

# LINEAR SYSTEMS

Twenty-Five Years Of Quality Through Innovation

## LS5911 LS5912 LS5912C

IMPROVED LOW NOISE WIDEBAND  
MONOLITHIC DUAL N-CHANNEL  
JFET AMPLIFIER

### FEATURES

Improved Replacement for SILICONIX, FAIRCHILD, & NATIONAL: 2N5911 & 2N5912

LOW NOISE (10kHz)  $e_n \sim 4nV/\sqrt{Hz}$

HIGH TRANSCONDUCTANCE (100MHz)  $g_{fs} \geq 4000\mu S$

### ABSOLUTE MAXIMUM RATINGS<sup>1</sup>

@ 25 °C (unless otherwise stated)

### Maximum Temperatures

Storage Temperature -55 to +150 °C

Operating Junction Temperature -55 to +150 °C

### Maximum Power Dissipation

Continuous Power Dissipation (Total)<sup>4</sup> 500mW

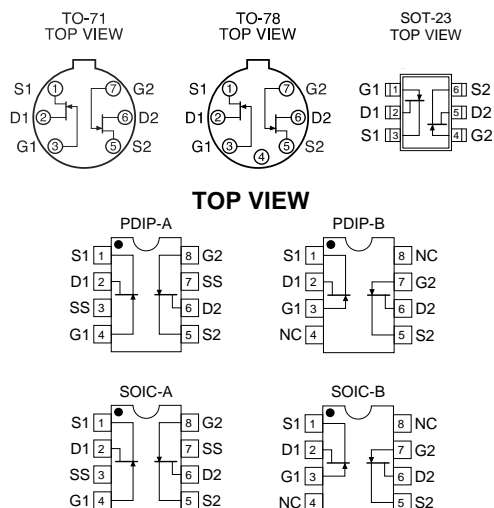
### Maximum Currents

Gate Current 50mA

### Maximum Voltages

Gate to Drain -25V

Gate to Source -25V



### MATCHING ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	TYP	LS5911		LS5912		LS5912C		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
$ V_{GS1} - V_{GS2} $	Differential Gate to Source Cutoff Voltage			10		15		40	mV	$V_{DG} = 10V, I_D = 5mA$
$\frac{\Delta V_{GS1} - V_{GS2} }{\Delta T}$	Differential Gate to Source Cutoff Voltage Change with Temperature			20		40		40	$\mu V/^\circ C$	$V_{DG} = 10V, I_D = 5mA$ $T_A = -55 \text{ to } +125^\circ C$
$\frac{I_{DSS1}}{I_{DSS2}}$	Gate to Source Saturation Current Ratio		0.95	1	0.95	1	0.95	1		$V_{DS} = 10V, V_{GS} = 0V$ Notes 2, 3
$ I_{G1} - I_{G2} $	Differential Gate Current			20		20		20	nA	$V_{DG} = 10V, I_D = 5mA$ $T_A = +125^\circ C$
$\frac{g_{fs1}}{g_{fs2}}$	Forward Transconductance Ratio		0.95	1	0.95	1	0.95	1		$V_{DS} = 10V, I_D = 5mA$ $f = 1kHz^3$
CMRR	Common Mode Rejection Ratio	85							dB	$V_{DG} = 5V \text{ to } 10V$ $I_D = 5mA$

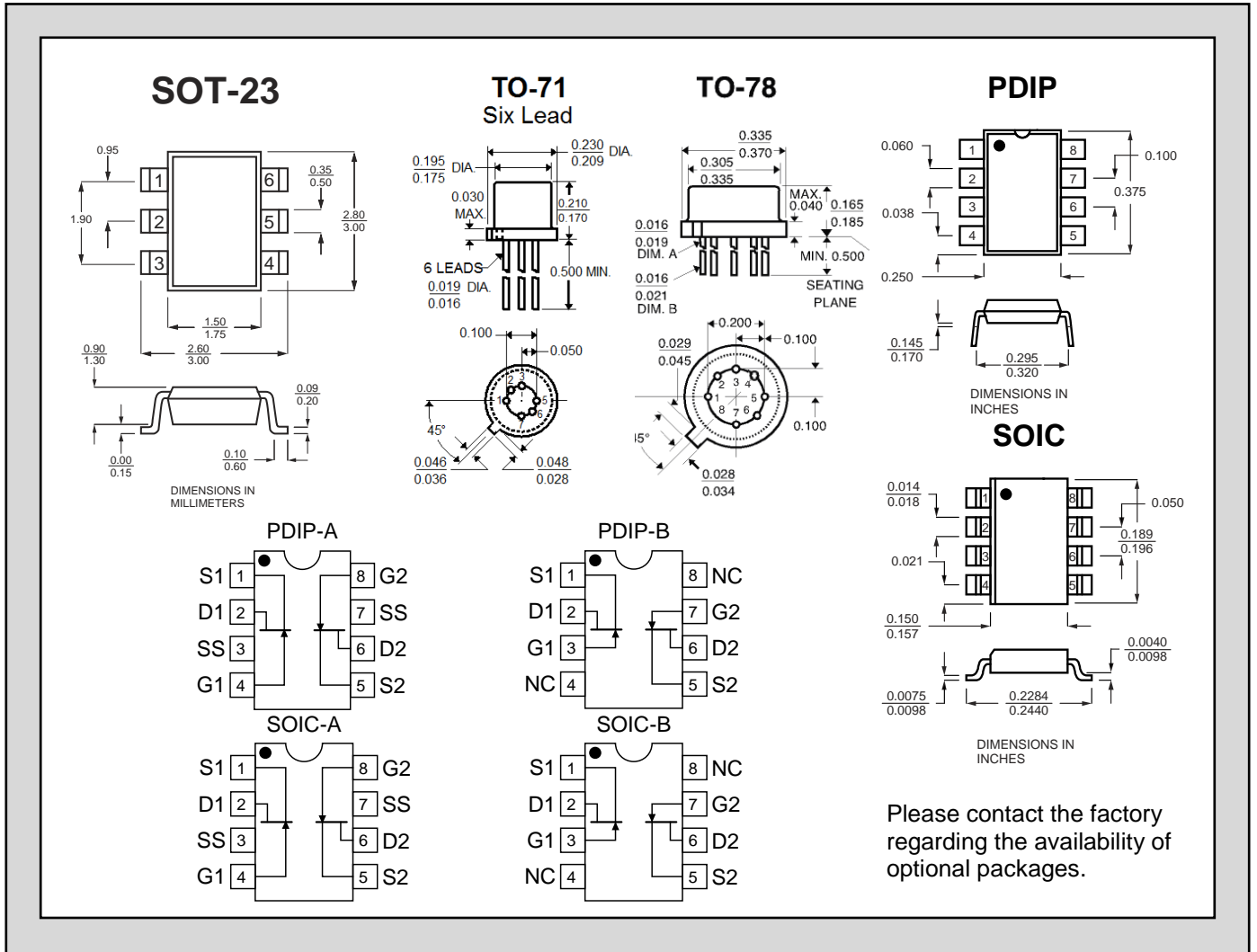
### STATIC ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)

SYM.	CHARACTERISTIC	TYP	LS5911		LS5912		LS5912C		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
$BV_{GSS}$	Gate to Source Breakdown		-25		-25		-25		V	$I_G = -1\mu A, V_{DS} = 0V$
$V_{GS(off)}$	Gate to Source Cutoff Voltage		-1	-5	-1	-5	-1	-5		$V_{DS} = 10V, I_D = 1nA$
$V_{GS(F)}$	Gate to Source Forward Voltage	0.7								$I_G = 1mA, V_{DS} = 0V$
$V_{GS}$	Gate to Source Voltage		-0.3	-4	-0.3	-4	-0.3	-4		$V_{DG} = 10V, I_G = 5mA$
$I_{DSS}$	Drain to Source Saturation		7	40	7	40	7	40	mA	$V_{DS} = 10V, V_{GS} = 0V$
$I_{GSS}$	Gate Leakage Current	-1		-50		-50		-50	pA	$V_{GS} = -15V, V_{DS} = 0V$
$I_G$	Gate Operating Current	-1		-50		-50		-50		$V_{DG} = 10V, I_D = 5mA$
$I_{G1G2}$	Gate to Gate Isolation Current			$\pm 1$		$\pm 1$		$\pm 1$		$V_{G1} - V_{G2} = \pm 25V, I_D = I_S = 0$

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**DYNAMIC ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)**

SYM.	CHARACTERISTIC	TYP	LS5911		LS5912		LS5912C		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
g <sub>fs</sub>	Forward Transconductance	f = 1kHz	4000	10000	4000	10000	4000	10000	μS	V <sub>DG</sub> = 10V, I <sub>D</sub> = 5mA
		f = 100MHz	7000							
g <sub>os</sub>	Output Conductance	f = 1kHz		100		100		100	pF	V <sub>DG</sub> = 10V, I <sub>D</sub> = 5mA f = 1MHz
		f = 100MHz	120							
C <sub>iss</sub>	Input Capacitance			5		5		5	pF	V <sub>DG</sub> = 10V, I <sub>D</sub> = 5mA f = 1MHz
C <sub>rss</sub>	Reverse Transfer Capacitance			1.2		1.2		1.2		
NF	Noise Figure			1		1		1	dB	V <sub>DG</sub> = 10V, I <sub>D</sub> = 5mA f = 10kHz, R <sub>G</sub> = 100KΩ
e <sub>n</sub>	Equivalent Input Noise Voltage	f = 100Hz	7	20		20		20	nV/√Hz	V <sub>DG</sub> = 10V, I <sub>D</sub> = 5mA f = 100Hz
		f = 10kHz	4	10		10		10	nV/√Hz	V <sub>DG</sub> = 10V, I <sub>D</sub> = 5mA f = 10kHz



## NOTES

1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse Test:  $PW \leq 300\mu s$  Duty Cycle  $\leq 3\%$
3. Assumes smaller value in numerator.
4. Derate  $4mW/^{\circ}C$  above  $25^{\circ}C$ .

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