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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

FAIRCHILD

November 2014

D44H8 / NZT44H8
NPN Power Amplifier

Features

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

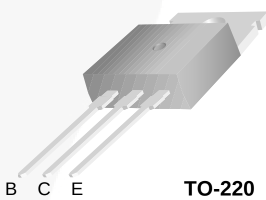


Figure 1. D44H8 Device Package

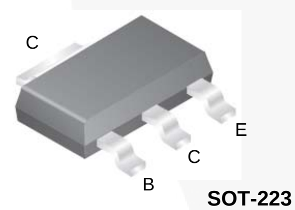


Figure 2. NZT44H8 Device Package

Ordering Information

Part Number	Marking	Package	Packing Method
D44H8	D44H8	TO-220 3L	Rail
NZT44H8	44H8	SOT-223 4L	Tape and Reel

Absolute Maximum Ratings[(1),(2)]

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

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

Notes:

1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

Thermal Characteristics[3]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Max.		Unit
		D44H8	NZT44H8	
P_D	Total Device Dissipation	60	1.5	W
	Derate Above 25°C	480	12	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

Note:

3. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

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

Typical Performance Characteristics

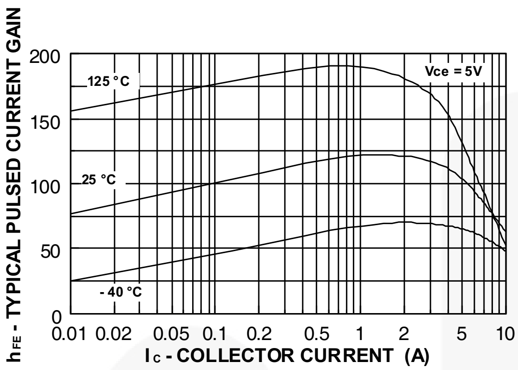


Figure 3. Typical Pulsed Current Gain vs. Collector Current

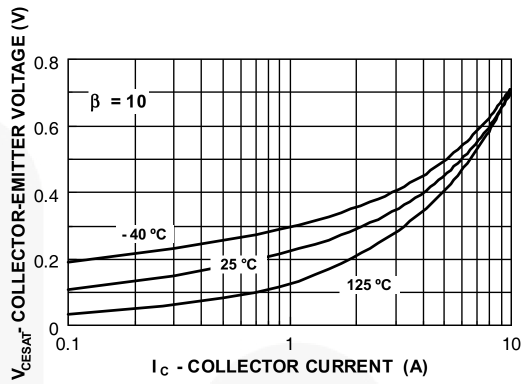


Figure 4. Collector-Emitter Saturation Voltage vs. Collector Current

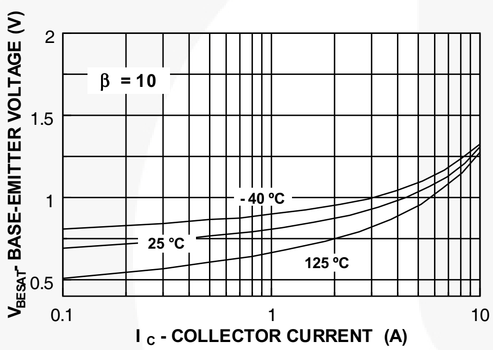


Figure 5. Base-Emitter Saturation Voltage vs. Collector Current

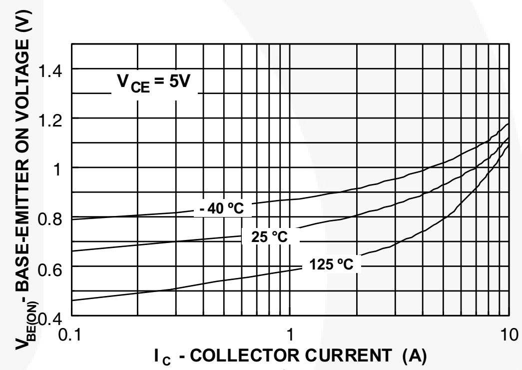


Figure 6. Base-Emitter On Voltage vs. Collector Current

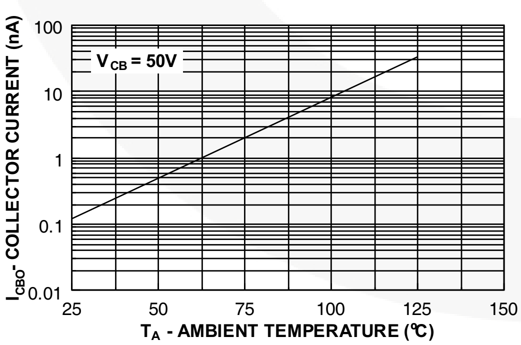


Figure 7. Current Cut-Off Current vs. Ambient Temperature

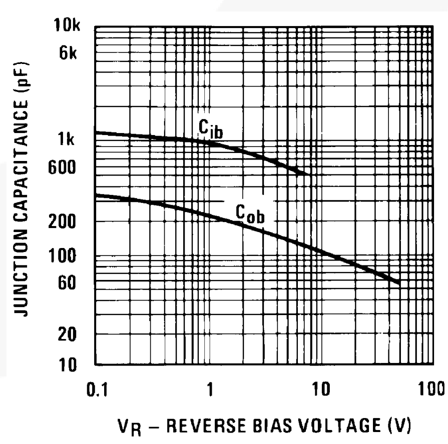


Figure 8. Junction Capacitance vs. Reverse Bias Voltage

Typical Performance Characteristics (Continued)

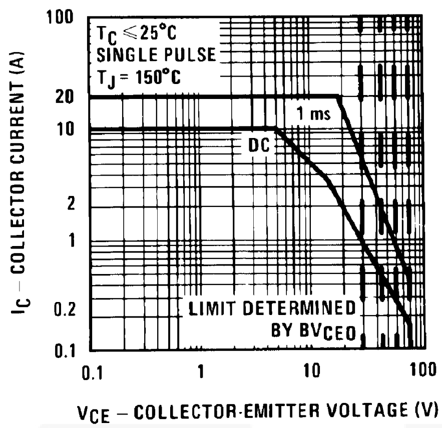


Figure 9. Safe Operating Area TO-220

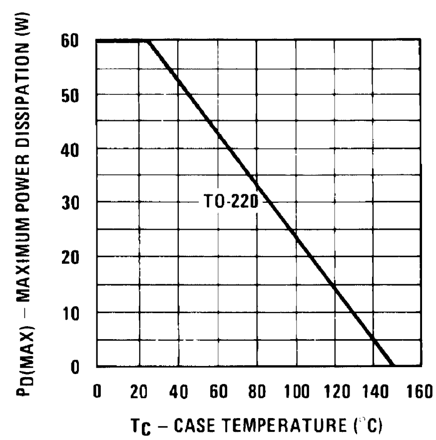


Figure 10. Maximum Power Dissipation vs. Case Temperature

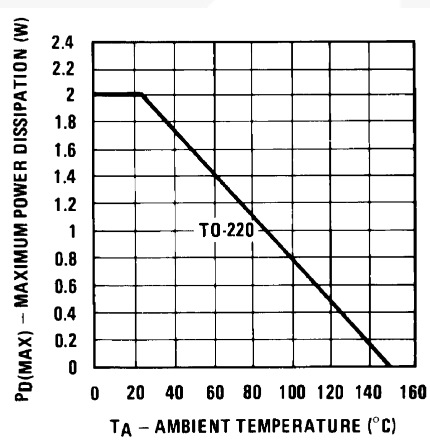


Figure 11. Maximum Power Dissipation vs. Ambient Temperature

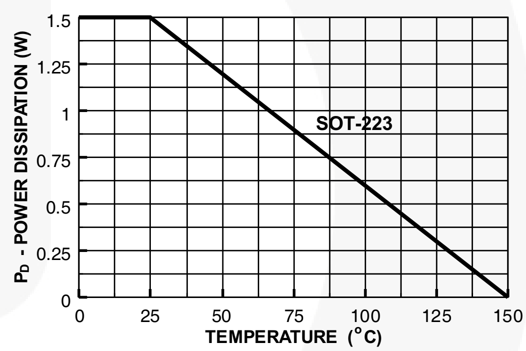


Figure 12. Power Dissipation vs. Ambient Temperature

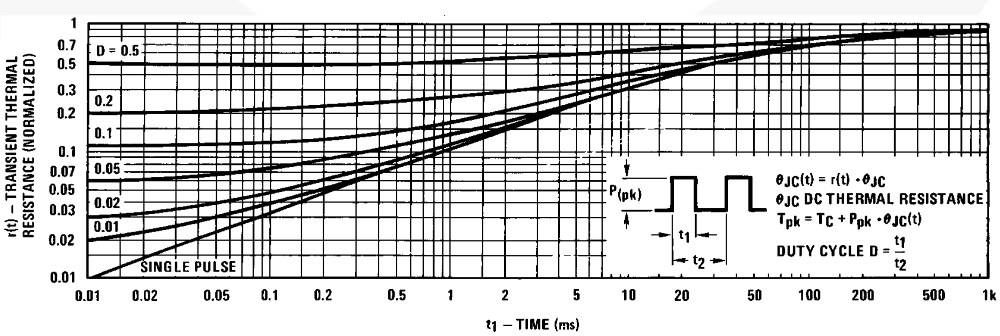
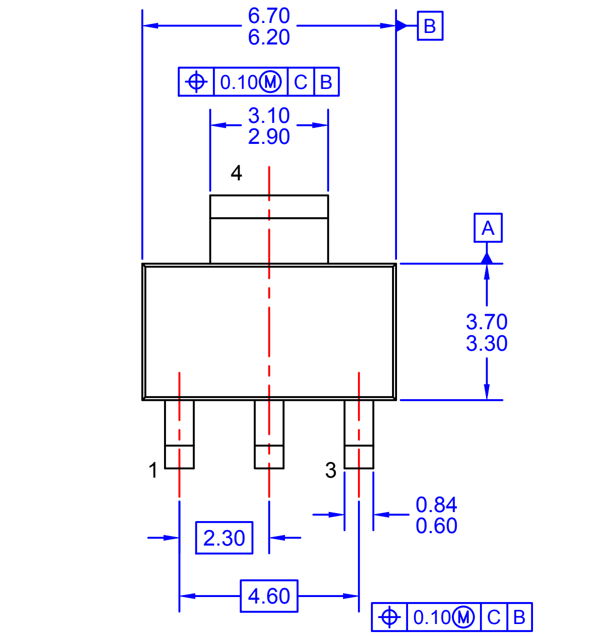
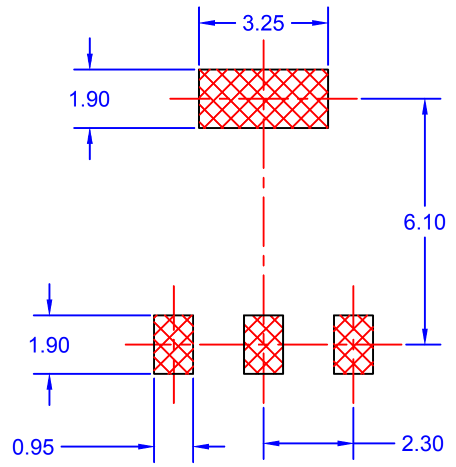
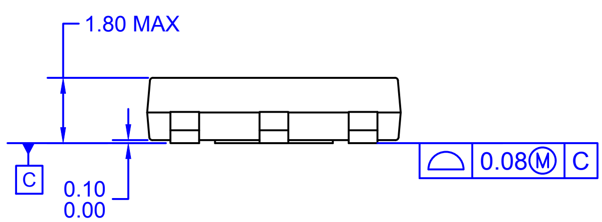


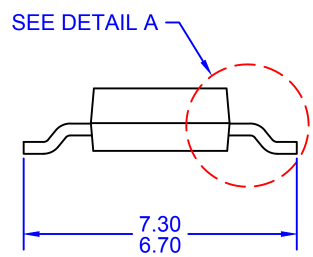
Figure 13. Thermal Response in TO-220 Package



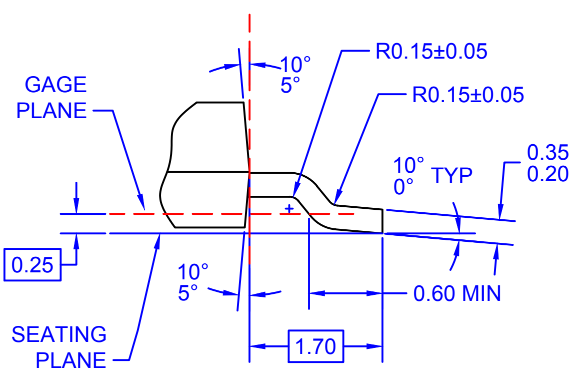


LAND PATTERN RECOMMENDATION





NOTES: UNLESS OTHERWISE SPECIFIED
A) DRAWING BASED ON JEDEC REGISTRATION TO-261C, VARIATION AA.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONS DO NOT INCLUDE BURRS OR MOLD FLASH. MOLD FLASH OR BURRS DOES NOT EXCEED 0.10MM.
D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009.
E) LANDPATTERN NAME: SOT230P700X180-4BN
F) DRAWING FILENAME: MKT-MA04AREV3



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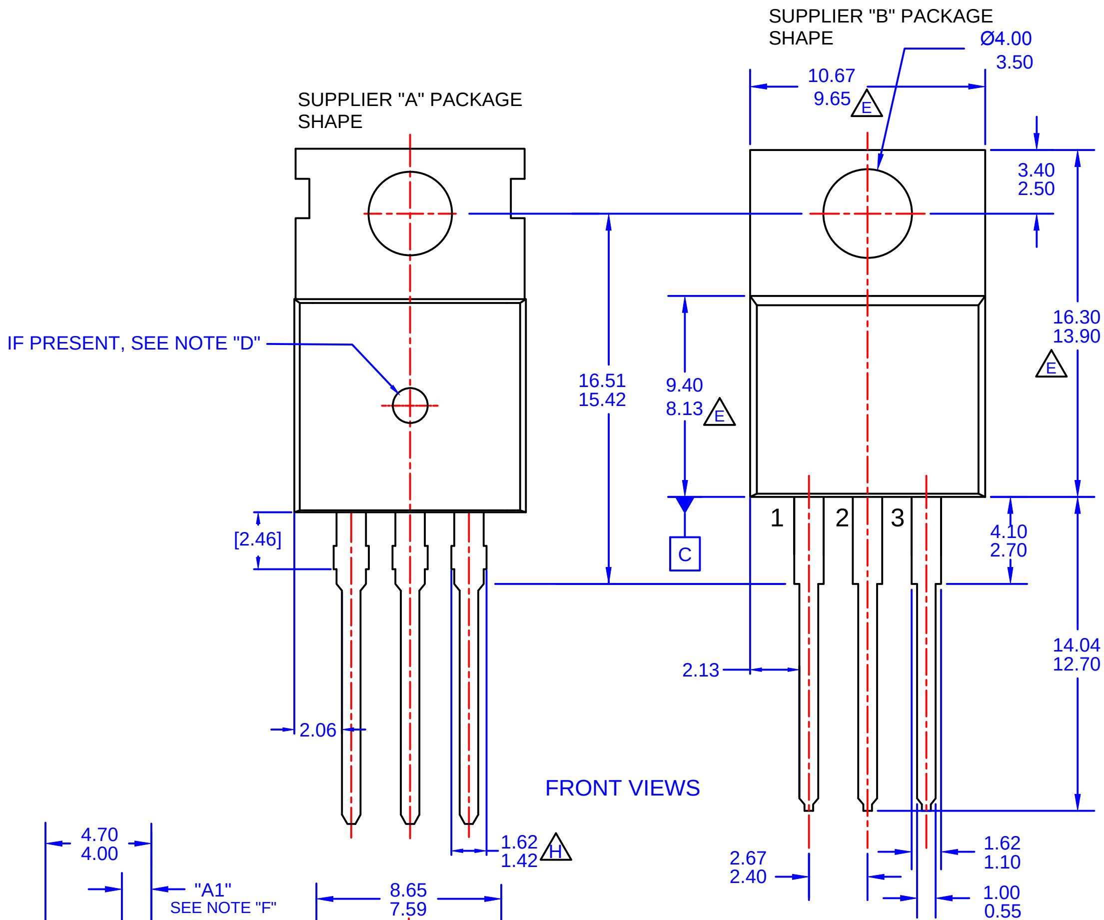
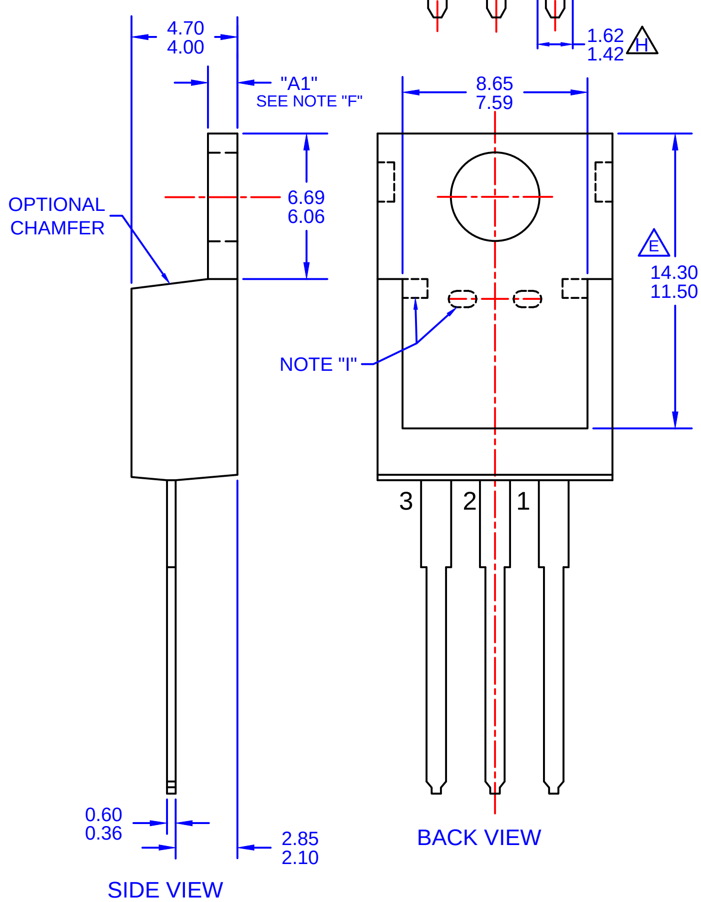
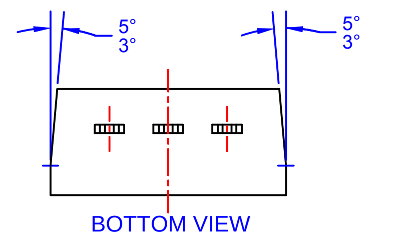
DETAIL A
SCALE: 2:1







NOTES:

A) REFERENCE JEDEC, TO-220, VARIATION AB

B) ALL DIMENSIONS ARE IN MILLIMETERS.

C) DIMENSIONS COMMON TO ALL PACKAGE SUPPLIERS EXCEPT WHERE NOTED [ ].

D) LOCATION OF MOLDED FEATURE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)

E DOES NOT COMPLY JEDEC STANDARD VALUE.

F) "A1" DIMENSIONS AS BELOW:
SINGLE GAUGE = 0.51 - 0.61
DUAL GAUGE = 1.10 - 1.45

G) DRAWING FILE NAME: TO220B03REV9

H PRESENCE IS SUPPLIER DEPENDENT

I) SUPPLIER DEPENDENT MOLD LOCKING HOLES IN HEATSINK.

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- Техническая поддержка проекта;
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