

PN5134



PNP General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring collector currents to 300 mA. Sourced from Process 68. See PN200 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	10	V
V _{CB0}	Collector-Base Voltage	20	V
V _{EBO}	Emitter-Base Voltage	3.5	V
I _C	Collector Current - Continuous	500	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
		PN5134	
P _D	Total Device Dissipation Derate above 25°C	625	mW
		5.0	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)

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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*	$I_C = 10 \text{ mA}, I_B = 0$	10		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10 \text{ } \mu\text{A}, I_E = 0$	20		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \text{ } \mu\text{A}, I_C = 0$	3.5		V
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = 10 \text{ } \mu\text{A}$	20		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 15 \text{ V}, I_E = 0, T_A = 65 \text{ }^\circ\text{C}$		10	μA
I_{CES}	Collector Cutoff Current	$V_{CE} = 15 \text{ V}, I_C = 0$		0.4	μA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$V_{CE} = 1.0 \text{ V}, I_C = 10 \text{ mA}$ $V_{CE} = 0.4 \text{ V}, I_C = 30 \text{ mA}$	20 15	150	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$ $I_C = 10 \text{ mA}, I_B = 3.3 \text{ mA}$		0.25 0.20	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$ $I_C = 10 \text{ mA}, I_B = 3.3 \text{ mA}$	0.70 0.72	0.9 1.1	V

SMALL SIGNAL CHARACTERISTICS

C_{ob}	Output Capacitance	$V_{CB} = 5.0 \text{ V}, f = 1.0 \text{ MHz}$		4.0	pF
h_{fe}	Small-Signal Current Gain	$I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V},$ $f = 100 \text{ MHz}$	2.5		

SWITCHING CHARACTERISTICS

t_s	Storage Time	$I_C = I_{B1} = I_{B2} = 10 \text{ mA}$		18	ns
t_{on}	Turn-on Time	$V_{CC} = 3.0 \text{ V}, I_C = 10 \text{ mA},$ $I_{B1} = 3.3 \text{ mA}$		18	ns
t_d	Delay Time			14	ns
t_r	Rise Time			12	ns
t_{off}	Turn-off Time	$V_{CC} = 3.0 \text{ V}, I_C = 10 \text{ mA}$		18	ns
t_s	Storage Time	$I_{B1} = I_{B2} = 3.3 \text{ mA}$		13	ns
t_f	Fall Time			13	ns

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