

LINEAR SYSTEMS

Twenty-Five Years Of Quality Through Innovation

FEATURES

ULTRA LOW NOISE	$e_n=3\text{nV}/\text{Hz}$ TYP.
LOW LEAKAGE	$I_G=15\text{pA}$ TYPs.
LOW DRIFT	$I_{V_{GS1-2}}/T_I=5\mu\text{V}/^\circ\text{C}$ max.
ULTRA LOW OFFSET VOLTAGE	$I_{V_{GS1-2}}=1\text{mV}$ max.

ABSOLUTE MAXIMUM RATINGS¹

@ 25°C (unless otherwise noted)

Maximum Temperatures

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

Maximum Voltage and Current for Each Transistor¹

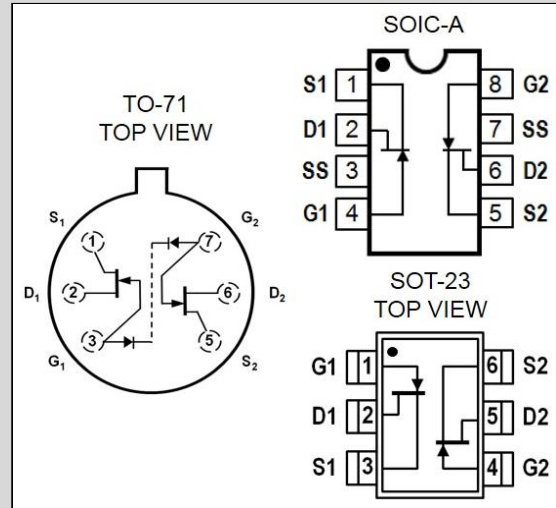
-V _{GSS}	Gate Voltage to Drain or Source	60V
I _{G(f)}	Gate Forward Current	50mA

Maximum Power Dissipation²

Device Dissipation ² @ Free Air - Total	400mW T _A =+25°C
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LS843 LS844 LS845

ULTRA LOW NOISE LOW DRIFT
MONOLITHIC DUAL N-CHANNEL
JFET AMPLIFIER

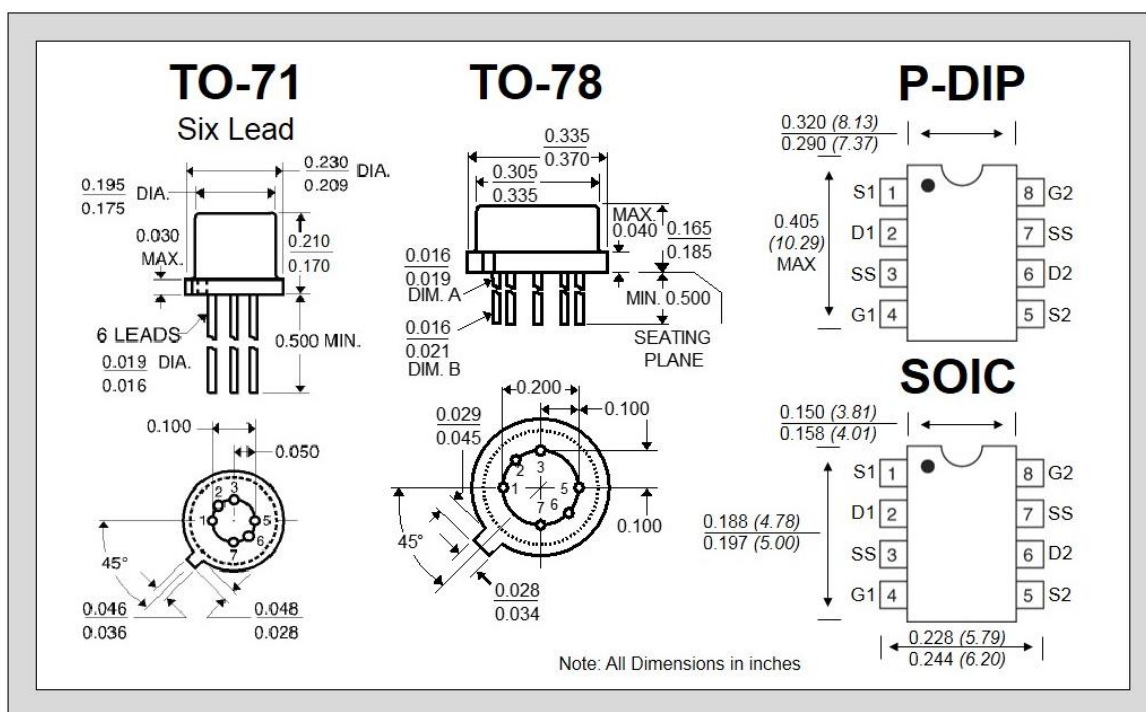


ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	LS843	LS844	LS845	UNITS	CONDITIONS
$I_{V_{GS1-2}}/T_I$ max.	Drift vs. Temperature	5	10	25	$\mu\text{V}/^\circ\text{C}$	$V_{DG}=10\text{V}$ $I_D=500\mu\text{A}$ $T_A=-55^\circ\text{C}$ to $+125^\circ\text{C}$
$I_{V_{GS1-2}}$ max.	Offset Voltage	1	5	15	mV	$V_{GS}=10\text{V}$ $I_D=500\mu\text{A}$

SYMBOL	CHARACTERISTIC ³	MIN.	TYP.	MAX.	UNITS	CONDITIONS
BV _{GSS}	Breakdown Voltage	-60	--	--	V	$V_{DS}=0$ $I_D=-1\text{nA}$
BV _{GGO}	Gate-to-Gate Breakdown	± 60	--	--	V	$I_{GGO}=\pm 1\mu\text{A}$ $I_D=0$ $I_S=0$
G _{fss}	TRANSCONDUCTANCE Full Conduction	1500	--	--	μS	$V_{DS}=15\text{V}$ $V_{GS}=0$ $f=1\text{kHz}$
G _{fs}	Typical Conduction	1000	1500	--	μS	$V_{DS}=15\text{V}$ $I_D=500\mu\text{A}$
$ G_{fs1-2}/G_{fs1} $	Mismatch	--	0.6	3	%	
I _{DSS}	DRAIN CURRENT Full Conduction	1.5	5	15	mA	$V_{DS}=15\text{V}$ $V_{GS}=0$
$ I_{DSS1-2}/I_{DSS} $	Mismatch at Full Conduction	--	1	5	%	
V _{GS(off)}	GATE VOLTAGE Pinchoff Voltage	-1	--	-3.5	V	$V_{DS}=15\text{V}$ $I_D=1\text{nA}$
V _{GS}	Operating Range	-0.5	--	-3.5	V	$V_{DS}=15\text{V}$ $I_D=500\mu\text{A}$
-I _G	GATE CURRENT Operating	--	15	50	pA	$V_{DG}=15\text{V}$ $I_D=500\mu\text{A}$
-I _G	High Temperature	--	--	50	nA	$V_{DG}=15\text{V}$ $I_D=500\mu\text{A}$ $T_A=+125^\circ\text{C}$
-I _G	Reduced VDG	--	5	30	pA	$V_{DG}=3\text{V}$ $I_D=500\mu\text{A}$
-I _{GSS}	At Full Conduction	--	--	100	pA	$V_{GS}=15\text{V}$ $V_{GS}=0$

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNITS	CONDITIONS		
<u>OUTPUT CONDUCTANCE</u>								
G _{OSS}	Full Conduction	--	--	40	μS	V _{DS} = 15V	V _{GS} = 0	
G _{OS}	Operating	--	2.0	2.7	μS	V _{DS} = 15V	I _D = 200μA	
G _{OS 1-2}	Differential	--	0.02	0.2	μS			
<u>COMMON MODE REJECTION</u>								
CMRR	-20 log ΔV _{GS1-2} / ΔV _{DS}	90	100	--	dB	V _{DS} = 10 to 20V	I _D = 500μA	
CMRR		--	85	--	dB	V _{DS} = 5 to 10V	I _D = 500μA	
<u>NOISE</u>								
NF	Figure	--	--	0.5	dB	V _{DS} = 15V f= 100Hz	V _{GS} = 0 NBW= 6Hz	R _G = 10MΩ
e _n	Voltage	--	--	7	nV/Hz	V _{DS} = 15V NBW= 1Hz	I _D = 500μA	f= 1kHz
e _n	Voltage	--	--	11	nV/Hz	V _{DS} = 15V NBW= 1Hz	I _D = 500μA	f= 10Hz
<u>CAPACITANCE</u>								
C _{ISS}	Input	--	--	8	pF	V _{DS} = 15V	I _D = 500μA	f= 1mHz
C _{RSS}	Reverse Transfer	--	--	3	pF			
C _{DD}	Drain-to-Drain	--	0.5	--	pF	V _{DD} = 15V	I _D = 500μA	f= 1mHz



NOTES:

1. These ratings are limiting values above which the serviceability of any semiconductor may be impaired.
2. Derate 4mW/°C above 25°C
3. All MIN/TYP/MAX limits are absolute numbers. Negative signs 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.