2N5911, 2N5912

Dual N-Channel Silicon Junction Field-Effect Transistor

- ## Wideband Differential Amplifiers

Absolute maximum ratings at $T_A = 25°C$

Continuous Forward Gate Current	50 mA
Total Device Power Dissipation	500 mW
Power Derating	4 mW°C
Storage Temperature Range	−65°C to + 200°C

At 25°C free air temperature:

Static Electrical Characteristics

		2N5911 Min	2N5911 Max	2N5912 Min	2N5912 Max	Unit	Process NJ30L or NJ36D Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	− 25		− 25		V	$I_G = -1\ \mu A$, $V_{DS} = \emptyset V$	
Gate Reverse Current	I_{GSS}		− 100		− 100	pA	$V_{GS} = -15V$, $V_{DS} = \emptyset V$	
			− 250		− 250	nA	$V_{GS} = -15V$, $V_{DS} = \emptyset V$	$T_A = 150°C$
Gate Operating Current	I_G		− 100		− 100	pA	$V_{DG} = 10V$, $I_D = 5\ mA$	
			− 100		− 100	nA	$V_{DG} = 10V$, $I_D = 5\ mA$	$T_A = 125°C$
Gate Source Cutoff Voltage	$V_{GS(OFF)}$	− 1	− 5	− 1	− 5	V	$V_{DS} = 10V$, $I_D = 1\ nA$	
Gate Source Voltage	V_{GS}	− 0.3	− 4	− 0.3	− 4	V	$V_{DS} = 10V$, $I_D = 5\ mA$	
Drain Saturation Current (Pulsed)	I_{DSS}	7	40	7	40	mA	$V_{DS} = 10V$, $V_{GS} = \emptyset V$	

Dynamic Electrical Characteristics

		2N5911 Min	2N5911 Max	2N5912 Min	2N5912 Max	Unit	Test Conditions	
Common Source Forward Transconductance	g_{fs}	5000	10000	5000	10000	μS	$V_{DG} = 10V$, $I_D = 5\ mA$	f = 1 kHz
		5000	10000	5000	10000	μS	$V_{DG} = 10V$, $I_D = 5\ mA$	f = 100 MHz
Common Source Output Conductance	g_{os}		100		100	μS	$V_{DG} = 10V$, $I_D = 5\ mA$	f = 1 kHz
			150		150	μS	$V_{DG} = 10V$, $I_D = 5\ mA$	f = 100 MHz
Common Source Input Capacitance	C_{iss}		5		5	pF	$V_{DG} = 10V$, $I_D = 5\ mA$	f = 1 MHz
Common Source Reverse Transfer Capacitance	C_{rss}		1.2		1.2	pF	$V_{DG} = 10V$, $I_D = 5\ mA$	f = 1 MHz
Equivalent Short Circuit Input Noise Voltage	$\bar{e}_N$		20		20	nV/√Hz	$V_{DG} = 10V$, $I_D = 5\ mA$	f = 10 kHz
Noise Figure	NF		1		1	dB	$V_{DG} = 10V$, $I_D = 5\ mA$ $R_G = 100\ K\Omega$	f = 10 kHz
Differential Gate Current	$I_{G1} - I_{G2}$		20		20	nA	$V_{DG} = 10V$, $I_D = 5\ mA$	$T_A = 125°C$
Saturation Drain Current Ratio	I_{DSS1}/I_{DSS2}	0.95	1	0.95	1		$V_{DG} = 20V$, $V_{GS} = \emptyset V$	
Differential Gate Source Voltage	$\|V_{GS1} - V_{GS2}\|$		10		15	mV	$V_{DG} = 10V$, $I_D = 5\ mA$	
Gate Source Voltage Differential Drift	$\dfrac{\Delta V_{GS1} - V_{GS2}}{\Delta T}$		20		40	mV	$V_{DG} = 10V$, $I_D = 5\ mA$	$T_A = 25°C$, $T_B = 125°C$
			20		40	mV	$V_{DG} = 10V$, $I_D = 5\ mA$	$T_A = -55°C$, $T_B = 25°C$
Transconductance Ratio	g_{fs1}/g_{fs2}	0.9	1	0.85	1		$V_{DG} = 10V$, $I_D = 5\ mA$	f = 1 kHz

SOIC-8 Package
See Section G for Outline Dimensions
Pin Configuration
1 Source 1, 2 Drain 1, 3 Gate 1, 4 N/C,
5 Source 2, 6 Drain 2, 7 Gate 2, 8 Omitted

TO-78 Package
See Section G for Outline Dimensions
Pin Configuration
1 Source 1, 2 Drain 1, 3 Gate 1,
4 Case, 5 Source 2, 6 Drain 2,
7 Gate 2, 8 Omitted

Surface Mount
SMP5911, SMP5912

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