

# LINEAR SYSTEMS

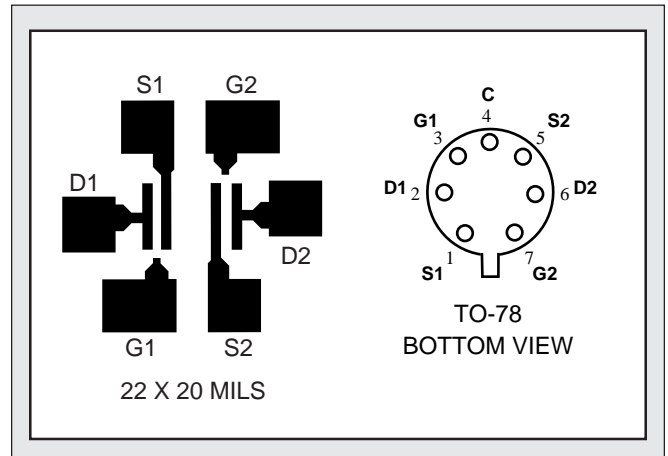
Linear Integrated Systems

## LS421, LS422, LS423, LS424, LS425, LS426

LOW LEAKAGE LOW DRIFT  
MONOLITHIC DUAL N-CANNEL JFET

### FEATURES

<b>HIGH INPUT IMPEDANCE</b>	$I_G=0.25\mu\text{A MAX}$	
<b>HIGH GAIN</b>	$g_{fs}=120\mu\text{mho MIN}$	
<b>LOW POWER OPERATION</b>	$V_{GS(off)}=2\text{V MAX}$	
<b>ABSOLUTE MAXIMUM RATINGS NOTE 1</b>		
@ 25°C (unless otherwise noted)		
<b>Maximum Temperatures</b>		
Storage Temperature	-65° to +150°C	
Operating Junction Temperature	+150°C	
<b>Maximum Voltage and Current for Each Transistor NOTE 1</b>		
$-V_{GSS}$	Gate Voltage to Drain or Source	40V
$-V_{DSO}$	Drain to Source Voltage	40V
$-I_{G(f)}$	Gate Forward Current	10mA
<b>Maximum Power Dissipation</b>		
Device Dissipation @ Free Air - Total	400mW @ +125°C	



### ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

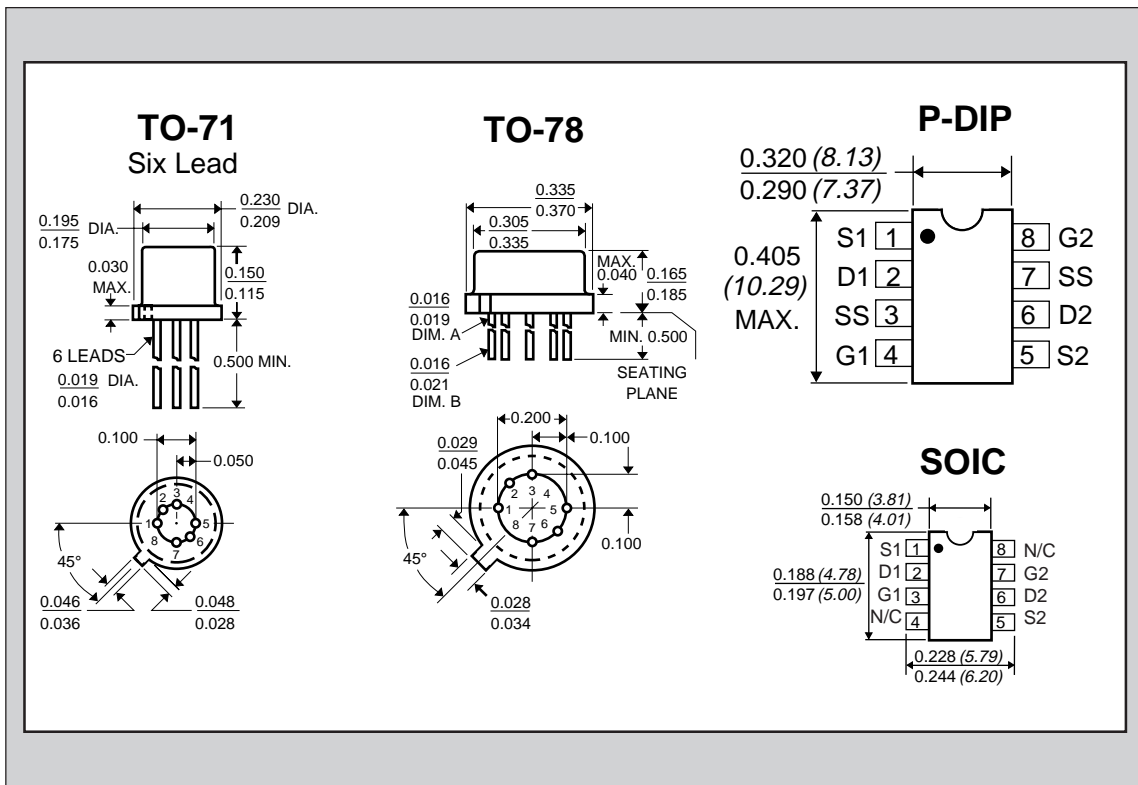
SYMBOL	CHARACTERISTICS	LS421	LS422	LS423	LS424	LS425	LS426	UNITS MAX	CONDITIONS
$ \Delta V_{GS1-2}/\Delta T $ max.	Drift vs. Temperature	10	25	40	10	25	40	$\mu\text{V}/^\circ\text{C}$	$V_{DG}=10\text{V}$ $I_D=30\mu\text{A}$ $T_A=-55^\circ\text{C}$ to $+125^\circ\text{C}$
$ V_{GS1-2} $ max.	Offset Voltage	10	15	25	10	15	25	mV	$V_{DG}=10\text{V}$ $I_D=30\mu\text{A}$
$V_{GS(off)}$	<b>GATE VOLTAGE</b> Pinchoff Voltage	2.0	2.0	2.0	3.0	3.0	3.0	V	$V_{DS}=10\text{V}$ $I_D=1\text{nA}$
$V_{GS}$	Operating Range	1.8	1.8	1.8	2.9	2.9	2.9	V	$V_{DG}=10\text{V}$ $I_D=30\mu\text{A}$
$I_G$ max.	Operating	.25	.25	.25	.500	.500	.500	pA	$V_{DG}=10\text{V}$ $I_D=30\mu\text{A}$
$-I_G$ max.	High Temperature	250	250	250	500	500	500	pA	$T_A=+125^\circ\text{C}$
$-I_{GSS}$ max.	At Full Conduction	1.0	1.0	1.0	3.0	3.0	3.0	pA	$V_{DS}=0\text{V}$ $V_{GS}=20\text{V}$
$-I_{GSS}$ max.	High Temperature	1.0	1.0	1.0	3.0	3.0	3.0	nA	$T_A=+125^\circ\text{C}$

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
$BV_{GSS}$	Breakdown Voltage	40	60	--	V	$V_{DS}=0$ $I_G=1\text{nA}$
$BV_{GGO}$	Gate-to-Gate Breakdown	40	--	--	V	$I_G=1\mu\text{A}$ $I_D=0$ $I_S=0$
$Y_{fss}$	<b>TRANSCONDUCTANCE</b> Full Conduction	300	--	1500	$\mu\text{mho}$	$V_{DS}=10\text{V}$ $V_{GS}=0$ $f=1\text{kHz}$
$Y_{fs}$	Typical Operation	120	200	350	$\mu\text{mho}$	$V_{DG}=10\text{V}$ $I_D=30\mu\text{A}$ $f=1\text{kHz}$
$I_{DSS}$	<b>DRAIN CURRENT</b> Full Conduction	60	--	1000	$\mu\text{A}$	$V_{DS}=10\text{V}$ $V_{GS}=0$
		60	--	1800	$\mu\text{A}$	

Linear Integrated Systems

4042 Clipper Ct., Fremont, CA 94538 TEL: (510) 490-9160 • FAX: (510) 353-0261

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
<b>OUTPUT CONDUCTANCE</b>						
$Y_{oss}$	Full Conduction	--	--	10	$\mu\text{mho}$	$V_{DS} = 10\text{V}$ $V_{GS} = 0$
$Y_{os}$	Operating	--	0.1	3.0	$\mu\text{mho}$	$V_{DG} = 10\text{V}$ $I_D = 30\mu\text{A}$
<b>COMMON MODE REJECTION</b>						
CMR	$-20 \log  \Delta V_{GS1-2} / \Delta V_{DS} $	--	90	--	dB	$\Delta V_{DS} = 10 \text{ to } 20\text{V}$ $I_D = 30\mu\text{A}$
CMR	$-20 \log  \Delta V_{GS1-2} / \Delta V_{DS} $	--	90	--	dB	$\Delta V_{DS} = 5 \text{ to } 10\text{V}$ $I_D = 30\mu\text{A}$
<b>NOISE</b>						
NF	Figure	--	--	1.0	dB	$V_{DG} = 10\text{V}$ $I_D = 30\mu\text{A}$ $R_G = 10\text{M}\Omega$ $f = 10\text{Hz}$
$e_n$	Voltage	--	20	70	$\text{nV}/\sqrt{\text{Hz}}$	$V_{DG} = 10\text{V}$ $I_D = 30\mu\text{A}$ $f = 10\text{Hz}$
			10			$V_{DG} = 10\text{V}$ $I_D = 30\mu\text{A}$ $f = 1\text{kHz}$
<b>CAPACITANCE</b>						
$C_{ISS}$	Input	--	--	3.0	pF	$V_{DS} = 10\text{V}$ $V_{GS} = 0$ $f = 1\text{MHz}$
$C_{RSS}$	Reverse Transfer	--	--	1.5	pF	$V_{DS} = 10\text{V}$ $V_{GS} = 0$ $f = 1\text{MHz}$



S1            N/C  
D1            G2  
G1            D2  
N/C          S2

**NOTES:**

1. These ratings are limiting values above which the serviceability of any semiconductor may be impaired.