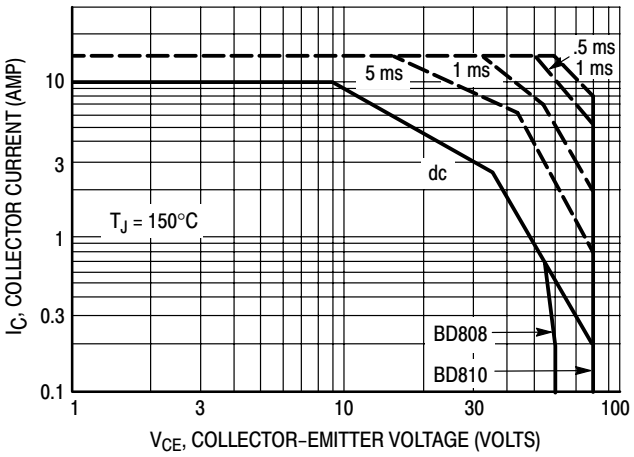


Figure 1. Active Region DC Safe Operating Area (see Note 1)

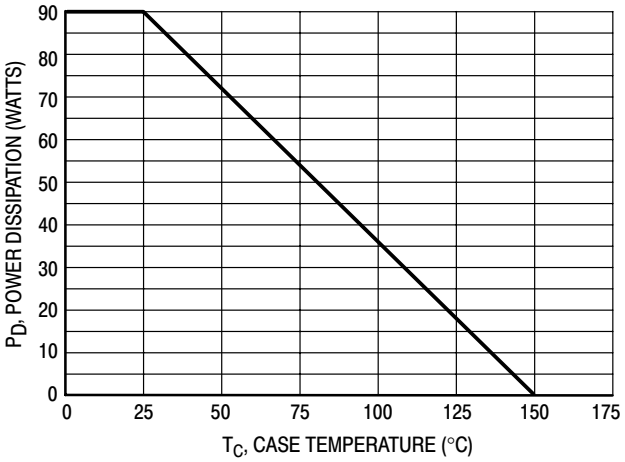


Figure 2. Power−Temperature Derating Curve

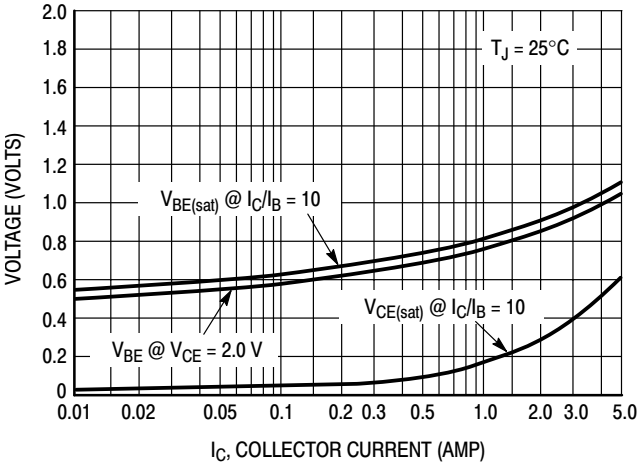


Figure 3. “On” Voltages

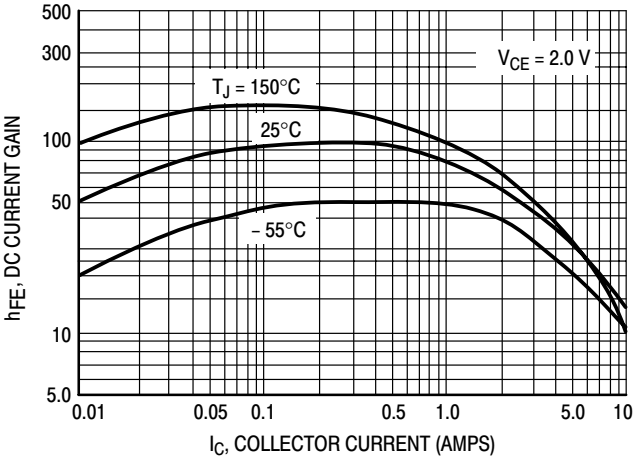


Figure 4. Current Gain

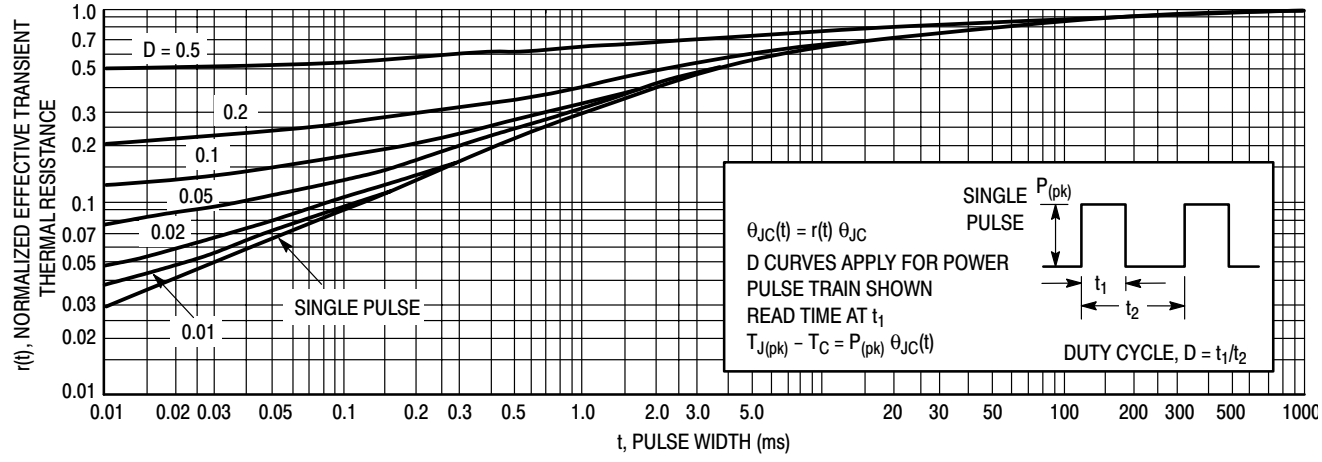


Figure 5. Thermal Response

Note 1:

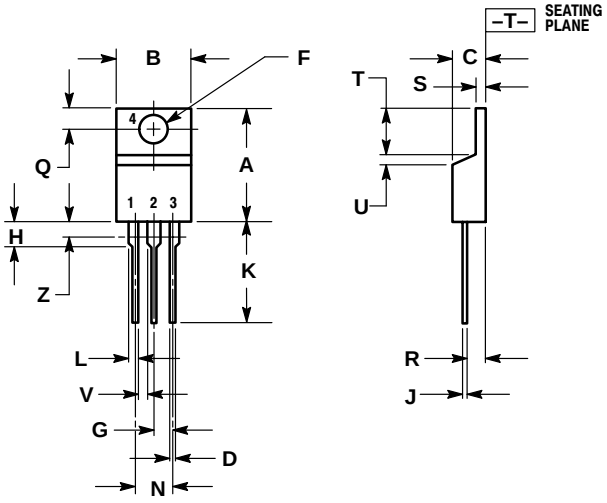
There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown. Safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation, i.e., the transistor must not be subjected to greater dissipation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

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

BD808 BD810

PACKAGE DIMENSIONS

CASE 221A–06
TO–220AB
ISSUE Y



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.

	INCHES		MILLIMETERS	
DIM	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

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