

PN4391
PN4392
PN4393

N-CHANNEL
SILICON JFET



TO-92 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR PN4391 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
Operating and Storage Junction Temperature

SYMBOL

V_{GD} 40
 V_{GS} 40
 I_G 50
 P_D 625
 T_J, T_{stg} -65 to +150

UNITS

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

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

| SYMBOL | TEST CONDITIONS | PN4391 | | PN4392 | | PN4393 | | UNITS |
|---------------|----------------------------------------------------------------|--------|-----|--------|-----|--------|-----|---------------|
| | | MIN | MAX | MIN | MAX | MIN | MAX | |
| I_{GSS} | $V_{GS}=20\text{V}$ | - | 0.1 | - | 0.1 | - | 0.1 | nA |
| I_{GSS} | $V_{GS}=20\text{V}, T_A=100^\circ\text{C}$ | - | 0.2 | - | 0.2 | - | 0.2 | μA |
| 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 |
| $I_{D(OFF)}$ | $V_{DS}=20\text{V}, V_{GS}=12\text{V}, T_A=100^\circ\text{C}$ | - | 0.2 | - | - | - | - | μA |
| $I_{D(OFF)}$ | $V_{DS}=20\text{V}, V_{GS}=7.0\text{V}, T_A=100^\circ\text{C}$ | - | - | - | 0.2 | - | - | μA |
| $I_{D(OFF)}$ | $V_{DS}=20\text{V}, V_{GS}=5.0\text{V}, T_A=100^\circ\text{C}$ | - | - | - | - | - | 0.2 | μA |
| 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 | Ω |
| $r_{ds(on)}$ | $V_{GS}=0, I_D=0, f=1.0\text{kHz}$ | - | 30 | - | 60 | - | 100 | Ω |
| 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 |

R1 (30-January 2012)

PN4391
PN4392
PN4393

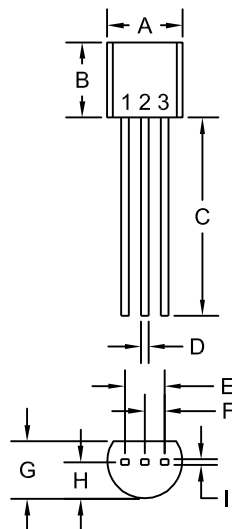
N-CHANNEL
SILICON JFET



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

| SYMBOL | TEST CONDITIONS | PN4391 | | PN4392 | | PN4393 | | 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-92 CASE - MECHANICAL OUTLINE



R1

| DIMENSIONS | | | | |
|------------|--------|-------|-------------|------|
| SYMBOL | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A (DIA) | 0.175 | 0.205 | 4.45 | 5.21 |
| B | 0.170 | 0.210 | 4.32 | 5.33 |
| C | 0.500 | - | 12.70 | - |
| D | 0.016 | 0.022 | 0.41 | 0.56 |
| E | 0.100 | | 2.54 | |
| F | 0.050 | | 1.27 | |
| G | 0.125 | 0.165 | 3.18 | 4.19 |
| H | 0.080 | 0.105 | 2.03 | 2.67 |
| I | 0.015 | | 0.38 | |

TO-92 (REV: R1)

LEAD CODE:

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

MARKING: FULL PART NUMBER

R1 (30-January 2012)



OUTSTANDING SUPPORT AND SUPERIOR SERVICES

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

DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
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- 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

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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