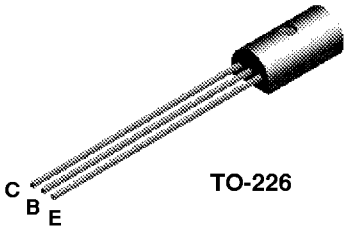
FAIRCHILD SEMICONDUCTOR

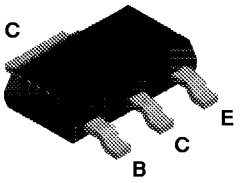
Discrete POWER & Signal Technologies

TN6729A



TO-226

NZT6729



SOT-223

PNP General Purpose Amplifier

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

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	80	V
V_{CBO}	Collector-Base Voltage	80	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	1.0	A
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max		Units
		TN6729A	*NZT6729	
P_D	Total Device Dissipation Derate above 25°C	1.0 8.0	1.0 8.0	W mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	50		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	125	125	°C/W

*Device mounted on FR-4 PCB 36 mm X 18 mm X 1.5 mm; mounting pad for the collector lead min. 6 cm^2.

PNP General Purpose Amplifier
(continued)

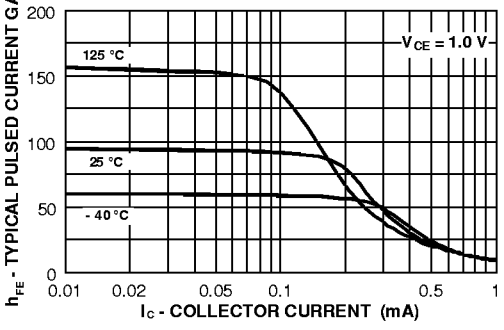
Electrical Characteristics
TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C = 1.0 mA, I_B = 0	80		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 100 µA, I_E = 0	80		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 1.0 mA, I_C = 0	5.0		V
I_{CBO}	Collector-Cutoff Current	V_{CB} = 60 V, I_E = 0		0.1	µA
I_{EBO}	Emitter-Cutoff Current	V_{EB} = 5.0 V, I_C = 0		10	µA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	I_C = 50 mA, V_{CE} = 1.0 V I_C = 250 mA, V_{CE} = 1.0 V I_C = 500 mA, V_{CE} = 1.0 V	80 50 20	 250 	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 250 mA, I_B = 10 mA I_C = 250 mA, I_B = 25 mA		0.5 0.35	V V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 250 mA, V_{CE} = 1.0 V		1.2	V
SMALL SIGNAL CHARACTERISTICS					
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

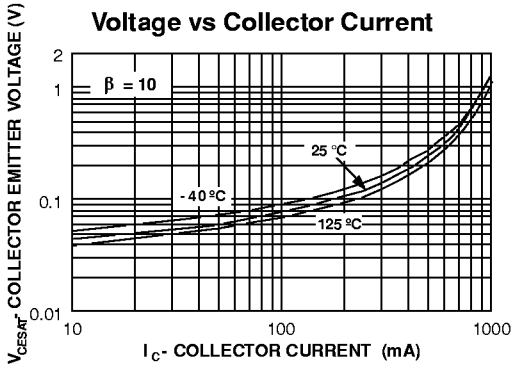
*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 1.0%

Typical Characteristics

Typical Pulsed Current Gain vs Collector Current

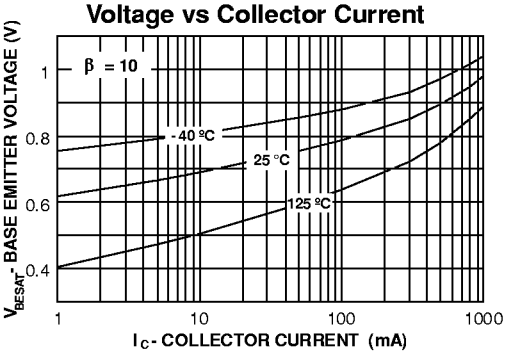


Collector-Emitter Saturation Voltage vs Collector Current

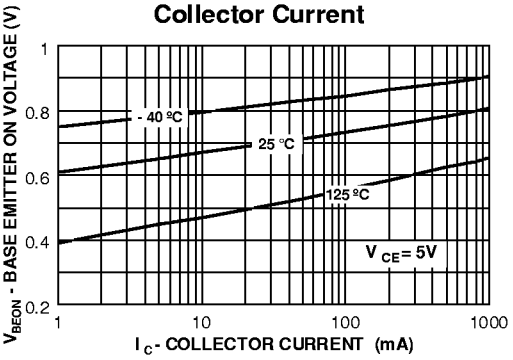


Typical Characteristics (continued)

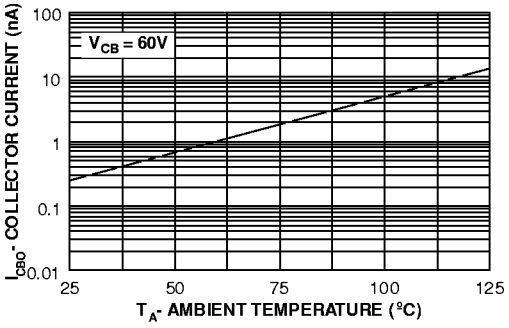
Base-Emitter Saturation Voltage vs Collector Current



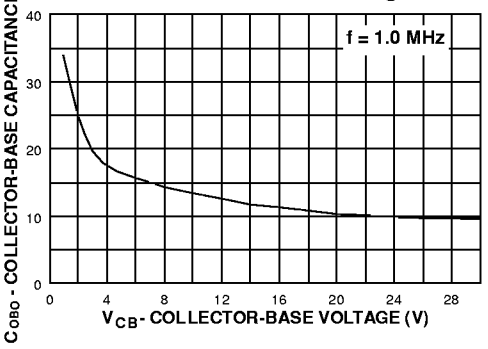
Base Emitter ON Voltage vs Collector Current



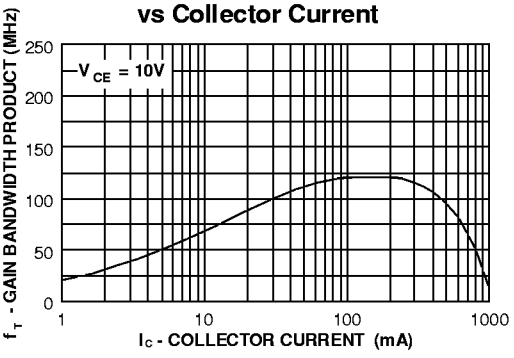
Collector-Cutoff Current vs. Ambient Temperature



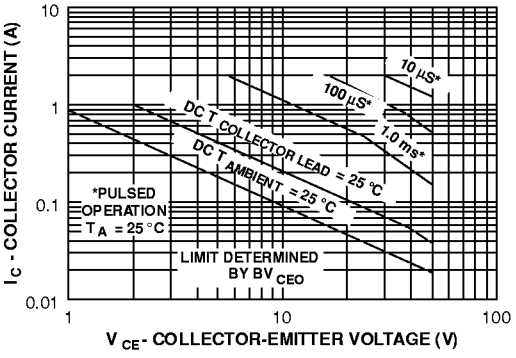
Collector-Base Capacitance vs Collector-Base Voltage



Gain Bandwidth Product vs Collector Current



Safe Operating Area TO-226



Typical Characteristics (continued)

Power Dissipation vs Ambient Temperature