

2N4416  
2N4416A

SILICON  
N-CHANNEL JFETS



TO-72 CASE

**Central**  
Semiconductor

www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N4416 and 2N4416A are silicon N-Channel Junction Field Effect Transistors designed for VHF amplifier and mixer applications.

**MARKING: FULL PART NUMBER**

**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$ )

Gate-Drain Voltage  
Gate-Source Voltage  
Drain-Source Voltage  
Gate Current  
Power Dissipation  
Operating and Storage Junction Temperature

| SYMBOL         | 2N4416 | 2N4416A     | UNITS            |
|----------------|--------|-------------|------------------|
| $V_{GD}$       | 30     | 35          | V                |
| $V_{GS}$       | 30     | 35          | V                |
| $V_{DS}$       | 30     | 35          | V                |
| $I_G$          |        | 10          | mA               |
| $P_D$          |        | 300         | mW               |
| $T_J, T_{stg}$ |        | -65 to +200 | $^\circ\text{C}$ |

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

| SYMBOL        | TEST CONDITIONS                                      | 2N4416 |       | 2N4416A |       | UNITS         |
|---------------|--|--------|-------|---------|-------|---------------|
|               |  | MIN    | MAX   | MIN     | MAX   |               |
| $I_{GSS}$     | $V_{GS}=20\text{V}, V_{DS}=0$                        | -      | 100   | -       | 100   | pA            |
| $I_{GSS}$     | $V_{GS}=20\text{V}, V_{DS}=0, T_A=150^\circ\text{C}$ | -      | 100   | -       | 100   | nA            |
| $I_{DSS}$     | $V_{DS}=15\text{V}, V_{GS}=0$                        | 5.0    | 15    | 5.0     | 15    | mA            |
| $BV_{GSS}$    | $I_G=1.0\mu\text{A}$                                 | 30     | -     | 35      | -     | V             |
| $V_{GS(OFF)}$ | $V_{DS}=15\text{V}, I_D=1.0\text{nA}$                | -      | 6.0   | 2.5     | 6.0   | V             |
| $g_{FS}$      | $V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{kHz}$       | 4,500  | 7,500 | 4,500   | 7,500 | $\mu\text{S}$ |
| $g_{OS}$      | $V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{kHz}$       | -      | 50    | -       | 50    | $\mu\text{S}$ |
| $C_{rss}$     | $V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{MHz}$       | -      | 1.0   | -       | 1.0   | pF            |
| $C_{iss}$     | $V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{MHz}$       | -      | 4.0   | -       | 4.0   | pF            |
| $C_{oss}$     | $V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{MHz}$       | -      | 2.0   | -       | 2.0   | pF            |

**HIGH FREQUENCY CHARACTERISTICS:**

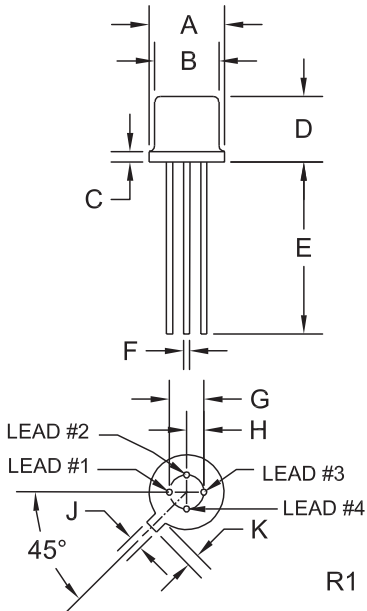
| SYMBOL    | TEST CONDITIONS  | 100MHz |       | 400MHz |        | UNITS         |
|-----------|--|--------|-------|--------|--------|---------------|
|           |  | MIN    | MAX   | MIN    | MAX    |               |
| $g_{iss}$ | $V_{DS}=15\text{V}, V_{GS}=0$                                | -      | 100   | -      | 1,000  | $\mu\text{S}$ |
| $b_{iss}$ | $V_{DS}=15\text{V}, V_{GS}=0$                                | -      | 2,500 | -      | 10,000 | $\mu\text{S}$ |
| $g_{oss}$ | $V_{DS}=15\text{V}, V_{GS}=0$                                | -      | 75    | -      | 100    | $\mu\text{S}$ |
| $b_{oss}$ | $V_{DS}=15\text{V}, V_{GS}=0$                                | -      | 1,000 | -      | 4,000  | $\mu\text{S}$ |
| $g_{fs}$  | $V_{DS}=15\text{V}, V_{GS}=0$                                | -      | -     | 4,000  | -      | $\mu\text{S}$ |
| $G_{ps}$  | $V_{DS}=15\text{V}, I_D=5.0\text{mA}$                        | 18     | -     | 10     | -      | dB            |
| NF        | $V_{DS}=15\text{V}, I_D=5.0\text{mA}, R_G=1.0\text{k}\Omega$ | -      | 2.0   | -      | 4.0    | dB            |

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TO-72 CASE - MECHANICAL OUTLINE



| SYMBOL  | DIMENSIONS |       |             |      |
|---------|------------|-------|-------------|------|
|         | INCHES     |       | MILLIMETERS |      |
|         | MIN        | MAX   | MIN         | MAX  |
| A (DIA) | 0.209      | 0.230 | 5.31        | 5.84 |
| B (DIA) | 0.175      | 0.195 | 4.45        | 4.95 |
| C       | -          | 0.030 | -           | 0.76 |
| D       | 0.170      | 0.210 | 4.32        | 5.33 |
| E       | 0.500      | -     | 12.70       | -    |
| F (DIA) | 0.016      | 0.019 | 0.41        | 0.48 |
| G (DIA) | 0.100      |       | 2.54        |      |
| H       | 0.050      |       | 1.27        |      |
| J       | 0.036      | 0.046 | 0.91        | 1.17 |
| K       | 0.028      | 0.048 | 0.71        | 1.22 |

TO-72 (REV: R1)

LEAD CODE:

- 1) Source
- 2) Drain
- 3) Gate
- 4) Case

MARKING:

FULL PART NUMBER

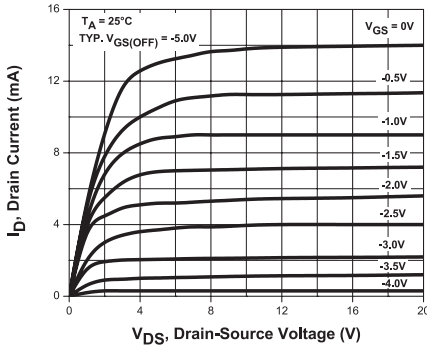
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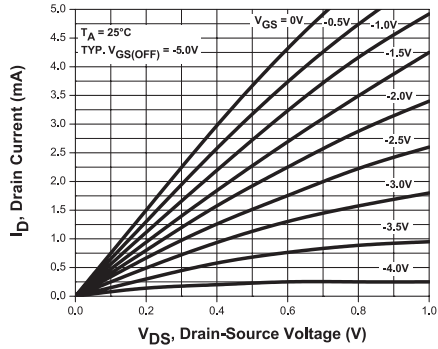


TYPICAL ELECTRICAL CHARACTERISTICS

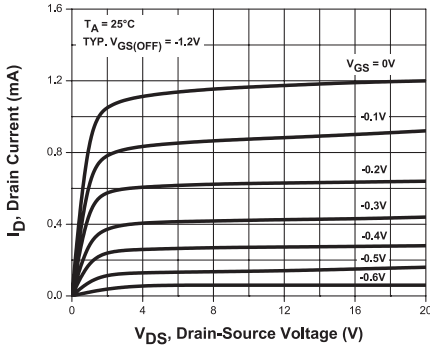
Output Characteristics



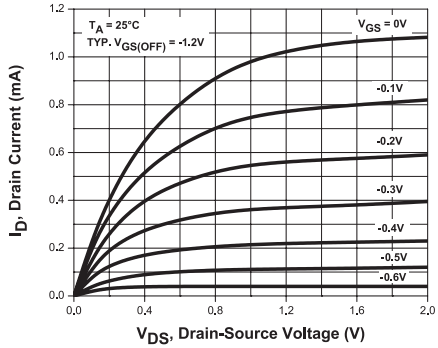
Output Characteristics



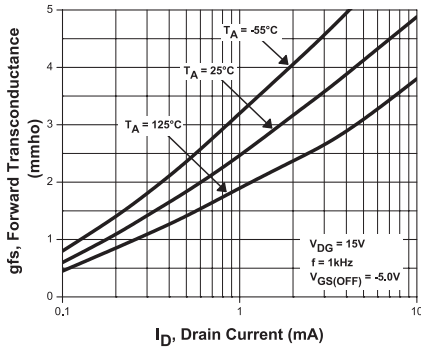
Output Characteristics



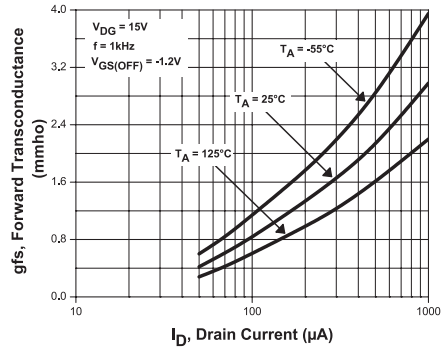
Output Characteristics



Forward Transconductance Characteristics



Forward Transconductance Characteristics

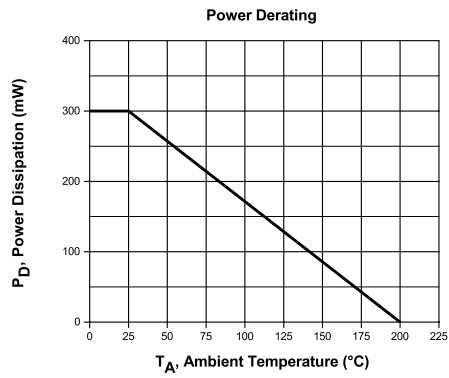
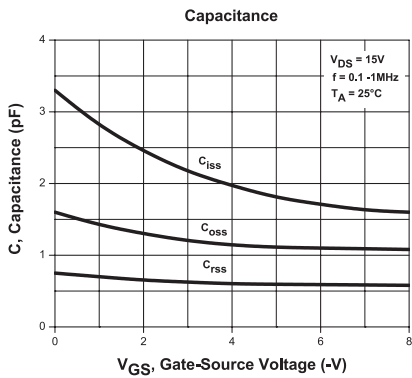
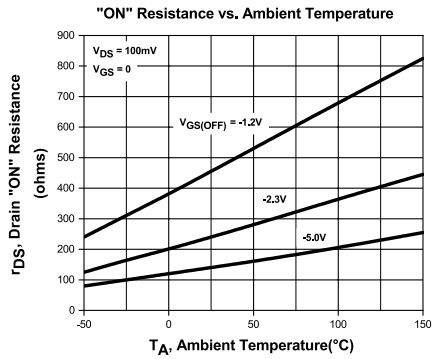
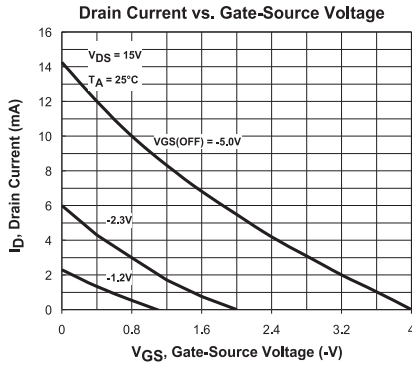


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TYPICAL ELECTRICAL CHARACTERISTICS



## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

#### Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centrasemi.com](http://www.centrasemi.com)

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