

# NZF SERIES DIE N-Channel JFETs

T-31-25

The NZF Series of n-channel JFETs provides good general purpose amplifiers for a wide range of test and instrumentation applications. This series features low-leakage ( $I_{GSS} < 100 \text{ pA}$ ), high gain ( $g_{fs} > 7 \text{ mS}$  for NZF3CHP), and low noise. Die are supplied with 100% visual sort to the criteria of MIL-STD-750C, Method 2072.

| NZF1CHP*                                                          | NZF2CHP* | NZF3CHP* |
|-------------------------------------------------------------------|----------|----------|
| J210                                                              | J211     | J212     |
| *Meets or exceeds specification for all part numbers listed below |          |          |

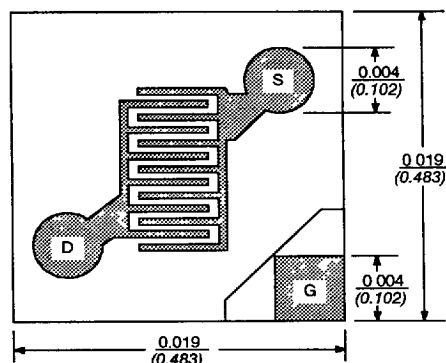
For additional design information please consult the typical performance curves NZF.

## DESIGNED FOR:

- High Frequency Amplifiers
- Mixers
- Oscillators

## FEATURES

- High Power Gain
- Low Noise



Gate also backside contact

Nominal Thickness  
 0.009 inches  
 0.228 mm

## ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

| PARAMETERS/TEST CONDITIONS              | SYMBOL         | LIMITS     | UNITS            |
|-----------------------------------------|----------------|------------|------------------|
| Gate-Drain Voltage                      | $V_{GD}$       | -25        | V                |
| Gate-Source Voltage                     | $V_{GS}$       | -25        |                  |
| Gate Current                            | $I_G$          | 10         | mA               |
| Operating and Storage Temperature Range | $T_J, T_{stg}$ | -55 to 150 | $^\circ\text{C}$ |

## NZF SERIES DIE



| SPECIFICATIONS <sup>a</sup>                |                      |                                                            | LIMITS           |         |     |         |      |         |     |            |
|--------------------------------------------|----------------------|------------------------------------------------------------|------------------|---------|-----|---------|------|---------|-----|------------|
| PARAMETER                                  | SYMBOL               | TEST CONDITIONS                                            | TYP <sup>b</sup> | NZF1CHP |     | NZF2CHP |      | NZF3CHP |     | UNIT       |
|                                            |                      |                                                            |                  | MIN     | MAX | MIN     | MAX  | MIN     | MAX |            |
| STATIC                                     |                      |                                                            |                  |         |     |         |      |         |     |            |
| Gate-Source Breakdown Voltage              | V <sub>(BR)GSS</sub> | I <sub>G</sub> = -1 μA, V <sub>DS</sub> = 0 V              | -35              | -25     |     | -25     |      | -25     |     | V          |
| Gate-Source Cutoff Voltage                 | V <sub>GS(OFF)</sub> | V <sub>DS</sub> = 15 V, I <sub>D</sub> = 1 nA              |                  | -1      | -3  | -2.5    | -4.5 | -4      | -6  |            |
| Saturation Drain Current <sup>c</sup>      | I <sub>DSS</sub>     | V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V              |                  | 2       | 15  | 7       | 20   | 15      | 40  | mA         |
| Gate Reverse Current                       | I <sub>GSS</sub>     | V <sub>GS</sub> = -15 V, V <sub>DS</sub> = 0 V             | -1               |         |     |         |      |         |     | pA         |
|                                            |                      | T <sub>A</sub> = 125°C                                     | -0.5             |         |     |         |      |         |     | nA         |
| Gate Operating Current                     | I <sub>G</sub>       | V <sub>DG</sub> = 10 V, I <sub>D</sub> = 1 mA              | -1               |         |     |         |      |         |     | pA         |
| Drain Cutoff Current                       | I <sub>D(OFF)</sub>  | V <sub>DS</sub> = 10 V, V <sub>GS</sub> = -8 V             | 1                |         |     |         |      |         |     |            |
| Gate-Source Forward Voltage                | V <sub>GS(F)</sub>   | I <sub>G</sub> = 1 mA, V <sub>DS</sub> = 0 V               | 0.7              |         |     |         |      |         |     | V          |
| DYNAMIC                                    |                      |                                                            |                  |         |     |         |      |         |     |            |
| Common-Source Forward Transconductance     | g <sub>fs</sub>      | V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V<br>f = 1 kHz | 7                |         |     |         |      |         |     | mS         |
| Common-Source Output Conductance           | g <sub>os</sub>      |                                                            | 60               |         |     |         |      |         |     | μS         |
| Common-Source Input Capacitance            | C <sub>iss</sub>     | V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V<br>f = 1 MHz | 4                |         |     |         |      |         |     | pF         |
| Common-Source Reverse Transfer Capacitance | C <sub>rss</sub>     |                                                            | 1.5              |         |     |         |      |         |     |            |
| Equivalent Input Noise Voltage             | e <sub>n</sub>       | V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 0 V<br>f = 1 kHz | 5                |         |     |         |      |         |     | nV/<br>√Hz |

## NOTES:

- a.  $T_A = 25^\circ C$  unless otherwise noted.  
 b. For design aid only, not subject to production testing.  
 c. Pulse test;  $PW = 300 \mu S$ , duty cycle  $\leq 3\%$ .