LINEAR SYSTEMS

LSU401
LOW NOISE, LOW DRIFT
MONOLITHIC DUAL
N-CHANNEL JFET

micross

Linear Systems replaces discontinued Siliconix U401 with LSU401

The U401/ LSU401 is a Low Noise, Low Drift, Monolithic Dual N-Channel JFET

The LSU401 is a high-performance monolithic dual JFET featuring extremely low noise, tight offset voltage and low drift over temperature specifications, and is targeted for use in a wide range of precision instrumentation applications. The LSU401 features a 5-mV offset and 10-µV/°C drift. The LSU401 is a direct replacement for discontinued Siliconix U401.

The hermetically sealed TO-71 & TO-78 packages are well suited for military applications.

(See Packaging Information).

U401 / LSU401 Applications:

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

FEATURES	
LOW DRIFT	$\lvert V_{GS1-2} / T \rvert$ = 10µV/°C TYP.
LOW NOISE	e_n = 6nV/Hz @ 10Hz TYP.
LOW PINCHOFF	V_p = 2.5V TYP.

ABSOLUTE MAXIMUM RATINGS
@ 25°C (unless otherwise noted)

Maximum Temperatures	
Storage Temperature	-65°C to +150°C
Operating Junction Temperature	+150°C

Maximum Voltage and Current for Each Transistor – Note 1		
$-V_{GSS}$	Gate Voltage to Drain or Source	50V
$-V_{DSO}$	Drain to Source Voltage	50V
$-I_{G(f)}$	Gate Forward Current	10mA

Maximum Power Dissipation	
Device Dissipation @ Free Air – Total	300mW

MATCHING CHARACTERISTICS @ 25°C UNLESS OTHERWISE NOTED

SYMBOL	CHARACTERISTICS	VALUE	UNITS	CONDITIONS
$\lvert V_{GS1-2} / T \rvert$ max.	DRIFT VS. TEMPERATURE	10	µV/°C	V_{DG}=10V, I_D=200µA T_A=-55°C to +125°C
$\lvert V_{GS1-2} \rvert$ max.	OFFSET VOLTAGE	5	mV	V_{DG}=10V, I_D=200µA

ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
BV_{GSS}	Breakdown Voltage	50	60	--	V	V_{DS} = 0 I_D=1nA
BV_{GGO}	Gate-To-Gate Breakdown	±50	--	--	V	I_G= 1nA I_D= 0 I_S= 0
	TRANSCONDUCTANCE					
Y_{fss}	Full Conduction	2000	--	7000	µmho	V_{DG}= 10V V_{GS}= 0V f = 1kHz
Y_{fs}	Typical Operation	1000	--	2000	µmho	V_{DG}= 15V I_D= 200µA f = 1kHz
$\lvert Y_{FS1-2} / Y_{FS} \rvert$	Mismatch	--	0.6	3	%	
	DRAIN CURRENT					
I_{DSS}	Full Conduction	0.5	--	10	mA	V_{DG}= 10V V_{GS}= 0V
$\lvert I_{DSS1-2} / I_{DSS} \rvert$	Mismatch at Full Conduction	--	1	5	%	
	GATE VOLTAGE					
V_{GS}(off) or V_p	Pinchoff voltage	-0.5	--	-2.5	V	V_{DS}= 15V I_D= 1nA
V_{GS}(on)	Operating Range	--	--	-2.3	V	V_{DS}=15V I_D=200µA
	GATE CURRENT					
$-I_G$max.	Operating	--	-4	-15	pA	V_{DG}= 15V I_D= 200µA
$-I_G$max.	High Temperature	--	--	-10	nA	T_A= +125°C
$-I_{GSS}$max.	At Full Conduction	--	--	100	pA	V_{DS} =0
$-I_{GSS}$max.	High Temperature	5	5	5	pA	V_{DG}= 15V T_A= +125°C
	OUTPUT CONDUCTANCE					
Y_{OSS}	Full Conduction	--	--	20	µmho	V_{DG}= 10V V_{GS}= 0V
Y_{OS}	Operating	--	0.2	2	µmho	V_{DG}= 15V I_D= 500µA
	COMMON MODE REJECTION					
CMR	-20 log $\lvert V_{GS1-2} / V_{DS} \rvert$	95	--	--	dB	V_{DS} = 10 to 20V I_D=30µA
	NOISE					V_{DS}= 15V V_{GS}= 0V R_G= 10M
NF	Figure	--	--	0.5	dB	f= 100Hz NBW= 6Hz
e_n	Voltage	--	20	--	nV/√Hz	V_{DS}=15V I_D=200µA f=10Hz NBW=1Hz
	CAPACITANCE					
C_{ISS}	Input	--	--	8	pF	V_{DS}= 15V I_D= 200µA f= 1MHz
C_{RSS}	Reverse Transfer	--	--	1.5	pF	

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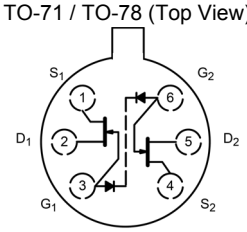
Note 1 – These ratings are limiting values above which the serviceability of any semiconductor may be impaired

Available Packages:

U401 / LSU401 in TO-71 & TO-78
U401 / LSU401 available as bare die
Please contact Micross for full package and die dimensions

TO-71 / TO-78 (Top View)



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