

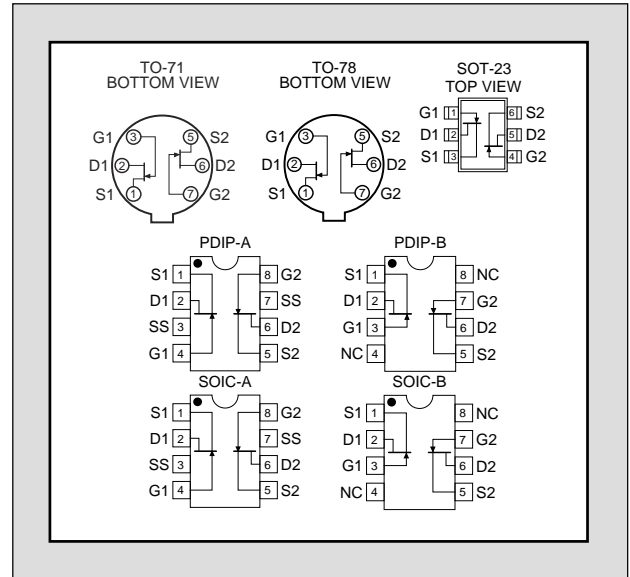
# LINEAR SYSTEMS

Linear Integrated Systems

## LS5911 LS5912 LS5912C

IMPROVED LOW NOISE  
WIDEBAND MONOLITHIC  
DUAL N-CHANNEL JFET

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	-65 to +150 °C
Operating Junction Temperature	-55 to +150 °C
Maximum Power Dissipation	
Continuous Power Dissipation (Total)	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	%	$V_{DS} = 10V, V_{GS} = 0V$
$ 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 <sup>2</sup>		0.95	1	0.95	1	0.95	1	%	$V_{DS} = 10V, I_D = 5mA$ $f = 1kHz$
CMRR	Common Mode Rejection Ratio	85							dB	$V_{DG} = 5V \text{ to } 10V$ $I_D = 5mA$

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

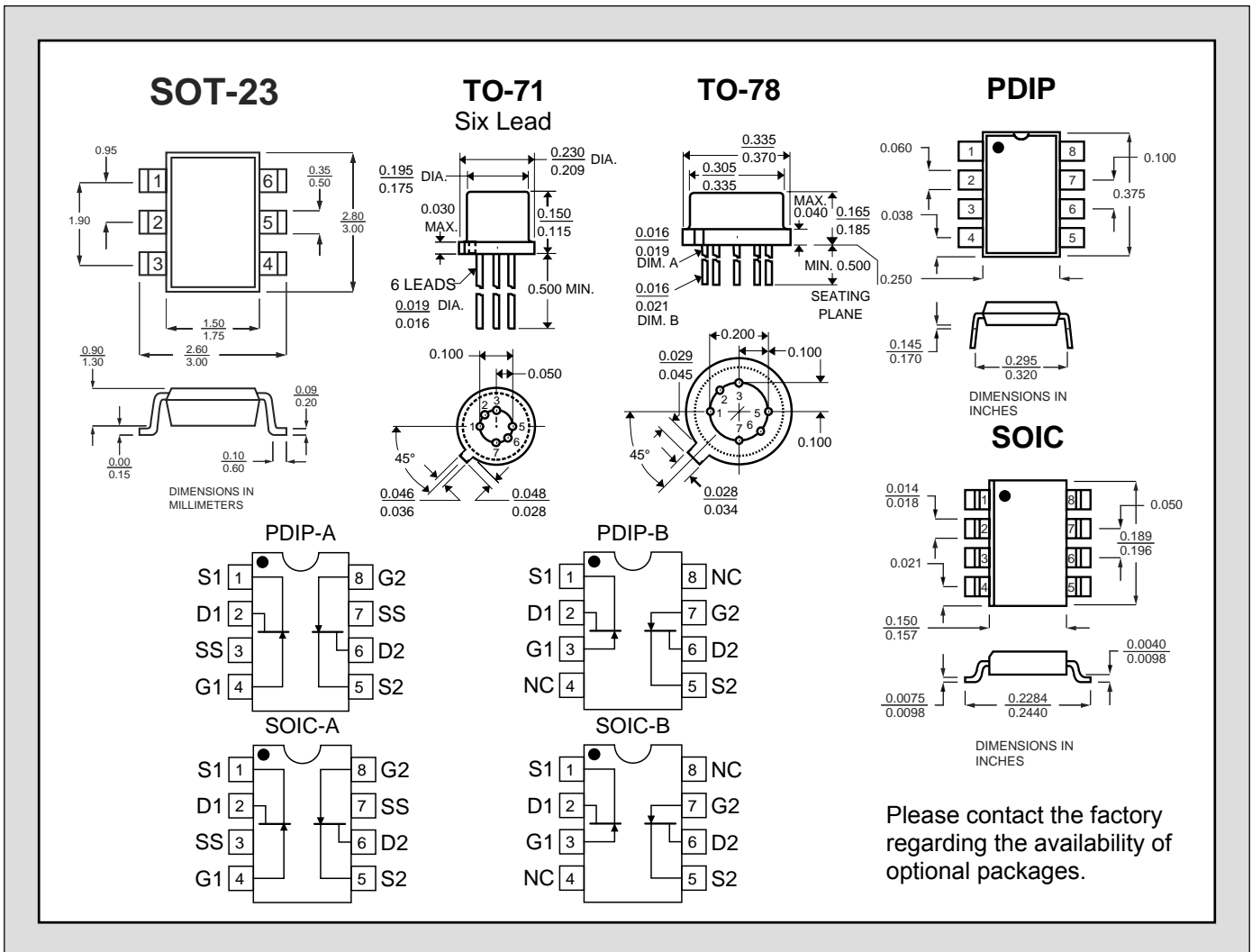
SYM.	CHARACTERISTIC	TYP	LS5911		LS5912		LS5912C		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
$BV_{GSS}$	Gate to Source Breakdown Voltage		-25		-25		-25		V	$I_G = -1\mu A, V_{DS} = 0V$
$V_{GS(off)}$	Gate to Source Cutoff Voltage		-1	-5	-1	-5	-1	-5		$V_{DS} = 10V, I_D = 1nA$
$V_{GS(F)}$	Gate to Source 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 Current <sup>3</sup>		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		$V_{DG} = 10V, I_D = 5mA$

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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	4000	10000	4000	10000	4000	10000		
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		150		150		150		
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



1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse Test: PW ≤ 300μs Duty Cycle ≤ 3%
3. Assumes smaller value in numerator.

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