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D45H11

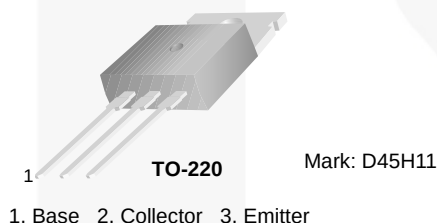
PNP Power Amplifier

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.



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 $T_A = 25^\circ\text{C}$ 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	$^\circ\text{C}$

Thermal Characteristics⁽¹⁾

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

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

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 cm².

Electrical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
Off Characteristics					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = -100\text{ mA}, I_B = 0$	-80		V
I_{CBO}	Collector Cut-Off Current	$V_{CB} = -80\text{ V}, I_E = 0$		-10	μA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = -5\text{ V}, I_C = 0$		-100	μA
On Characteristics					
h_{FE}	DC Current Gain	$V_{CE} = -1\text{ V}, I_C = -2\text{ A}$	60		
		$V_{CE} = -1\text{ V}, I_C = -4\text{ A}$	40		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -8\text{ A}, I_B = -0.4\text{ A}$		-1.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -8\text{ A}, I_B = -0.8\text{ A}$		-1.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = -2\text{ V}, I_C = -10\text{ mA}$	-0.54	-0.65	V
Small Signal Characteristics					
f_T	Current Gain Bandwidth Product	$I_C = -500\text{ mA}, V_{CE} = -10\text{ V}$	40		MHz

Typical Performance Characteristics

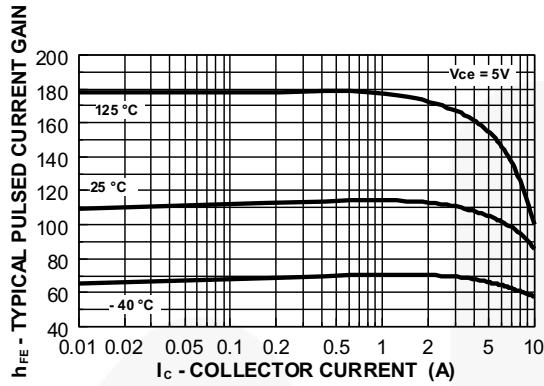


Figure 1. Typical Pulsed Current Gain vs. Collector Current

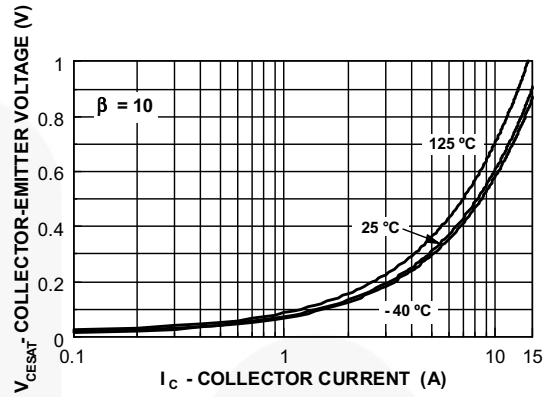


Figure 2. Collector-Emitter Saturation Voltage vs. Collector Current

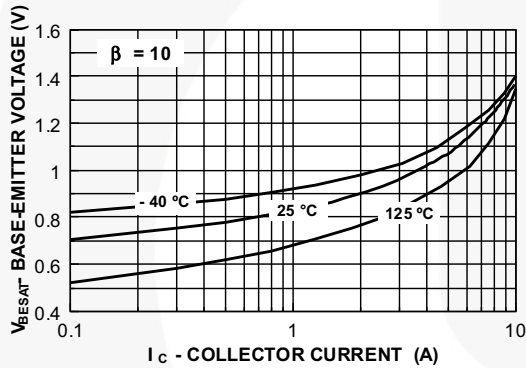


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

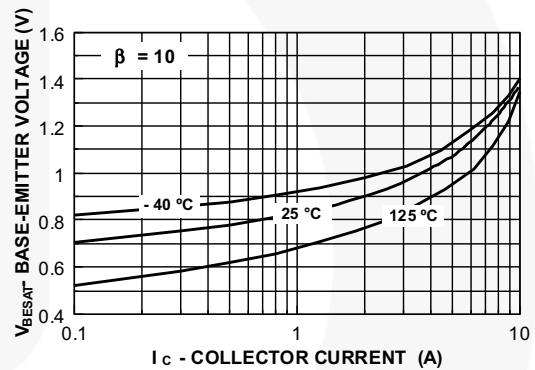


Figure 4. Base-Emitter ON Voltage vs. Collector Current

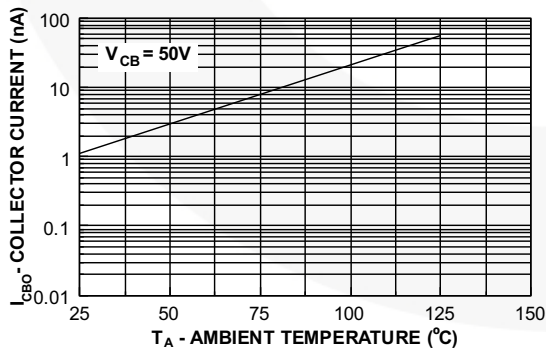


Figure 5. Collector Cut-Off Current vs. Ambient Temperature

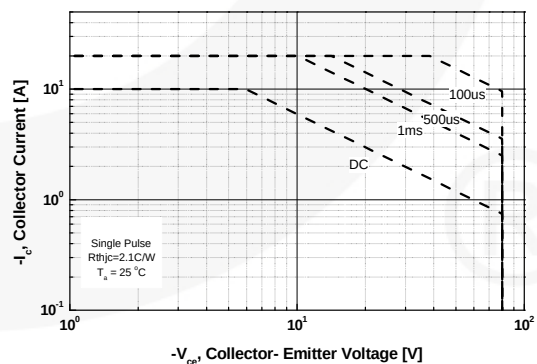


Figure 6. Safe Operating Area TO-220

Typical Performance Characteristics (Continued)

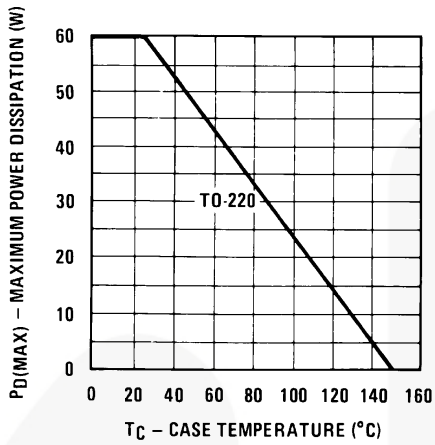


Figure 7. Maximum Power Dissipation vs. Case Temperature

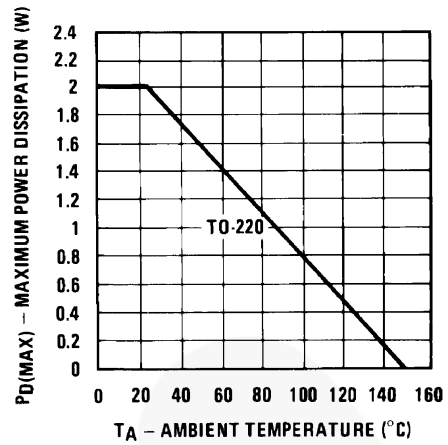


Figure 8. Maximum Power Dissipation vs. Ambient Temperature

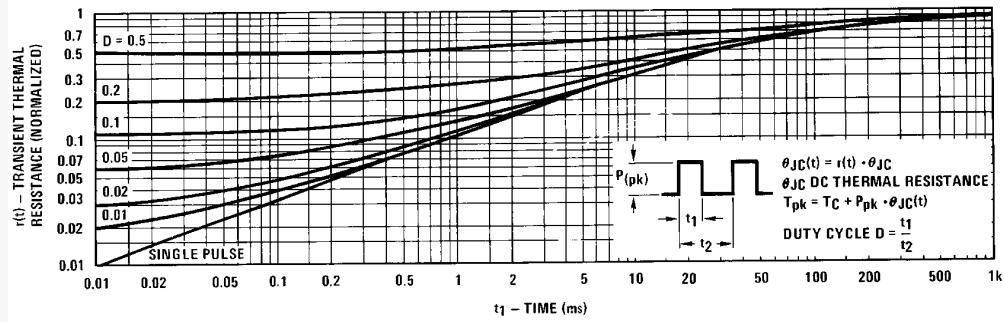


Figure 9. Thermal Response

Physical Dimensions

TO-220

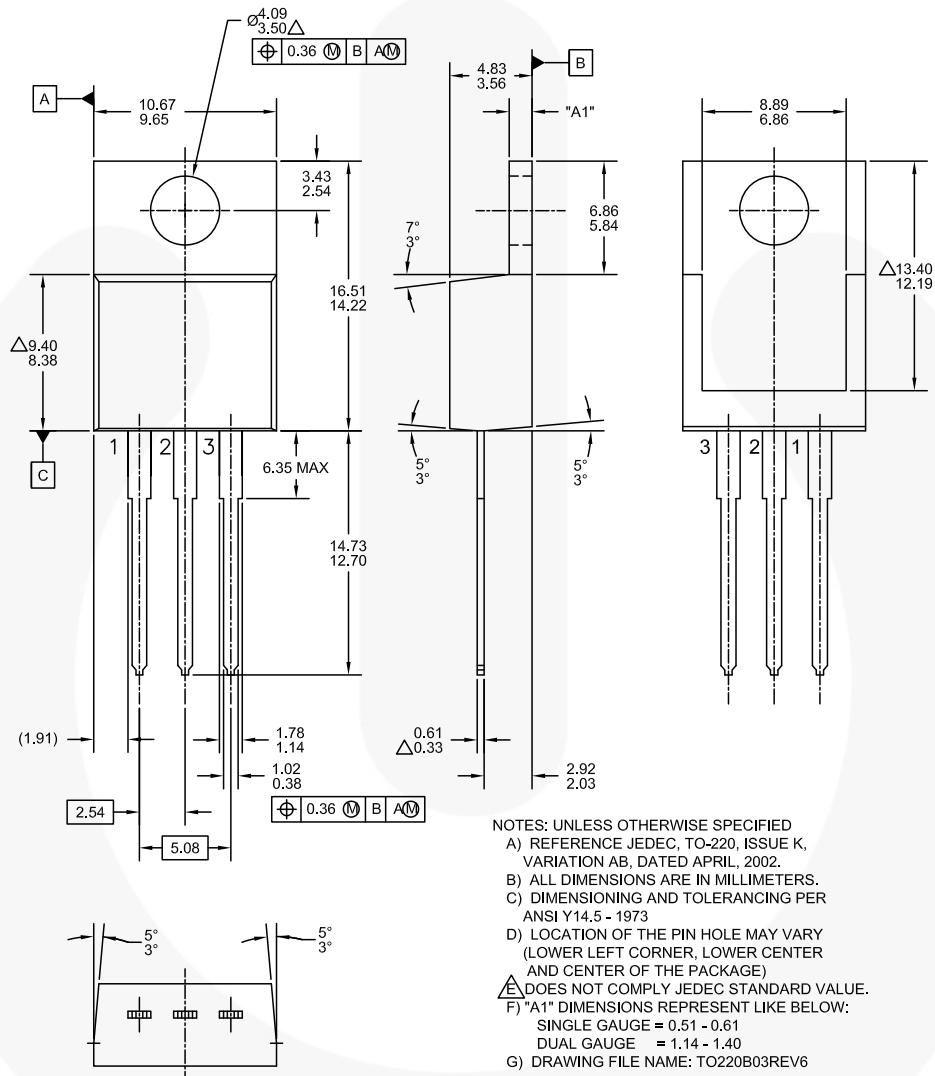


Figure 10. TO-220, MOLDED, 3-LEAD, JEDEC VARIATION AB (ACTIVE)

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