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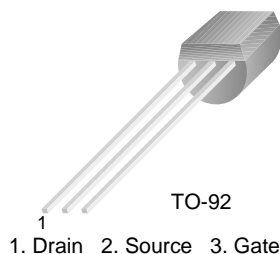
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# PN4416

## N-Channel RF Amplifier

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



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

\* 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 $T_a=25^\circ\text{C}$ unless otherwise noted

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

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

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

Symbol	Parameter	Test Condition	Min.	Max.	Units
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**Off Characteristics**

$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = 1.0\ \mu\text{A}$ , $V_{DS} = 0\ \text{V}$	-30		V
$I_{GSS}$	Gate Reverse Current	$V_{GS} = 20\ \text{V}$ , $V_{DS} = 0$ , $T = 25^{\circ}\text{C}$ $T = 150^{\circ}\text{C}$		-100 -200	pA nA
$V_{GS(off)}$	Gate-Source Cut-off Voltage	$V_{DS} = 15\ \text{V}$ , $I_D = 1.0\ \text{nA}$	2.5	6	V
$V_{GS}$	Gate-Source Forward Voltage	$V_{DS} = 15\ \text{V}$ , $I_D = 500\ \mu\text{A}$	1	5.5	V

**On Characteristics**

$I_{DSS}$	Zero-Gate Voltage Drain Current *	$V_{DS} = 15\ \text{V}$ , $V_{GS} = 0$	5	15	mA
$g_{fs}$	Common Source Forward Transconductance	$V_{DS} = 15\ \text{V}$ , $V_{GS} = 0\ \text{V}$ , $f = 1\ \text{kHz}$	4500	7500	$\mu/\Omega$

**Small Signal Characteristics**

$C_{oss}$	Output Capacitance	$V_{DS} = 15\ \text{V}$ , $V_{GS} = 0\ \text{V}$ , $f = 1.0\ \text{MHz}$		2	pF
$C_{iss}$	Input Capacitance	$V_{DS} = 15\ \text{V}$ , $V_{GS} = 0\ \text{V}$ , $f = 1.0\ \text{MHz}$		4	pF
$C_{rss}$	Reverse Transfer Capacitance	$V_{DS} = 15\ \text{V}$ , $V_{GS} = 0\ \text{V}$ , $f = 1.0\ \text{MHz}$		0.9	pF

\* Pulse Test: Pulse Width  $\leq 300\ \mu\text{s}$ , Duty Cycle = 2%

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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 to improve design.
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