

# LINEAR SYSTEMS

Twenty-Five Years Of Quality Through Innovation

## FEATURES

ULTRA LOW NOISE  $e_n = 1.8V/\sqrt{\text{Hz}}$

LOW INPUT CAPACITANCE  $C_{ISS} = 4\text{pF}$

**ABSOLUTE MAXIMUM RATINGS<sup>1</sup>**  
@ 25 °C (unless otherwise stated)

### Maximum Temperatures

Storage Temperature -55 to +150°C

Junction Operating Temperature -55 to +150°C

### Maximum Power Dissipation

Continuous Power Dissipation  $T_A=25^\circ\text{C}$  300mW<sup>4</sup>

### Maximum Currents

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

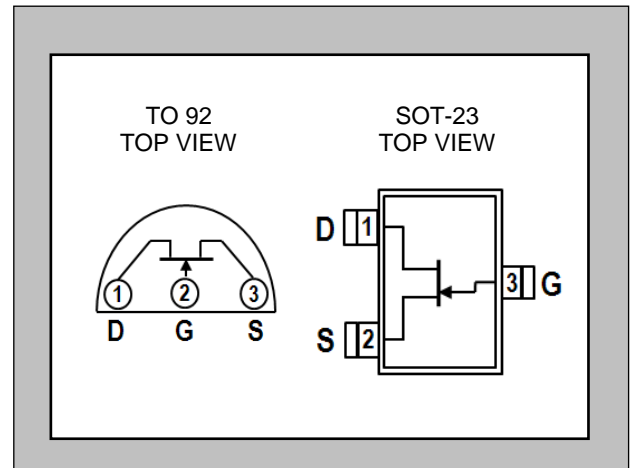
### Maximum Voltages

Gate to Source  $V_{GSO} = 60\text{V}$

Gate to Drain  $V_{GDO} = 60\text{V}$

# LSK189

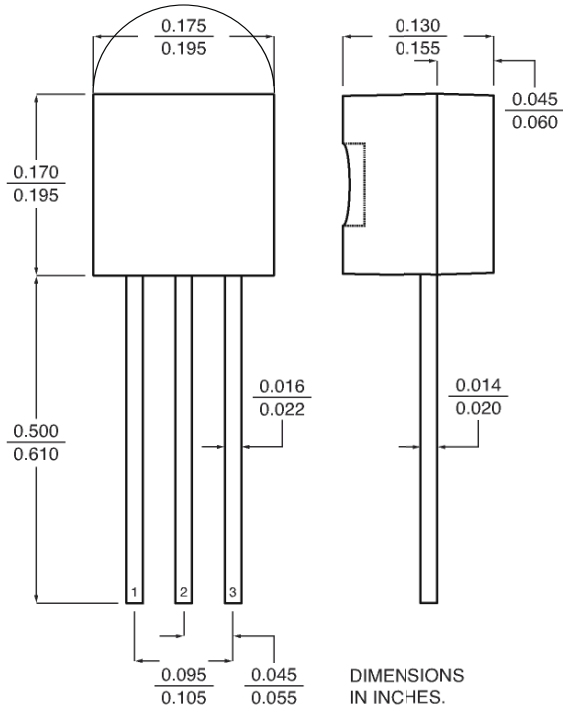
LOW NOISE, LOW CAPACITANCE  
SINGLE N-CHANNEL JFET



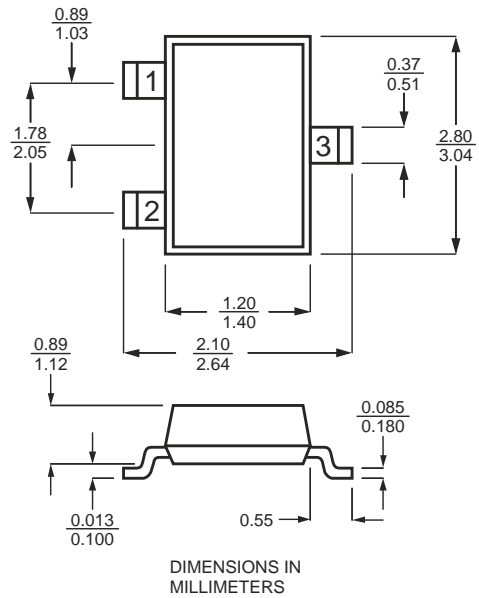
\* For equivalent monolithic dual, see LSK489

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$BV_{GSS}$	Gate to Source Breakdown Voltage	-60			V	$V_{DS} = 0, I_D = -1\text{nA}$
$V_{GS(OFF)}$	Gate to Source Pinch-off Voltage	-1.5		-3.5	V	$V_{DS} = 15\text{V}, I_D = 1\text{nA}$
$V_{GS}$	Gate to Source Operating Voltage	-0.5		-3.5	V	$V_{DS} = 15\text{V}, I_D = 500\mu\text{A}$
$I_{DSS}^2$	Drain to Source Saturation Current	2.5	5	15	mA	$V_{DS} = 15\text{V}, V_{GS} = 0$
$I_G$	Gate Operating Current		-2	-25	pA	$V_{DG} = 15\text{V}, I_D = 200\mu\text{A}$ TA=125°C
$I_G$			-0.8	-10	nA	
$I_{GSS}$	Gate to Source Leakage Current			-100	pA	$V_{GS} = -15\text{V}$
$G_{fs}$	Full Conductance Transconductance	1500			$\mu\text{S}$	$V_{DS} = 15\text{V}, V_{GS} = 0, f = 1\text{kHz}$
		1000	1500		$\mu\text{S}$	$V_{DS} = 15\text{V}, I_D = 500\mu\text{A}$
$G_{OS}$	Full Output Conductance			40	$\mu\text{S}$	$V_{DS} = 15\text{V}, V_{GS} = 0$
$G_{OS}$	Output Conductance		1.8	2.7	$\mu\text{S}$	$V_{DS} = 15\text{V}, I_D = 200\mu\text{A}$
NF	Noise Figure			0.5	dB	$V_{DS} = 15\text{V}, V_{GS} = 0, R_G = 10\text{M}\Omega,$ $f = 100\text{Hz}, \text{NBW} = 6\text{Hz}$
$e_n$	Noise Voltage		1.8	2.0	nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 15\text{V}, I_D = 2\text{mA}, f = 1\text{kHz},$ NBW = 1Hz
$e_n$	Noise Voltage		2.8	3.5	nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 15\text{V}, I_D = 2\text{mA}, f = 10\text{Hz},$ NBW = 1Hz
$C_{ISS}$	Common Source Input Capacitance		4	8	pF	$V_{DS} = 15\text{V}, I_D = 500\mu\text{A}, f = 1\text{MHz}$
$C_{RSS}$	Common Source Reverse Transfer Cap.			3	pF	

## TO-92



## SOT-23

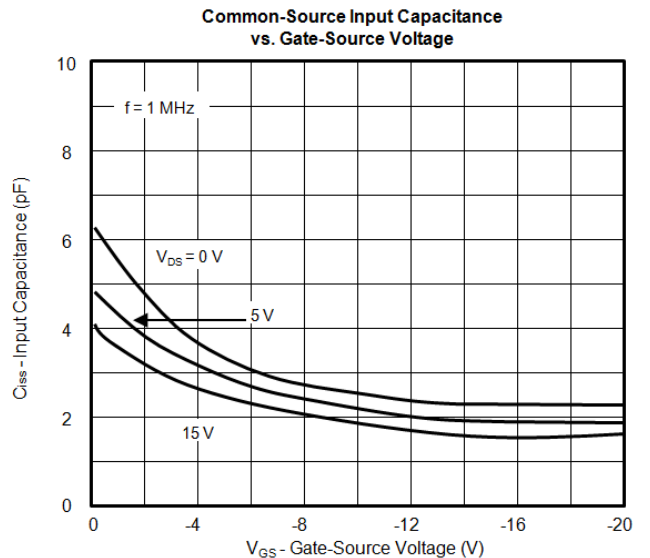
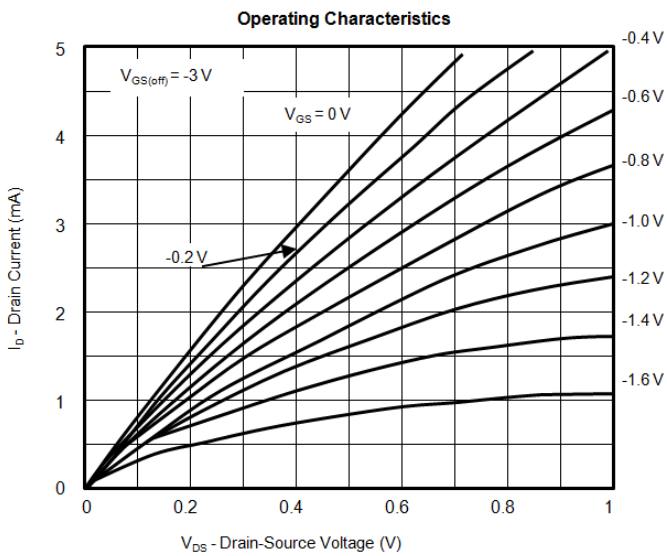
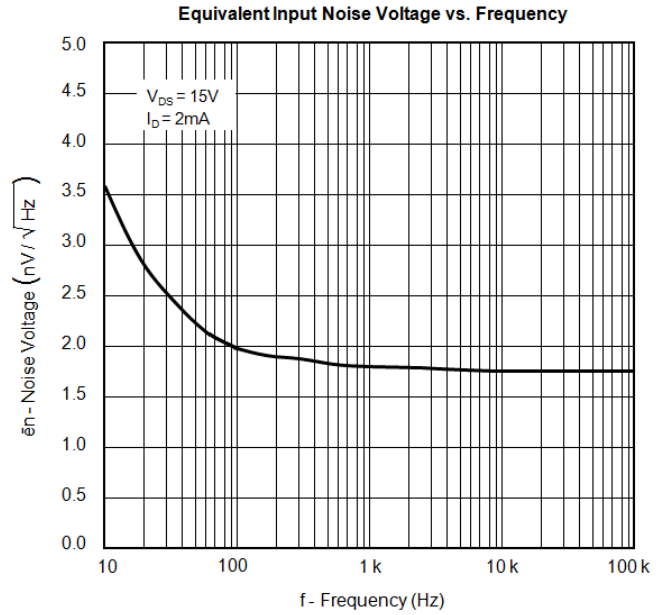
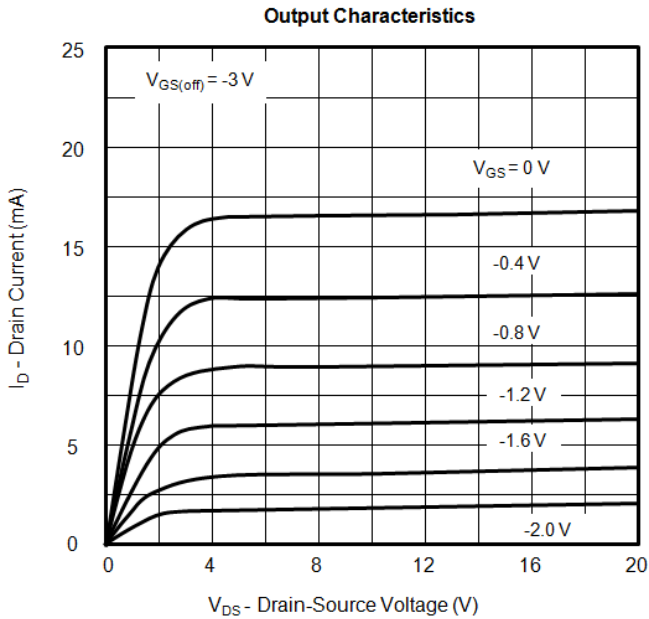
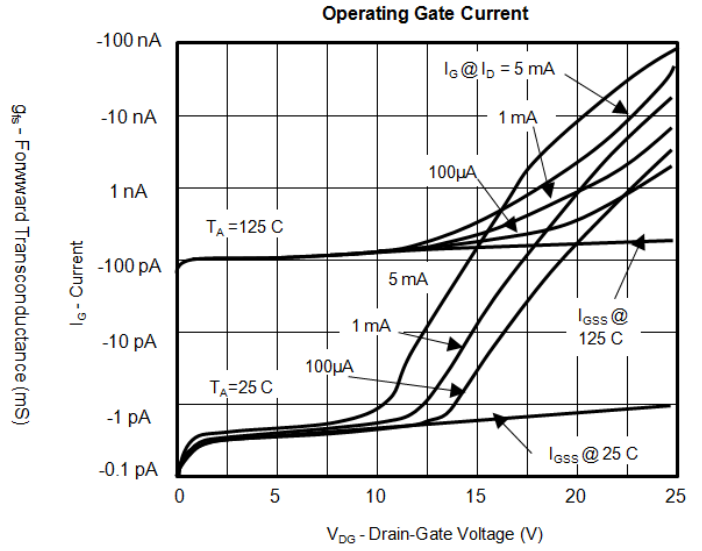
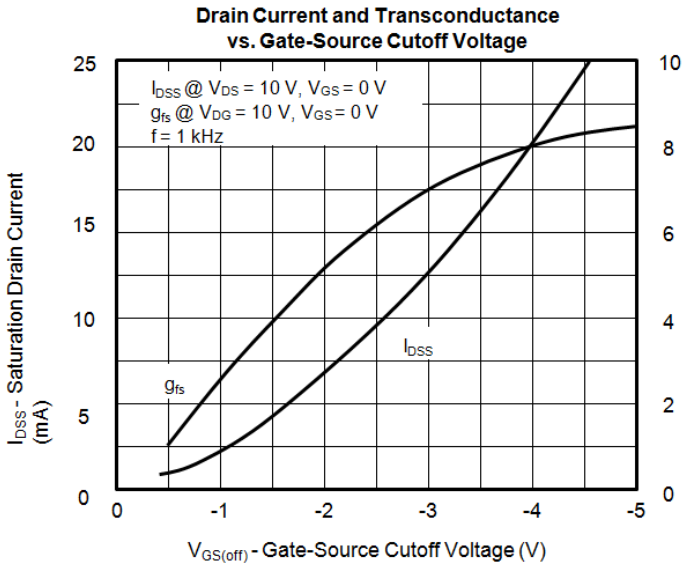


1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse Test:  $PW \leq 300\mu s$ , Duty Cycle  $\leq 3\%$ .

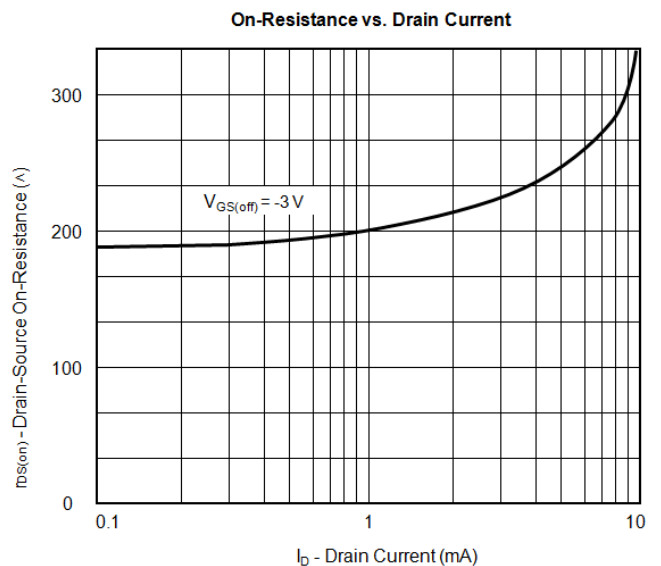
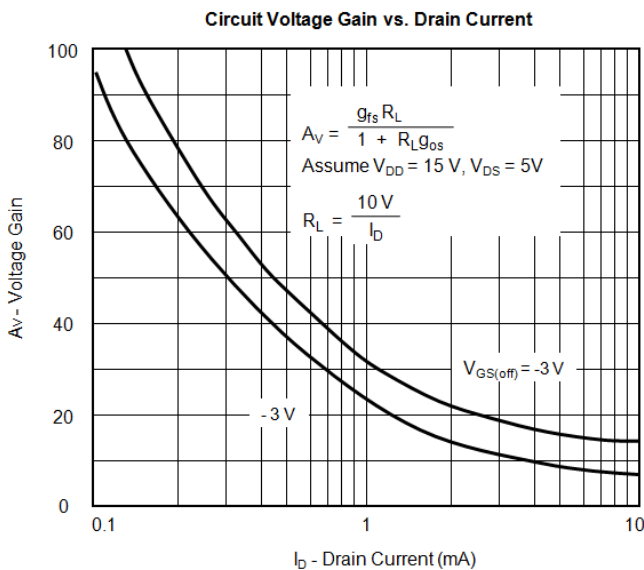
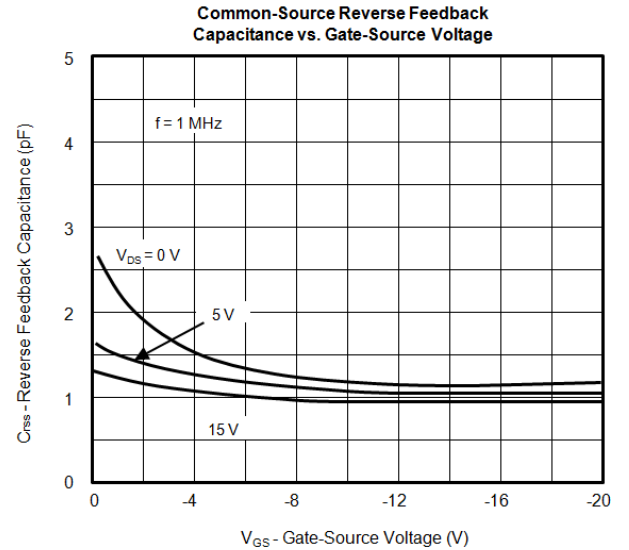
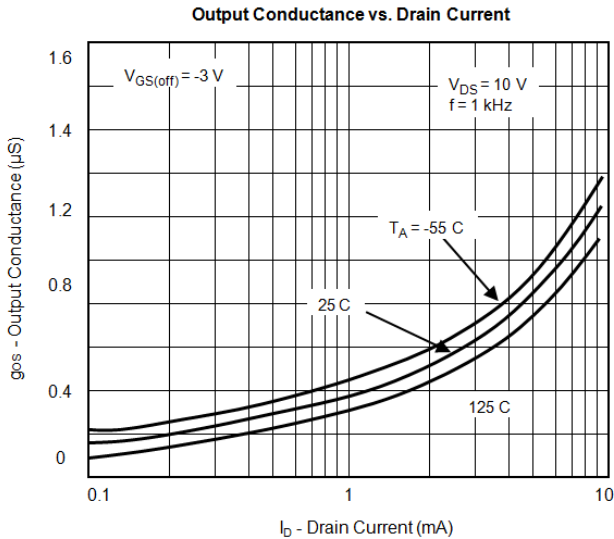
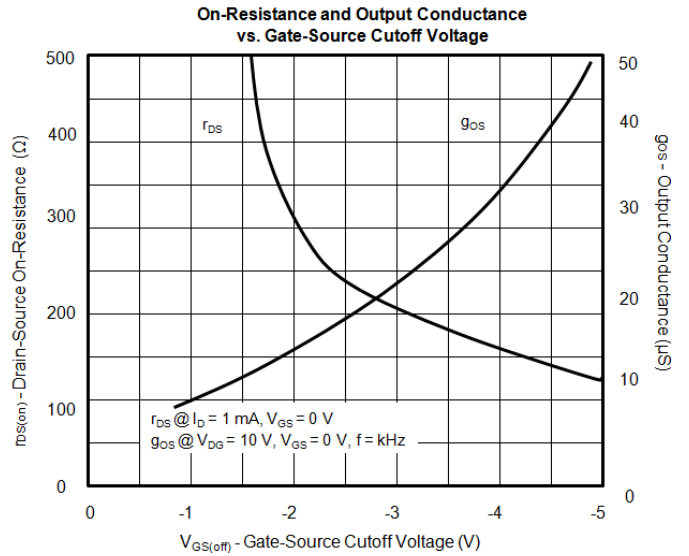
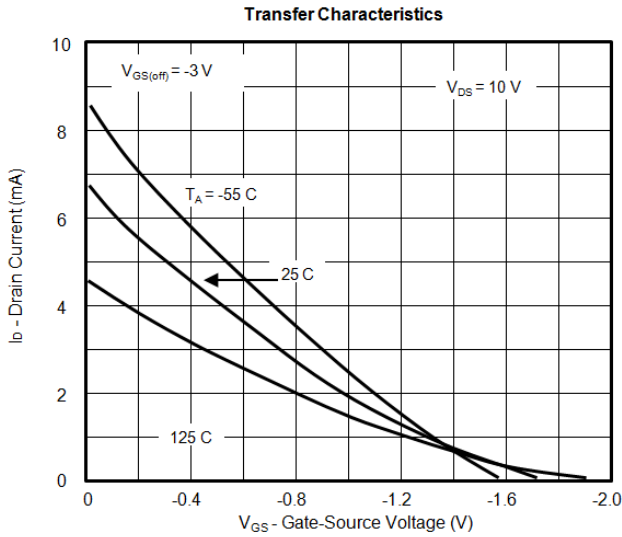
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3. All characteristics MIN/TYP/MAX numbers are absolute values. Negative values indicate electrical polarity only.
4. Derate 2.8 mW  $^{\circ}C$  above 25 $^{\circ}C$ .

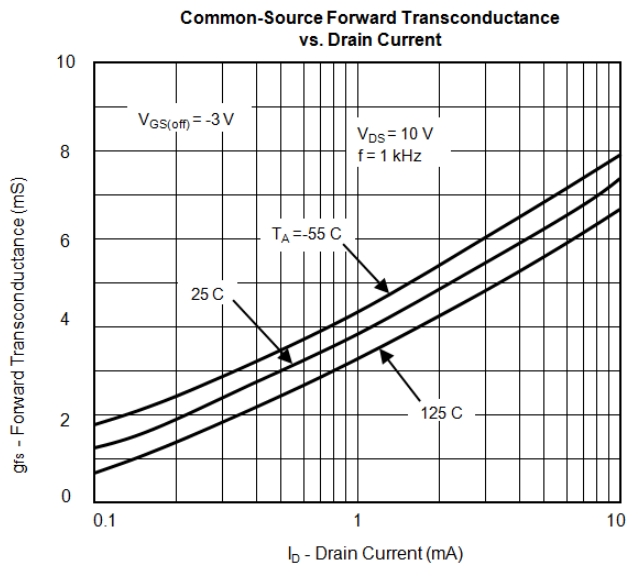
# Typical Characteristics



# Typical Characteristics (Cont'd)



## Typical Characteristics (Cont'd)



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.