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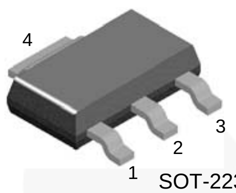
December 2015

NZT751
PNP Current Driver Transistor

Description

This device is designed for power amplifier, regulator, and switching circuits where speed is important. Sourced from Process 5P.



SOT-223

1. Base   2,4. Collector   3. Emitter

Ordering Information

Part Number	Marking	Package	Packing Method
NZT751	751	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
V_{CBO}	Collector-Base Voltage	-80	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current - Continuous	-4	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 application involving pulsed or low-duty cycle operation.

Thermal Characteristics[3]

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

Symbol	Parameter	Max.	Unit
P_D	Total Device Dissipation	1.2	W
	Derate Above 25°C	9.7	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	103	°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
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = -10 mA, I_B = 0	-60		V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -100 μA, I_E = 0	-80		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = -10 μA, I_C = 0	-5.0		V
I_{CBO}	Collector-Base Cut-Off Current	V_{CB} = -80 V, I_E = 0		-100	nA
I_{EBO}	Emitter-Base Cut-Off Current	V_{EB} = -4.0 V, I_C = 0		-0.1	μA
h_{FE}	DC Current Gain[4]	I_C = -50 mA, V_{CE} = -2.0 V	75		
		I_C = -500 mA, V_{CE} = -2.0 V	75		
		I_C = -1.0 A, V_{CE} = -2.0 V	75		
		I_C = -2.0 A, V_{CE} = -2.0 V	40		
$V_{CE}(sat)$	Collector-Emitter Saturation Voltage[4]	I_C = -1.0 A, I_B = -100 mA		-0.3	V
		I_C = -2.0 A, I_B = -200 mA		-0.5	
$V_{BE}(sat)$	Base-Emitter Saturation Voltage[4]	I_C = -1.0 A, I_B = -100 mA		-1.2	V
$V_{BE}(on)$	Base-Emitter On Voltage[4]	I_C = -1.0 A, V_{CE} = -2.0 V		-1.0	V
f_T	Current Gain - Bandwidth Product	I_C = -50 mA, V_{CE} = -5.0 V, f = 100 MHz	75		MHz

Note:
4. Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2.0%.

Typical Performance Characteristics

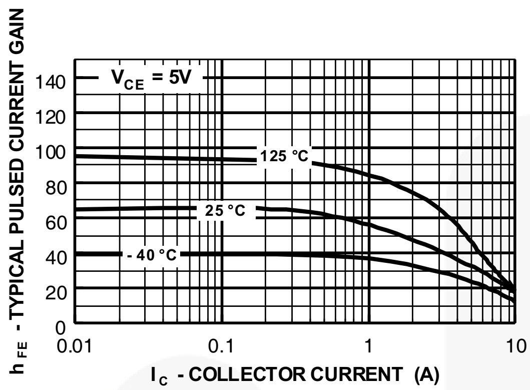


Figure 1. Typical Pulsed Current Gain vs. Collector Current

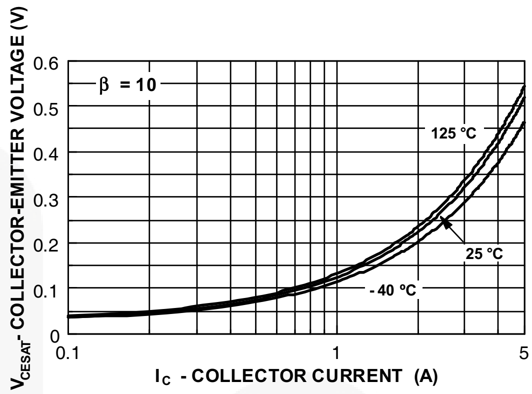


Figure 2. Collector-Emitter Saturation Voltage vs. Collector Current

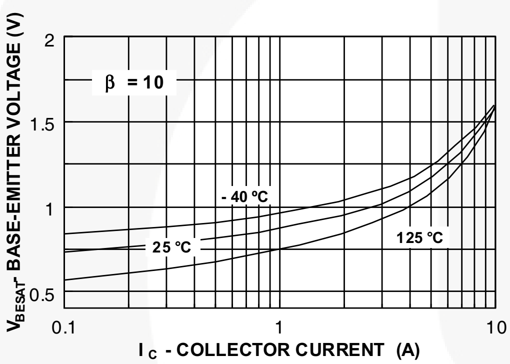


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

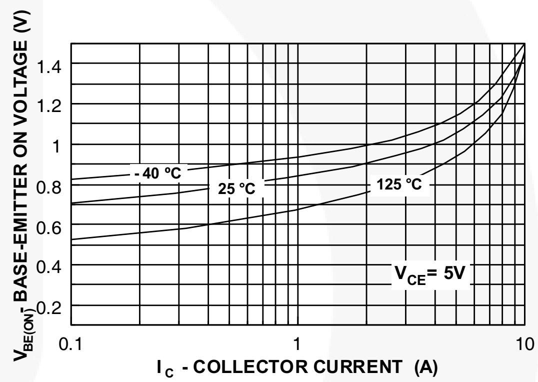


Figure 4. Base-Emitter On Voltage vs. Collector Current

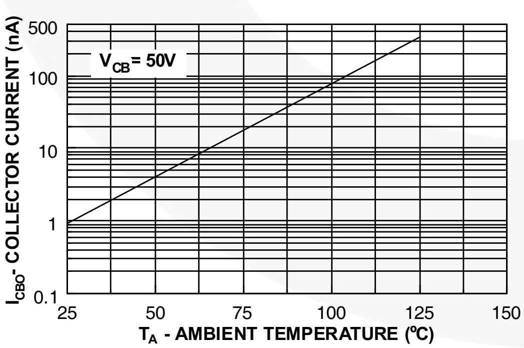


Figure 5. Collector Cut-Off Current vs. Ambient Temperature

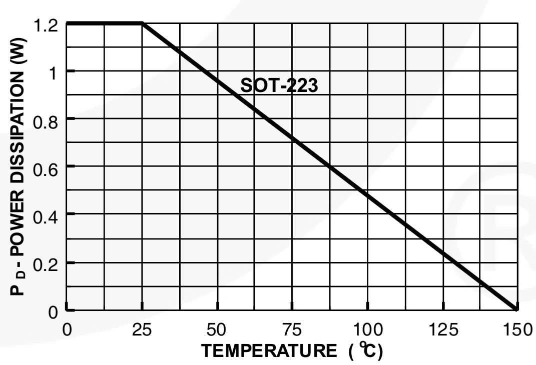


Figure 6. Power Dissipation vs. Ambient Temperature

Physical Dimensions

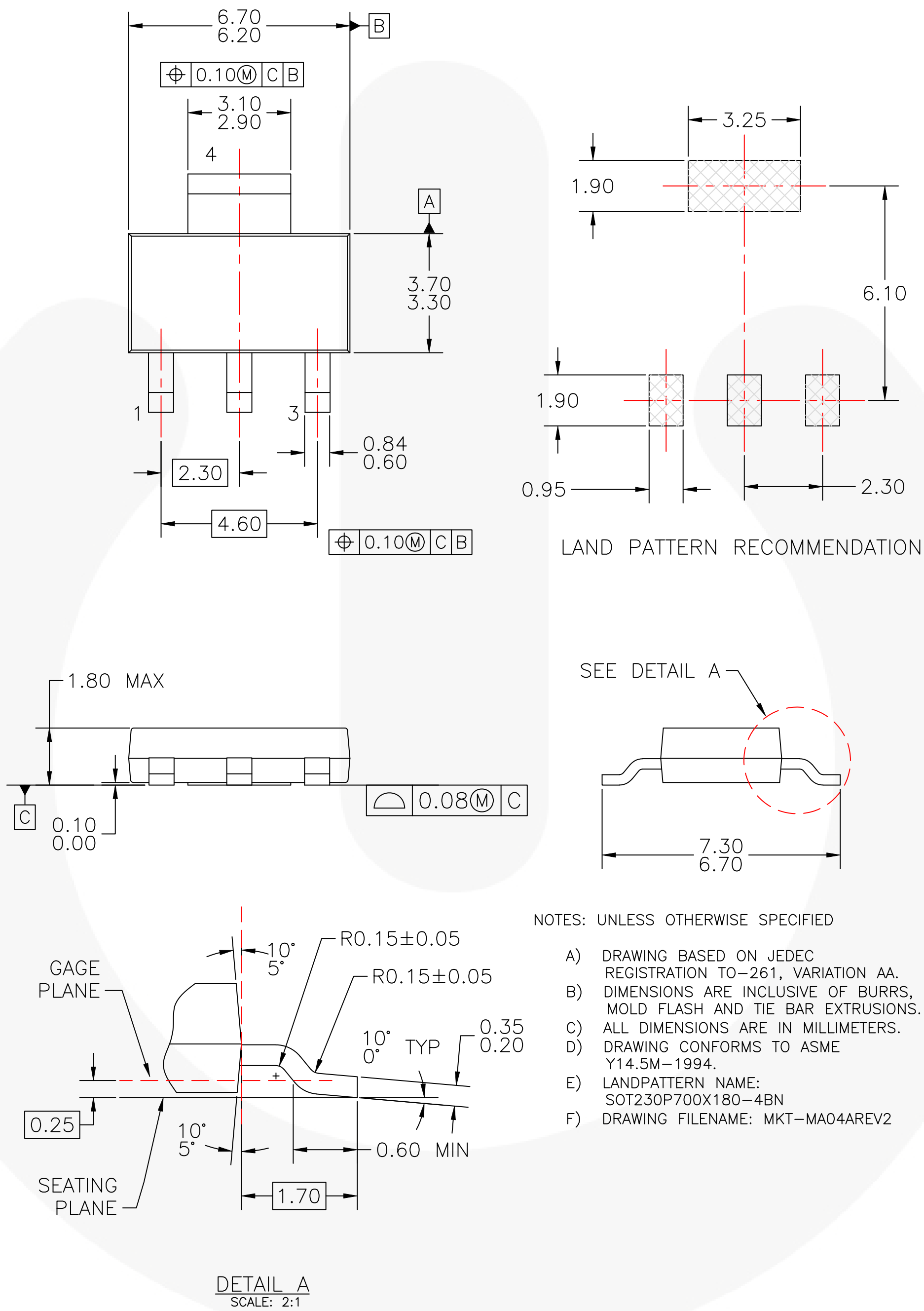


Figure 7. MOLDED PACKAGE, SOT-223, 4 LEAD (ACTIVE)

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