

## Linear Systems replaces discontinued Siliconix & National 2N5912C

The LS5912C 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 LS5912C is a direct replacement for discontinued Siliconix and National 2N5912C.

The 6 Pin SOT-23 provides ease of manufacturing, and a lower cost assembly option.  
(See Packaging Information).

### LS5912C 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 2N5912C	
LOW NOISE (10KHz)	$e_n \sim 4\text{nV}/\sqrt{\text{Hz}}$
HIGH TRANSCONDUCTANCE (100MHz)	$g_{fs} \geq 4000\mu\text{S}$
<b>ABSOLUTE MAXIMUM RATINGS</b> <sup>1</sup> @ 25°C (unless otherwise noted)	
<b>Maximum Temperatures</b>	
Storage Temperature	-65°C to +150°C
Operating Junction Temperature	-55°C to +135°C
<b>Maximum Power Dissipation</b>	
Continuous Power Dissipation (Total)	500mW
<b>Maximum Currents</b>	
Gate Current	50mA
<b>Maximum Voltages</b>	
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	--	--	40	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 <sup>2</sup>	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 <sup>3</sup>	7	--	40	mA	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}$
$I_{GSS}$	Gate Leakage Current <sup>3</sup>	--	-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	$\mu\text{S}$	$V_{DG} = 10\text{V}, I_D = 5\text{mA}$
		4000	--	10000		
$g_{os}$	Output Conductance	--	--	100		
		--	--	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 2. Pulse Test:  $PW \leq 300\mu\text{s}$  Duty Cycle  $\leq 3\%$   
3. Assumes smaller value in numerator



Available Packages:

LS5912C in SOT-23  
LS5912C available as bare die

Please contact Micross for full package and die dimensions:

Email: [chipcomponents@micross.com](mailto:chipcomponents@micross.com)  
Web: [www.micross.com/distribution.aspx](http://www.micross.com/distribution.aspx)

