

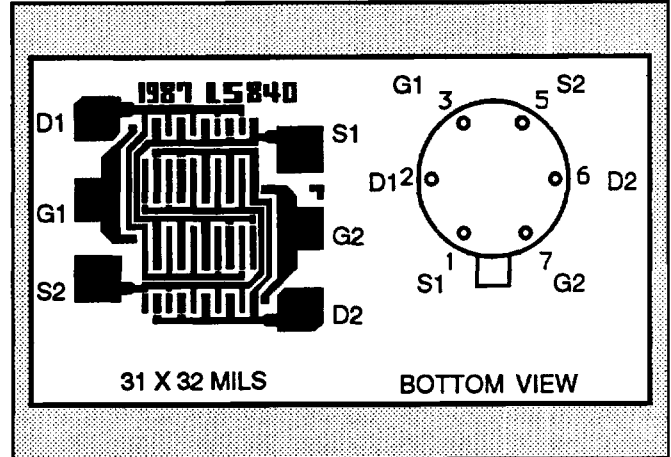
LINEAR SYSTEMS

Linear Integrated Systems

LS3954A LS3954 LS3955 LS3956 LS3958

LOW NOISE LOW DRIFT
MONOLITHIC DUAL N-CHANNEL JFET

| FEATURES | | |
|--|---|------|
| LOW DRIFT | $ V_{GS1-2}/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 | |



ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

| SYMBOL | CHARACTERISTICS | LS3954A | LS3954 | LS3955 | LS3956 | LS3958 | UNITS | CONDITIONS |
|----------------------|-----------------------|---------|--------|--------|--------|--------|-------------------|---|
| $ V_{GS1-2}/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 | $V_{DG} = 20V, I_D = 200\mu A$ |

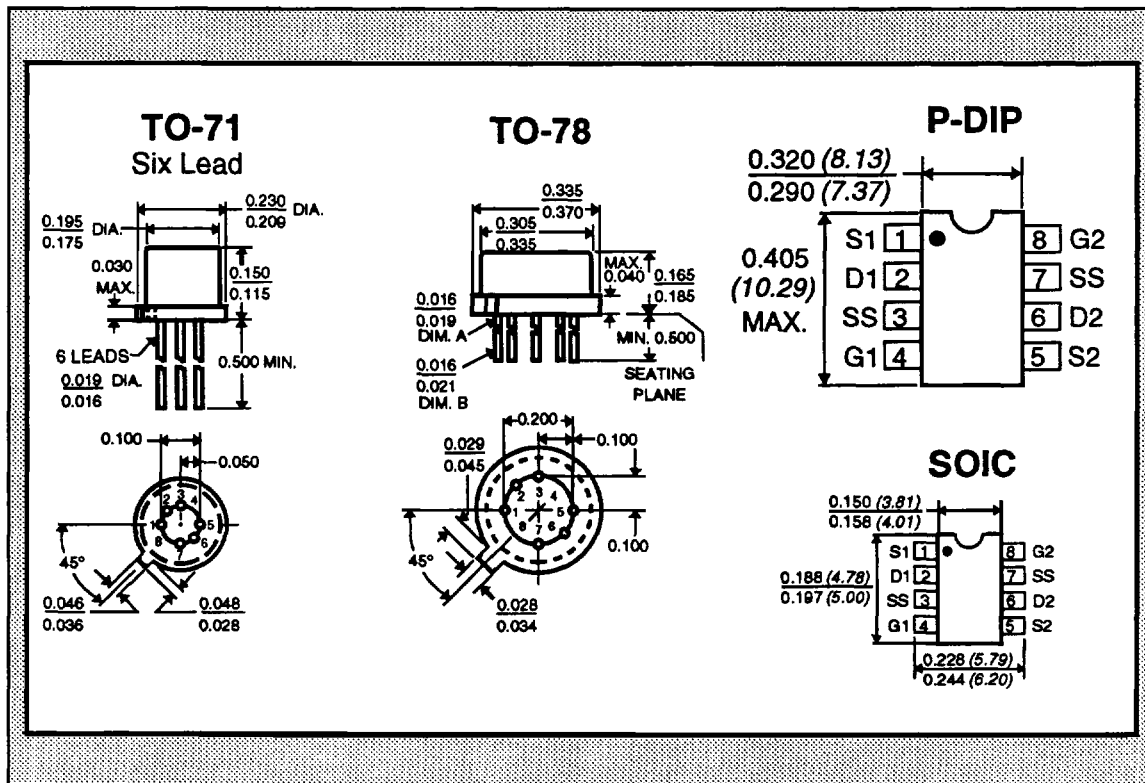
| SYMBOL | CHARACTERISTICS | MIN. | TYP. | MAX. | UNITS | CONDITIONS |
|------------------------|-----------------------------|------|------|------|-----------|---|
| BV_{GSS} | Breakdown Voltage | 60 | -- | -- | V | $V_{DS} = 0, I_D = 1\mu A$ |
| BV_{GGO} | Gate-to-Gate Breakdown | 60 | -- | -- | V | $I_G = 1nA, I_D = 0, I_S = 0$ |
| TRANSCONDUCTANCE | | | | | | |
| Y_{fs} | 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 | $V_{DG} = 20V, V_{DS} = 0$ |

* LIST 5031 *

Linear Integrated Systems

310 S. Milpitas Blvd., Milpitas, CA 95035 TEL: (408) 263-8401 • FAX: (408) 263-7280

| 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 V_{GS1-2}/V_{DS} $ | -- | 100 | -- | dB | $V_{DS} = 10$ to $20V$ $I_D = 200\mu A$ |
| CMR | $-20 \log V_{GS1-2}/V_{DS} $ | -- | 75 | -- | dB | $V_{DS} = 5$ to $10V$ $I_D = 200\mu A$ |
| NOISE | | | | | | |
| NF | Figure | -- | -- | 0.5 | dB | $V_{DS} = 20V$ $V_{GS} = 0$ $R_G = 10M$ $f = 100\text{Hz}$ $NBW = 6\text{Hz}$ |
| e_n | Voltage | -- | -- | 15 | nV/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.