

## IFN5911, IFN5912

## N-Channel Dual Silicon Junction Field-Effect Transistor

- VHF Amplifiers
- Wideband Differential Amplifiers

Absolute maximum ratings at  $T_A = 25^\circ\text{C}$ 

Continuous Forward Gate Current	50 mA
Continuous Device Power Dissipation	500 mW
Power Derating	4 mW/ $^\circ\text{C}$
Storage Temperature Range	-65 $^\circ\text{C}$ to 200 $^\circ\text{C}$

At 25 $^\circ\text{C}$  free air temperature:

## Static Electrical Characteristics

		IFN5911		IFN5912		Process NJ30L or NJ36D	
		Min	Max	Min	Max	Unit	Test Conditions
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	-25		-25		V	$I_G = -1\ \mu\text{A}$ , $V_{DS} = 0\text{V}$
Gate Reverse Current	$I_{GSS}$		-100		-100	pA	$V_{GS} = -15\text{V}$ , $V_{DS} = 0\text{V}$
			-250		-250	nA	$V_{GS} = -15\text{V}$ , $V_{DS} = 0\text{V}$ , $T_A = 150^\circ\text{C}$
Gate Operating Current	$I_G$		-100		-100	pA	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$
			-100		-100	nA	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$ , $T_A = 125^\circ\text{C}$
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	-1	-5	-1	-5	V	$V_{DS} = 10\text{V}$ , $I_D = 1\ \text{nA}$
Gate Source Voltage	$V_{GS}$	-0.3	-4	-0.3	-4	V	$V_{DS} = 10\text{V}$ , $I_D = 5\ \text{mA}$
Drain Saturation Current (Pulsed)	$I_{DSS}$	7	40	7	40	mA	$V_{DS} = 10\text{V}$ , $V_{GS} = 0\text{V}$

## Dynamic Electrical Characteristics

Common Source Forward Transconductance	$g_{fs}$	3000	10000	3000	10000	$\mu\text{S}$	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	$f = 1\ \text{kHz}$
		3000	10000	3000	10000	$\mu\text{S}$	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	$f = 100\ \text{MHz}$
Common Source Output Conductance	$g_{os}$		100		100	$\mu\text{S}$	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	$f = 1\ \text{kHz}$
			150		150	$\mu\text{S}$	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	$f = 100\ \text{MHz}$
Common Source Input Capacitance	$C_{iss}$		5		5	pF	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	$f = 1\ \text{MHz}$
Common Source Reverse Transfer Capacitance	$C_{rss}$		1.2		1.2	pF	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	$f = 1\ \text{MHz}$
Equivalent Short Circuit Input Noise Voltage	$\bar{e}_N$		20		20	nV/ $\sqrt{\text{Hz}}$	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	$f = 10\ \text{kHz}$
Noise Figure	NF		1		1	dB	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$ $R_G = 100\ \text{K}\Omega$	$f = 10\ \text{Hz}$
Differential Gate Current	$ I_{G1}  -  I_{G2} $		20		20	nA	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	$T_A = 125^\circ\text{C}$
Saturation Drain Current Ratio	$I_{DSS1}/I_{DSS2}$	0.95	1	0.95	1		$V_{DS} = 10\text{V}$ , $V_{GS} = 0\text{V}$	
Differential Gate Source Voltage	$V_{GS1} - V_{GS2}$		10		15	mV	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	
Gate Source Voltage Differential Drift	$\frac{\Delta V_{GS1} - V_{GS2}}{\Delta T}$		20		40	$\mu\text{V}/^\circ\text{C}$	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	$T_A = 25^\circ\text{C}$ $T_B = 125^\circ\text{C}$
			20		40	$\mu\text{V}/^\circ\text{C}$	$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	$T_A = -55^\circ\text{C}$ $T_B = 25^\circ\text{C}$
Transconductance Ratio	$g_{fs1}/g_{fs2}$	0.95	1	0.95	1		$V_{DG} = 10\text{V}$ , $I_D = 5\ \text{mA}$	$f = 1\ \text{kHz}$

## TO-78 Package

See Section G for Outline Dimensions

## Pin Configuration

1 Source, 2 Drain, 3 Gate, 4 Case,  
5 Source, 6 Drain, 7 Gate, 8 Omitted