

INTERSIL

2N5196-2N5199

Monolithic Dual N-Channel JFET

ABSOLUTE MAXIMUM RATINGS (Note 1)

@ 25°C (unless otherwise noted)

Maximum Temperatures

| | |
|---|-----------------|
| Storage Temperature | -65°C to +200°C |
| Operating Junction Temperature | +150°C |
| Lead Temperature (Soldering, 10 sec. time limit) | +300°C |

1

Maximum Power Dissipation

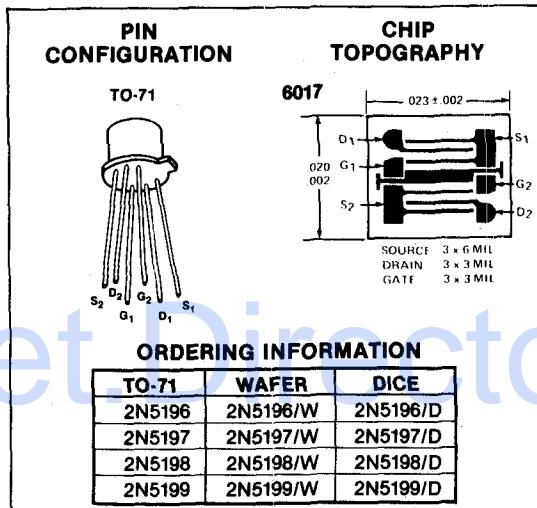
| | |
|--|--------|
| Device Dissipation @ 85°C Free Air Temperature | |
| One Side | 250 mW |
| Both Sides | 500 mW |

Linear Derating

| | |
|------------|------------|
| One Side | 2.56 mW/°C |
| Both Sides | 4.3 mW/°C |

Maximum Voltages & Currents

| | |
|--|-------|
| V _{GS} Gate to Source Voltage | -50 V |
| V _{GD} Gate to Drain Voltage | -50 V |
| I _G Gate Current | 50 mA |



ELECTRICAL CHARACTERISTICS (25°C unless otherwise specified)

| PARAMETER | MIN | | MAX | | UNIT | TEST CONDITIONS | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|---|------------------------------------|---------------|-------|--|-----------|
| | 2N5196 | 2N5197 | 2N5198 | 2N5199 | | V _{DS} = -30 V, V _{GS} = 0 | V _{DS} = 0 | | | | |
| I _{GSS} Gate Reverse Current | | | -25 | pA | | | 150°C | | | | |
| | | | -50 | nA | | | | | | | |
| BV _{GSS} Gate-Source Breakdown Voltage | -50 | | | | | I _G = -1 μA, V _{DS} = 0 | | | | | |
| V _{GSOFF} Gate-Source Cutoff Voltage | -0.7 | -4 | | | V | V _{DS} = 20 V, I _D = 1 nA | | | | | |
| V _{GS} Gate-Source Voltage | -0.2 | -3.8 | | | | | | | | | |
| I _G Gate Operating Current | | | -15 | pA | | V _{DG} = 20 V, I _D = 200 μA | | | | | |
| | | | -15 | nA | | | 125°C | | | | |
| I _{DSS} Saturation Drain Current (Note 1) | 0.7 | 7 | mA | | | V _{DS} = 20 V, V _{GS} = 0 | | | | | |
| g _{fs} Common-Source Forward Transconductance (Note 1) | 1000 | 4000 | | | | V _{DS} = 20 V, V _{GS} = 0 | | | | | |
| g _{fs} Common-Source Forward Transconductance (Note 1) | 700 | 1500 | | | μmho | V _{DG} = 20 V, I _D = 200 μA | | | | | |
| g _{os} Common-Source Output Conductance | | 50 | | | | V _{DS} = 20 V, V _{GS} = 0 | f = 1 kHz | | | | |
| g _{os} Common-Source Output Conductance | | 4 | | | | V _{DG} = 20 V, I _D = 200 μA | | | | | |
| C _{iss} Common-Source Input Capacitance | | 6 | | | pF | | f = 1 MHz | | | | |
| C _{rss} Common-Source Reverse Transfer Capacitance | | 2 | | | | | f = 100 Hz, R _G = 10 MΩ | | | | |
| NF Spot Noise Figure | | | 0.5 | dB | | V _{DS} = 20 V, V _{GS} = 0 | | | | | |
| ε _n Equivalent Input Noise Voltage | 0.020 | 20 | | | μ | | f = 1 kHz | | | | |
| | | | | | √Hz | | | | | | |
| PARAMETER | 2N5196 MIN | 2N5196 MAX | 2N5197 MIN | 2N5197 MAX | 2N5198 MIN | 2N5198 MAX | 2N5199 MIN | 2N5199 MAX | UNIT | TEST CONDITIONS | |
| I _{G1} -I _{G2} Differential Gate Current | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | nA | V _{DG} = 20 V, I _D = 200 μA | 125°C |
| I _{DSS1} /I _{DSS2} Saturation Drain Current Ratio (Note 1) | 0.95 | 1 | 0.95 | 1 | 0.95 | 1 | 0.95 | 1 | — | V _{DS} = 20 V, V _{GS} = 0 V | |
| g _{fs1} /g _{fs2} Transconductance Ratio (Note 1) | 0.97 | 1 | 0.97 | 1 | 0.95 | 1 | 0.95 | 1 | — | | f = 1 kHz |
| IV _{G1} -V _{GS2} Differential Gate-Source Voltage | 5 | 5 | 10 | 10 | 15 | 15 | 15 | 15 | mV | | |
| ΔIV _{G1} -V _{GS2} /ΔT Gate-Source Differential Voltage Change with Temperature (Note 2) | | | 5 | 10 | 20 | 40 | | | μV/°C | T _A = 25°C T _B = 125°C | |
| g _{os1} -g _{os2} Differential Output Conductance | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | μmho | T _A = -55°C T _B = 25°C | |
| | | | | | | | | | | f = 1 kHz | |

NOTE: 1. Pulse test required, pulsedwidth > 300 μs, duty cycle ≤ 3%.

2. Measured at end points, T_A and T_B.