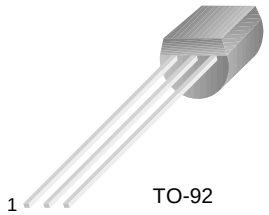
FAIRCHILD
SEMICONDUCTOR®

PN4141

NPN General Purpose Amplifier

- This device is designed for use as general purpose amplifiers and switches requiring collector currents to 300mA.



TO-92

1. Emitter 2. Base 3. Collector

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

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	30	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	500	mA
$T_{J,}$ T_{STG}	Operating and Storage Junction Temperature Range	- 55 ~ 150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaird.

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

Electrical Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Characteristics					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage *	I_C = 10mA, I_B = 0	30		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10μA, I_E = 0	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E = 10μA, I_C = 0	5.0		V
I_{CEX}	Collector Cut-off Current	V_{CB} = 40V, V_{OB} = 3.0V		50	nA
I_{BL}	Base Cutoff Current	V_{CB} = 40V, V_{OB} = 3.0V		50	nA
On Characteristics					
h_{FE}	DC Current Gain	V_{CE} = 10V, I_C = 100μA V_{CE} = 10V, I_C = 1.0mA V_{CE} = 10V, I_C = 10mA V_{CE} = 10V, I_C = 150mA V_{CE} = 10V, I_C = 500mA V_{CE} = 1.0V, I_C = 150mA	35 50 75 100 30 50	 300 	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA		0.4 1.6	V V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA		1.3 2.6	V V
Small Signal Characteristics					
C_{ob}	Output Capacitance	V_{CB} = 10V, f = 100KHz		8.0	pF
h_{fe}	Small Signal Current Gain	I_C = 20mA, V_{CE} = 20V, f = 100MHz	2.5		
Switching Characteristics					
t_d	Delay Time	V_{CC} = 30V, I_C = 150mA I_{B1} = 15mA, V_{OB}(off) = 0.5V		10	ns
t_r	Rise Time			40	ns
t_s	Storage Time	V_{CC} = 30V, I_C = 150mA I_{B1} = I_{B2} = 15mA		250	ns
t_f	Fall Time		2.5	60	ns

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

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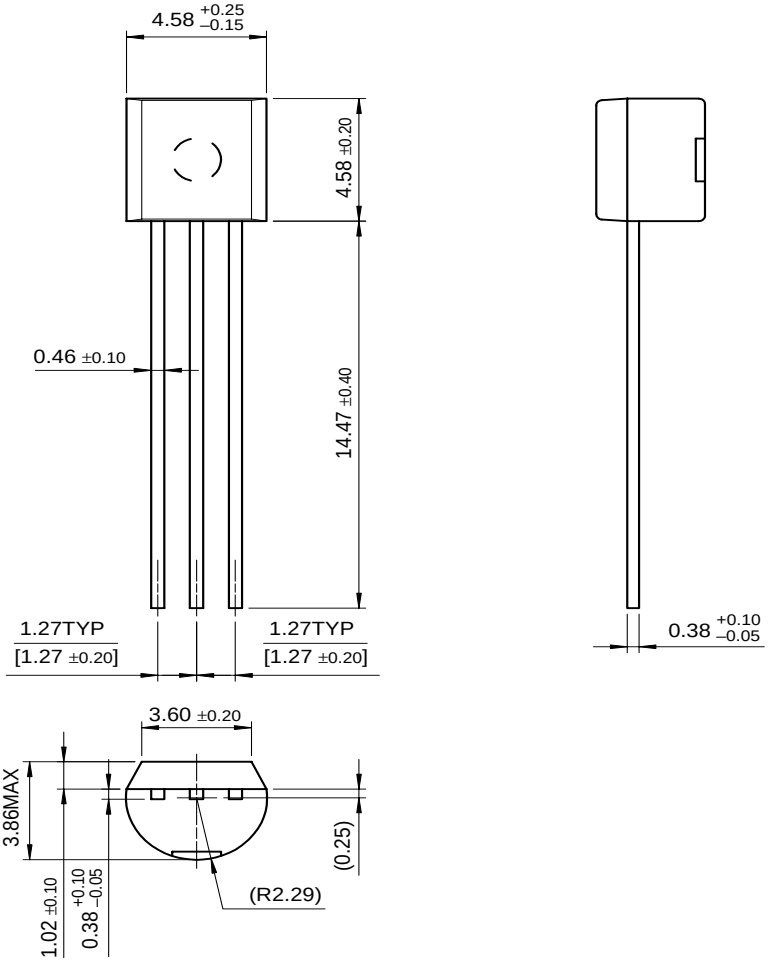
Thermal Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Max.	Units
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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Package Dimensions

TO-92



Dimensions in Millimeters

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CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
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Across the board. Around the world.™		OCXPro™	RapidConnect™	UltraFET®
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Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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Definition of Terms

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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

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