

## Linear Systems replaces discontinued Siliconix 2N4416

The 2N4416 is a N-Channel high frequency JFET amplifier

The 2N4416 N-channel JFET is designed to provide high-performance amplification at high frequencies.

The hermetically sealed TO-18 package is well suited for military applications and harsh environment applications.

### 2N4416 Benefits:

- Wideband High Gain
- Very High System Sensitivity
- High Quality of Amplification
- High-Speed Switching Capability
- High Low-Level Signal Amplification

### 2N4416 Applications:

- High-Frequency Amplifier / Mixer
- Oscillator
- Sample-and-Hold
- Very Low Capacitance Switches

### FEATURES

DIRECT REPLACEMENT FOR SILICONIX 2N4416

EXCEPTIONAL GAIN (400 MHz) 10dB (min)

VERY LOW NOISE FIGURE (400 MHz) 4dB (max)

VERY LOW DISTORTION

HIGH AC/DC SWITCH OFF-ISOLATION

### ABSOLUTE MAXIMUM RATINGS

@ 25°C (unless otherwise noted)

### Maximum Temperatures

Storage Temperature -65°C to +200°C

Operating Junction Temperature -55°C to +135°C

### Maximum Power Dissipation

Continuous Power Dissipation 300mW

### MAXIMUM CURRENT

Gate Current (Note 1) 10mA

### MAXIMUM VOLTAGES

Gate to Drain or Gate to Source -30V

### 2N4416 ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

| SYMBOL        | CHARACTERISTIC                            | MIN  | TYP. | MAX  | UNITS   | CONDITIONS                            |
|---------------|-------------------------------------------|------|------|------|---------|---------------------------------------|
| $BV_{GSS}$    | Gate to Source Breakdown Voltage          | -30  | --   | --   | V       | $I_G = -1\mu A, V_{DS} = 0V$          |
| $V_{GS(off)}$ | Gate to Source Cutoff Voltage             | --   | --   | -6   | V       | $V_{DS} = 15V, I_D = 1nA$             |
| $I_{DSS}$     | Gate to Source Saturation Current         | 5    | --   | 15   | mA      | $V_{DS} = 15V, V_{GS} = 0V$           |
| $I_{GSS}$     | Gate Leakage Current                      | --   | --   | -0.1 | nA      | $V_{GS} = -20V, V_{DS} = 0V$          |
| $g_{fs}$      | Forward Transconductance                  | 4500 | --   | 7500 | $\mu S$ | $V_{DS} = 15V, V_{GS} = 0V, f = 1kHz$ |
| $g_{os}$      | Output Conductance                        | --   | --   | 50   | $\mu S$ |                                       |
| $C_{iss}$     | Input Capacitance <sup>2</sup>            | --   | --   | 0.8  | pF      |                                       |
| $C_{rss}$     | Reverse Transfer Capacitance <sup>2</sup> | --   | --   | 4    | pF      | $V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$ |
| $C_{oss}$     | Output Capacitance <sup>2</sup>           | --   | --   | 2    | pF      |                                       |
| $e_n$         | Equivalent Input Noise Voltage            | --   | 6    | --   | nV/VHz  | $V_{DS} = 10V, V_{GS} = 0V, f = 1kHz$ |

### 2N4416 HIGH FREQUENCY ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

| SYMBOL    | CHARACTERISTIC                  | 100 Mhz |      | 400 Mhz |       | UNITS   | CONDITIONS                                |
|-----------|---------------------------------|---------|------|---------|-------|---------|-------------------------------------------|
|           |                                 | MIN     | MAX  | MIN     | MAX   |         |                                           |
| $g_{iss}$ | Input Conductance               | --      | 100  | --      | 1000  | $\mu S$ | $V_{DS} = 15V, V_{GS} = 0V$               |
| $b_{iss}$ | Input Susceptance <sup>2</sup>  | --      | 2500 | --      | 10000 |         |                                           |
| $g_{oss}$ | Output Conductance              | --      | 75   | --      | 100   |         |                                           |
| $b_{oss}$ | Output Susceptance <sup>2</sup> | --      | 1000 | --      | 4000  |         |                                           |
| $G_{fs}$  | Forward Transconductance        | --      | --   | 4000    | --    | dB      | $V_{DS} = 15V, I_D = 5mA$                 |
| $G_{ps}$  | Power Gain <sup>2</sup>         | 18      | --   | 10      | --    |         |                                           |
| NF        | Noise Figure <sup>2</sup>       | --      | 2    | --      | 4     |         | $V_{DS} = 15V, I_D = 5mA, R_G = 1k\Omega$ |

### NOTES

1. Absolute maximum ratings are limiting values above which 2N4416 serviceability may be impaired.
2. Not production tested, guaranteed by design

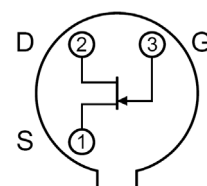
Micross Components Europe

Available Packages:

2N4416 in TO-18  
2N4416 in bare die.

Please contact Micross for full package and die dimensions

TO-18 (Bottom View)



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