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NTE2377 MOSFET N-Channel, Enhancement Mode, High Speed

Description:

The NTE2377 is an N-Channel Enhancement Mode Power MOS Field Effect Transistor. Easy drive and very fast switching times make this device ideal for high speed switching applications. Typical applications include switching mode power supplies, uninterruptible power supplies, and motor speed control.

Features:

- Low ON-State Resistance
- Very High-Speed Switching
- Converters

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

| | |
|--|-------------------------------------|
| Drain-Source Voltage, V_{DSS} | 900V |
| Gate-Source Voltage, V_{GSS} | $\pm 30\text{V}$ |
| DC Drain Current, I_D | 8A |
| Pulsed Drain Current (Note 1), I_{DP} | 36A |
| Allowable Power Dissipation ($T_C = +25^\circ\text{C}$), P_D | 150W |
| Maximum Channel Temperature, T_{ch} | $+150^\circ\text{C}$ |
| Storage Temperature Range, T_{stg} | -55° to $+150^\circ\text{C}$ |

Note 1. Pulse Width $\leq 10\mu\text{s}$, Duty Cycle $\leq 1\%$.

Note 2. Be careful in handling the NTE2377 because it has no protection diode between gate and source.

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|-----------------------------------|---------------|--|-----|-----|-----------|----------|
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D = 1\text{mA}, V_{GS} = 0$ | 900 | - | - | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{GS} = 0, V_{DS} = \text{Max Rating}$ | - | - | 1.0 | mA |
| Gate-Source Leakage Current | I_{GSS} | $V_{DS} = 0, V_{GS} = \pm 30\text{V}$ | - | - | ± 100 | nA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = 10\text{V}, I_D = 1\text{mA}$ | 2 | - | 3 | V |
| Static Drain-Source On Resistance | $R_{DS(on)}$ | $V_{GS} = 10\text{V}, I_D = 4\text{A}$ | - | 1.2 | 1.6 | Ω |
| Forward Transconductance | g_{fs} | $V_{DS} = 20\text{V}, I_D = 4\text{A}$ | 2.5 | 5.0 | - | mho |

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|------------------------------|--------------|--|-----|------|-----|------|
| Input Capacitance | C_{iss} | $V_{DS} = 20\text{V}, f = 1\text{MHz}$ | – | 1600 | – | pf |
| Output Capacitance | C_{oss} | | – | 500 | – | pf |
| Reverse Transfer Capacitance | C_{rss} | | – | 350 | – | pf |
| Turn-On Time | $t_{d(on)}$ | $V_{DD} = 200\text{V}, I_D = 4\text{A},$ $V_{GS} = 10\text{V}, R_{GS} = 50\Omega$ | – | 20 | – | ns |
| Rise Time | t_r | | – | 80 | – | ns |
| Turn-Off Delay Time | $t_{d(off)}$ | | – | 350 | – | ns |
| Fall Time | t_f | | – | 150 | – | ns |
| Diode Forward Voltage | V_{SD} | $I_S = 8\text{A}, V_{GS} = 0$ | – | – | 1.8 | V |

