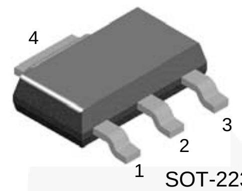
FAIRCHILD SEMICONDUCTOR®

January 2014

NZT6729
PNP General-Purpose Amplifier

Description

This device is designed for general-purpose medium-power amplifiers and switches for collector currents to 800 mA. Sourced from process 79.



SOT-223

1. Base 2,4. Collector 3. Emitter

Ordering Information

Part Number	Marking	Package	Packing Method
NZT6729	6729	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	-80	V
V_{CBO}	Collector-Base Voltage	-80	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current - Continuous	-1	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	1.0	W
	Derate Above 25°C	8.0	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	125	°C/W

Note:
3. PCB size: FR-4 76 x 114 x 1.57 mm^3 (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 = -1.0 mA, I_B = 0	-80		V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -100 µA, I_E = 0	-80		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = -1.0 mA, I_C = 0	-5.0		V
I_{CBO}	Collector-Base Cut-Off Current	V_{CB} = -60 V, I_E = 0		-0.1	µA
I_{EBO}	Emitter-Base Cut-Off Current	V_{EB} = -5.0 V, I_C = 0		-10	µA
h_{FE}	DC Current Gain(4)	I_C = -50 mA, V_{CE} = -1.0 V	80		
		I_C = -250 mA, V_{CE} = -1.0 V	50	250	
		I_C = -500 mA, V_{CE} = -1.0 V	20		
$V_{CE}(sat)$	Collector-Emitter Saturation Voltage(4)	I_C = -250 mA, I_B = -10 mV		-0.50	V
		I_C = -250 mA, I_B = -25 mV		-0.35	
$V_{BE}(on)$	Base-Emitter On Voltage(4)	I_C = -250 mA, V_{CE} = -1.0 V		-1.2	V
h_{fe}	Small-Signal Current Gain	I_C = -200 mA, V_{CE} = -5.0 V, f = 20 MHz	2.5	25	
C_{cb}	Collector-Base Capacitance	V_{CB} = -10 V, I_E = 0, f = 1.0 MHz		30	pF

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

Typical Performance Characteristics

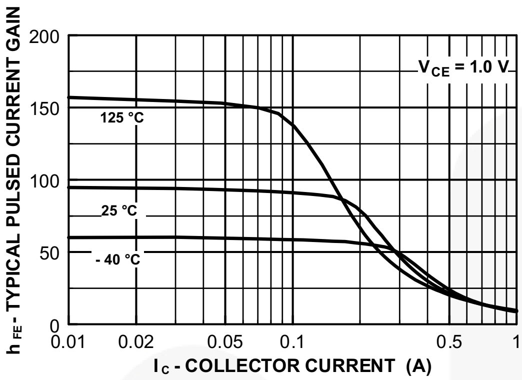


Figure 1. Typical Pulsed Current Gain vs. Collector Current

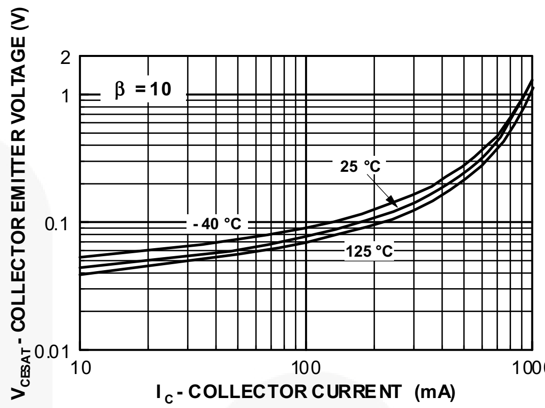


Figure 2. Collector-Emitter Saturation Voltage vs. Collector Current

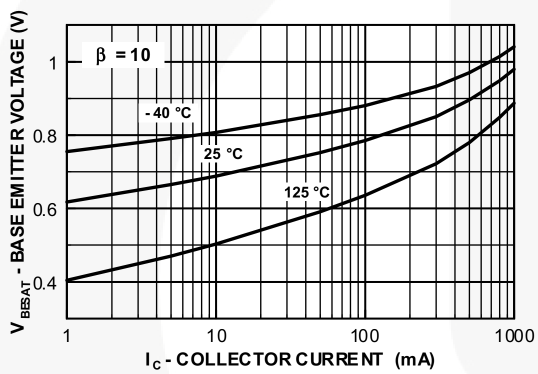


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

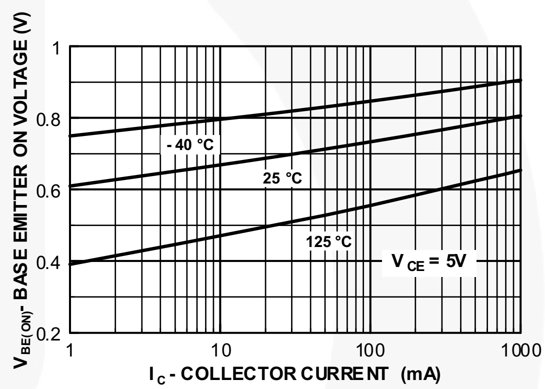


Figure 4. Base-Emitter On Voltage vs. Collector Current

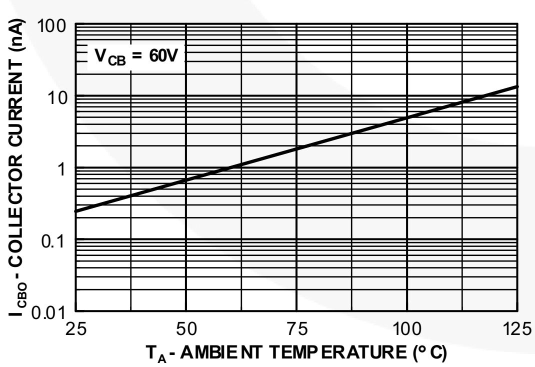


Figure 5. Collector Cut-Off Current vs. Ambient Temperature

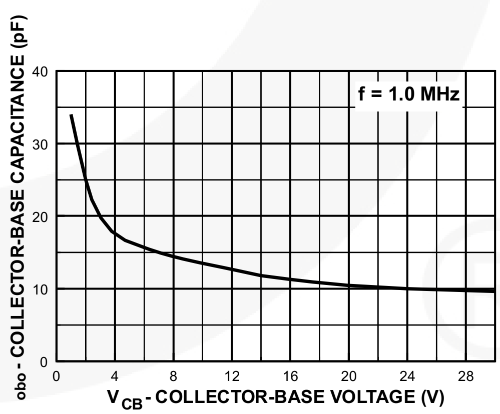


Figure 6. Collector-Base Capacitance vs. Collector-Base Voltage

Typical Performance Characteristics (Continued)

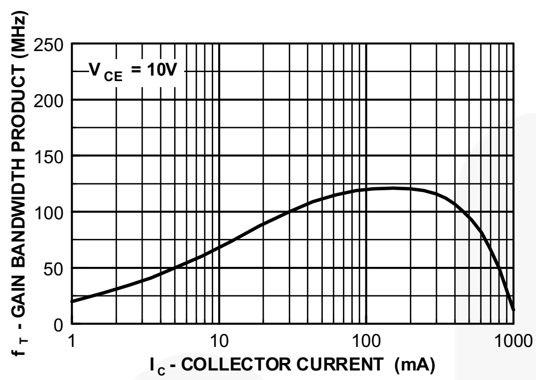


Figure 7. Gain Bandwidth Product vs. Collector Current

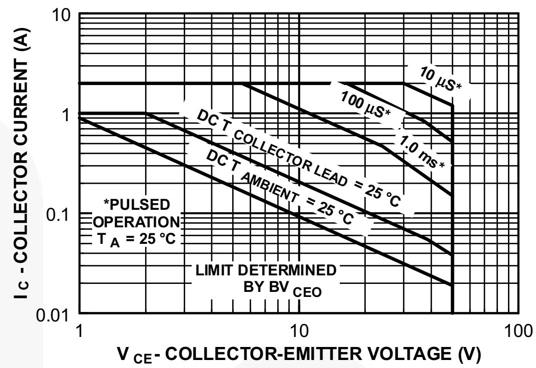


Figure 8. Safe Operating Area

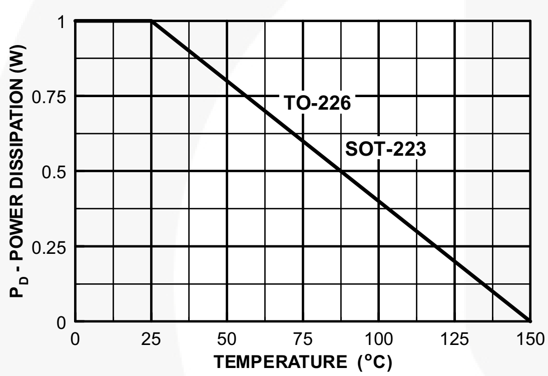


Figure 9. Power Dissipation vs. Ambient Temperature

Physical Dimensions

SOT-223

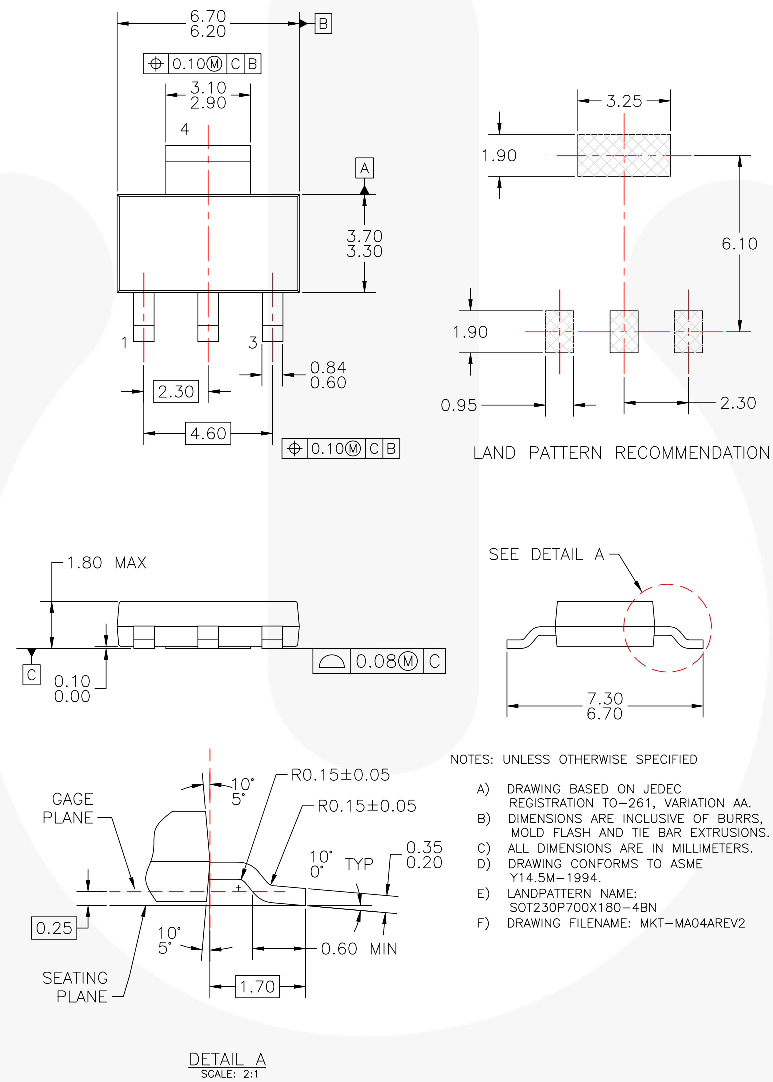


Figure 10. MOLDED PACKAGE, SOT-223, 4 LEAD (ACTIVE)

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Rev. I66