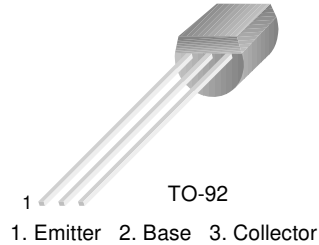


PN3643

NPN General Purpose Amplifier

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



Absolute Maximum Ratings* $T_A=25^\circ\text{C}$ 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	$^\circ\text{C}$

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

NOTES:

- These ratings are based on a maximum junction temperature of 150 degrees C.
- These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations

Electrical Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Characteristics					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage *	$I_C = 10\text{mA}, I_B = 0$	30		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_{CES}	Collector Cut-off Current	$V_{CB} = 50\text{V}, I_E = 0$ $V_{CB} = 50\text{V}, I_E = 0, T_A = 65^\circ\text{C}$		50 1.0	nA μA
On Characteristics					
h_{FE}	DC Current Gain	$V_{CE} = 10\text{V}, I_C = 150\text{mA}$ $V_{CE} = 10\text{V}, I_C = 500\text{mA}$	100 20	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 150\text{mA}, I_B = 15\text{mA}$		0.22	V
Small Signal Characteristics					
C_{ob}	Output Capacitance	$V_{CB} = 10\text{V}, f = 140\text{KHz}$		8.0	pF
η	Collector Efficiency	$V_{CE} = 15\text{V}, f = 30\text{MHz}$ $R_G = 140\Omega, R_L = 260\Omega$	60		%
G_{pe}	Amplifier Power Gain	$V_{CE} = 15\text{V}, f = 30\text{MHz}$ $R_G = 140\Omega, R_L = 260\Omega$	10		dB
h_{fe}	Small Signal Current Gain	$I_C = 50\text{mA}, V_{CE} = 5.0\text{V}, f = 100\text{MHz}$	2.5		

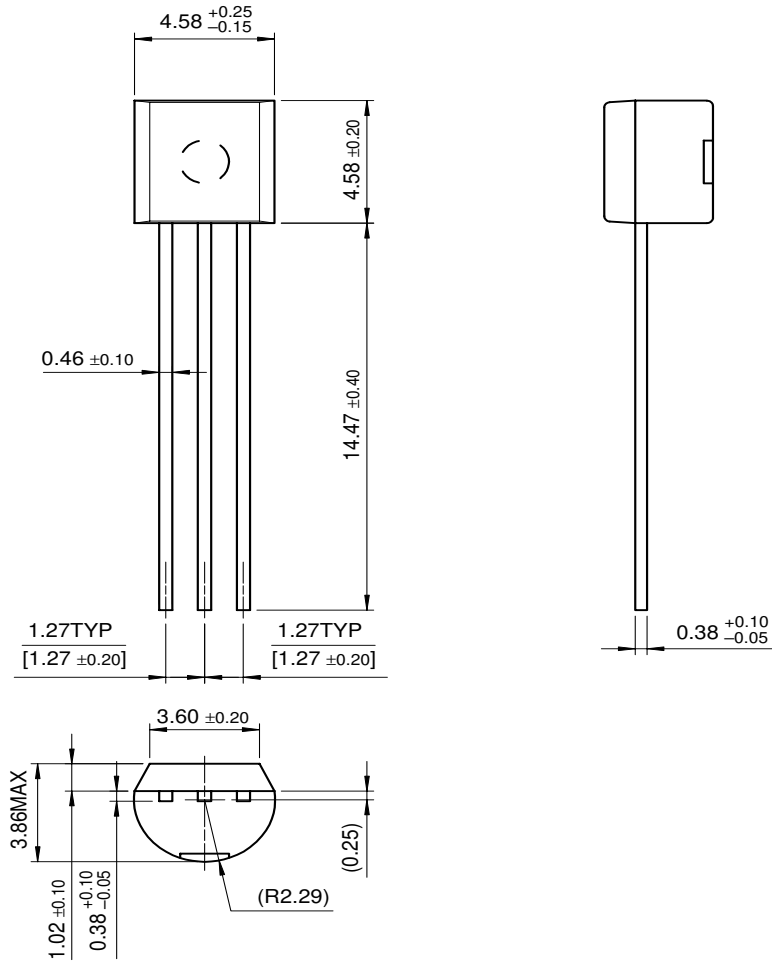
* Pulse Test: Pulse Width $\leq 300\text{ms}$, Duty Cycle $\leq 2.0\%$

Thermal Characteristics $T_A=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation	625	mW
	Derate above 25°C	5.0	$\text{mW}/^{\circ}\text{C}$
$R_{\theta\text{JC}}$	Thermal Resistance, Junction to Case	83.3	$^{\circ}\text{C}/\text{W}$
$R_{\theta\text{JA}}$	Thermal Resistance, Junction to Ambient	200	$^{\circ}\text{C}/\text{W}$

Package Dimensions

TO-92



Dimensions in Millimeters

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CROSSVOL™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
DOME™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic™
E ² CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	I ² C™	OCX™	RapidConfigure™	UHC™
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PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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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PN3643

NPN General Purpose Amplifier

Contents

- [General description](#)
- [Product status/pricing/packageing](#)
- [Order Samples](#)
- [Models](#)
- [Qualification Support](#)

General description

NPN General Purpose Amplifier

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

[back to top](#)

Product status/pricing/packageing

BUY

BUY

Datasheet

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This page

[Print version](#)

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Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
PN3643	Full Production	Full Production	\$0.0452	TO-92	3	BULK	Line 1: \$Y (Fairchild logo) &Z (Asm. Plant Code) &3 (3-Digit Date Code) Line 2: PN Line 3: 3643
PN3643_D26Z	Full Production	Full Production	N/A	TO-92	3	TAPE REEL	Line 1: \$Y (Fairchild logo) &Z (Asm. Plant Code) &3 (3-Digit Date Code) Line 2: PN Line 3: 3643
PN3643_D27Z	Full Production	Full Production	N/A	TO-92	3	TAPE REEL	Line 1: \$Y (Fairchild logo) &Z (Asm. Plant Code) &3 (3-Digit Date Code) Line 2: PN Line 3: 3643
PN3643_D74Z	Full Production		N/A	TO-92	3	AMMO	Line 1: \$Y (Fairchild logo) &Z (Asm. Plant Code)

							&3 (3-Digit Date Code) Line 2: PN Line 3: 3643
PN3643_D75Z	Full Production		N/A	TO-92	3	AMMO	Line 1: \$Y (Fairchild logo) &Z (Asm. Plant Code) &3 (3-Digit Date Code) Line 2: PN Line 3: 3643
PN3643_J61Z	Full Production		N/A	TO-92	3	BULK	Line 1: \$Y (Fairchild logo) &Z (Asm. Plant Code) &3 (3-Digit Date Code) Line 2: PN Line 3: 3643

* Fairchild 1,000 piece Budgetary Pricing

** A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a [Fairchild distributor](#) to obtain samples



Indicates product with Pb-free second-level interconnect. For more information [click here](#).

Package marking information for product PN3643 is available. [Click here for more information](#).

[back to top](#)

Models

Package & leads	Condition	Temperature range	Software version	Revision date
PSPICE				
TO-92-3	Electrical	25°C	N/A	N/A

[back to top](#)

Qualification Support

Click on a product for detailed qualification data

Product
PN3643
PN3643_D26Z
PN3643_D27Z
PN3643_D74Z
PN3643_D75Z

[PN3643_J61Z](#)

[back to top](#)

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