

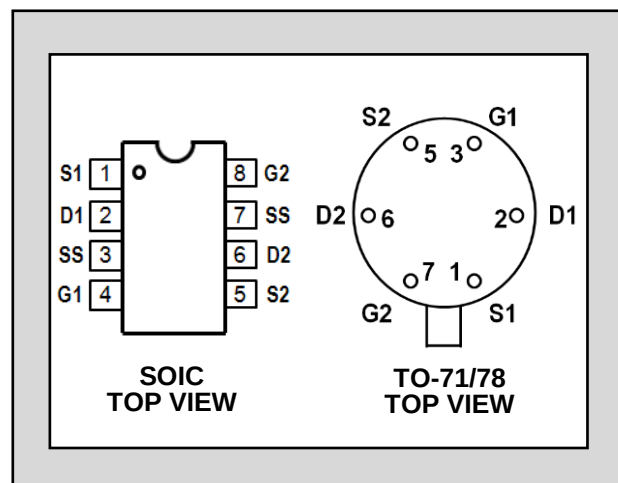
LINEAR SYSTEMS

Twenty-Five Years Of Quality Through Innovation

LS840 LS841 LS842

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

FEATURES	
LOW NOISE	$e_n=8\text{nV/Hz TYP.}$
LOW LEAKAGE	$I_G=10\text{pA TYP.}$
LOW DRIFT	$I V_{GS1-2}/T I=5\mu\text{V/}^\circ\text{C max.}$
LOW OFFSET VOLTAGE	$I V_{GS1-2} I=2\text{mV TYP.}$
ABSOLUTE MAXIMUM RATINGS ¹	
@ 25°C (unless otherwise noted)	
Maximum Temperatures	
Storage Temperature	-55°C to +150°C
Operating Junction Temperature	-55°C to +150°C
Maximum Voltage and Current for Each Transistor ¹	
-V _{GSS}	Gate Voltage to Drain or Source 60V
I _{G(f)}	Gate Forward Current 10mA
Maximum Power Dissipation	
Device Dissipation ² @ Free Air - Total	400mW T _A =+25°C

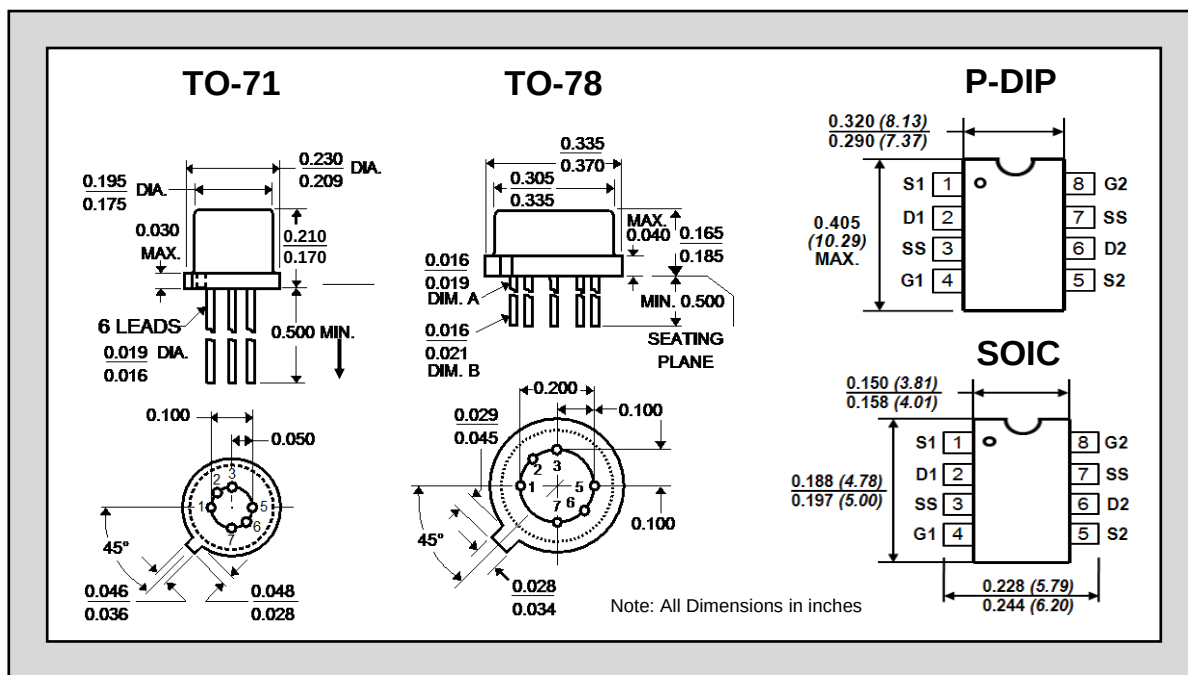


ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	LS840	LS841	LS842	UNITS	CONDITIONS
$I V_{GS1-2} / T I \text{ max.}$	Drift vs. Temperature	5	10	40	$\mu\text{V/}^\circ\text{C}$	$V_{DG} = 20\text{V}$ $T_A = -55^\circ\text{C to } +125^\circ\text{C}$ $I_D = 200\mu\text{A}$
$I V_{GS1-2} I \text{ max.}$	Offset Voltage	5	10	25	mA	$V_{DG} = 20\text{V}$ $I_D = 200\mu\text{A}$

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}	<u>TRANSCONDUCTANCE</u> Full Conduction	1000		4000	μS	$V_{DG} = 20\text{V}$ $V_{GS} = 0$ $f = 1\text{kHz}$
G _{fs}	Typical Conduction	500		1000	μS	$V_{DG} = 20\text{V}$ $I_D = 200\mu\text{A}$
G _{fs1} ⁴ G _{fs2}	Mismatch Transconductance Ratio	0.97		1.0		
I _{DSS}	<u>DRAIN CURRENT</u> Full Conduction	0.5	2	5	mA	$V_{DG} = 20\text{V}$ $V_{GS} = 0$
I _{DSS1} ⁴ I _{DSS2}	Drain Current Ratio	0.95		1.0		
V _{GS(off)}	<u>GATE-SOURCE</u> Pinchoff Voltage	-1	-2	-4.5	V	$V_{DS} = 20\text{V}$ $I_D = 1\text{nA}$
V _{GS}	Operating Range	-0.5	--	-4	V	$V_{DS} = 20\text{V}$ $I_D = 200\mu\text{A}$
-I _G	<u>GATE CURRENT</u> Operating	--	10	50	pA	$V_{DG} = 20\text{V}$ $I_D = 200\mu\text{A}$
-I _G	High Temperature	--	--	50	nA	$V_{DG} = 20\text{V}$ $I_D = 200\mu\text{A}$ $T_A = +125^\circ\text{C}$
-I _G	Reduced VDG	--	5	--	pA	$V_{DG} = 10\text{V}$ $I_D = 200\mu\text{A}$
-I _{GSS}	At Full Conduction	--	--	100	pA	$V_{DG} = 20\text{V}$ $V_{DS} = 0$

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNITS	CONDITIONS
<u>OUTPUT CONDUCTANCE</u>						
G _{oss}	Full Conduction	--	--	10	μS	V _{DG} = 20V V _{GS} = 0
G _{os}	Operating	--	0.1	1	μS	V _{DG} = 20V I _D = 200μA
G _{os 1-2}	Differential	--	0.01	0.1	μS	
<u>COMMON MODE REJECTION</u>						
CMRR	-20 log V _{GS1-2} / V _{DS}	--	100	--	dB	V _{DS} = 10 to 20V I _D =200μA
CMRR		--	75	--	dB	V _{DS} = 5 to 10V I _D =200μA
<u>NOISE</u>						
NF	Figure	--	--	0.5	dB	V _{DS} = 20V V _{GS} = 0 R _G =10M f= 100Hz NBW= 6Hz
e _n	Voltage	--	--	10	nV/Hz	V _{DS} = 20V I _D = 200μA f= 1KHz NBW= 1Hz
e _n	Voltage	--	--	15	nV/Hz	V _{DS} = 20V I _D = 200μA f= 10Hz NBW= 1Hz
<u>CAPACITANCE</u>						
C _{iss}	Input	--	4	10	pF	V _{DS} = 20V I _D =200μA
C _{RSS}	Reverse Transfer	--	1.2	5	pF	
C _{DD}	Drain-to-Drain	--	0.1	--	pF	V _{DG} = 20V I _D = 200μA



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.
4. Assumes smaller number in the numerator.

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