



Wide Band Matched Dual N-Channel JFETs

FEATURES

- High Gain Through 100Mhz $g_{fs} > 5000\text{mmho}$
- Low Offset 10mV Max
- Low Noise NF=1dB Max
- Matching Characteristics Specified
- Direct Pin Compatible Replacement To 2N5911/2N5912

APPLICATIONS

- Wideband Differential Amplifiers
- Precision Current Sources
- Source Follower
- Analog Switches

PRODUCT DESCRIPTION

The ALPHA Semiconductor 2N5911/2N5912 is a monolithic matched dual N-channel JFET. Matching characteristics include offset voltage of 10mV max. and temperature drift of 20mV/°C. The high gain and high speed makes the 2N5911/2N5912 ideal for use in input high speed amplifiers.

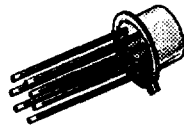
The 2N5911/2N5912 is available in a TO-78 package with an operating temperature range of -55°C to +125°C and Die form.

ORDERING INFORMATION

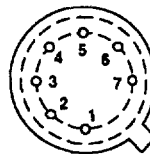
Part Number	Temp. Range	Package Type
2N5911H	-55 to +125°C	TO-78
2N5912H	-55 to +125°C	TO-78
2N5911X		Die Form
2N5912X		Die Form

PIN CONNECTIONS

TO-78



BOTTOM VIEW



- 1 SOURCE 1
- 2 DRAIN 1
- 3 GATE 1
- 4 CASE
- 5 SOURCE 2
- 6 DRAIN 2
- 7 GATE 2

ABSOLUTE MAXIMUM RATINGS

Gate-to-Gate Voltage	±80V	Total Device Dissipation.(Derate 4mW/°C)	500mW
Gate-Drain or Gate-Source Voltage	-25V	Storage Temperature Range	-65°C to +200°C
Gate Current	50mA	Lead Temperature(1/16 " from case for 10 Seconds)	300°C
Device Dissipation(Each Side),(Derate 3mW/°C)	367mW		

ELECTRICAL CHARACTERISTICS at Ta=25°C, unless otherwise specified.

Parameters	Symbols	Test Conditions	2N5911/2N5912		Units
			MIN.	MAX.	
STATIC					
Gate Reverse Current	I_{GSS}	$V_{in}=-15, V_{DS}=0$		-100	pA
Gate Reverse Current	I_{GSS}	$V_{GS}=-15, V_{DS}=0$ Ta=150°C		-250	nA
Gate-Source Breakdown Voltage	G_{VGS}	$I_G=-1mA, V_{DS}=0$	-25		V
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1nA$	-1	-5	V
Gate-Source Voltage	V_{GS}	$V_{DG}=10V, I_D=5mA$	-0.3	-4	V
Gate Operating Current	I_G	$V_{DG}=10V, I_D=5mA$		-100	pA
Gate Operating Current	I_G	$V_{DG}=10V, I_D=5mA$ Ta=125°C		-100	nA
Saturation Drain Current (Note 1)	I_{DSS}	$V_{DS}=10V, V_{GS}=0$	7	40	mA
DYNAMIC					
Common-Source Forward Transconductance	g	$V_{DG}=10V, I_D=5mA$ f=1kHz	5000	10.000	mmho
Common-Source Forward Transconductance	g	$V_{DG}=10V, I_D=5mA$ f=100MHz	5000	10.000	mmho
Common-Source Output Conductance	g_{OS}	$V_{DG}=10V, I_D=5mA$ f=1kHz		100	mmho
Common-Source Output Conductance	g_{OS}	$V_{DG}=10V, I_D=5mA$ f=100MHz		150	mmho
Common-Source Output Capacitance	C	$V_{DG}=10V, I_D=5mA$ f=1MHz		5	pF
Common-Source Reverse Transfer Capacitance	C	$V_{DG}=10V, I_D=5mA$ f=1MHz		1.2	pF
Equivalent Short Circuit Input Noise Voltage	e_n	$V_{DG}=10V, I_D=5mA$ f=10kHz		20	nV/√Hz
Spot Noise Figure	NF	$V_{DG}=10V, I_D=5mA$ f=10kHz Ro=100K		1	dB

MATCHING ELECTRICAL CHARACTERISTICS at Ta=25°C, unless otherwise specified.

Parameter	Symbols	Test Conditions	2N5911		2N5912		Units
			MIN	MAX	MIN	MAX	
Differential Gate Current	$I_{G1}-I_{G2}$	$V_{DG}=10V, I_D=5mA$ Ta=125°C		20		20	nA
Saturation Drain Current Ratio (Note 1, 2)	I_{DSS1}/I_{DSS2}	$V_{DS}=10V, V_{GS}=0$	0.95	1	0.95	1	
Differential Gate-Source Voltage	$V_{GS1}-V_{GS2}$	$V_{DG}=10V, I_D=5mA$		10		15	mA
Gate-Source Voltage Differential Drift (Note 3)	$DV_{GS1}-V_{GS2}$	$V_{DG}=10V, I_D=5mA$ Ta=25°C, Ta=125°C C, Ta=25°C, Ta=125°C C,		20		40	mV/°C
	DT			20		40	
Transconductance Ratio (Note 2)	g_{fs1}/g_{fs2}	$V_{DG}=10V, I_D=5mA$ f=1kHz	0.95	1	0.95	1	t=1kHz

Note 1: Pulsewidth £300ms, duty cycle £300ms

Note 2: Assuming smaller value in numerator

Note 3: Measures at end point T_A and T_B