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## NTE2914 MOSFET N-Channel, Enhancement Mode High Speed Switch TO220FM Type Package

**Features:**

- Low On-Resistance:  $R_{DS} = 0.026\Omega$  Typ.
- High Speed Switching
- 4V Gate Drive Device can be Driven from 5V Source

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

|   |                                     |
|---|-------------------------------------|
| Drain-to-Source Voltage, $V_{DSS}$ .....                          | 60V                                 |
| Gate-to-Source Voltage, $V_{GSS}$ .....                           | $\pm 20\text{V}$                    |
| Continuous Drain Current, $I_D$ .....                             | 25A                                 |
| Peak Drain Current (Note 1), $I_{D(\text{pulse})}$ .....          | 100A                                |
| Body-Drain Diode Reverse Drain Current, $I_{DR}$ .....            | 25A                                 |
| Avalanche Current (Note 2), $I_{AP}$ .....                        | 20A                                 |
| Avalanche Energy (Note 2), $E_{AR}$ .....                         | 34mJ                                |
| Channel Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_{CH}$ ..... | 25W                                 |
| Channel Temperature, $T_{CH}$ .....                               | $+150^\circ\text{C}$                |
| Storage Temperature Range, $T_{stg}$ .....                        | $-55^\circ$ to $+150^\circ\text{C}$ |

Note 1. Pulse width  $\leq 10\mu\text{s}$ ; duty cycle  $\leq 1\%$ .

Note 2.  $T_{CH} = +25^\circ\text{C}$ ,  $R_g = 50\Omega$

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

| Parameter                            | Symbol               | Test Conditions                                     | Min      | Typ   | Max      | Unit          |
|--------------------------------------|----------------------|---|----------|-------|----------|---------------|
| Drain-to-Source Breakdown Voltage    | $V_{(BR)DSS}$        | $V_{GS} = 0\text{V}$ , $I_D = 10\text{mA}$          | 60       | -     | -        | V             |
| Gate-to-Source Breakdown Voltage     | $V_{(BR)GSS}$        | $V_{DS} = 0\text{V}$ , $I_G = \pm 100\mu\text{A}$   | $\pm 20$ | -     | -        | V             |
| Gate-Source Leakage Current          | $I_{GSS}$            | $V_{GS} = \pm 16\text{V}$ , $V_{DS} = 0$            | -        | -     | $\pm 10$ | $\mu\text{A}$ |
| Zero Gate Voltage Drain Current      | $I_{DSS}$            | $V_{DS} = 60\text{V}$ , $V_{GS} = 0\text{V}$        | -        | -     | 10       | $\mu\text{A}$ |
| Gate-to-Source Cutoff Voltage        | $V_{GS(\text{off})}$ | $V_{DS} = 10\text{V}$ , $I_D = 1\text{mA}$          | 1.5      | -     | 2.5      | V             |
| Static Drain-to-Source On-Resistance | $R_{DS(\text{on})}$  | $V_{GS} = 10\text{V}$ , $I_D = 15\text{A}$ , Note 3 | -        | 0.026 | 0.034    | $\Omega$      |
|                                      |                      | $V_{GS} = 4\text{V}$ , $I_D = 15\text{A}$ , Note 3  | -        | 0.045 | 0.070    | $\Omega$      |

Note 3. Pulse Test.

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

| Parameter                              | Symbol       | Test Conditions  | Min | Typ  | Max | Unit |
|--|--------------|--|-----|------|-----|------|
| Forward Transfer Admittance            | $ y_{fs} $   | $V_{DS} = 10\text{V}, I_D = 15\text{A}$ , Note 3               | 11  | 17   | –   | S    |
| Input Capacitance                      | $C_{iss}$    | $V_{GS} = 0\text{V}, V_{DS} = 10\text{V}, f = 1\text{MHz}$     | –   | 740  | –   | pF   |
| Output Capacitance                     | $C_{oss}$    |  | –   | 380  | –   | pF   |
| Reverse Transfer Capacitance           | $C_{rss}$    |  | –   | 140  | –   | pF   |
| Turn-On Delay Time                     | $t_{d(on)}$  | $V_{GS} = 10\text{V}, I_D = 15\text{A}, R_L = 2\Omega$         | –   | 10   | –   | ns   |
| Rise Time                              | $t_r$        |  | –   | 160  | –   | ns   |
| Turn-Off Delay Time                    | $t_{d(off)}$ |  | –   | 100  | –   | ns   |
| Fall Time                              | $t_f$        |  | –   | 150  | –   | ns   |
| Body-Drain Diode Forward Voltage       | $V_{DF}$     | $V_{GS} = 0, I_F = 25\text{A}$                                 | –   | 0.95 | –   | V    |
| Body-Drain Diode Reverse Recovery Time | $t_{rr}$     | $V_{GS} = 0, I_F = 25\text{A}, diF/dt = 50\text{A}\mu\text{s}$ | –   | 40   | –   | ns   |

Note 3. Pulse Test.

