

# LINEAR SYSTEMS

*Linear Integrated Systems*

## LS5911 LS5912 LS5912C

WIDEBAND HIGH GAIN  
MONOLITHIC DUAL N-CHANNEL JFET

### FEATURES

|                                                                                          |                              |
|------------------------------------------------------------------------------------------|------------------------------|
| HIGH TRANSCONDUCTANCE<br>THROUGH 100MHz                                                  | $g_{fs} > 4000 \mu mho$      |
| LOW INPUT CAPACITANCE                                                                    | $C_{iss} = 5pf \text{ max.}$ |
| SECOND SOURCE ALTERNATIVE TO INTERSIL, NATIONAL, SILICONIX<br>DIRECT PLUG IN REPLACEMENT |                              |

### ABSOLUTE MAXIMUM RATINGS NOTE 1

@ 25°C (unless otherwise noted)

#### Maximum Temperatures

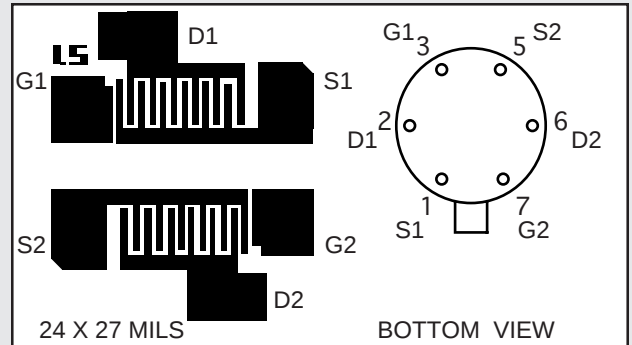
|                                |                |
|--------------------------------|----------------|
| Storage Temperature            | -65° to +150°C |
| Operating Junction Temperature | +150°C         |

### Maximum Voltage and Current for Each Transistor NOTE 1

|             |                                 |      |
|-------------|---------------------------------|------|
| $-V_{GSS}$  | Gate Voltage to Drain or Source | 35V  |
| $-V_{DSO}$  | Drain to Source Voltage         | 30V  |
| $-I_{G(f)}$ | Gate Forward Current            | 50mA |

### Maximum Power Dissipation

|                                       |                |
|---------------------------------------|----------------|
| Device Dissipation @ Free Air - Total | 500mW @ +125°C |
|---------------------------------------|----------------|



### ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

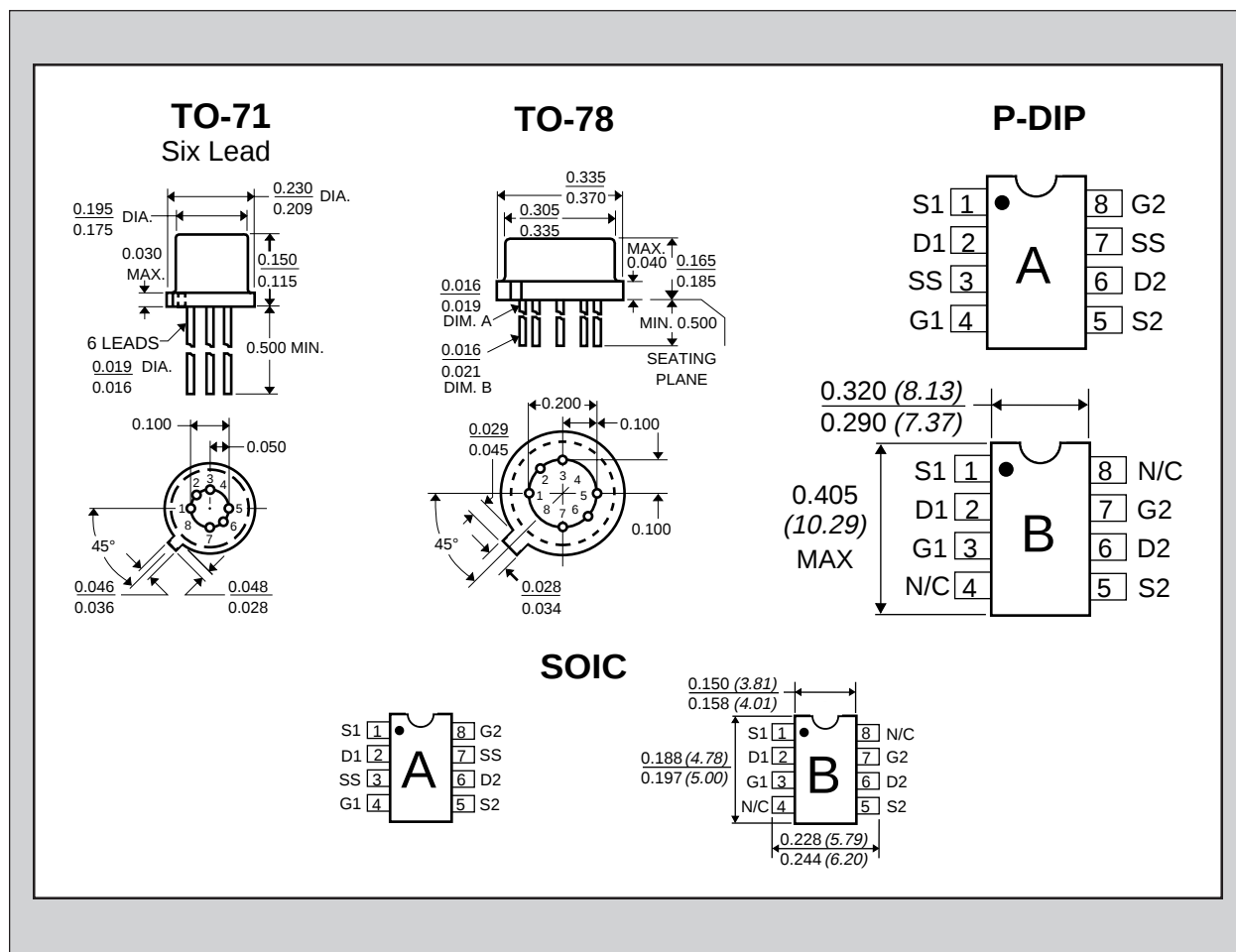
| SYMBOL                                 | CHARACTERISTICS       | LS5911 | LS5912 | LS5912C | UNITS                  | CONDITIONS                                                            |
|----------------------------------------|-----------------------|--------|--------|---------|------------------------|-----------------------------------------------------------------------|
| $\Delta V_{GS1} - V_{GS2}  / \Delta T$ | Drift vs. Temperature | 20     | 40     | 40      | MAX. $\mu V/^{\circ}C$ | $V_{DG} = 10V$ $I_D = 5mA$<br>$T_A = -55^{\circ}C$ to $+125^{\circ}C$ |
| $ V_{GS1} - V_{GS2} $                  | Offset Voltage        | 10     | 15     | 40      | MAX. mV                | $V_{DG} = 10V$ $I_D = 5mA$                                            |

| SYMBOL                  | CHARACTERISTICS                        | MIN. | MAX.   | UNITS     | CONDITIONS                                       |
|-------------------------|----------------------------------------|------|--------|-----------|--------------------------------------------------|
| $BV_{GSS}$              | Gate-Source Breakdown Voltage          | 25   | --     | V         | $I_G = -1\mu A$ $V_{DS} = 0$                     |
| $g_{fs}$                | Common-Source Forward Transconductance | 4000 | 10,000 | $\mu mho$ | $V_{DG} = 10V$ $I_D = 5mA$ $f = 1kHz$            |
| $g_{fs}$                | Common-Source Forward Transconductance | 4000 | 10,000 | $\mu mho$ | $f = 100MHz$                                     |
| $ g_{fs1} / g_{fs2} $   | Transconductance Ratio                 | 0.95 | 1      | %         | $f = 1kHz$ NOTE 2                                |
| $I_{DSS}$               | Saturation Drain Current               | 7    | 40     | mA        | $V_{DS} = 10V$ $V_{GS} = 0V$                     |
| $ I_{DSS1} / I_{DSS2} $ | Saturation Drain Current Ratio         | 0.95 | 1      | %         | NOTE 2                                           |
| $V_{GS(off)}$ or $V_P$  | Pinchoff Voltage                       | 1    | 5      | V         | $V_{DS} = 10V$ $I_D = 1nA$                       |
| $V_{GS}$                | Gate-Source Voltage                    | 0.3  | 4      | V         | $V_{DG} = 10V$ $I_D = 5mA$                       |
| $-I_G$                  | Operating Gate Current                 | --   | 50     | pA        | $V_{DG} = 10V$ $I_D = 5mA$                       |
| $-I_G$                  | High Temperature                       | --   | 50     | nA        | $V_{DG} = 10V$ $I_D = 5mA$ $T_A = +125^{\circ}C$ |
| $ I_{G1} - I_{G2} $     | Differential Gate Current              | --   | 20     | nA        |                                                  |
| $-I_{GSS}$              | At Full Conduction                     | --   | 50     | pA        | $V_{DG} = 15V$ $V_{DS} = 0$                      |
| $-I_{GSS}$              | High Temperature                       | --   | 200    | nA        | $T_A = +125^{\circ}C$                            |

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| SYMBOL                    | CHARACTERISTICS                  | MIN. | TYP. | MAX. | UNITS                        | CONDITIONS                                                                        |
|---------------------------|----------------------------------|------|------|------|------------------------------|-----------------------------------------------------------------------------------|
| <b>OUTPUT CONDUCTANCE</b> |                                  |      |      |      |                              |                                                                                   |
| $G_{OS}$                  | Common-Source Output Conductance | --   | --   | 100  | $\mu\text{mho}$              | $V_{DG} = 10V$ $I_D = 5\text{mA}$ $f = 1\text{kHz}$                               |
| $G_{OS}$                  | Common-Source Output Conductance | --   | --   | 150  | $\mu\text{mho}$              | $f = 100\text{MHz}$                                                               |
| <b>NOISE</b>              |                                  |      |      |      |                              |                                                                                   |
| NF                        | Figure                           | --   | --   | 1    | dB                           | $V_{DG} = 10V$ $I_D = 5\text{mA}$ $R_G = 100\text{k}\Omega$<br>$f = 10\text{kHz}$ |
| $e_n$                     | Voltage                          | --   | --   | 20   | $\text{nV}/\sqrt{\text{Hz}}$ | $V_{DG} = 10V$ $I_D = 5\text{mA}$ $f = 10\text{KHz}$                              |
| <b>CAPACITANCE</b>        |                                  |      |      |      |                              |                                                                                   |
| $C_{ISS}$                 | Input                            | --   | --   | 5    | pF                           | $V_{DG} = 10V$ $I_D = 5\text{mA}$ $f = 1\text{MHz}$                               |
| $C_{RSS}$                 | Reverse Transfer                 | --   | --   | 1.2  | pF                           |                                                                                   |



#### NOTES:

1. These ratings are limiting values above which the serviceability of any semiconductor may be impaired.
2. Assumes smaller value in numerator.