

## Linear Systems Low Leakage Low Noise JFET

The LS846 is a high-performance JFET featuring extremely low noise and low leakage and is targeted for use in a wide range of precision instrumentation applications.

The hermetically sealed TO-71 & TO-78 packages are well suited for military and harsh environment applications.

(See Packaging Information).

### LS846 Applications:

- Wideband Differential Amps
- High-Speed, Temp-Compensated Single-Ended Input Amps
- High-Speed Comparators
- Impedance Converters and vibrations detectors.

### FEATURES

LOW LEAKAGE	$I_G = 15\text{pA TYP.}$
LOW NOISE	$e_n = 3\text{nV}/\sqrt{\text{Hz}} \text{ TYP.}$
<b>ABSOLUTE MAXIMUM RATINGS @ 25°C (unless otherwise noted)</b>	
<b>Maximum Temperatures</b>	
Storage Temperature	-65°C to +150°C
Operating Junction Temperature	+135°C
<b>Maximum Voltage and Current– Note 1</b>	
-V <sub>GSS</sub>	Gate Voltage to Drain or Source 60V
-V <sub>GDS</sub>	Gate Voltage to Drain or Source 60V
-V <sub>DSO</sub>	Drain to Source Voltage 60V
-I <sub>G(f)</sub>	Gate Forward Current 50mA
<b>Maximum Power Dissipation</b>	
Device Dissipation @ Free Air – Total	350mW @ +125°C

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

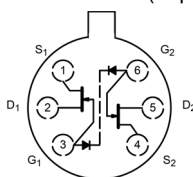
SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
BV <sub>GSS</sub>	Breakdown Voltage	60	--	--	V	V <sub>DS</sub> = 0 I <sub>D</sub> = 1nA
<b>TRANSCONDUCTANCE</b>						
Y <sub>fss</sub>	Full Conduction	1500	--	--	μmho	V <sub>DG</sub> = 15V V <sub>GS</sub> = 0V f = 1kHz
Y <sub>fs</sub>	Typical Operation	1000	1500	--	μmho	V <sub>DG</sub> = 15V I <sub>D</sub> = 500μA
<b>DRAIN CURRENT</b>						
I <sub>DSS</sub>	Full Conduction	1.5	5	15	mA	V <sub>DG</sub> = 15V V <sub>GS</sub> = 0V
<b>GATE VOLTAGE</b>						
V <sub>GS(off)</sub> or V <sub>p</sub>	Pinchoff voltage	1	--	3.5	V	V <sub>DS</sub> = 15V I <sub>D</sub> = 1nA
V <sub>GS(on)</sub>	Operating Range	0.5	--	3.5	V	V <sub>DS</sub> = 15V I <sub>D</sub> = 500μA
<b>GATE CURRENT</b>						
-I <sub>Gmax.</sub>	Operating	--	15	50	pA	V <sub>DG</sub> = 15V I <sub>D</sub> = 500μA
-I <sub>Gmax.</sub>	High Temperature	--	--	50	nA	T <sub>A</sub> = +125°C
-I <sub>Gmax.</sub>	Reduced V <sub>DG</sub>	--	5	30	pA	V <sub>DG</sub> = 3V I <sub>D</sub> = 500μA
-I <sub>GSSmax.</sub>	At Full Conduction	--	--	100	pA	V <sub>DG</sub> = 15V, V <sub>DS</sub> = 0
<b>OUTPUT CONDUCTANCE</b>						
Y <sub>OSS</sub>	Full Conduction	--	--	20	μmho	V <sub>DG</sub> = 15V V <sub>GS</sub> = 0V
Y <sub>OS</sub>	Operating	--	0.2	2	μmho	V <sub>DG</sub> = 15V I <sub>D</sub> = 500μA
<b>NOISE</b>						
NF	Figure	--	--	0.5	dB	V <sub>DS</sub> = 15V V <sub>GS</sub> = 0V R <sub>G</sub> = 10MΩ f = 100Hz NBW = 6Hz
e <sub>n</sub>	Noise Voltage	--	3	7	nV/√Hz	V <sub>DS</sub> = 15V I <sub>D</sub> = 500μA f = 1KHz NBW = 1Hz
<b>CAPACITANCE</b>						
C <sub>ISS</sub>	Input	--	--	8	pF	V <sub>DS</sub> = 15V, I <sub>D</sub> = 500μA
C <sub>RSS</sub>	Reverse Transfer	--	--	3		

Note 1 – These ratings are limiting values above which the serviceability of any semiconductor may be impaired

### Available Packages:

LS846 / LS846 in TO-71 & TO-78  
 LS846 / LS846 available as bare die  
 Please contact [Micross](http://www.micross.com) for full package and die dimensions

TO-71 & TO-78 (Top View)



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