

2N4416
2N4416A

SILICON
N-CHANNEL JFETS



TO-72 CASE



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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 | μS |
| g_{OS} | $V_{DS}=15\text{V}, V_{GS}=0, f=1.0\text{kHz}$ | - | 50 | - | 50 | μS |
| 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 | μS |
| b_{iss} | $V_{DS}=15\text{V}, V_{GS}=0$ | - | 2,500 | - | 10,000 | μS |
| g_{oss} | $V_{DS}=15\text{V}, V_{GS}=0$ | - | 75 | - | 100 | μS |
| b_{oss} | $V_{DS}=15\text{V}, V_{GS}=0$ | - | 1,000 | - | 4,000 | μS |
| g_{fs} | $V_{DS}=15\text{V}, V_{GS}=0$ | - | - | 4,000 | - | μS |
| 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 |

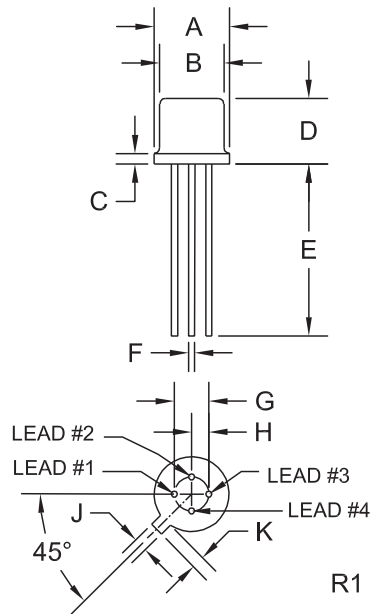
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TO-72 CASE - MECHANICAL OUTLINE



| SYMBOL | 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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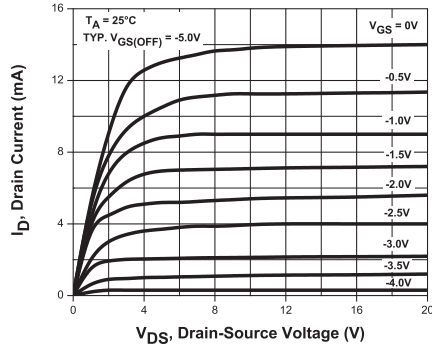
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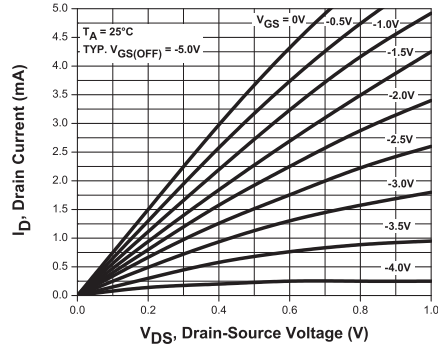
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TYPICAL ELECTRICAL CHARACTERISTICS

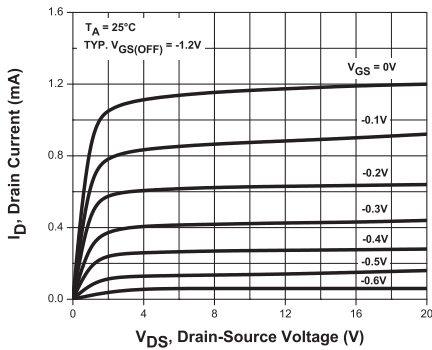
Output Characteristics



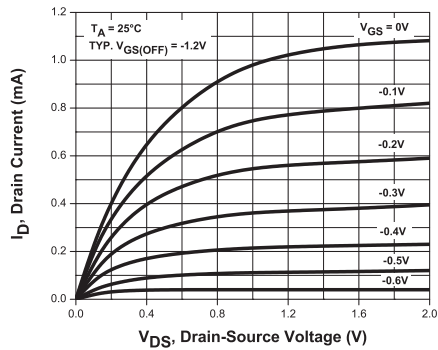
Output Characteristics



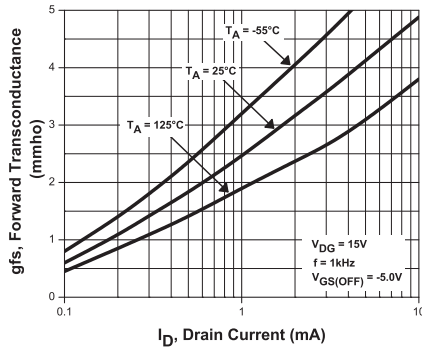
Output Characteristics



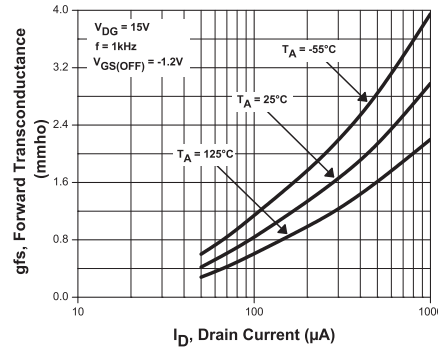
Output Characteristics



Forward Transconductance Characteristics



Forward Transconductance Characteristics



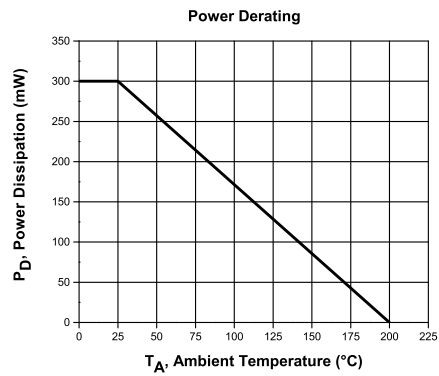
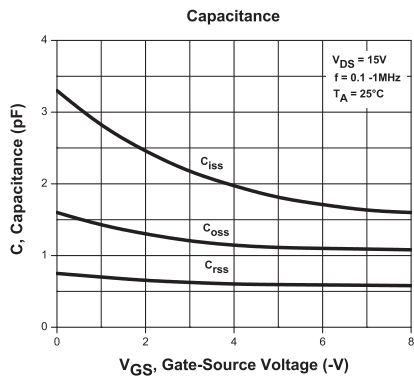
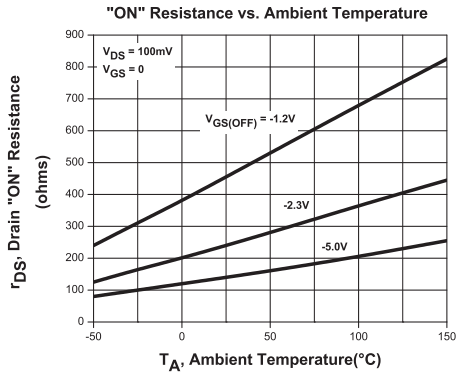
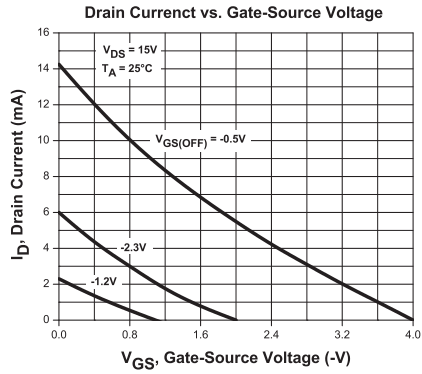
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TYPICAL ELECTRICAL CHARACTERISTICS



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