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FAIRCHILD SEMICONDUCTOR®

December 2013

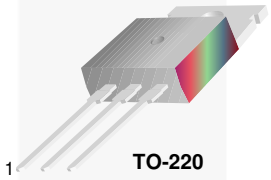
D45H11
PNP Power Amplifier

Features

- Sourced from process 5Q
- General-Purpose Switching Transistor
- Low Corrector-Emitter Saturation Voltage
- High-Fast Switching Speed

Description

This device is designed for power amplifier, regulator, and switching circuits where speed is important.



TO-220

Mark: D45H11

1. Base 2. Collector 3. Emitter

Ordering Information

Part Number	Marking	Package	Packing Method
D45H11	D45H11	TO-220 3L	Rail

Absolute Maximum Ratings

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	-80	V
I_C	Collector Current - Continuous	-10	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	°C

Thermal Characteristics[1]

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

Symbol	Parameter	Max.	Unit
P_D	Total Device Dissipation	60	W
	Derate Above 25°C	480	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.1	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62.5	°C/W

Note:

1. Device mounted on FR-4 PCB 36 mm x 18 mm x 1.5 mm: mounting pad for the collector lead minimum 6 cm^2.

Electrical Characteristics

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

Symbol	Parameter	Conditions	Min.	Max.	Unit
Off Characteristics					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C = -100 mA, I_B = 0	-80		V
I_{CBO}	Collector Cut-Off Current	V_{CB} = -80 V, I_E = 0		-10	µA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = -5 V, I_C = 0		-100	µA
On Characteristics					
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	-0.54	-0.65	V
Small Signal Characteristics					
f_T	Current Gain Bandwidth Product	I_C = -500 mA, V_{CE} = -10 V	40		MHz

Typical Performance Characteristics

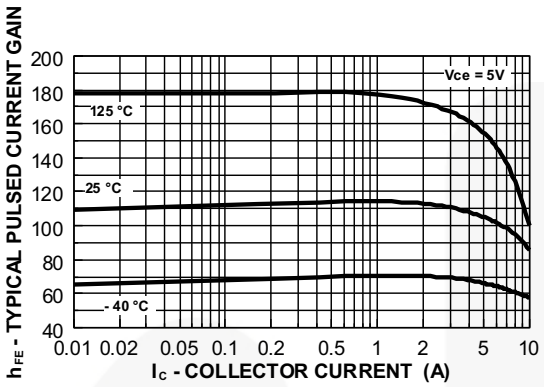


Figure 1. Typical Pulsed Current Gain vs. Collector Current

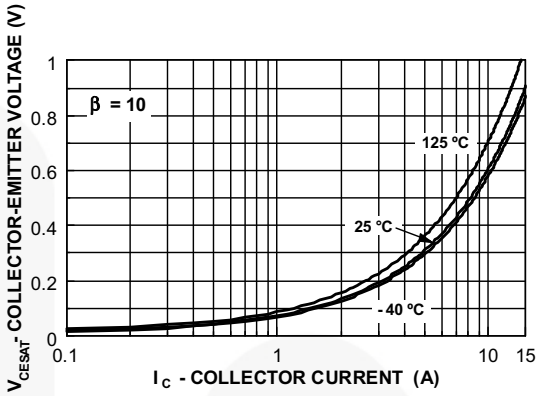


Figure 2. Collector-Emitter Saturation Voltage vs. Collector Current

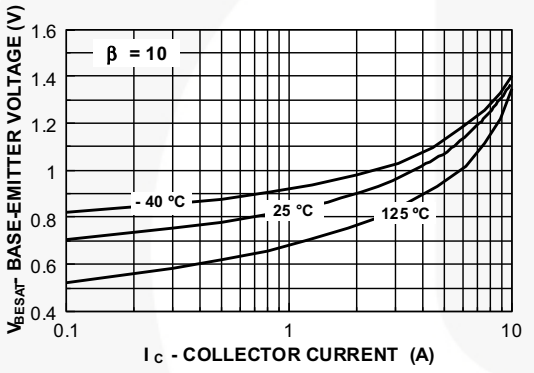


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

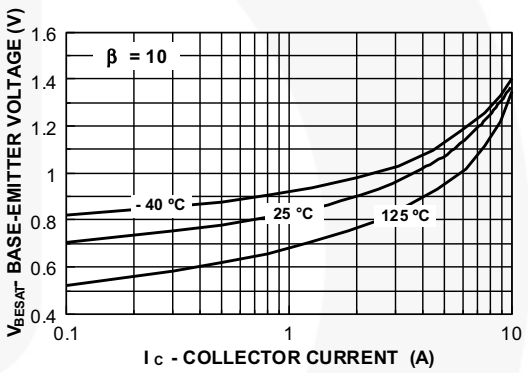


Figure 4. Base-Emitter ON Voltage vs. Collector Current

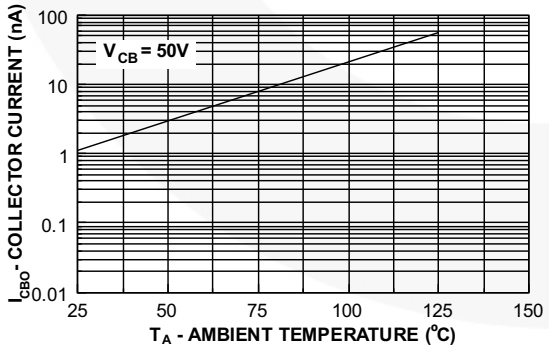


Figure 5. Collector Cut-Off Current vs. Ambient Temperature

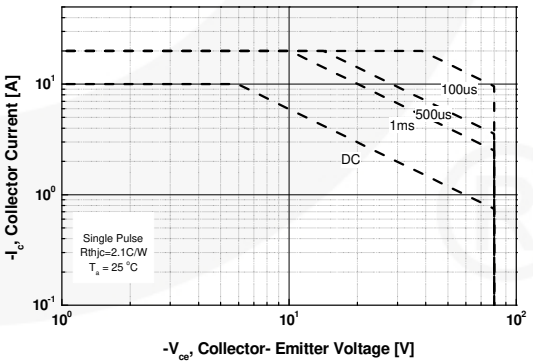


Figure 6. Safe Operating Area TO-220

Typical Performance Characteristics (Continued)

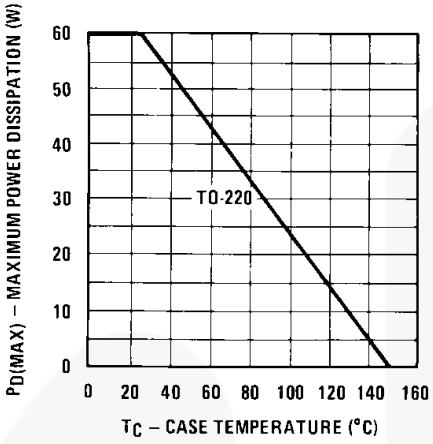


Figure 7. Maximum Power Dissipation vs. Case Temperature

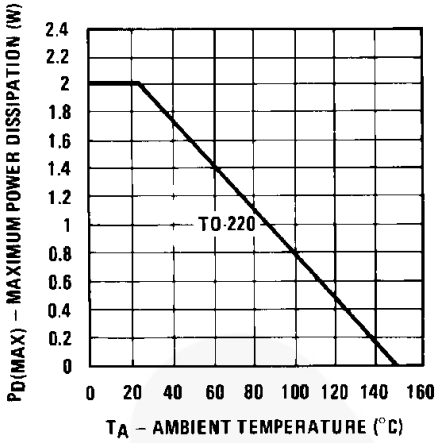


Figure 8. Maximum Power Dissipation vs. Ambient Temperature

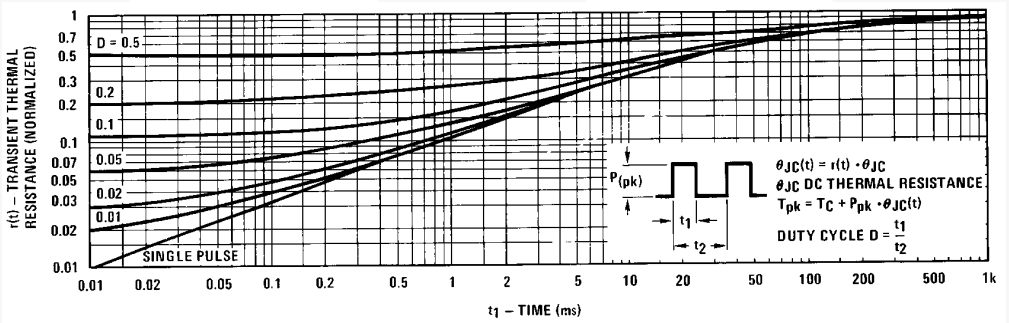


Figure 9. Thermal Response

Physical Dimensions

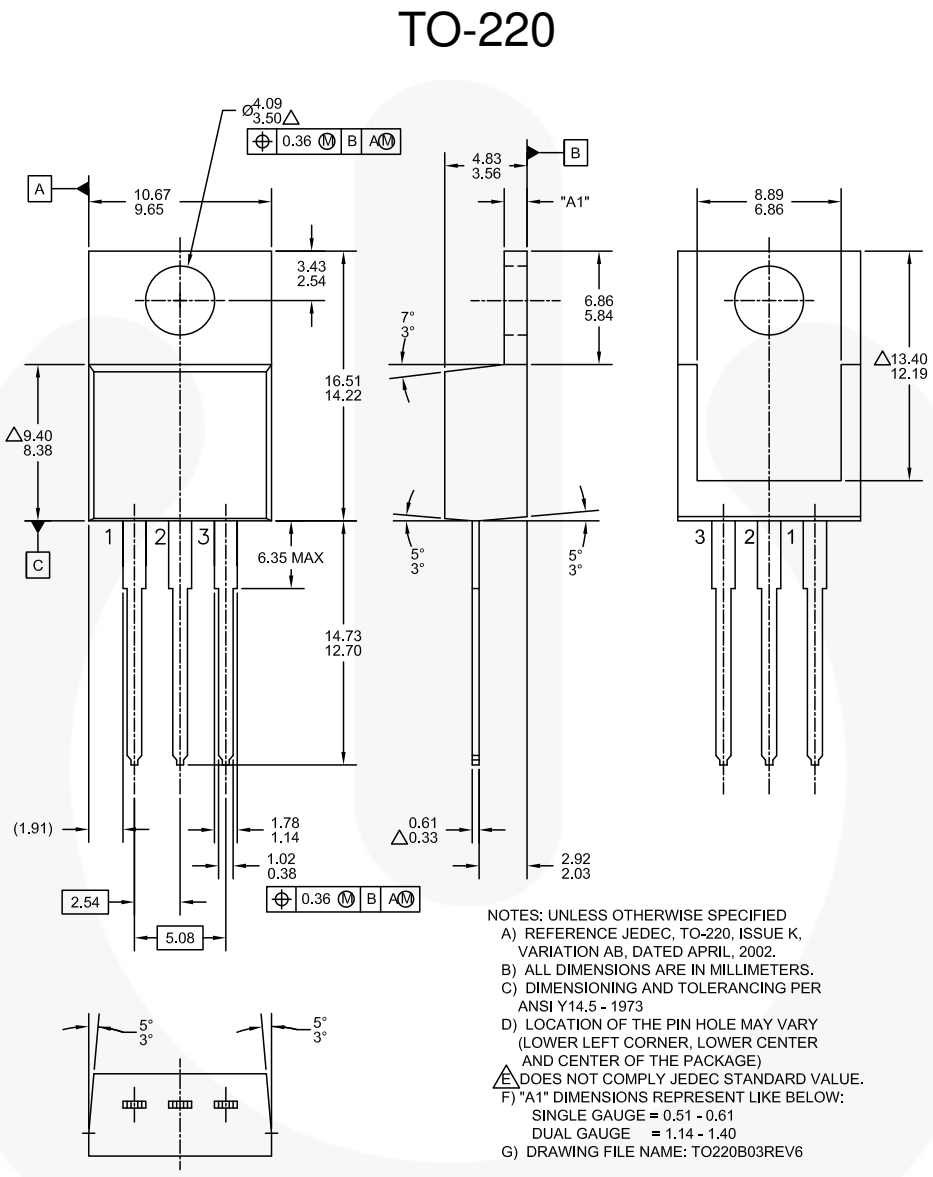


Figure 10. TO-220, MOLDED, 3-LEAD, JEDEC VARIATION AB (ACTIVE)

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