

2N4391  
2N4392  
2N4393

SILICON  
N-CHANNEL JFET



TO-18 CASE



www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N4391 series types are N-Channel silicon JFETs designed for analog switching and chopper applications.

**MARKING: FULL PART NUMBER**

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

Gate-Drain Voltage  
Gate-Source Voltage  
Gate Current  
Power Dissipation ( $T_C=25^\circ\text{C}$ )  
Operating and Storage Junction Temperature

**SYMBOL**

$V_{GD}$  40  
 $V_{GS}$  40  
 $I_G$  50  
 $P_D$  1.8  
 $T_J, T_{stg}$  -65 to +175

**UNITS**

V  
V  
mA  
W  
 $^\circ\text{C}$

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

| SYMBOL        | TEST CONDITIONS  | 2N4391 |     | 2N4392 |     | 2N4393 |     | UNITS         |
|---------------|--|--------|-----|--------|-----|--------|-----|---------------|
|               |  | MIN    | MAX | MIN    | MAX | MIN    | MAX |               |
| $I_{GSS}$     | $V_{GS}=20\text{V}$  | -      | 0.1 | -      | 0.1 | -      | 0.1 | nA            |
| $I_{GSS}$     | $V_{GS}=20\text{V}, T_A=125^\circ\text{C}$                     | -      | 0.2 | -      | 0.2 | -      | 0.2 | $\mu\text{A}$ |
| $I_{DSS}$     | $V_{DS}=20\text{V}$  | 50     | 150 | 25     | 75  | 5.0    | 30  | mA            |
| $I_{D(OFF)}$  | $V_{DS}=20\text{V}, V_{GS}=12\text{V}$                         | -      | 0.1 | -      | -   | -      | -   | nA            |
| $I_{D(OFF)}$  | $V_{DS}=20\text{V}, V_{GS}=7.0\text{V}$                        | -      | -   | -      | 0.1 | -      | -   | nA            |
| $I_{D(OFF)}$  | $V_{DS}=20\text{V}, V_{GS}=5.0\text{V}$                        | -      | -   | -      | -   | -      | 0.1 | nA            |
| $I_{D(OFF)}$  | $V_{DS}=20\text{V}, V_{GS}=12\text{V}, T_A=150^\circ\text{C}$  | -      | 0.2 | -      | -   | -      | -   | $\mu\text{A}$ |
| $I_{D(OFF)}$  | $V_{DS}=20\text{V}, V_{GS}=7.0\text{V}, T_A=150^\circ\text{C}$ | -      | -   | -      | 0.2 | -      | -   | $\mu\text{A}$ |
| $I_{D(OFF)}$  | $V_{DS}=20\text{V}, V_{GS}=5.0\text{V}, T_A=150^\circ\text{C}$ | -      | -   | -      | -   | -      | 0.2 | $\mu\text{A}$ |
| $BV_{GSS}$    | $I_G=1.0\mu\text{A}$   | 40     | -   | 40     | -   | 40     | -   | V             |
| $V_{GS(OFF)}$ | $V_{DS}=20\text{V}, I_D=1.0\text{nA}$                          | 4.0    | 10  | 2.0    | 5.0 | 0.5    | 3.0 | V             |
| $V_{GS(f)}$   | $V_{DS}=0, I_G=1.0\text{mA}$                                   | -      | 1.0 | -      | 1.0 | -      | 1.0 | V             |
| $V_{DS(ON)}$  | $I_D=12\text{mA}$  | -      | 0.4 | -      | -   | -      | -   | V             |
| $V_{DS(ON)}$  | $I_D=6.0\text{mA}$   | -      | -   | -      | 0.4 | -      | -   | V             |
| $V_{DS(ON)}$  | $I_D=3.0\text{mA}$   | -      | -   | -      | -   | -      | 0.4 | V             |
| $r_{DS(ON)}$  | $I_D=1.0\text{mA}, V_{GS}=0$                                   | -      | 30  | -      | 60  | -      | 100 | $\Omega$      |
| $r_{ds(on)}$  | $V_{GS}=0, I_D=0, f=1.0\text{kHz}$                             | -      | 30  | -      | 60  | -      | 100 | $\Omega$      |
| $C_{rss}$     | $V_{GS}=12\text{V}, V_{DS}=0, f=1.0\text{MHz}$                 | -      | 3.5 | -      | -   | -      | -   | pF            |
| $C_{rss}$     | $V_{GS}=7.0\text{V}, V_{DS}=0, f=1.0\text{MHz}$                | -      | -   | -      | 3.5 | -      | -   | pF            |
| $C_{rss}$     | $V_{GS}=5.0\text{V}, V_{DS}=0, f=1.0\text{MHz}$                | -      | -   | -      | -   | -      | 3.5 | pF            |
| $C_{iss}$     | $V_{DS}=20\text{V}, V_{GS}=0, f=1.0\text{MHz}$                 | -      | 14  | -      | 14  | -      | 14  | pF            |

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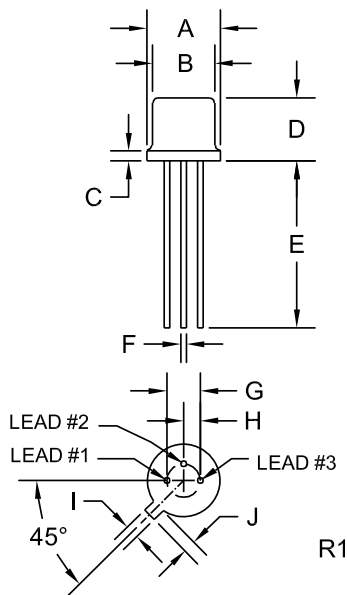
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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

| SYMBOL    | TEST CONDITIONS           | 2N4391 |     | 2N4392 |     | 2N4393 |     | UNITS |
|-----------|---------------------------|--------|-----|--------|-----|--------|-----|-------|
|           |                           | MIN    | MAX | MIN    | MAX | MIN    | MAX |       |
| $t_r$     | $I_{D(ON)}=12\text{mA}$   | -      | 5.0 | -      | -   | -      | -   | ns    |
| $t_r$     | $I_{D(ON)}=6.0\text{mA}$  | -      | -   | -      | 5.0 | -      | -   | ns    |
| $t_r$     | $I_{D(ON)}=3.0\text{mA}$  | -      | -   | -      | -   | -      | 5.0 | ns    |
| $t_f$     | $V_{GS(OFF)}=12\text{V}$  | -      | 15  | -      | -   | -      | -   | ns    |
| $t_f$     | $V_{GS(OFF)}=7.0\text{V}$ | -      | -   | -      | 20  | -      | -   | ns    |
| $t_f$     | $V_{GS(OFF)}=5.0\text{V}$ | -      | -   | -      | -   | -      | 30  | ns    |
| $t_{on}$  | $I_{D(ON)}=12\text{mA}$   | -      | 15  | -      | -   | -      | -   | ns    |
| $t_{on}$  | $I_{D(ON)}=6.0\text{mA}$  | -      | -   | -      | 15  | -      | -   | ns    |
| $t_{on}$  | $I_{D(ON)}=3.0\text{mA}$  | -      | -   | -      | -   | -      | 15  | ns    |
| $t_{off}$ | $V_{GS(OFF)}=12\text{V}$  | -      | 20  | -      | -   | -      | -   | ns    |
| $t_{off}$ | $V_{GS(OFF)}=7.0\text{V}$ | -      | -   | -      | 35  | -      | -   | ns    |
| $t_{off}$ | $V_{GS(OFF)}=5.0\text{V}$ | -      | -   | -      | -   | -      | 50  | ns    |

**TO-18 CASE - MECHANICAL OUTLINE**



| SYMBOL  | DIMENSIONS |       |             |      |
|---------|------------|-------|-------------|------|
|         | INCHES     |       | MILLIMETERS |      |
|         | MIN        | MAX   | MIN         | MAX  |
| A (DIA) | 0.209      | 0.230 | 5.31        | 5.84 |
| B (DIA) | 0.178      | 0.195 | 4.52        | 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        |      |
| I       | 0.036      | 0.046 | 0.91        | 1.17 |
| J       | 0.028      | 0.048 | 0.71        | 1.22 |

TO-18 (REV: R1)

**LEAD CODE:**

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

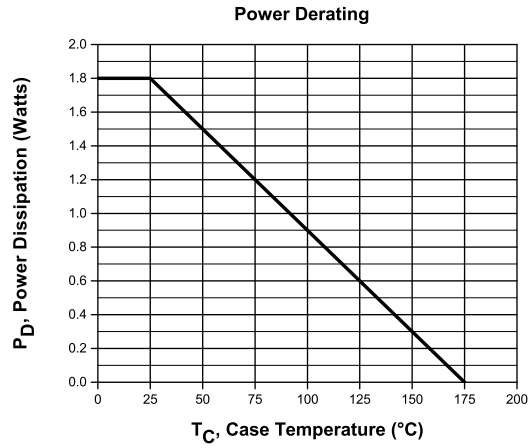
**MARKING: FULL PART NUMBER**

R2 (26-September 2016)

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### TYPICAL ELECTRICAL CHARACTERISTICS



R2 (26-September 2016)

## 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

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