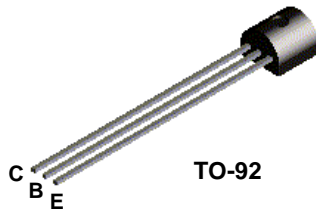


PN4143



PNP General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring collector currents to 500 mA. Sourced from Process 63. See PN2907A for characteristics.

Absolute Maximum Ratings* TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	800	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
		PN4143	
P_D	Total Device Dissipation Derate above 25°C	625	mW
		5.0	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

PNP General Purpose Amplifier

(continued)

PN4143

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*	$I_C = 10 \text{ mA}, I_B = 0$	40		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10 \mu\text{A}, I_E = 0$	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu\text{A}, I_C = 0$	5.0		V
I_{CEX}	Collector Cutoff Current	$V_{CE} = 30 \text{ V}, V_{OB} = 0.5 \text{ V}$		50	nA
I_{BL}	Base Cutoff Current	$V_{CE} = 30 \text{ V}, V_{OB} = 0.5 \text{ V}$		50	nA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$V_{CE} = 10 \text{ V}, I_C = 100 \mu\text{A}$	35	300	
		$V_{CE} = 10 \text{ V}, I_C = 1.0 \text{ mA}$	50		
		$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$	75		
		$V_{CE} = 10 \text{ V}, I_C = 150 \text{ mA}$	100		
		$V_{CE} = 10 \text{ V}, I_C = 500 \text{ mA}$	30		
		$V_{CE} = 1.0 \text{ V}, I_C = 150 \text{ mA}$	50		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$		0.4	V
		$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$		1.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$		1.3	V
		$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$		2.6	V

SMALL SIGNAL CHARACTERISTICS

C_{ob}	Output Capacitance	$V_{CB} = 10 \text{ V}, f = 100 \text{ kHz}$		8.0	pF
C_{ib}	Input Capacitance	$V_{EB} = 2.0 \text{ V}, f = 100 \text{ kHz}$		30	pF
h_{fe}	Small-Signal Current Gain	$I_C = 50 \text{ mA}, V_{CE} = 20 \text{ V}, f = 100 \text{ MHz}$	2.0		

SWITCHING CHARACTERISTICS

t_{on}	Turn-on Time	$V_{CC} = 30 \text{ V}, I_C = 150 \text{ mA}, I_{B1} = 15 \text{ mA}$		45	ns
t_d	Delay Time			10	ns
t_r	Rise Time			40	ns
t_{off}	Turn-off Time	$V_{CC} = 30 \text{ V}, I_C = 150 \text{ mA}, I_{B1} = I_{B2} = 15 \text{ mA}$		100	ns
t_s	Storage Time			80	ns
t_f	Fall Time			30	ns

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