

Linear Systems replaces discontinued Siliconix & National 2N5912

The LS5912 are monolithic dual JFETs. The monolithic dual chip design reduces parasitics and gives better performance at very high frequencies while ensuring extremely tight matching. These devices are an excellent choice for use as wideband differential amplifiers in demanding test and measurement applications. The LS5912 is a direct replacement for discontinued Siliconix and National 2N5912.

The 8 Pin SOIC provides ease of manufacturing, and the symmetrical pinout prevents improper orientation. (See Packaging Information).

LS5912 Applications:

- Wideband Differential Amps
- High-Speed, Temp-Compensated Single-Ended Input Amps
- High-Speed Comparators
- Impedance Converters and vibrations detectors.

FEATURES

Improved Direct Replacement for SILICONIX & NATIONAL 2N5912	
LOW NOISE (10KHz)	$e_n \sim 4\text{nV}/\sqrt{\text{Hz}}$
HIGH TRANSCONDUCTANCE (100MHz)	$g_{fs} \geq 4000\mu\text{S}$
ABSOLUTE MAXIMUM RATINGS ¹ @ 25°C (unless otherwise noted)	
Maximum Temperatures	
Storage Temperature	-65°C to +150°C
Operating Junction Temperature	-55°C to +135°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 CHARACTERISTICS @ 25°C (unless otherwise stated)

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

ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
BV_{GSS}	Gate to Source Breakdown Voltage	-25	--	--	V	$I_G = -1\mu\text{A}, V_{DS} = 0\text{V}$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	-1	--	-5		$V_{DS} = 10\text{V}, I_D = 1\text{nA}$
$V_{GS(F)}$	Gate to Source Forward Voltage	--	0.7	--		$I_G = 1\text{mA}, V_{DS} = 0\text{V}$
V_{GS}	Gate to Source Voltage	-0.3	--	-4		$V_{DG} = 10\text{V}, I_G = 5\text{mA}$
I_{DSS}	Gate to Source Saturation Current ³	7	--	40	mA	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}$
I_{GSS}	Gate Leakage Current ³	--	-1	-50	pA	$V_{GS} = -15\text{V}, V_{DS} = 0\text{V}$
I_G	Gate Operating Current	--	-1	-50		$V_{DG} = 10\text{V}, I_D = 5\text{mA}$
g_{fs}	Forward Transconductance	4000	--	10000	μS	$V_{DG} = 10\text{V}, I_D = 5\text{mA}$
		4000	--	10000		
g_{os}	Output Conductance	--	--	100	μS	$V_{DG} = 10\text{V}, I_D = 5\text{mA}$
		--	--	150		
C_{ISS}	Input Capacitance	--	--	5	pF	$V_{DG} = 10\text{V}, I_D = 5\text{mA}, f = 1\text{MHz}$
C_{RSS}	Reverse Transfer Capacitance	--	--	1.2		
NF	Noise Figure	--	--	1	dB	$V_{DG} = 10\text{V}, I_D = 5\text{mA}, f = 10\text{kHz}, R_G = 100\text{K}\Omega$
e_n	Equivalent Input Noise Voltage	--	7	20	nV/ $\sqrt{\text{Hz}}$	$V_{DG} = 10\text{V}, I_D = 5\text{mA}, f = 100\text{Hz}$
		--	4	10		$V_{DG} = 10\text{V}, I_D = 5\text{mA}, f = 10\text{kHz}$
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Notes: 1. Absolute Maximum ratings are limiting values above which serviceability may be impaired
3. Assumes smaller value in numerator

2. Pulse Test: $PW \leq 300\mu\text{s}$ Duty Cycle $\leq 3\%$



Available Packages:

LS5912 in SOIC
LS5912 available as bare die

Please contact Micross for full package and die dimensions:

Email: chipcomponents@micross.com
Web: www.micross.com/distribution.aspx

