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## NTE466

### Silicon N-Channel JFET Transistor Chopper, High Speed Switch TO218 Type package

**Absolute Maximum Ratings:**

|   |                                     |
|---|-------------------------------------|
| Drain-Source Voltage, $V_{DS}$ .....                                | 40V                                 |
| Drain-Gate Voltage, $V_{DG}$ .....                                  | 40V                                 |
| Reverse Gate-Source Voltage, $V_{GSR}$ .....                        | -40V                                |
| Forward Gate Current, $I_{G(f)}$ .....                              | 50mA                                |
| Total Device Dissipation ( $T_A = +25^\circ\text{C}$ ), $P_D$ ..... | 360mW                               |
| Derate Above $25^\circ\text{C}$ .....                               | 2.4mW/ $^\circ\text{C}$             |
| Storage Temperature Range, $T_{stg}$ .....                          | $-65^\circ$ to $+175^\circ\text{C}$ |

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

| Parameter                                 | Symbol        | Test Conditions  | Min | Typ | Max  | Unit             |
|---|---------------|--|-----|-----|------|------------------|
| <b>OFF Characteristics</b>                |               |  |     |     |      |                  |
| Gate-Source Breakdown Voltage             | $V_{(BR)GSS}$ | $I_G = 1\text{A}, V_{DS} = 0$  | -40 | -   | -    | V                |
| Gate Reverse Current                      | $I_{GSS}$     | $V_{GS} = -20\text{V}, V_{DS} = 0$   | -   | -   | 0.25 | nA               |
|   |               | $V_{GS} = -20\text{V}, V_{DS} = 0, T_A = +150^\circ\text{C}$                                   | -   | -   | 0.5  | $^\circ\text{A}$ |
| Gate-Source Cutoff Voltage                | $V_{GS(off)}$ | $V_{DS} = 15\text{V}, I_D = 0.5\text{nA}$  | -4  | -   | -10  | V                |
| Drain Cutoff Current                      | $I_{D(off)}$  | $V_{DS} = 15\text{V}, V_{GS} = -10\text{V}$  | -   | -   | 0.25 | nA               |
|   |               | $V_{DS} = 15\text{V}, V_{GS} = -10\text{V}, T_A = +150^\circ\text{C}$                          | -   | -   | 0.5  | $^\circ\text{A}$ |
| <b>ON Characteristics</b>                 |               |  |     |     |      |                  |
| Zero-Gate-Voltage Drain Current           | $I_{DSS}$     | $V_{DS} = 15\text{V}, V_{GS} = 0$ , Note 1   | 50  | -   | -    | mA               |
| Drain-Source ON-Voltage                   | $V_{DS(on)}$  | $I_D = 20\text{mA}, V_{GS} = 0$  | -   | -   | 0.75 | V                |
| <b>Small-Signal Characteristics</b>       |               |  |     |     |      |                  |
| Drain-Source "ON" Resistance              | $r_{DS(on)}$  | $V_{GS} = 0, I_D = 0, f = 1\text{kHz}$   | -   | -   | 25   | $\leq$           |
| Input Capacitance                         | $C_{iss}$     | $V_{DS} = 0, V_{GS} = -10\text{V}, f = 1\text{MHz}$  | -   | -   | 18   | pF               |
| Reverse Transfer Capacitance              | $C_{rss}$     | $V_{DS} = 0, V_{GS} = -10\text{V}, f = 1\text{MHz}$  | -   | -   | 0.8  | pF               |
| <b>Switching Characteristics (Note 2)</b> |               |  |     |     |      |                  |
| Turn-On Delay Time                        | $t_{d(on)}$   | $V_{DD} = 10\text{V}, I_{D(on)} = 20\text{mA},$<br>$V_{GS(on)} = 0, V_{GS(off)} = -10\text{V}$ | -   | -   | 6    | ns               |
| Rise Time                                 | $t_r$         |  | -   | -   | 3    | ns               |
| Turn-Off Time                             | $t_{off}$     |  | -   | -   | 25   | ns               |

Note 1. Pulse Test: Pulse Width = 100ms, Duty Cycle  $\leq$  10%.

Note 2. The  $I_{D(on)}$  values are nominal; exact values vary slightly with transistor parameters.

