

LINEAR SYSTEMS

Twenty-Five Years Of Quality Through Innovation

LS830 LS831 LS832 LS833

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

FEATURES

ULTRA LOW DRIFT	$ \Delta V_{GS1-2}/\Delta T = 5\mu V/^{\circ}C$ max.
ULTRA LOW NOISE	$I_G=80fA$ TYP.
LOW NOISE	$e_n=70nV/\sqrt{Hz}$ TYP.
LOW CAPACITANCE	$C_{ISS}=3pf$ max.

ABSOLUTE MAXIMUM RATINGS NOTE 1

@ 25°C (unless otherwise noted)

Maximum Temperatures

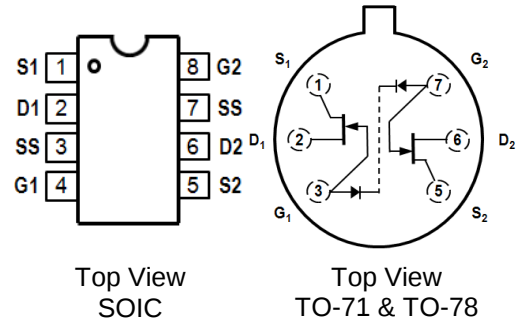
Storage Temperature	-55 to +150°C
Operating Junction Temperature	-55 to +150°C

Maximum Voltage and Current for Each Transistor NOTE 1

-V _{GSS}	Gate Voltage to Drain or Source	40V
-V _{DSO}	Drain to Source Voltage	40V
-I _{G(f)}	Gate Forward Current	10mA
-I _G	Gate Reverse Current	10μA

Maximum Power Dissipation @ TA = 25°C

Continuous Power Dissipation (Total)	500mW
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Top View
SOIC

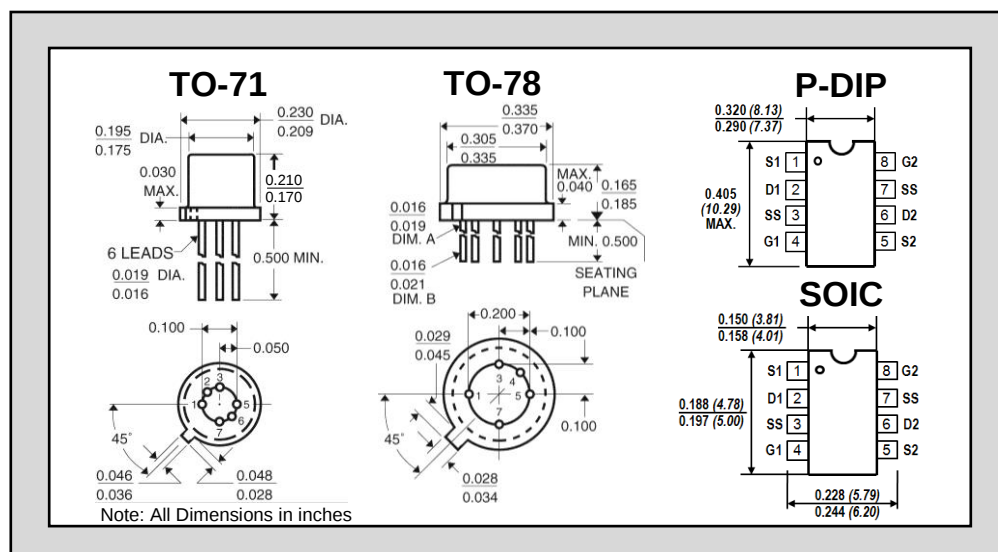
Top View
TO-71 & TO-78

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNITS	CONDITIONS
BV _{GSS}	Breakdown Voltage	-40	-60	--	V	V _{DS} = 0 I _G = -1nA
BV _{GGO}	Gate-to-Gate Breakdown	±40	--	--	V	I _G = ±1μA I _D = 0 I _S = 0
g _{fss}	TRANSCONDUCTANCE Full Conduction	70	300	500	μS	V _{DG} = 10V V _{GS} = 0 f = 1kHz
g _{fs}	Typical Operation	50	100	200	μS	V _{DG} = 10V I _D = 30μA f = 1kHz
g _{fs1-2} /g _{fs}	Differential	--	1	5	%	
I _{DSS}	DRAIN CURRENT Full Conduction	60	400	1000	μA	V _{DG} = 10V V _{GS} = 0
I _{DSS1-2} /I _{DSS}	Differential at Full Conduction	--	2	5	%	

ELECTRICAL CHARACTERISTICS TA = 25°C (unless otherwise noted)

SYMBOL	CHARACTERISTIC	LS830	LS831	LS832	LS833	UNITS	CONDITIONS
ΔV _{GS1-2} /ΔT max.	Drift vs. Temperature	5	10	20	75	μV/°C	V _{DG} = 10V I _D = 30μA TA = -55°C to +125°C
V _{GS1-2} max.	Offset Voltage	25	25	25	25	mV	V _{DG} = 10V I _D = 30μA
-I _G typical	Operating	0.1	0.1	0.1	0.5	pA	
-I _G typical	High Temperature	0.1	0.1	0.1	0.5	nA	TA= +125°C
I _{GSS} typical	At Full Conduction	0.2	0.2	0.2	1.0	pA	V _{GS} = 20V, V _{GS} = 0V
I _{GSS} typical	High Temperature	0.5	0.5	0.5	1.0	nA	V _{GS} = 0 V _{GS} = 20V TA= +125°C

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNITS	CONDITIONS
$V_{GS(off)}$	GATE-SOURCE Cutoff Voltage	-0.6	-2	-4.5	V	$V_{DS}= 10V$ $I_D= 1nA$
V_{GS}	Operating Range	--	--	-4	V	$V_{DG}= 10V$ $I_D= 30\mu A$
I_{GGO}	GATE CURRENT Gate-to-Gate Leakage	--	1	--	pA	$V_{GG}= \pm 20V$ $I_D = I_S = 0A$
g_{OSS}	OUTPUT CONDUCTANCE Full Conduction	--	--	5	μS	$V_{DG}= 10V$ $V_{GS}= 0$
g_{OS}	Operating	--	--	0.5	μS	$V_{DG}= 10V$ $I_D= 30\mu A$
$ g_{OS1-2} $	Differential	--	--	0.1	μS	
CMRR	COMMON MODE REJECTION $-20 \log \Delta V_{GS1-2}/ \Delta V_{DS} $	--	90	--	dB	$\Delta V_{DS}= 10$ to $20V$ $I_D=30\mu A$
CMRR	$-20 \log \Delta V_{GS1-2}/ \Delta V_{DS} $	--	90	--	dB	$\Delta V_{DS}= 5$ to $10V$ $I_D=30\mu A$
NF	NOISE Figure	--	--	1	dB	$V_{DS}= 10V$ $V_{GS}= 0$ $R_G=10M\Omega$ $f= 100Hz$ $NBW= 6Hz$
e_n	Voltage	--	20	70	nV/ $\sqrt{Hz}$	$V_{DG}= 10V$ $I_D= 30\mu A$ $f= 10Hz$ $NBW= 1Hz$
C_{ISS}	CAPACITANCE Input	--	--	3	pF	$V_{DS}= 10V$ $V_{GS}= 0$ $f= 1MHz$
C_{RSS}	Reverse Transfer	--	--	1.5	pF	$V_{DS}= 10V$ $V_{GS}= 0$ $f= 1MHz$
C_{DD}	Drain-to-Drain	--	--	0.1	pF	$V_{DG}= 10V$ $I_D= 30\mu A$



NOTES:

- These ratings are limiting values above which the serviceability of any semiconductor may be impaired

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