

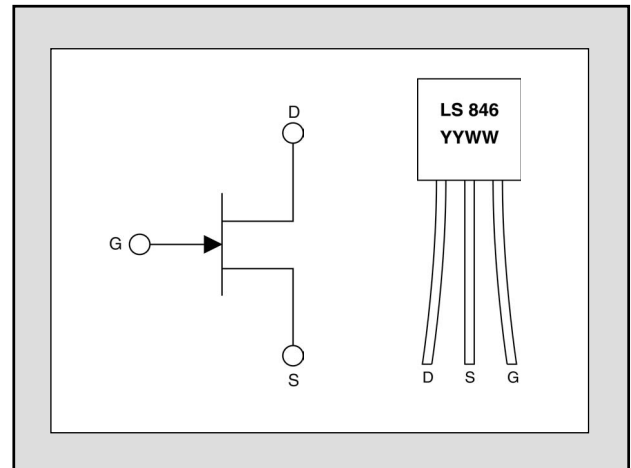
# LINEAR SYSTEMS

*Linear Integrated Systems*

FEATURES	
ULTRA LOW NOISE	$e_n = 3\text{nV}/\sqrt{\text{Hz}}$
LOW GATE LEAKAGE	$I_G = 15\text{pA}$
<b>ABSOLUTE MAXIMUM RATINGS<sup>1</sup></b> @ 25 °C (unless otherwise stated)	
<b>Maximum Temperatures</b>	
Storage Temperature	-65 to +150 °C
Operating Junction Temperature	-55 to +135 °C
<b>Maximum Power Dissipation</b>	
Continuous Power Dissipation @ +125 °C	350mW
<b>Maximum Currents</b>	
Gate Forward Current	$I_{G(F)} = 50\text{mA}$
<b>Maximum Voltages</b>	
Drain to Source	$V_{DSO} = 60\text{V}$
Gate to Source	$V_{GSS} = 60\text{V}$
Gate to Drain	$V_{GDS} = 60\text{V}$

## LS846

**LOW NOISE, LOW LEAKAGE  
SINGLE N-CHANNEL JFET**



\*For equivalent monolithic dual, see LS843 family.

### ELECTRICAL CHARACTERISTICS @ 25 °C (unless otherwise stated)

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		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	$V_{DS} = 15\text{V}, I_D = 500\mu\text{A}$
$I_{DSS}$	Drain to Source Saturation Current	1.5	5	15	mA	$V_{DG} = 15\text{V}, V_{GS} = 0$
$I_G$	Gate Operating Current		15	50	pA	$V_{DG} = 15\text{V}, I_D = 500\mu\text{A}$
$I_G$	Gate Operating Current Reduced $V_{DG}$		5	30	pA	$V_{DG} = 3\text{V}, I_D = 500\mu\text{A}$
$I_{GSS}$	Gate to Source Leakage Current			100	pA	$V_{DG} = 15\text{V}, V_{DS} = 0$
$Y_{fss}$	Full Conductance Transconductance	1500			$\mu\text{mho}$	$V_{GD} = 15\text{V}, V_{GS} = 0, f = 1\text{kHz}$
$Y_{fs}$	Typical Conductance Transconductance	1000	1500		$\mu\text{mho}$	$V_{DG} = 15\text{V}, I_D = 500\mu\text{A}$
$Y_{oss}$	Full Output Conductance			20	$\mu\text{mho}$	$V_{DG} = 15\text{V}, V_{GS} = 0$
$Y_{os}$	Typical Output Conductance		0.2	2	$\mu\text{mho}$	$V_{DG} = 15\text{V}, I_D = 500\mu\text{A}$
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		3	7	$\text{nV}/\sqrt{\text{Hz}}$	$V_{DS} = 15\text{V}, I_D = 500\mu\text{A}, f = 1\text{kHz}, \text{NBW} = 1\text{Hz}$
$e_n$	Noise Voltage			11	$\text{nV}/\sqrt{\text{Hz}}$	$V_{DS} = 15\text{V}, I_D = 500\mu\text{A}, f = 10\text{Hz}, \text{NBW} = 1\text{Hz}$
$C_{ISS}$	Common Source Input Capacitance			8	pF	$V_{DS} = 15\text{V}, I_D = 500\mu\text{A}$
$C_{RSS}$	Common Source Reverse Transfer Cap.			3	pF	

1. Absolute maximum ratings are limiting values above which serviceability may be impaired.

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