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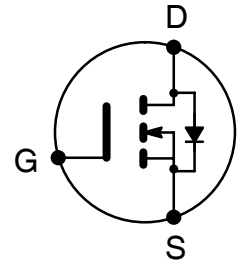
## NTE2999 MOSFET N-Channel, Enhancement Mode High Speed Switch

**Features:**

- High Speed Switching
- Low On-Resistance
- No Secondary Breakdown
- Low Driving Power
- Avalanche-Proof

**Applications:**

- Switching Regulators
- UPS (Uninterruptible Power Supply)
- DC-DC Converters



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

Drain-Source Voltage, $V_{DS}$ .....	500V
Gate-Source Voltage, $V_{GS}$ .....	$\pm 35\text{V}$
Drain Current, $I_D$	
Continuous .....	$\pm 10\text{A}$
Pulsed .....	$\pm 40\text{A}$
Repetitive or Non-Repetitive ( $T_{Ch} \leq +150^\circ\text{C}$ ), $I_{AR}$ .....	10A
Maximum Avalanche Energy ( $L = 1.42\text{mH}$ , $V_{CC} = 50\text{V}$ ), $E_{AS}$ .....	77.6mJ
Maximum Power Dissipation, $P_D$ .....	50W
Channel Temperature $T_{Ch}$ .....	$+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ\text{C}$ to $+150^\circ\text{C}$
Maximum Thermal Resistance, Junction-to-Case, $R_{thCh-C}$ .....	$2.5^\circ\text{C/W}$
Maximum Thermal Resistance, Junction-to-Ambient, $R_{thCh-A}$ .....	$62.5^\circ\text{C/W}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}$ , $V_{GS} = 0\text{V}$	500	-	-	V	
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D = 1\text{mA}$ , $V_{DS} = V_{GS}$	3.5	4.0	4.5	V	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 500\text{V}$ , $V_{GS} = 0\text{V}$	$T_{Ch} = +25^\circ\text{C}$	-	10	500	$\mu\text{A}$
			$T_{Ch} = +125^\circ\text{C}$	-	0.2	1.0	mA
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 35\text{V}$ , $V_{DS} = 0\text{V}$	-	10	100	nA	
Drain-Source On-State Resistance	$R_{DS(on)}$	$I_D = 5\text{A}$ , $V_{GS} = 10\text{V}$	-	0.73	0.90	$\Omega$	
Forward Transfer Admittance	$g_{fs}$	$I_D = 5\text{A}$ , $V_{DS} = 25\text{V}$	2.5	5.0	-	S	
Input Capacitance	$C_{iss}$	$V_{DS} = 25\text{V}$ , $f = 1\text{MHz}$ , $V_{GS} = 0\text{V}$	-	950	1450	pF	
Output Capacitance	$C_{oss}$		-	180	270	pF	
Reverse Transfer Capacitance	$C_{rss}$		-	80	120	pF	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Time	$t_{d(on)}$	$V_{CC} = 300\text{V}, I_D = 10\text{A},$ $V_{GS} = 10\text{CV}, R_{GS} = 10\Omega$	-	25	40	ns
	$t_r$		-	70	110	ns
Turn-Off Time	$t_{d(off)}$		-	110	-	ns
	$t_f$		-	45	70	ns
Avalanche Capability	$I_{AV}$	$L = 100\mu\text{H}, T_{Ch} = +25^\circ\text{C}$	10	-	-	A
Diode Forward On-Voltage	$V_{SD}$	$I_F = 2 \times I_{DR}, V_{GS} = 0\text{V}, T_{Ch} = +25^\circ\text{C}$	-	1.10	1.65	V
Reverse Recovery Time	$t_{rr}$	$I_F = I_{DR}, V_{GS} = 0\text{V},$ $-di/dt = 100\text{A}/\mu\text{s}, T_{Ch} = +25^\circ\text{C}$	-	450	-	ns
Reverse Recovery Charge	$Q_{rr}$		-	5.5	-	$\mu\text{C}$

