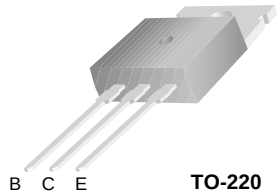
FAIRCHILD SEMICONDUCTOR®

February 2010

D44H8 / NZT44H8 / D44H11
NPN Power Amplifier

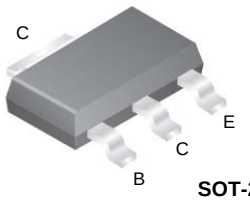
Features

- This device is designed for power amplifier, regulator and switching circuits where speed is important.
- Sourced from process 4Q.



TO-220

D44H8 / D44H11



SOT-223

NZT44H8

Absolute Maximum Ratings* T_A=25°C unless otherwise noted

Symbol	Parameter	Value		Units
		D44H8 NZT44H8	D44H11	
V_{CEO}	Collector-Emitter Voltage	60	80	V
I_C	Collector Current - Continuous	8.0	10.0	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150		°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

1) These ratings are based on a maximum junction temperature of 150°C.

2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Max.		Units
		D44H8 D44H11	*NZT44H8	
P_D	Total Device Dissipation Derate above 25°C	60 480	1.5 12	W mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.1		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62.5	83.3	°C/W

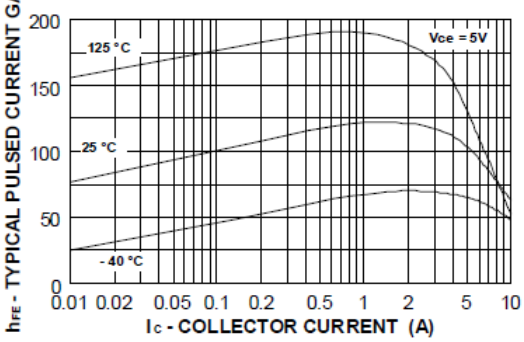
*Device mounted on FR-4 PCB 36mm X 18mm X 1.5mm; mounting pad for the collector lead min. 6cm^2.

Electrical Characteristics T_A=25°C unless otherwise noted

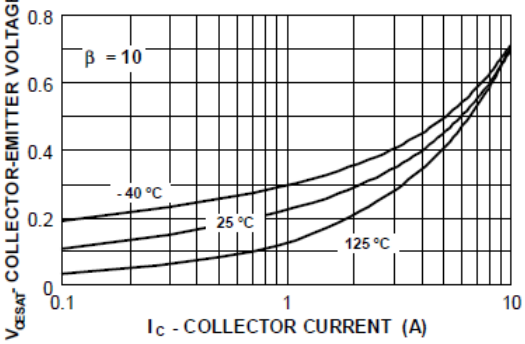
Symbol	Parameter		Test Condition	Min.	Max.	Units
Off Characteristics						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	**D44H8 / NZT44H8** **D44H11**	I_C = 100mA, I_B = 0	60 80		V
I_{CBO}	Collector-Cutoff Current	**D44H8 / NZT44H8** **D44H11**	V_{CB} = 60V, I_E = 0 V_{CB} = 80V, I_E = 0		10	μA
I_{EBO}	Emitter-Cutoff Current		V_{EB} = 5V, I_C = 0		100	μA
On Characteristics						
h_{FE}	DC Current Gain		V_{CE} = 1V, I_C = 2A V_{CE} = 1V, I_C = 4A	60 40		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		I_C = 8A, I_B = 0.4A		1.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		I_C = 8A, I_B = 0.8A		1.5	V
$V_{BE(on)}$	Base-Emitter On Voltage		V_{CE} = 2V, I_C = 10mA	0.52	0.65	V
Small Signal Characteristics						
f_T	Current Gain-Bandwidth Product		I_C = 500mA, V_{CE} = 10V	50		MHz

DC Typical Characteristics

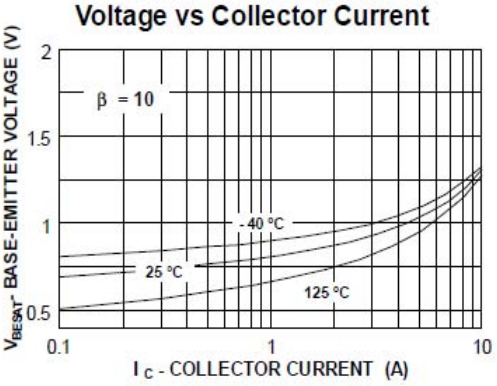
Typical Pulsed Current Gain vs Collector Current



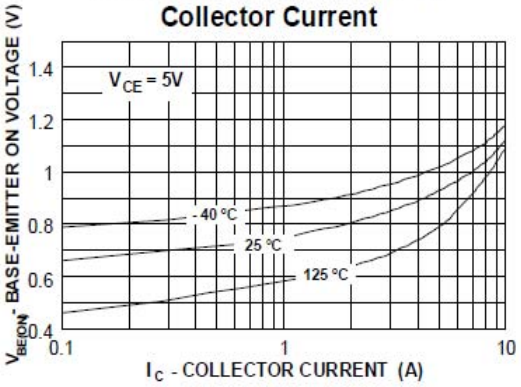
Collector-Emitter Saturation Voltage vs Collector Current



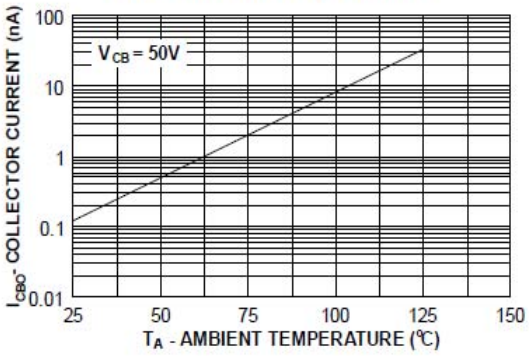
Base-Emitter Saturation Voltage vs Collector Current



Base-Emitter ON Voltage vs Collector Current

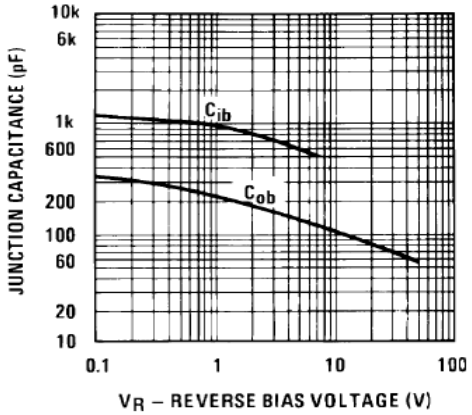


Collector-Cutoff Current vs Ambient Temperature

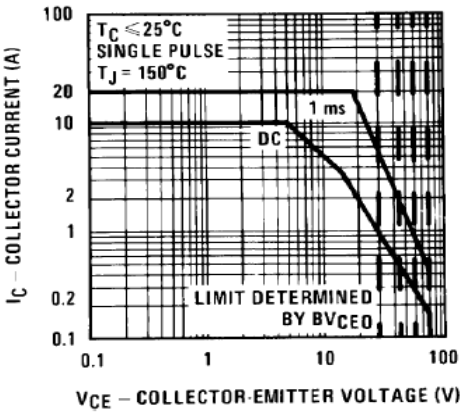


AC Typical Characteristics

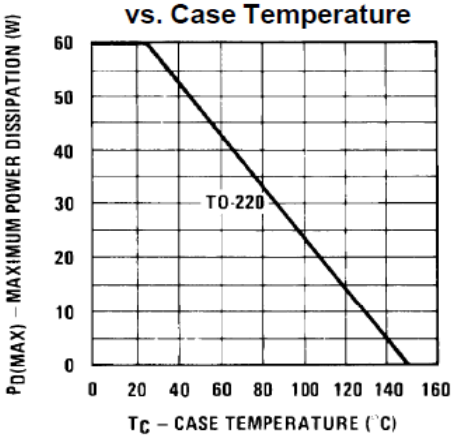
Junction Capacitance vs. Reverse Bias Voltage



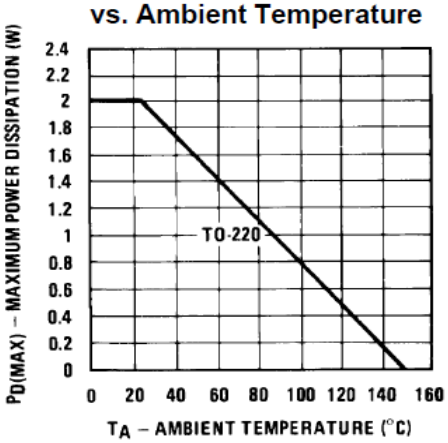
Safe Operating Area TO-220



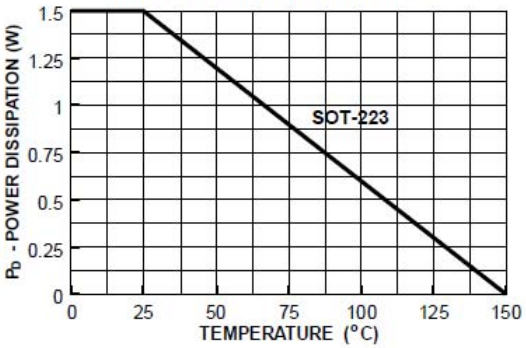
Maximum Power Dissipation vs. Case Temperature



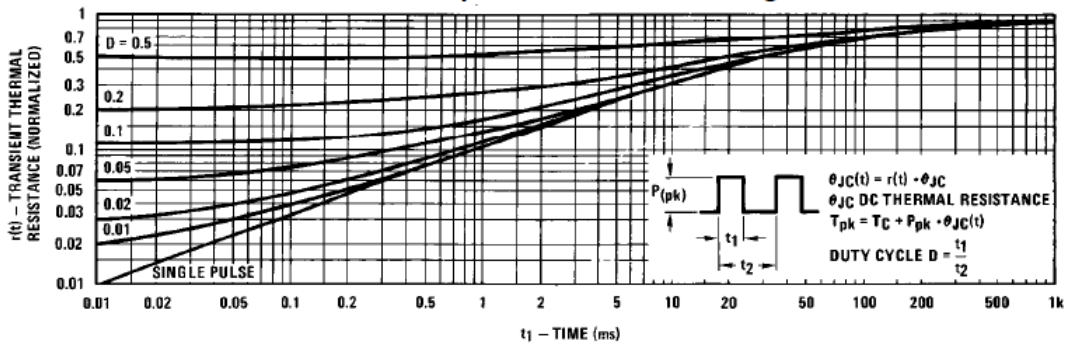
Maximum Power Dissipation vs. Ambient Temperature



POWER DISSIPATION vs AMBIENT TEMPERATURE

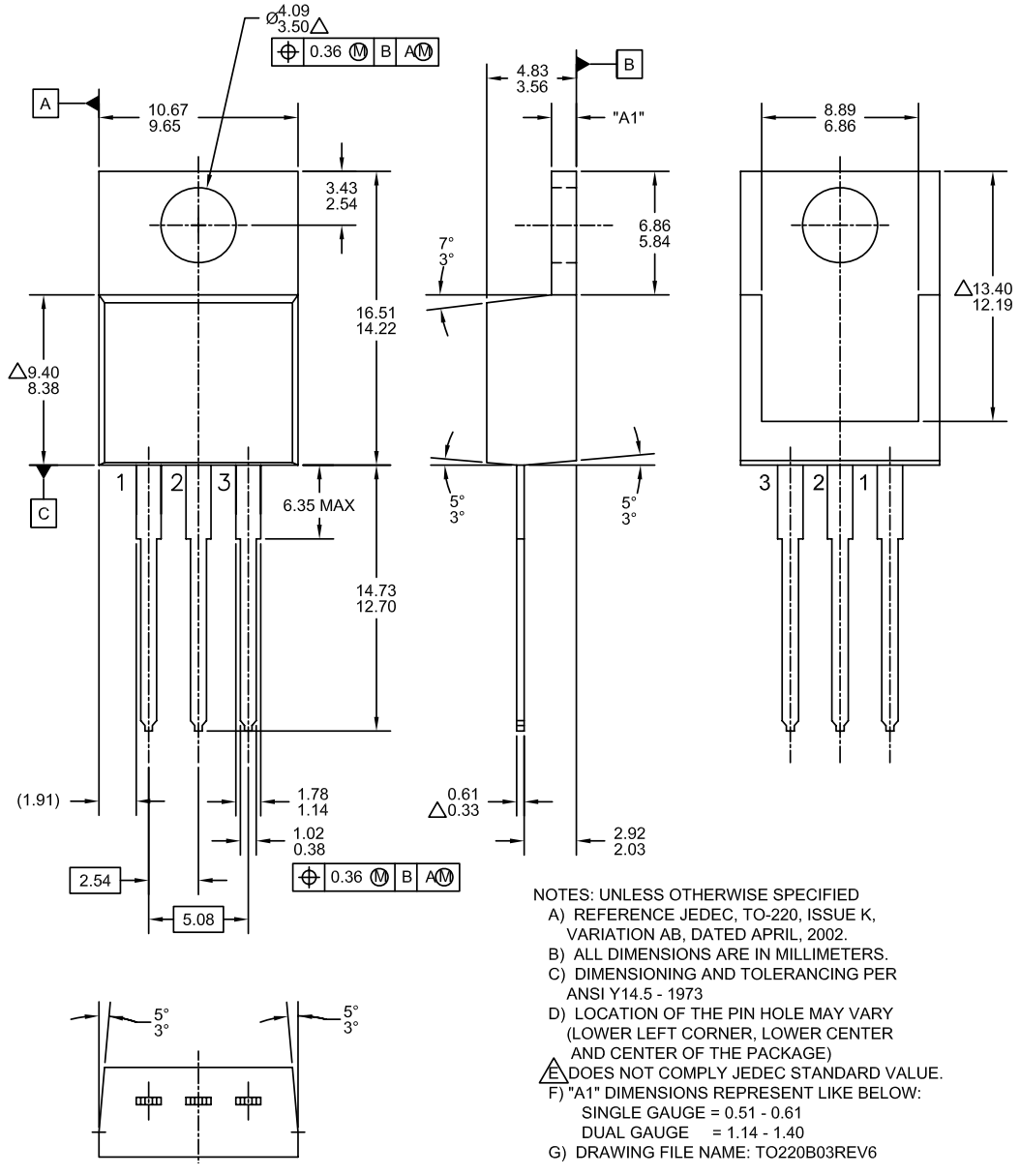


Thermal Response in TO-220 Package



Physical Dimensions

TO-220



NOTES: UNLESS OTHERWISE SPECIFIED

A) REFERENCE JEDEC, TO-220, ISSUE K, VARIATION AB, DATED APRIL, 2002.

B) ALL DIMENSIONS ARE IN MILLIMETERS.

C) DIMENSIONING AND TOLERANCING PER ANSI Y14.5 - 1973

D) LOCATION OF THE PIN HOLE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)

△E DOES NOT COMPLY JEDEC STANDARD VALUE.

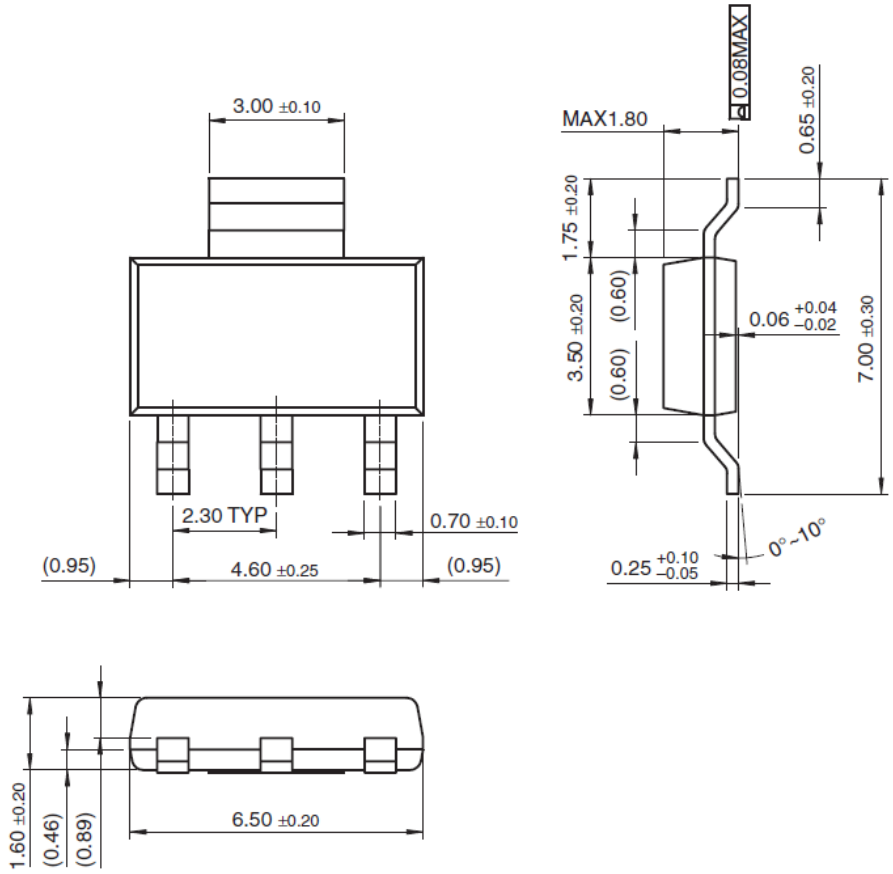
F) "A1" DIMENSIONS REPRESENT LIKE BELOW:
SINGLE GAUGE = 0.51 - 0.61
DUAL GAUGE = 1.14 - 1.40

G) DRAWING FILE NAME: TO220B03REV6

Dimensions in Millimeters

Physical Dimensions (Continued)

SOT-223



Dimensions in Millimeters

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