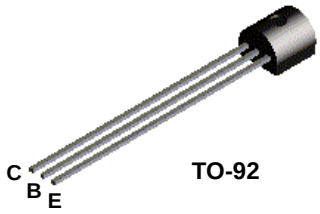
FAIRCHILD SEMICONDUCTOR TM

Discrete POWER & Signal Technologies

2N5210



TO-92

NPN General Purpose Amplifier

This device is designed for low noise, high gain, general purpose amplifier applications at collector currents from 1µA to 50 mA. Sourced from Process 07. See 2N5088 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	50	V
V_{CBO}	Collector-Base Voltage	50	V
V_{EBO}	Emitter-Base Voltage	4.5	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
		2N5210	
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

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 = 1.0 mA, I_B = 0	50		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 0.1 mA, I_E = 0	50		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 35 V, I_E = 0		50	nA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 3.0 V, I_C = 0		50	nA
ON CHARACTERISTICS					
h_{FE}	DC Current Gain	I_C = 100 µA, V_{CE} = 5.0 V I_C = 1.0 mA, V_{CE} = 5.0 V I_C = 10 mA, V_{CE} = 5.0 V*	200 250 250	600	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 10 mA, I_B = 1.0 mA		0.7	V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 1.0 mA, V_{CE} = 5.0 V		0.85	V
SMALL SIGNAL CHARACTERISTICS					
f_T	Current Gain - Bandwidth Product	I_C = 500 µA, V_{CE} = 5.0 V, f= 20 MHz	30		MHz
C_{cb}	Collector-Base Capacitance	V_{CB} = 5.0 V, I_E = 0, f = 100 kHz		4.0	pF
h_{fe}	Small-Signal Current Gain	I_C = 1.0 mA, V_{CE} = 5.0 V, f = 1.0 kHz	250	900	
NF	Noise Figure	I_C = 20 µA, V_{CE} = 5.0 V, R_S = 22 kΩ, f = 10 Hz to 15.7 kHz I_C = 20 µA, V_{CE} = 5.0 V, R_S = 10 kΩ, f = 1.0 kHz		2.0 3.0	dB dB

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