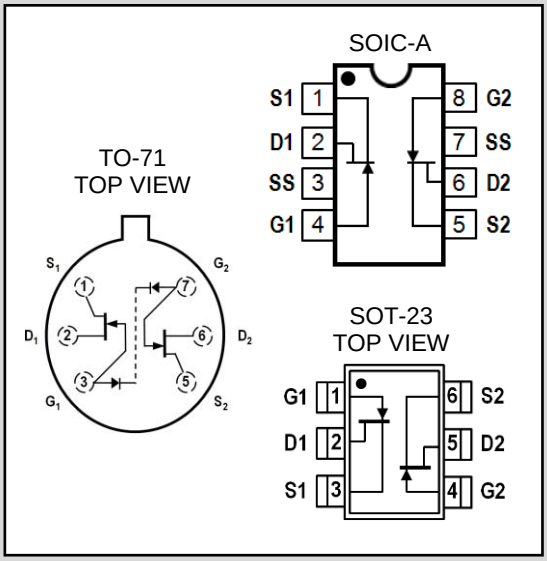
LINEAR SYSTEMS

Over Three Decades of Quality Through Innovation

LSK589

LOW NOISE, LOW CAPACITANCE MONOLITHIC DUAL N-CHANNEL JFET

FEATURES	
ULTRA LOW NOISE	e_n = 4.0 nV/√Hz
LOW INPUT CAPACITANCE	Ciss = 5pF
HIGH TRANSCONDUCTANCE	Gfs ≥ 4000µS



ABSOLUTE MAXIMUM RATINGS[1] @ 25 °C (unless otherwise stated)	
Maximum Temperatures	
Storage Temperature	-55 to +150°C
Junction Operating Temperature	-55 to +150°C
Maximum Power Dissipation, TA = 25°C	
Continuous Power Dissipation, per side [4]	250mW
Power Dissipation, total [5]	500mW
Maximum Currents	
Gate Forward Current	$I_{G(F)}$ = 50mA
Maximum Voltages	
Gate to Source	V_{GSO} = 25V
Gate to Drain	V_{GDO} = 25V

MATCHING CHARACTERISTICS @ 25°C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$\lvert V_{GS1} - V_{GS2} \rvert$	Differential Gate to Source Cutoff Voltage			20	mV	V_{DS} = 10V, I_D = 5mA
$\frac{I_{DSS1}}{I_{DSS2}}$	Gate to Source Saturation Current Ratio	0.9		1.0		V_{DS} = 10V, V_{GS} = 0V (Note 2)
CMRR	**COMMON MODE REJECTION RATIO** $-20 \log \lvert \Delta V_{GS1-2}/\Delta V_{DS} \rvert$	85			dB	V_{DG} = 5V to 10V, I_D = 5mA

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
e_n	Noise Voltage		7		nV/√Hz	V_{DS} = 10V, I_D = 5mA, *f* = 100Hz
e_n	Noise Voltage		4		nV/√Hz	V_{DS} = 10V, I_D = 5mA, *f* = 10kHz
C_{ISS}	Common Source Input Capacitance			5	pF	V_{DS} = 10V, I_D = 5mA, *f* = 1MHz
C_{RSS}	Common Source Reverse Transfer Capacitance			1.2	pF	

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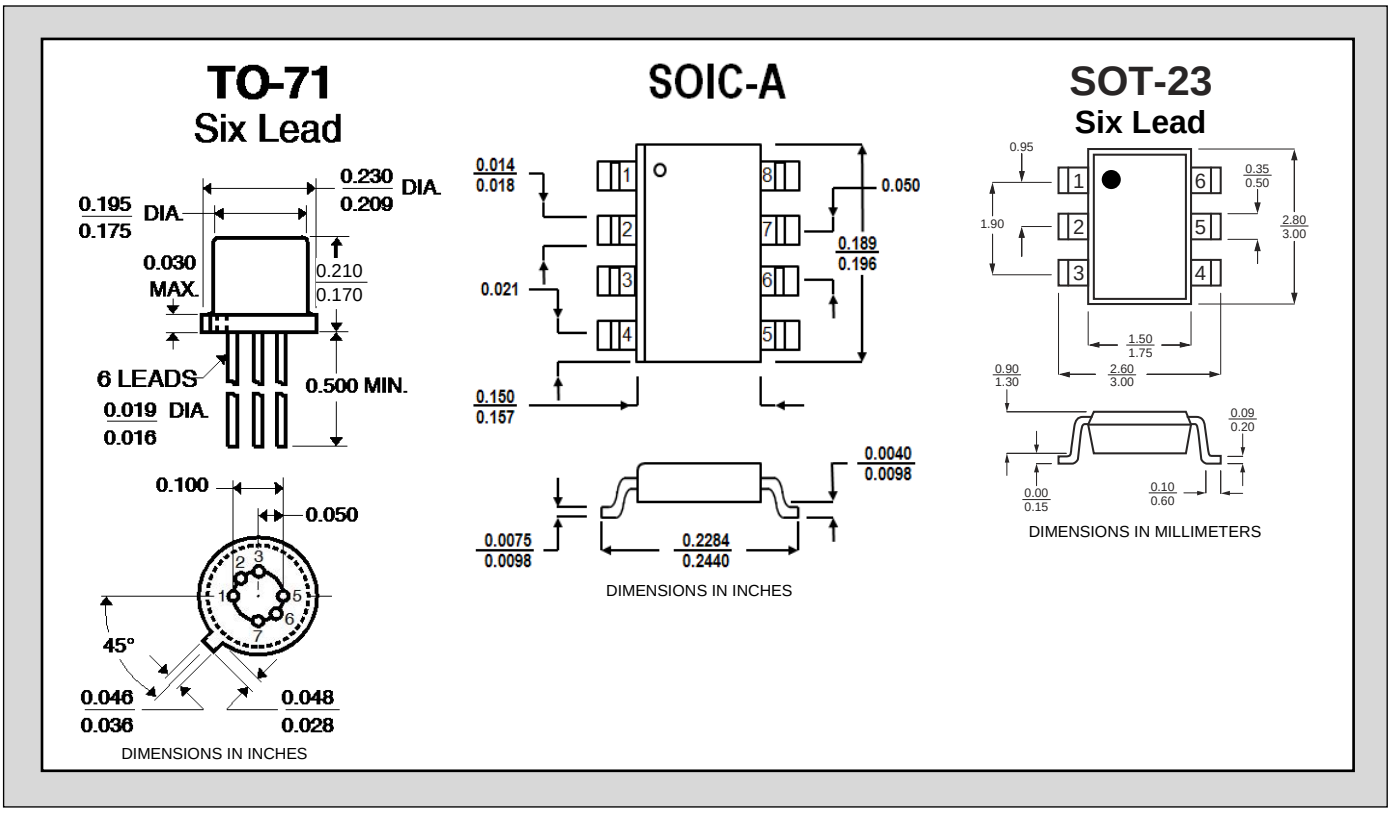
ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise stated)

SYMBOL	CHARACTERISTIC		MIN	TYP	MAX	UNITS	CONDITIONS
BV_{GSS}	Gate to Source Breakdown Voltage		-25			V	V_{DS} = 0, I_D = 1µA
$V_{GS(OFF)}$	Gate to Source Pinch-off Voltage		-1.5		-5	V	V_{DS} = 10V, I_D = 1nA
V_{GS}	Gate to Source Operating Voltage		-0.3		-4.0	V	V_{DS} = 10V, I_D = 5mA
I_{DSS}	Drain to Source Saturation Current		7.0		40	mA	V_{DS} = 10V, V_{GS} = 0V (Note 2)
I_G	Gate Operating Current			-1	-50	pA	V_{DG} = 10V, I_D = 5mA
I_{GSS}	Gate to Source Leakage Current				-50	pA	V_{gs} = -15V, V_{DS} = 0
G_{OS}	Output Conductance F = 1kHz				100	µS	V_{DS} = 10V, I_D = 5mA
NF	Noise Figure				1.0	dB	V_{DS} = 10V, I_D = 5mA, R_G = 100KΩ, *f* = 100Hz
G_{fs}	Forward Transconductance	*f* = 1kHz	4000		10000	µS	V_{DS} = 10V, I_D = 5mA
		f = 100MHz		7000			
Gos	Output Transconductance	*f* = 1kHz			100		
		f = 100MHz		120			

PACKAGE DIMENSIONS



NOTES:

1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse Test: PW ≤ 300 µs, Duty Cycle ≤ 3%
3. All MIN/TYP/MAX Limits are absolute values. Negative signs indicate electrical polarity only.
4. Derate 2.0 mW/°C above 25°C.
5. Derate 4 mW/°C above 25°C.

Linear Integrated Systems (LIS), established in 1987, is a third-generation precision semiconductor company providing high-quality discrete components. Expertise brought to LIS is based on processes and products developed at Amelco, Union Carbide, Intersil and Micro Power Systems by company Founder John H. Hall. Hall, a protégé of Silicon Valley legend Dr. Jean Hoerni, was the director of IC Development at Union Carbide, Co-Founder and Vice President of R&D at Intersil, and Founder/President of Micro Power Systems.

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