

Linear Systems replaces discontinued Siliconix U403

The LSU403 is a Low Noise, Low Drift, Monolithic Dual N-Channel JFET

The LSU403 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 LSU403 features a 5-mV offset and 10- $\mu\text{V}/^\circ\text{C}$ drift. The LSU403 is a direct replacement for discontinued Siliconix LSU403.

The 8 Pin P-DIP and 8 Pin SOIC provide ease of manufacturing, and the symmetrical pinout prevents improper orientation.

(See Packaging Information).

LSU403 Applications:

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

FEATURES	
LOW DRIFT	$ V_{GS1-2}/T = 10\mu\text{V}/^\circ\text{C}$ TYP.
LOW NOISE	$e_n = 6\text{nV}/\text{Hz}$ @ 10Hz TYP.
LOW PINCHOFF	$V_p = 2.5\text{V}$ 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
$ V_{GS1-2}/T $ max.	DRIFT VS. TEMPERATURE	25	$\mu\text{V}/^\circ\text{C}$	$V_{DG}=10\text{V}$, $I_D=200\mu\text{A}$ $T_A=-55^\circ\text{C}$ to $+125^\circ\text{C}$
$ V_{GS1-2} $ max.	OFFSET VOLTAGE	10	mV	$V_{DG}=10\text{V}$, $I_D=200\mu\text{A}$

ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

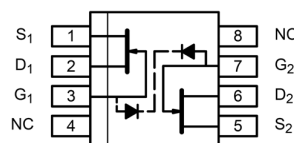
SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
BV _{GSS}	Breakdown Voltage	50	60	--	V	$V_{DS} = 0$ $I_D=1\text{nA}$
BV _{GGO}	Gate-To-Gate Breakdown	± 50	--	--	V	$I_G = 1\text{nA}$ $I_D = 0$ $I_S = 0$
TRANSCONDUCTANCE						
Y _{FSS}	Full Conduction	2000	--	7000	μmho	$V_{DG} = 10\text{V}$ $V_{GS}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

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

Available Packages:

LSU403 in PDIP / SOIC
LSU403 available as bare die
Please contact [Micross](http://www.micross.com) for full package and die dimensions

PDIP / SOIC (Top View)



Micross Components Europe



Tel: +44 1603 788967

Email: chipcomponents@micross.com

Web: <http://www.micross.com/distribution>

Information furnished by Linear Integrated Systems and Micross Components is believed to be accurate and reliable. However, no responsibility is assumed for its use; nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Linear Integrated Systems.