

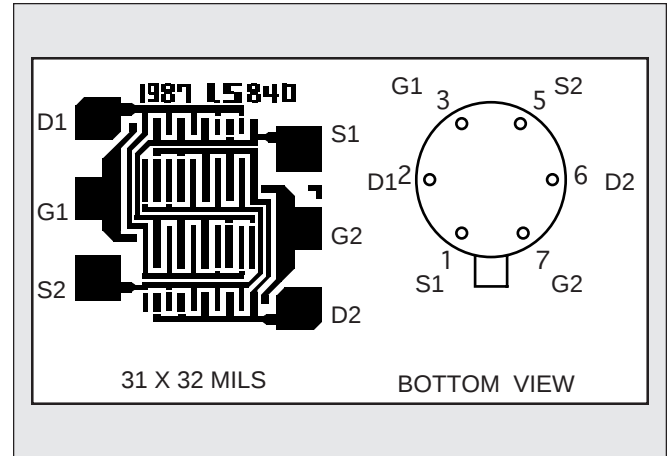
LINEAR SYSTEMS

Linear Integrated Systems

LS3954A LS3954 LS3955 LS3956 LS3958

LOW NOISE LOW DRIFT
MONOLITHIC DUAL N-CHANNEL 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 <u>NOTE 1</u>		
@ 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 <u>NOTE 1</u>		
-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



ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

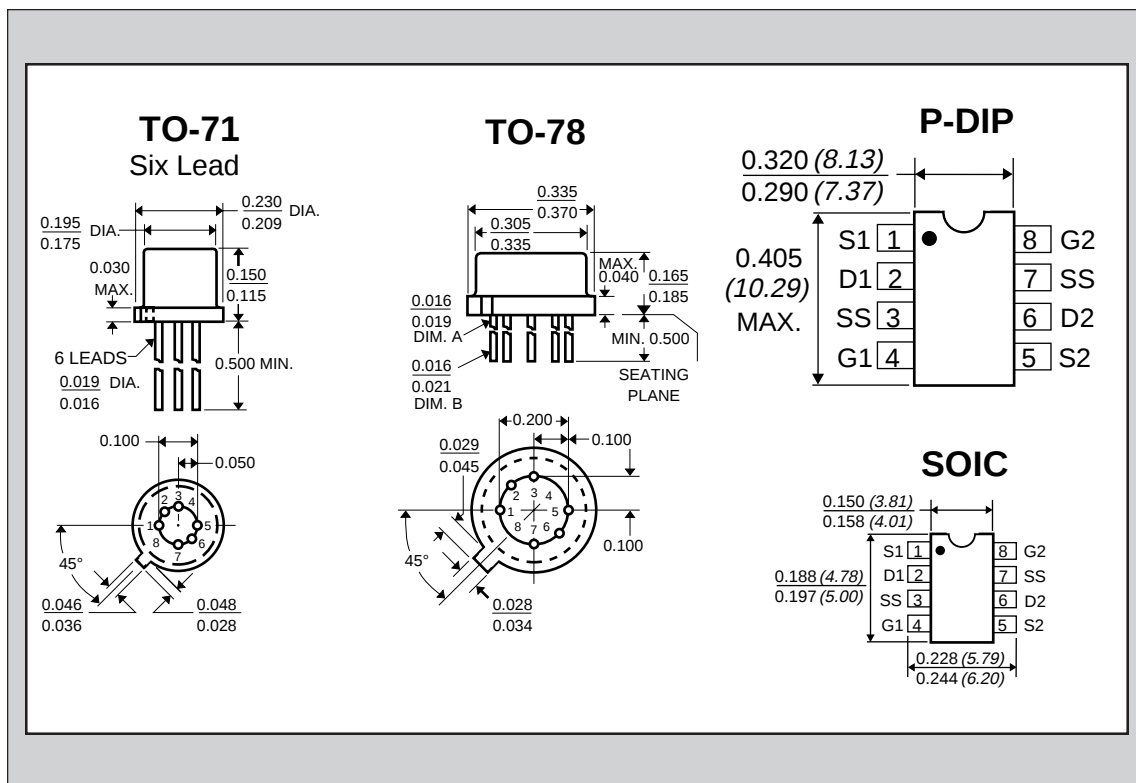
SYMBOL	CHARACTERISTICS	LS3954A	LS3954	LS3955	LS3956	LS3958	UNITS	CONDITIONS
$ \Delta V_{GS1-2}/\Delta T $ max.	Drift vs. Temperature	5	10	25	50	100	$\mu V/^{\circ}C$	$V_{DG} = 20V, I_D = 200\mu A$ $T_A = -55^{\circ}C$ to $+125^{\circ}C$
$ V_{GS1-2} $ max.	Offset Voltage	5	5	10	15	25	mV	$V_{DG} = 20V,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

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS		
BV _{GSS}	Breakdown Voltage	60	--	--	V	V _{DS} = 0	I _D = 1μA	
BV _{GGO}	Gate-to-Gate Breakdown	60	--	--	V	I _G = 1nA	I _D = 0	I _S = 0
	<u>TRANSCONDUCTANCE</u>							
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 = 200μA	
Y _{fs1-2} /Y _{fs}	Mismatch	--	0.6	3	%			
	<u>DRAIN CURRENT</u>							
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	%			
	<u>GATE VOLTAGE</u>							
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 = 200μA	
	<u>GATE CURRENT</u>							
-I _G	Operating	--	20	50	pA	V _{DG} = 20V	I _D = 200μA	
-I _G	High Temperature	--	--	50	nA	V _{DG} = 20V	I _D = 200μA	T _A = +125°C
-I _G	Reduced V _{DG}	--	5	--	pA	V _{DG} = 10V	I _D = 200μA	
-I _{GSS}	At Full Conduction	--	--	100	pA	V _{DG} = 20V	V _{DS} = 0	

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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.