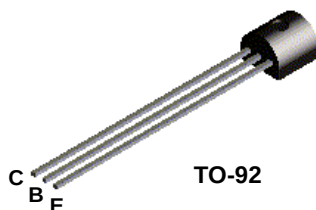


2N5400



PNP General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring high voltages. Sourced from Process 74. See 2N5401 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	120	V
V _{CBO}	Collector-Base Voltage	130	V
V _{EBO}	Emitter-Base Voltage	5.0	V
I _C	Collector Current - Continuous	200	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
		2N5400	
P _D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	83.3	°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	200	°C/W

PNP General Purpose Amplifier

(continued)

2N5400

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 1.0 \text{ mA}, I_B = 0$	120		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \text{ } \mu\text{A}, I_E = 0$	130		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \text{ } \mu\text{A}, I_C = 0$	5.0		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 100 \text{ V}, I_E = 0$ $V_{CB} = 100 \text{ V}, I_E = 0, T_A = 100 \text{ }^\circ\text{C}$		100 100	nA μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 3.0 \text{ V}, I_C = 0$		50	nA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$V_{CE} = 5.0 \text{ V}, I_C = 1.0 \text{ mA}$ $V_{CE} = 5.0 \text{ V}, I_C = 10 \text{ mA}$ $V_{CE} = 5.0 \text{ V}, I_C = 50 \text{ mA}$	30 40 40	180	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$ $I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$		0.2 0.5	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$ $I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$		1.0 1.0	V V

SMALL SIGNAL CHARACTERISTICS

C_{ob}	Output Capacitance	$V_{CB} = 10 \text{ V}, f = 1.0 \text{ MHz}$		6.0	pF
f_T	Current Gain - Bandwidth Product	$I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V},$ $f = 100 \text{ MHz}$	100	400	
h_{fe}	Small-Signal Current Gain	$I_C = 1.0 \text{ mA}, V_{CE} = 10 \text{ V},$ $f = 1.0 \text{ kHz}$	30	200	
NF	Noise Figure	$V_{CE} = 5.0 \text{ V}, I_C = 250 \text{ } \mu\text{A},$ $R_S = 1.0 \text{ k}\Omega,$ $f = 10 \text{ Hz to } 15.7 \text{ kHz}$		8.0	V

*Pulse Test: Pulse Width $\leq 300 \text{ } \mu\text{s}$, Duty Cycle $\leq 2.0\%$