

LINEAR SYSTEMS

Twenty-Five Years Of Quality Through Innovation

FEATURES

ULTRA LOW NOISE (f=1kHz)	$e_n = 0.9\text{NV}/\sqrt{\text{HZ}}$
HIGH BREAKDOWN VOLTAGE	$BV_{GSS}=40\text{V max}$
HIGH GAIN	$Y_{fs}=22\text{mS (typ)}$
HIGH INPUT IMPEDENCE	$I_G = -500\text{pA max}$
LOW CAPACITANCE	22pF max

IMPROVED SECOND SOURCE REPLACEMENT FOR 2SK170

ABSOLUTE MAXIMUM RATINGS¹

@ 25 °C (unless otherwise stated)

Maximum Temperatures

Storage Temperature	-65 to +150 °C
Operating Junction Temperature	-55 to +135 °C

Maximum Power Dissipation

Continuous Power Dissipation@+25°C	400mW
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Maximum Currents

Gate Forward Current	$I_{G(F)} = 10\text{mA}$
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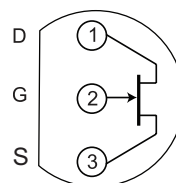
Maximum Voltages

Gate to Source	$V_{GSS} = 40\text{V}$
Gate to Drain	$V_{GDS} = 40\text{V}$

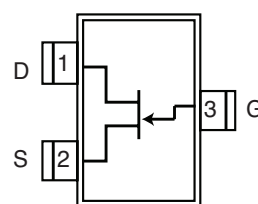
LSK170

ULTRA LOW NOISE SINGLE N-CHANNEL JFET

TO-92
TOP VIEW



SOT-23
TOP VIEW

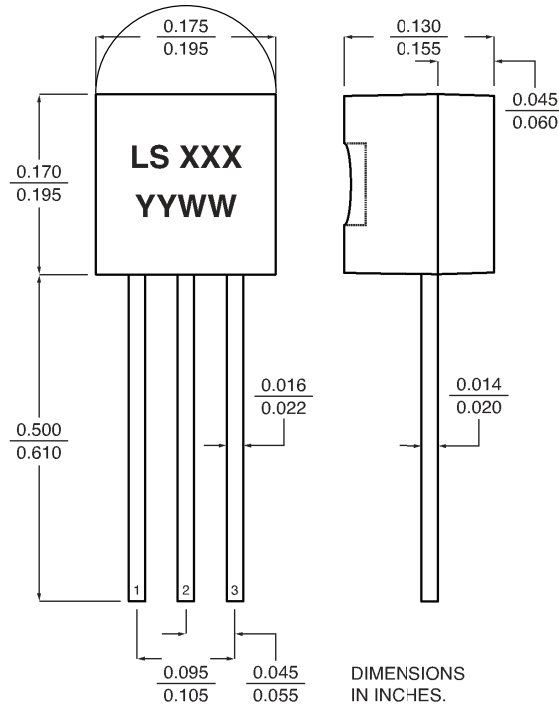


*For equivalent monolithic dual, see LSK389 family.

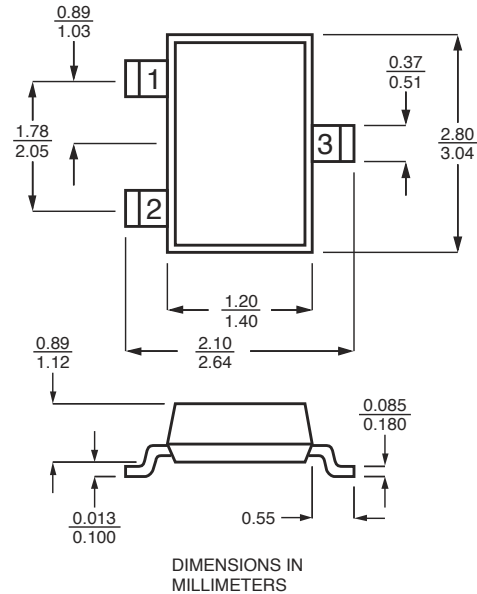
ELECTRICAL CHARACTERISTICS @ 25 °C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
BV_{GSS}	Gate to Source Breakdown Voltage	-40			V	$V_{DS} = 0, I_D = 100\mu\text{A}$
$V_{GS(OFF)}$	Gate to Source Pinch-off Voltage	-0.2		-2	V	$V_{DS} = 10\text{V}, I_D = 1\text{nA}$
V_{GS}	Gate to Source Operating Voltage		0.5		V	$V_{DS} = 10\text{V}, I_D = 1\text{mA}$
I_{DSS}	Drain to Source Saturation Current	LSK170A	2.6	6.5	mA	$V_{GS} = 10\text{V}, V_{GS} = 0$
		LSK170B	6	12		
		LSK170C	10	20		
I_G	Gate Operating Current			-0.5	nA	$V_{DG} = 10\text{V}, I_D = 1\text{mA}$
I_{GSS}	Gate to Source Leakage Current			-1	nA	$V_{GS} = -10\text{V}, V_{DS} = 0$
G_{fs}	Full Conduction Transconductance		22		mS	$V_{GD} = 10\text{V}, V_{GS} = 0, f = 1\text{kHz}$
G_{fs}	Typical Conduction Transconductance		10		mS	$V_{DG} = 15\text{V}, I_D = 1\text{mA}$
e_n	Noise Voltage		0.9	1.9	nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 10\text{V}, I_D = 2\text{mA}, f = 1\text{kHz}, \text{NBW}=1\text{Hz}$
e_n	Noise Voltage		2.5	4	nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 10\text{V}, I_D = 2\text{mA}, f = 10\text{Hz}, \text{NBW}=1\text{Hz}$
C_{iss}	Common Source Input Capacitance		20		pF	$V_{DS} = 15\text{V}, I_D = 100\mu\text{A}$
C_{rss}	Common Source Reverse Transfer Cap.		5		pF	

TO-92



SOT-23



1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse Test: $PW \leq 300\mu s$, Duty Cycle $\leq 3\%$

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3. All characteristics MIN/TYP/MAX numbers are absolute values. Negative values indicate electrical polarity only.

Linear Integrated Systems (LIS) is a 25-year-old, 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 President 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.