

LINEAR SYSTEMS

Linear Integrated Systems

LS3954A LS3954 LS3955

LS3956 LS3958

**LOW NOISE LOW DRIFT
MONOLITHIC DUAL N-CANNEL JFET**

FEATURES

LOW DRIFT	$ \Delta V_{GS1-2}/\Delta T = 5\mu V/^{\circ}C$ max.
LOW LEAKAGE	$I_G = 20pA$ TYP.
LOW NOISE	$e_n = 10nV/\sqrt{Hz}$ TYP.

ABSOLUTE MAXIMUM RATINGS NOTE 1

@ 25°C (unless otherwise noted)

Maximum Temperatures

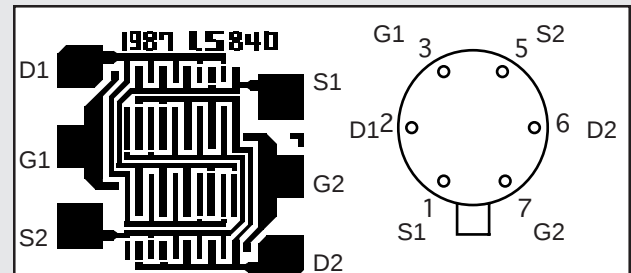
Storage Temperature	-65° to +200°C
Operating Junction Temperature	+150°C

Maximum Voltage and Current for Each Transistor NOTE 1

$-V_{GSS}$	Gate to Drain or Source Voltage	60V
$-V_{DSO}$	Drain to Source Voltage	60V
$-I_{G(f)}$	Gate Forward Current	50mA

Maximum Power Dissipation

Device Dissipation @ Free Air - Total	400mW @ 25°C
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ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

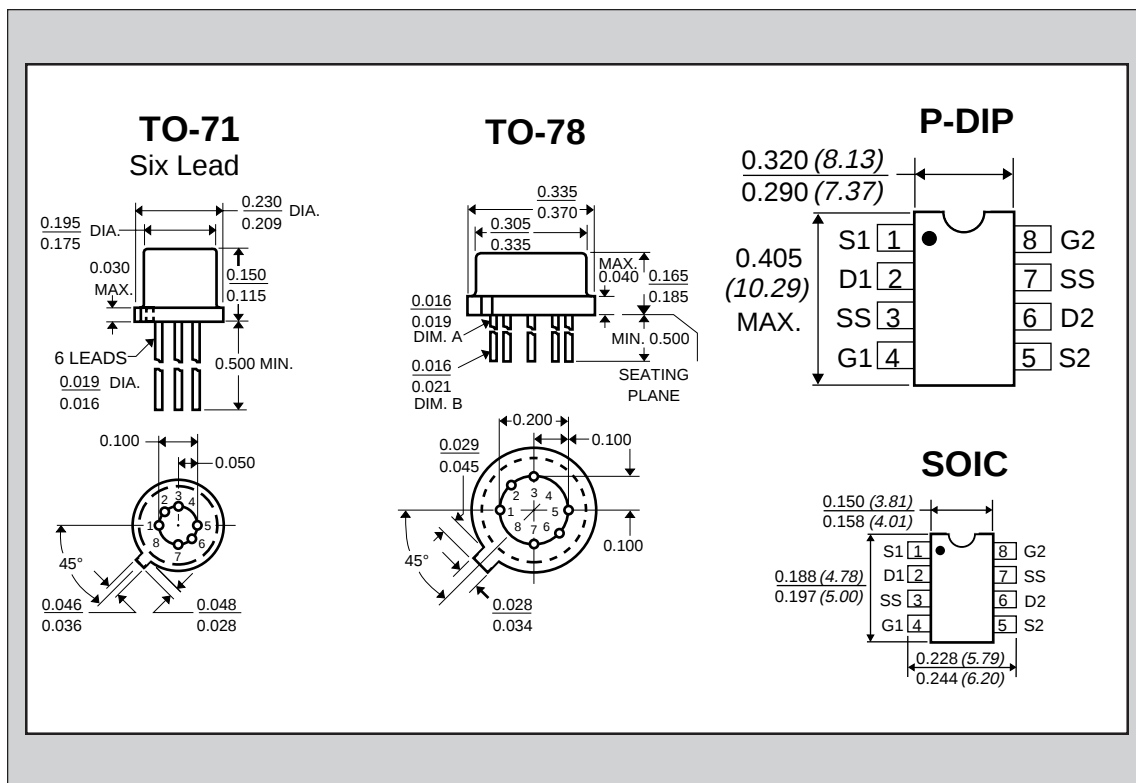
SYMBOL	CHARACTERISTICS	LS3954A	LS3954	LS3955	LS3956	LS3958	UNITS	CONDITIONS
$ \Delta V_{GS1-2}/\Delta T $ max.	Drift vs. Temperature	5	10	25	50	100	$\mu V/^{\circ}C$	$V_{DG} = 20V, I_D = 200\mu A$ $T_A = -55^{\circ}C$ to $+125^{\circ}C$
$ V_{GS1-2} $ max.	Offset Voltage	5	5	10	15	25	mV	$V_{DG} = 20V, I_D = 200\mu A$

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
BV_{GSS}	Breakdown Voltage	60	--	--	V	$V_{DS} = 0$ $I_D = 1\mu A$
BV_{GGO}	Gate-to-Gate Breakdown	60	--	--	V	$I_G = 1nA$ $I_D = 0$ $I_S = 0$
TRANSCONDUCTANCE						
Y_{fss}	Full Conduction	1000	2000	3000	μmho	$V_{DG} = 20V$ $V_{GS} = 0$ $f = 1kHz$
Y_{fs}	Typical Operation	500	700	1000	μmho	$V_{DG} = 20V$ $I_D = 200\mu A$
$ Y_{fs1-2}/Y_{fs} $	Mismatch	--	0.6	3	%	
DRAIN CURRENT						
I_{DSS}	Full Conduction	0.5	2	5	mA	$V_{DG} = 20V$ $V_{GS} = 0$
$ I_{DSS1-2}/I_{DSS} $	Mismatch at Full Conduction	--	1	5	%	
GATE VOLTAGE						
$V_{GS(off)}$ or V_P	Pinchoff Voltage	1	2	4.5	V	$V_{DS} = 20V$ $I_D = 1nA$
V_{GS}	Operating Range	0.5	--	4	V	$V_{DS} = 20V$ $I_D = 200\mu A$
GATE CURRENT						
$-I_G$	Operating	--	20	50	pA	$V_{DG} = 20V$ $I_D = 200\mu A$
$-I_G$	High Temperature	--	--	50	nA	$V_{DG} = 20V$ $I_D = 200\mu A$ $T_A = +125^{\circ}C$
$-I_G$	Reduced V_{DG}	--	5	--	pA	$V_{DG} = 10V$ $I_D = 200\mu A$
$-I_{GSS}$	At Full Conduction	--	--	100	pA	$V_{DG} = 20V$ $V_{DS} = 0$

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4042 Clipper Court, Fremont, CA 94538 • TEL: (510) 490-9160 • FAX: (510) 353-0261

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
OUTPUT CONDUCTANCE						
Y_{OSS}	Full Conduction	--	--	5	μmho	$V_{DG} = 20V$ $V_{GS} = 0$
Y_{OS}	Operating	--	0.1	1	μmho	$V_{DG} = 20V$ $I_D = 200\mu A$
$ Y_{OS1-2} $	Differential	--	0.01	0.1	μmho	
COMMON MODE REJECTION						
CMR	$-20 \log \Delta V_{GS1-2} / \Delta V_{DS} $	--	100	--	dB	$\Delta V_{DS} = 10 \text{ to } 20V$ $I_D = 200\mu A$
CMR	$-20 \log \Delta V_{GS1-2} / \Delta V_{DS} $	--	75	--	dB	$\Delta V_{DS} = 5 \text{ to } 10V$ $I_D = 200\mu A$
NOISE						
NF	Figure	--	--	0.5	dB	$V_{DS} = 20V$ $V_{GS} = 0$ $R_G = 10M\Omega$ $f = 100\text{Hz}$ $NBW = 6\text{Hz}$
e_n	Voltage	--	--	15	nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 20V$ $I_D = 200\mu A$ $f = 10\text{Hz}$ $NBW = 1\text{Hz}$
CAPACITANCE						
C_{ISS}	Input	--	--	6	pF	$V_{DS} = 20V$ $V_{GS} = 0$ $f = 1\text{MHz}$
C_{RSS}	Reverse Transfer	--	--	2	pF	
C_{DD}	Drain-to-Drain	--	0.1	--	pF	$V_{DG} = 20V$ $I_D = 200\mu A$



NOTES:

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