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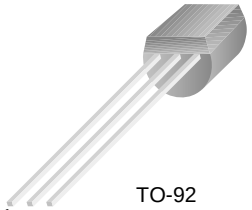
Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

FAIRCHILD SEMICONDUCTOR®

September 2007

PN4416
N-Channel RF Amplifier

- This device is designed for electronic switching applications such as low ON resistance analog switching.
- Sourced from process 50.



TO-92

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1. Drain 2. Source 3. Gate

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

Symbol	Parameter	Value	Units
V_{DG}	Drain-Gate Voltage	30	V
V_{GS}	Gate-Source Voltage	-30	V
I_{GF}	Forward Gate Current	10	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ +150	°C

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

NOTES:

1) These rating are based on a maximum junction temperature of 150 degrees C.

2) These are steady limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	125	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

* Device mounted on FR-4 PCB 1.5" X 1.6" X 0.06"

Electrical Characteristics* T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Characteristics					
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	I_G = 1.0 μA, V_{DS} = 0 V	-30		V
I_{GSS}	Gate Reverse Current	V_{GS} = 20 V, V_{DS} = 0, T = 25°C T = 150°C		-100 -200	pA nA
$V_{GS(off)}$	Gate-Source Cut-off Voltage	V_{DS} = 15 V, I_D = 1.0 nA	2.5	6	V
V_{GS}	Gate-Source Forward Voltage	V_{DS} = 15V, I_D = 500μA	1	5.5	V
On Characteristics					
I_{DSS}	Zero-Gate Voltage Drain Current *	V_{DS} = 15V, V_{GS} = 0	5	15	mA
g_{fs}	Common Source Forward Transconductance	V_{DS} = 15V, V_{GS} = 0V, f = 1kHz	4500	7500	μ/Ω
Small Signal Characteristics					
C_{oss}	Output Capacitance	V_{DS} = 15V, V_{GS} = 0V, f = 1.0MHz		2	pF
C_{iss}	Input Capacitance	V_{DS} = 15V, V_{GS} = 0V, f = 1.0MHz		4	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 15V, V_{GS} = 0V, f = 1.0MHz		0.9	pF

* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle = 2%

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Preliminary	First Production	This datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice 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 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.

Rev. I30

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