

LINEAR SYSTEMS

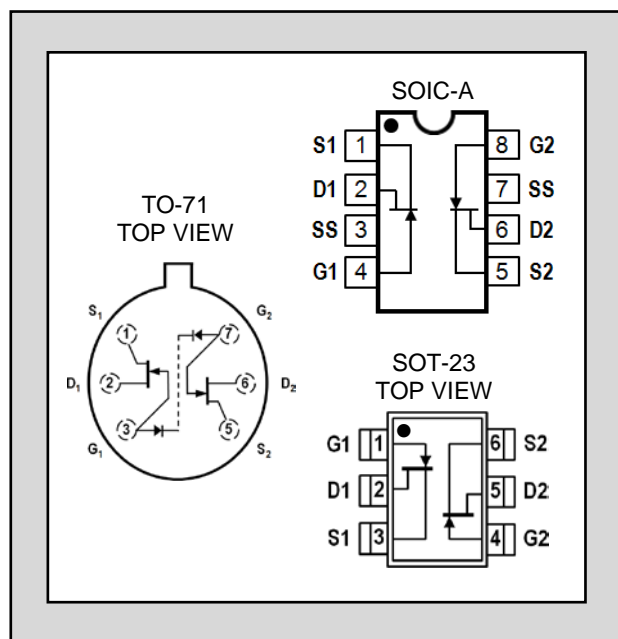
Over 30 Years of Quality Through Innovation

LSK589

LOW NOISE, LOW CAPACITANCE
MONOLITHIC DUAL
N-CANNEL JFET

FEATURES	
ULTRA LOW NOISE	$e_n = 4.0 \text{ nV}/\sqrt{\text{Hz}}$
LOW INPUT CAPACITANCE	$C_{iss} = 5\text{pF}$
HIGH TRANSCONDUCTANCE	$G_{fs} \geq 4000\mu\text{S}$

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	$I_{G(F)} = 50\text{mA}$
Maximum Voltages	
Gate to Source	$V_{GSO} = 25\text{V}$
Gate to Drain	$V_{GDO} = 25\text{V}$



MATCHING CHARACTERISTICS @ 25°C (unless otherwise stated)

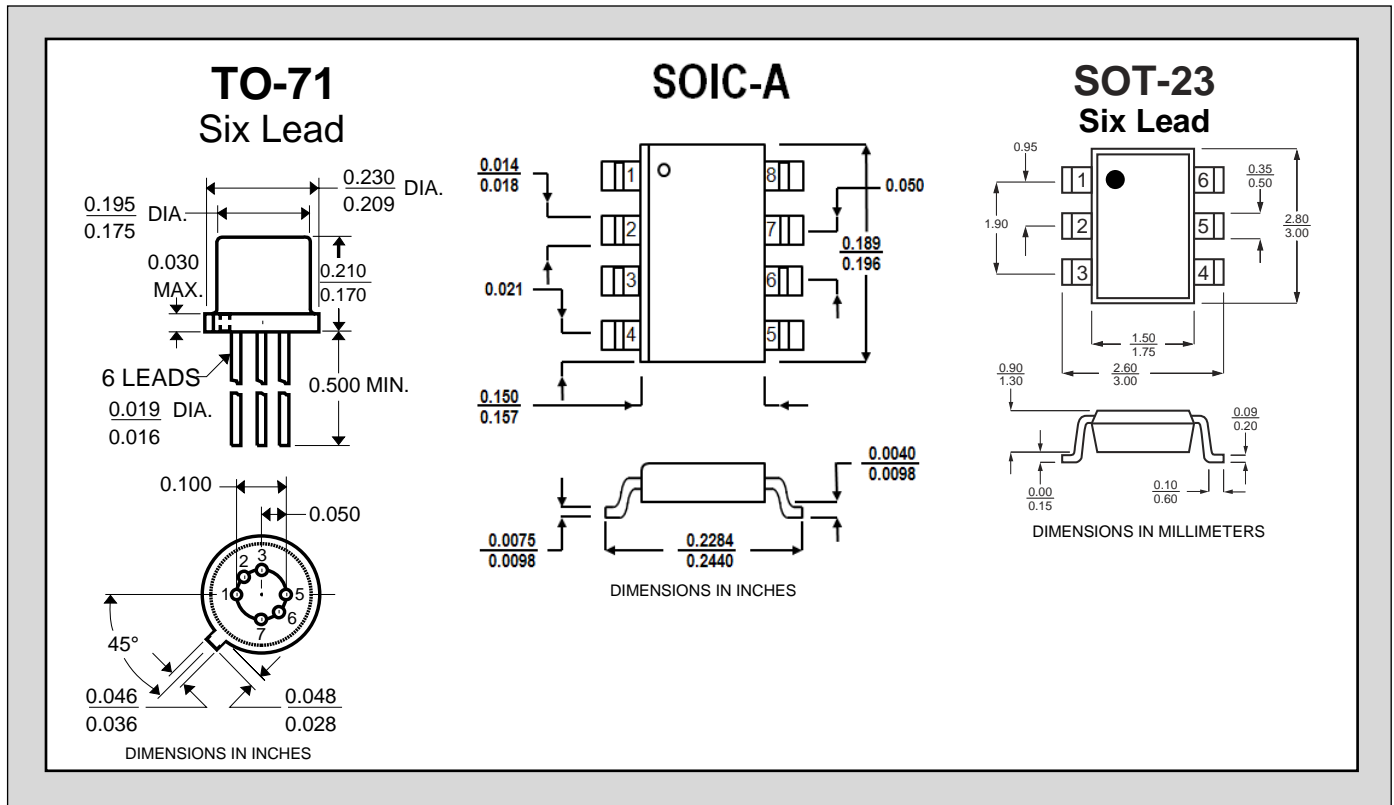
SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$ V_{GS1} - V_{GS2} $	Differential Gate to Source Cutoff Voltage			20	mV	$V_{DS} = 10\text{V}, I_D = 5\text{mA}$
$\frac{I_{DSS1}}{I_{DSS2}}$	Gate to Source Saturation Current Ratio	0.9		1.0		$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}$ (Note 2)
CMRR	COMMON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

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

ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
BV_{GS}	Gate to Source Breakdown Voltage	-25			V	$V_{DS} = 0, I_D = 1\mu A$
$V_{GS(OFF)}$	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	μA	$V_{DG} = 10V, I_D = 5mA$
I_{GSS}	Gate to Source Leakage Current			-50	μA	$V_{GS} = -15V, V_{DS} = 0$
G_{OS}	Output Conductance $F = 1kHz$			100	μS	$V_{DS} = 10V, I_D = 5mA$
NF	Noise Figure			1.0	dB	$V_{DS} = 10V, I_D = 5mA, R_G = 100K\Omega, f = 100Hz$
G_{fs}	Forward Transconductance	$f = 1kHz$	4000	10000	μS	$V_{DS} = 10V, I_D = 5mA$
		$f = 100MHz$		7000		
G_{os}	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: $PW \leq 300 \mu s$, Duty Cycle $\leq 3\%$
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.

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