

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	μS	$V_{DG} = 10\text{V}$, $I_D = 5\ \text{mA}$	$f = 1\ \text{kHz}$
		3000	10000	3000	10000	μS	$V_{DG} = 10\text{V}$, $I_D = 5\ \text{mA}$	$f = 100\ \text{MHz}$
Common Source Output Conductance	g_{os}		100		100	μS	$V_{DG} = 10\text{V}$, $I_D = 5\ \text{mA}$	$f = 1\ \text{kHz}$
			150		150	μS	$V_{DG} = 10\text{V}$, $I_D = 5\ \text{mA}$	$f = 100\ \text{MHz}$
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