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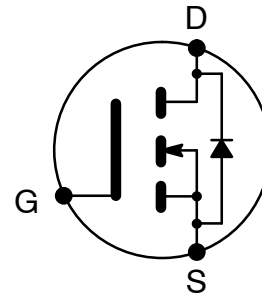
## NTE2378 MOSFET N-Channel Enhancement Mode, High Speed Switch TO3P Type Package

**Description:**

The NTE2378 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:** ( $T_A = +25^\circ\text{C}$ )

Drain-Source Voltage, $V_{DSS}$ .....	900V
Gate-Source Voltage, $V_{GSS}$ .....	$\pm 30\text{V}$
DC Drain Current, $I_D$ .....	5A
Pulsed Drain Current (Note 1), $I_{DP}$ .....	10A
Allowable Power Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_D$ .....	120W
Maximum 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. Be careful in handling the NTE2378 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	$I_{DSS}$	$V_{GS} = 0, V_{DS} = 900\text{V}$	-	-	1.0	mA
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS} = 0, V_{GS} = \pm 30\text{V}$	-	-	$\pm 100$	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 10\text{V}, I_D = 1\text{mA}$	2	-	3	V
Static Drain-Source On Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 2\text{A}$	-	2.8	3.6	$\pm$
Forward Transconductance	$g_{fs}$	$V_{DS} = 20\text{V}, I_D = 2\text{A}$	1.0	2.0	-	mho

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	$C_{iss}$	$V_{DS} = 20\text{V}, f = 1\text{MHz}$	-	700	-	pf
Output Capacitance	$C_{oss}$		-	300	-	pf
Reverse Transfer Capacitance	$C_{rss}$		-	170	-	pf
Turn-On Time	$t_{d(on)}$	$V_{DD} = 200\text{V}, I_D = 2\text{A},$ $V_{GS} = 10\text{V}, R_{GS} = 50\pm$	-	15	-	ns
Rise Time	$t_r$		-	35	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	200	-	ns
Fall Time	$t_f$		-	65	-	ns
Diode Forward Voltage	$V_{SD}$	$I_S = 5\text{A}, V_{GS} = 0$	-	-	1.8	V

