

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 RATINGS¹

@ 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)⁴ 500mW

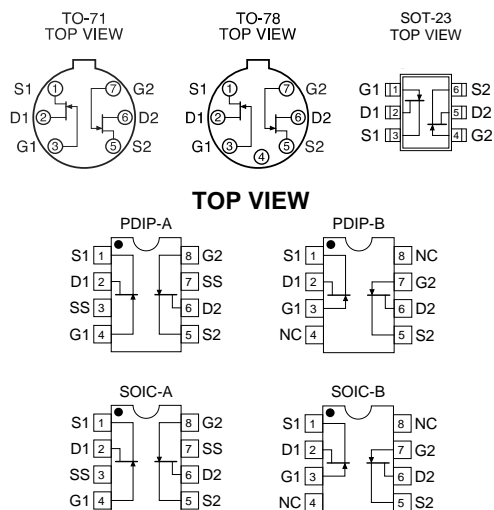
Maximum Currents

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	$V_{DG} = 5V \text{ to } 10V$ $I_D = 5mA$

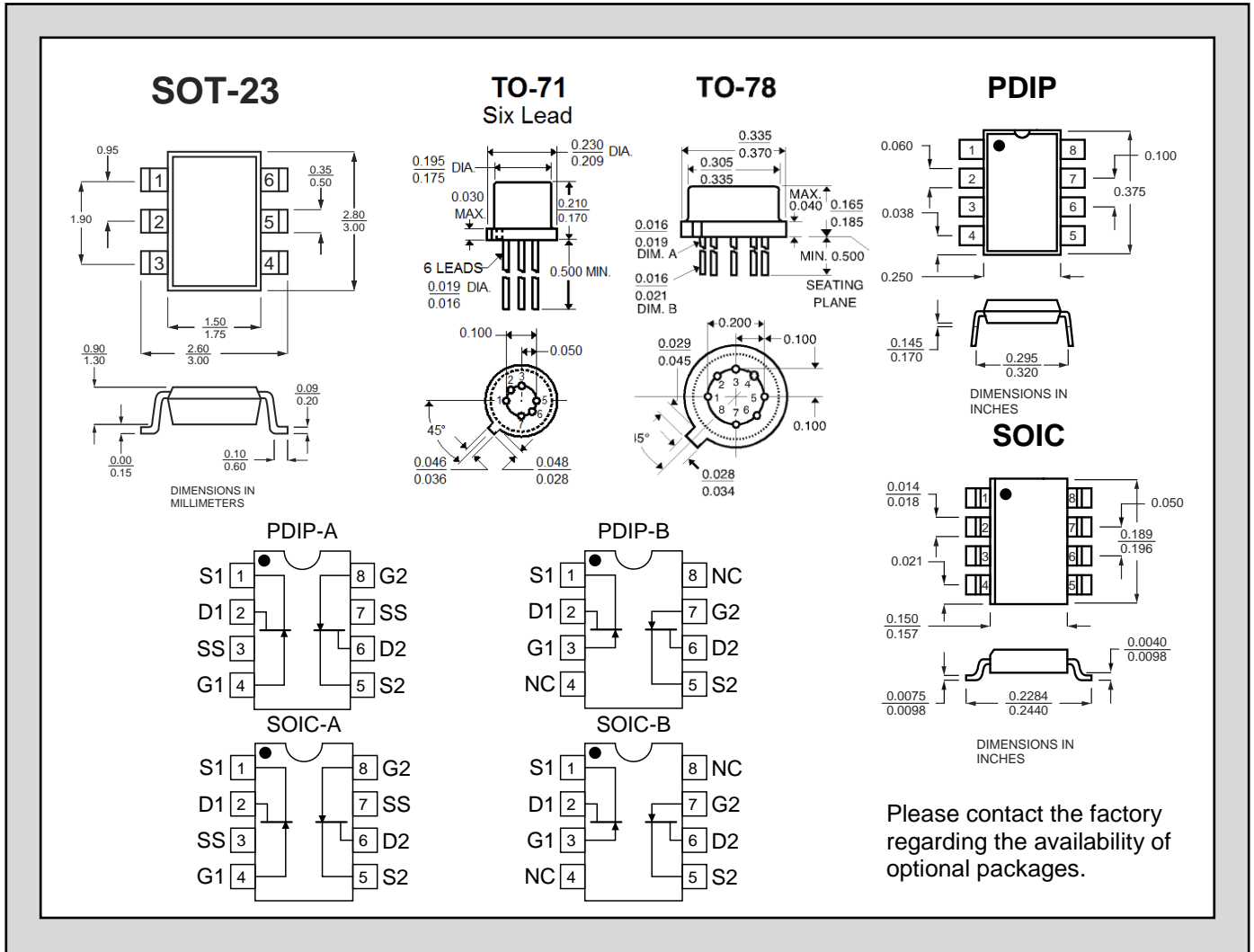
STATIC ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)

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			± 1		± 1		± 1	μA	$V_{G1} - V_{G2} = \pm 25V, I_D = I_S = 0$

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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 _{fs}	Forward Transconductance	f = 1kHz	4000	10000	4000	10000	4000	10000	μS	V _{DG} = 10V, I _D = 5mA
		f = 100MHz	7000							
g _{os}	Output Conductance	f = 1kHz		100		100		100	pF	V _{DG} = 10V, I _D = 5mA f = 1MHz
		f = 100MHz	120							
C _{iss}	Input Capacitance			5		5		5	pF	V _{DG} = 10V, I _D = 5mA f = 1MHz
C _{rss}	Reverse Transfer Capacitance			1.2		1.2		1.2		
NF	Noise Figure			1		1		1	dB	V _{DG} = 10V, I _D = 5mA f = 10kHz, R _G = 100KΩ
e _n	Equivalent Input Noise Voltage	f = 100Hz	7	20		20		20	nV/√Hz	V _{DG} = 10V, I _D = 5mA f = 100Hz
		f = 10kHz	4	10		10		10	nV/√Hz	V _{DG} = 10V, I _D = 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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