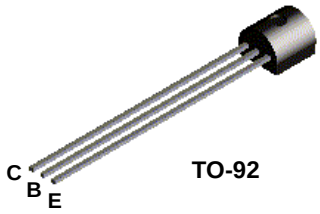
FAIRCHILD SEMICONDUCTOR TM

Discrete POWER & Signal Technologies

2N5961



TO-92

NPN General Purpose Amplifier

This device is designed for use as low noise, high gain, general purpose amplifiers requiring collector currents to 50 mA. Sourced from Process 07. See 2N5088 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Val60ue	Units
V_{CEO}	Collector-Emitter Voltage	60	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	8.0	V
I_C	Collector Current - Continuous	100	mA
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
		2N5961	
P_D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

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NPN 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 = 5.0 mA, I_B = 0	60		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10 µA, I_E = 0	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10 µA, I_C = 0	8.0		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 45 V, I_E = 0 V_{CB} = 45 V, I_E = 0, T_A = 65 °C		2.0 50	nA nA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 5.0 V, I_C = 0		1.0	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	V_{CE} = 5.0 V, I_C = 10 µA V_{CE} = 5.0 V, I_C = 100 µA V_{CE} = 5.0 V, I_C = 1.0 mA V_{CE} = 5.0 V, I_C = 10 mA	100 120 135 150	 700	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 10 mA, I_B = 0.5 mA I_C = 10 mA, I_B =1.0 mA		0.2 0.2	V V
$V_{BE(on)}$	Base-Emitter On Voltage	V_{CE} = 5.0 V, I_C = 1.0 mA	0.5	0.7	V
SMALL SIGNAL CHARACTERISTICS					
C_{cb}	Collector-Base Capacitance	V_{CB} = 5.0 V, f = 1.0 MHz		4.0	pF
C_{eb}	Emitter-Base Capacitance	V_{EB} = 0.5 V, f = 1.0 MHz		6.0	pF
h_{fe}	Small-Signal Current Gain	I_C = 10 mA, V_{CE} = 5.0 V, f = 1.0 kHz I_C = 10 mA, V_{CE} = 5.0 V, f = 100 MHz	150 1.0	1000	
NF	Noise Figure	V_{CE} = 5.0 V, I_C = 10 µA, R_S = 10 kΩ, f = 1.0 kHz, B_W = 400 Hz V_{CE} = 5.0 V, I_C = 10 µA, R_S = 10 kΩ, f = 10 Hz - 10 kHz B_W = 15.7 kHz V_{CE} = 5.0 V, I_C = 100 µA, R_S = 1.0 kΩ, f = 1.0 kHz B_W = 400 Hz		3.0 dB 3.0 dB 6.0 dB	

*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%