

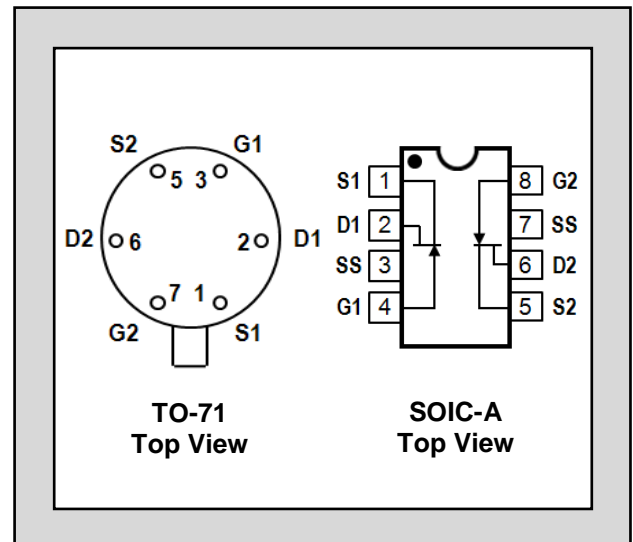
# LINEAR SYSTEMS

Twenty-Five Years Of Quality Through Innovation

## LSK389

ULTRA LOW NOISE  
MONOLITHIC DUAL  
N-CANNEL JFET AMPLIFIER

FEATURES	
ULTRA LOW NOISE	$e_n = 0.9nV/\sqrt{Hz}$ (typ)
TIGHT MATCHING	$ V_{GS1-2}  = 20mV$ max
HIGH BREAKDOWN VOLTAGE	$BV_{GSS} = 40V$ max
HIGH GAIN	$G_{fs} = 20mS$ (typ)
LOW CAPACITANCE	25pF typ
IMPROVED SECOND SOURCE REPLACEMENT FOR 2SK389	
ABSOLUTE MAXIMUM RATINGS <sup>1</sup>	
@ 25 °C (unless otherwise stated)	
Maximum Temperatures	
Storage Temperature	-65 to +150°C
Junction Operating Temperature	-55 to +135°C
Maximum Power Dissipation	
Continuous Power Dissipation @ +25°C	400mW
Maximum Currents	
Gate Forward Current	$I_{G(F)} = 10mA$
Maximum Voltages	
Gate to Source	$V_{GSS} = 40V$
Gate to Drain	$V_{GDS} = 40V$



\* For equivalent single version, see LSK170 family

### MATCHING CHARACTERISTICS @ 25°C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$ V_{GS1} - V_{GS2} $	Differential Gate to Source Cutoff Voltage			20	mV	$V_{DS} = 10V, I_D = 1mA$
$\frac{I_{DSS1}}{I_{DSS2}}$	Gate to Source Saturation Current Ratio	0.9			---	$V_{DS} = 10V, V_{GS} = 0V$

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

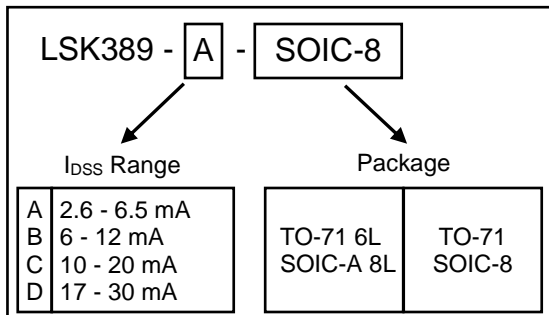
SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$BV_{GSS}$	Gate to Source Breakdown Voltage	-40			V	$V_{DS} = 0, I_D = -100\mu A$
$V_{GS(OFF)}$	Gate to Source Pinch-off Voltage	-0.15		-2	V	$V_{DS} = 10V, I_D = 0.1\mu A$
$I_{DSS}$	Drain to Source Saturation Current	LSK389A	2.6	6.5	mA	$V_{DS} = 10V, V_{GS} = 0$
		LSK389B	6	12		
		LSK389C	10	20		
		LSK389D	17	30		
$I_{GSS}$	Gate to Source Leakage Current			-200	pA	$V_{GS} = -30V, V_{DS} = 0$
$I_{G1G2}$	Gate to Gate Isolation Current			$\pm 1.0$	$\mu A$	$V_{G1-G2} = \pm 45V, I_D = I_S = 0A$

Note: All MIN/TYP/MAX limits are absolute numbers. Negative signs indicate electrical polarity only.

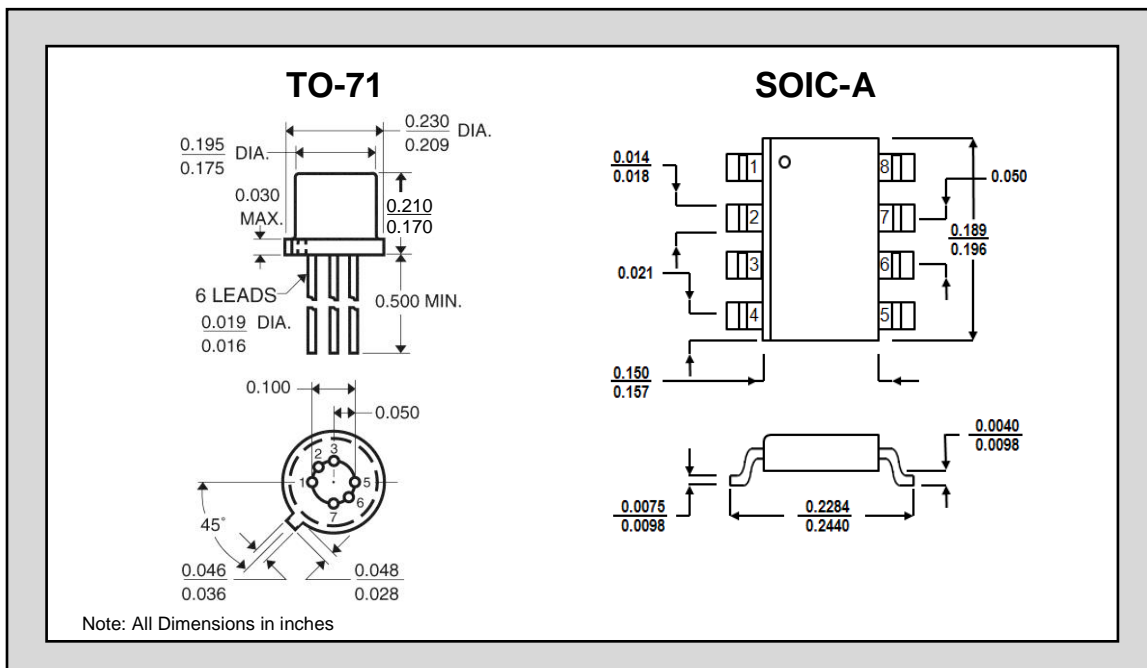
**ELECTRICAL CHARACTERISTICS CONT. @ 25°C (unless otherwise stated)**

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$G_{fs}$	Full Conduction Transconductance	8	20		mS	$V_{DS} = 10V, V_{GS} = 0, f = 1kHz$
$e_n$	Noise Voltage		0.9	1.9	Nv/ $\sqrt{Hz}$	$V_{DS} = 10V, I_D = 2mA, f = 1kHz, NBW = 1Hz$
$e_n$	Noise Voltage		2.5	4	Nv/ $\sqrt{Hz}$	$V_{DS} = 10V, I_D = 2mA, f = 10Hz, NBW = 1Hz$
$C_{ISS}$	Common Source Input Capacitance		25		pF	$V_{DS} = 10V, V_{GS} = 0, f = 1MHz,$
$C_{RSS}$	Common Source Reverse Transfer Cap.		5.5		pF	$V_{DG} = 10V, I_D = 0, f = 1MHz,$

**ORDERING INFORMATION**



**PACKAGE DIMENSIONS**



**NOTES:**

1. Absolute maximum ratings are limiting values above which serviceability may be impaired. Information furnished by Linear Integrated Systems 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.

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