

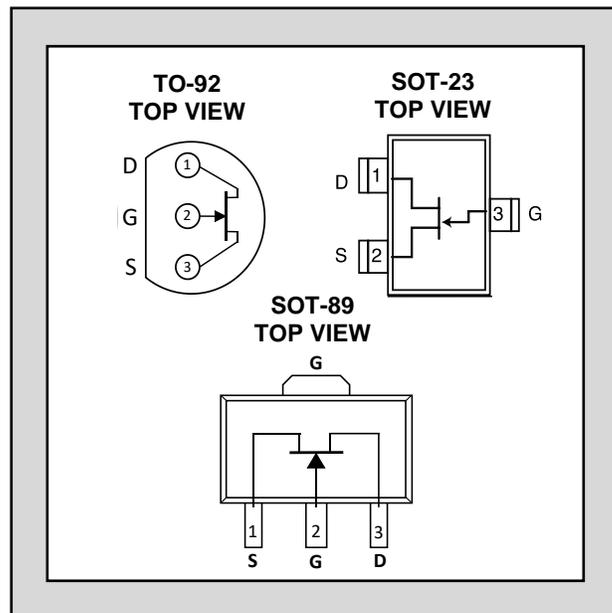
LINEAR SYSTEMS

Over 30 Years of Quality Through Innovation

LSK170X-1

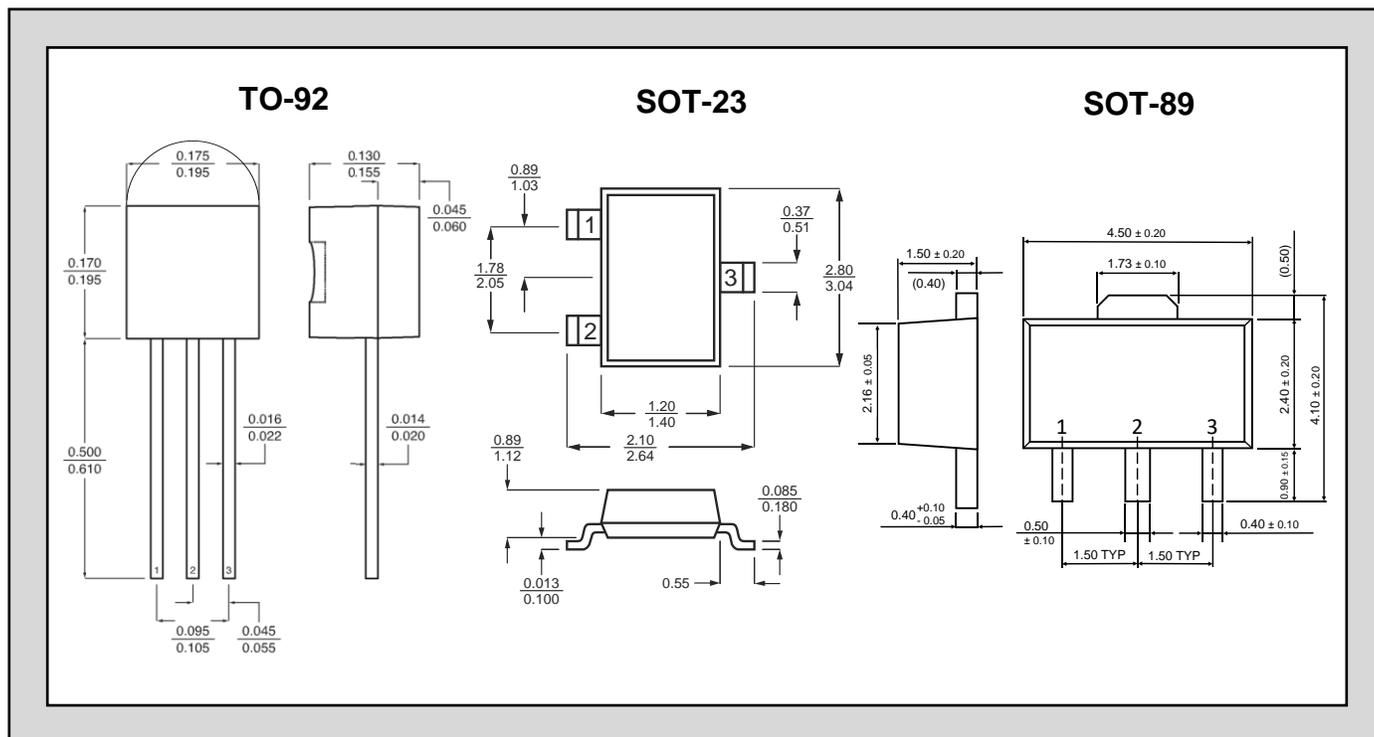
ULTRA LOW NOISE, HIGH IDSS
SINGLE N-CHANNEL
JFET AMPLIFIER

FEATURES	
ULTRA LOW NOISE (f=1kHz)	$e_n = 1.9\text{ nV}/\sqrt{\text{Hz}}$
HIGH BREAKDOWN VOLTAGE	$BV_{GS} = 40\text{ V min}$
HIGH GAIN	$G_{fs} = 22\text{ mS (typ)}$
HIGH INPUT IMPEDENCE	$I_G = -500\text{ pA max}$
LOW CAPACITANCE	20pF (typ)
ABSOLUTE MAXIMUM RATINGS ¹	
@ 25 °C (unless otherwise stated)	
Maximum Temperatures	
Storage Temperature	-55 to +150 °C
Operating Junction Temperature	-55 to +135 °C
Maximum Power Dissipation	
Continuous Power Dissipation @ +25°C	400mW
Maximum Currents	
Gate Forward Current	$I_{G(F)} = 10\text{ mA}$
Maximum Voltages	
Gate to Source	$V_{GS} = 40\text{ V}$
Gate to Drain	$V_{GD} = 40\text{ V}$



ELECTRICAL CHARACTERISTICS @ 25 °C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
BV_{GS}	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_{DSS2}	Drain to Source Saturation Current	20		50	mA	$V_{DS} = 10\text{ V}, V_{GS} = 0$
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		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		4.0		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	$V_{DS} = 15\text{ V}, I_D = 100\mu\text{A}, f = 1\text{ MHz}$
C_{RSS}	Common Source Reverse Transfer Cap.		5		pF	

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