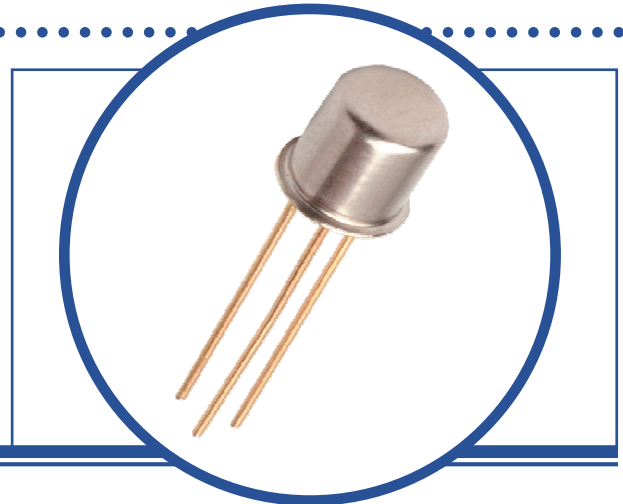


# SILICON SMALL SIGNAL N-CHANNEL JFET

## 2N4393

- High Speed Switching.
- Low On Resistance.
- Designed For High Reliability and Space Applications.



### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise stated)

|                  |  |                 |
|------------------|--|-----------------|
| V <sub>DS</sub>  | Drain – Source Voltage   | 40V             |
| V <sub>GS</sub>  | Gate – Source Voltage  | -40V            |
| V <sub>GD</sub>  | Gate – Drain Voltage   | -40V            |
| I <sub>G</sub>   | Gate Current   | 50mA            |
| P <sub>D</sub>   | Total Power Dissipation at<br>T <sub>A</sub> = 25°C<br>Derate Above 25°C | 300mW<br>2mW/°C |
| T <sub>J</sub>   | Junction Temperature Range   | -55 to +175°C   |
| T <sub>stg</sub> | Storage Temperature Range  | -65 to +200°C   |

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise stated)

| Symbols                         | Parameters                      | Test Conditions                              | Min. | Typ. | Max. | Units |
|---------------------------------|---------------------------------|--|------|------|------|-------|
| V <sub>(BR)GSS</sub>            | Gate – Source Breakdown Voltage | V <sub>DS</sub> = 0V I <sub>G</sub> = 1.0μA  | -40  |      |      | V     |
| V <sub>GS(off)</sub>            | Gate – Source Cut-off Voltage   | V <sub>DS</sub> = 20V I <sub>D</sub> = 1.0nA | -0.5 |      | -3   |       |
| I <sub>DSS</sub> <sup>(1)</sup> | Saturation Drain Current        | V <sub>DS</sub> = 20V V <sub>GS</sub> = 0V   | 5    |      | 30   | mA    |
| I <sub>GSS</sub>                | Gate Reverse Current            | V <sub>DS</sub> = 0V V <sub>GS</sub> = -20V  |      |      | -100 | pA    |
|                                 |                                 | T <sub>A</sub> = 150°C                       |      |      | -200 | nA    |
| I <sub>D(off)</sub>             | Drain Cut-off Current           | V <sub>DS</sub> = 20V V <sub>GS</sub> = -5V  |      |      | 100  | pA    |
|                                 |                                 | T <sub>A</sub> = 150°C                       |      |      | 200  | nA    |
| V <sub>DS(on)</sub>             | Drain – Source On Voltage       | V <sub>GS</sub> = 0V I <sub>D</sub> = 3mA    |      |      | 0.4  | V     |
| R <sub>DS(on)</sub>             | Drain – Source On Resistance    | V <sub>GS</sub> = 0 I <sub>D</sub> = 1.0mA   |      |      | 100  | Ω     |

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.



# SILICON SMALL SIGNAL N-CHANNEL JFET 2N4393

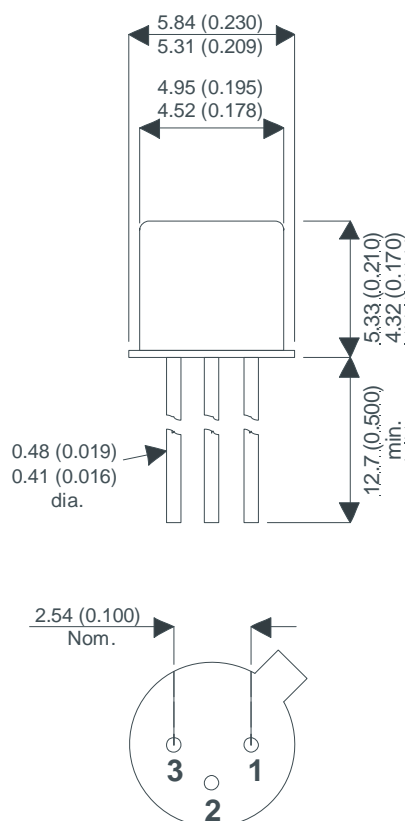
## DYNAMIC CHARACTERISTICS

| Symbols      | Parameters                                   | Test Conditions   | Min. | Typ. | Max. | Units    |
|--------------|--|---|------|------|------|----------|
| $C_{iss}$    | Common – Source Input Capacitance            | $V_{DS} = 20V$ $V_{GS} = 0V$<br>$f = 1.0MHz$                      |      |      | 26   | pF       |
| $C_{rss}$    | Common – Source Reverse Transfer Capacitance | $V_{DS} = 0V$ $V_{GS} = -5V$<br>$f = 1.0MHz$                      |      |      | 5    |          |
| $R_{DS(on)}$ | Drain – Source On Resistance                 | $V_{GS} = 0$ $I_D = 0A$<br>$f = 1.0KHz$                           |      |      | 100  | $\Omega$ |
| $t_r$        | Rise Time                                    | $V_{DD} = 10V$ $V_{GSX} = -5V$<br>$V_{GS} = 0V$ $I_{D(on)} = 3mA$ |      |      | 5    | ns       |
| $t_{d(on)}$  | Turn-on Delay Time                           |   |      |      | 15   |          |
| $t_f$        | Fall Time                                    |   |      |      | 30   |          |
| $t_{d(off)}$ | Turn-off Delay Time                          |   |      |      | 50   |          |

(1) Pulse Width  $\leq 380\mu s$ ,  $\delta \leq 2\%$

## MECHANICAL DATA

Dimensions in mm (inches)



## TO-18 (TO-206AA) METAL PACKAGE Underside View

Pin 1 – Source

Pin 2 – Drain

Pin 3 - Gate