

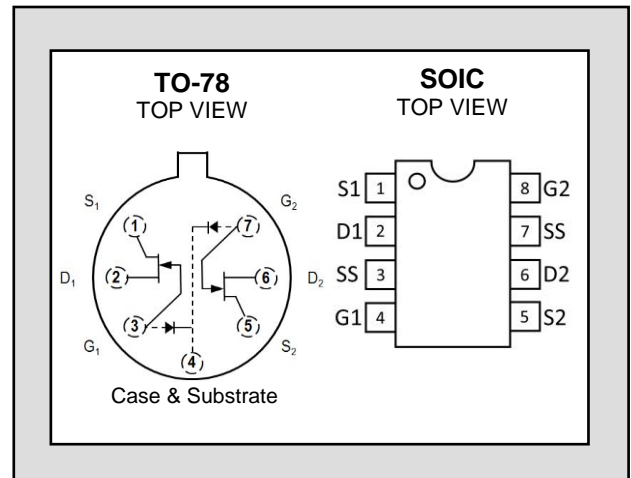
# LINEAR SYSTEMS

Twenty-Five Years Of Quality Through Innovation

## U421, U422, U423, U424, U425, U426

LOW LEAKAGE LOW DRIFT  
MONOLITHIC DUAL N-CHANNEL  
JFET AMPLIFIER

FEATURES	
HIGH INPUT IMPEDANCE	$I_G=0.25\text{pA MAX}$
HIGH GAIN	$g_{fs}=120\mu\text{S MIN}$
LOW POWER OPERATION	$V_{GS(off)}=2\text{V MAX}$
ABSOLUTE MAXIMUM RATINGS NOTE 1	
@ 25 °C (unless otherwise noted)	
Maximum Temperatures	
Storage Temperature	-55 to +150°C
Operating Junction Temperature	-55 to +150°C
Maximum Voltage and Current for Each Transistor NOTE 1	
$-V_{GSS}$	Gate Voltage to Drain or Source 40V
$-V_{DSO}$	Drain to Source Voltage 40V
$I_{G(f)}$	Gate Forward Current 10mA
Maximum Power Dissipation	
Total Device Dissipation $T_A = 25^\circ\text{C}$	500 <sup>2</sup> mW

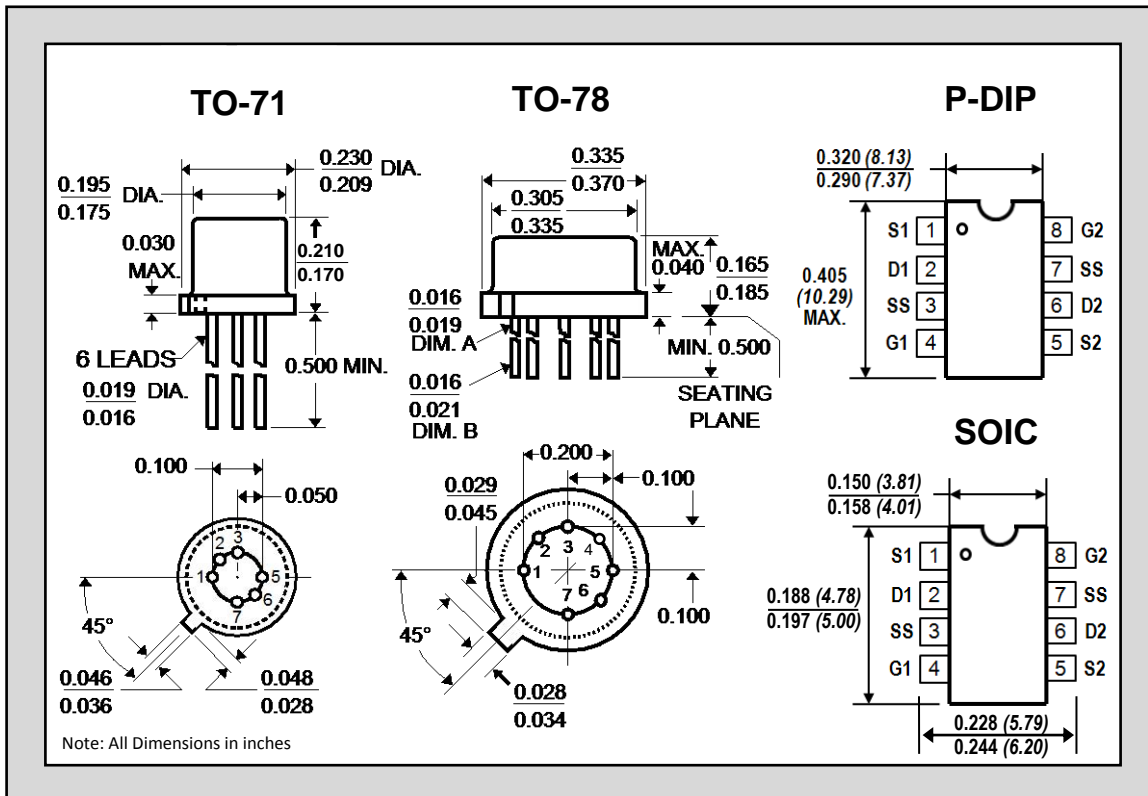


### ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC <sup>3</sup>	U421	U422	U423	U424	U425	U426	UNITS	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 Max	-2.0	-2.0	-2.0	-3.0	-3.0	-3.0	V	$V_{DS}=10\text{V}$ $I_D=1\text{nA}$
	Min	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4		
$V_{GS}$	Operating Range Max	-1.8	-1.8	-1.8	-2.9	-2.9	-2.9	V	$V_{DS}=10\text{V}$ $I_D=30\mu\text{A}$
$I_{GTYP.}$	Operating	-0.25	-0.25	-0.25	-0.500	-0.500	-0.500	pA	$V_{DS}=10\text{V}$ $I_D=30\mu\text{A}$
$I_{GTYP.}$	High Temperature	-250	-250	-250	-500	-500	-500	pA	$T_A=+125^\circ\text{C}$
$I_{GSSTYP.}$	Gate Reverse Current	-1.0	-1.0	-1.0	-3.0	-3.0	-3.0	pA	$V_{DS}=0\text{V}$ $V_{GS}=-20\text{V}$
$I_{GSSTYP.}$	Gate Reverse Current	1.0	1.0	1.0	3.0	3.0	3.0	nA	$T_A=+125^\circ\text{C}$

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNITS	CONDITIONS
$BV_{GSS}$	Breakdown Voltage	-40	-60	--	V	$V_{DS}=0\text{V}$ $I_G = -1\text{nA}$
$BV_{GGO}$	Gate-to-Gate Breakdown	$\pm 40$	--	--	V	$I_{G1G2} = \pm 1\mu\text{A}$ $I_D = 0\text{A}$ $I_S = 0\text{A}$
$g_{fs}$	<b>TRANSCONDUCTANCE</b>					
	Full Conduction	300	--	1500	$\mu\text{S}$	$V_{DS}=10\text{V}$ $V_{GS}=0$ $f=1\text{kHz}$
$g_{fs}$	Typical Operation	120	200	350	$\mu\text{S}$	$V_{DG}=10\text{V}$ $I_D=30\mu\text{A}$ $f=1\text{kHz}$
$I_{DSS}$	<b>DRAIN CURRENT</b>					
	Full Conduction	60	--	1000	$\mu\text{A}$	U421-3 $V_{DS}=10\text{V}$ $V_{GS}=0$
		60	--	1800	$\mu\text{A}$	U424-6

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNITS	CONDITIONS
<b>OUTPUT CONDUCTANCE</b>						
g <sub>os</sub>	Full Conduction	--	--	10	μS	V <sub>DS</sub> = 10V V <sub>GS</sub> = 0
g <sub>os</sub>	Operating	--	0.1	3.0	μS	V <sub>DG</sub> = 10V I <sub>D</sub> = 30μA
<b>COMMON MODE REJECTION</b>						
CMRR	$-20 \log  V_{GS1-2}/\Delta V_{DS} $	--	90	--	dB	$\Delta V_{DS}$ = 10 to 20V I <sub>D</sub> =30μA
CMRR	$-20 \log  V_{GS1-2}/\Delta V_{DS} $	--	90	--	dB	$\Delta V_{DS}$ = 5 to 10V I <sub>D</sub> =30μA
<b>NOISE</b>						
NF	Figure	--	--	1.0	dB	V <sub>DG</sub> = 10V, I <sub>D</sub> = 30μA, R <sub>G</sub> =10MΩ f= 10Hz
e <sub>n</sub>	Voltage	--	20	70	nV/√Hz	V <sub>DG</sub> = 10V I <sub>D</sub> = 30μA f= 10Hz
			10			V <sub>DG</sub> = 10V I <sub>D</sub> = 30μA f= 1kHz
<b>CAPACITANCE</b>						
C <sub>ISS</sub>	Input	--	--	3.0	pF	V <sub>DS</sub> = 10V V <sub>GS</sub> = 0 f= 1MHz
C <sub>RSS</sub>	Reverse Transfer	--	--	1.5	pF	V <sub>DS</sub> = 10V V <sub>GS</sub> = 0 f= 1MHz



### NOTES:

1. These ratings are limiting values above which the serviceability of any semiconductor may be impaired
2. Derate 4mW/°C above 25°C
3. All MIN/TYP/MAX limits are absolute numbers. Negative signs indicate electrical polarity only.

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