

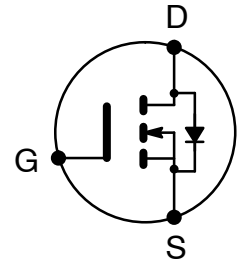


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NTE2999 MOSFET N-Channel, Enhancement Mode High Speed Switch TO-220 Full Pack Type Package

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° to $+150^\circ\text{C}$
Maximum Thermal Resistance, Junction-to-Case, R_{thCh-C}	2.5°C/W
Maximum Thermal Resistance, Junction-to-Ambient, R_{thCh-A}	62.5°C/W

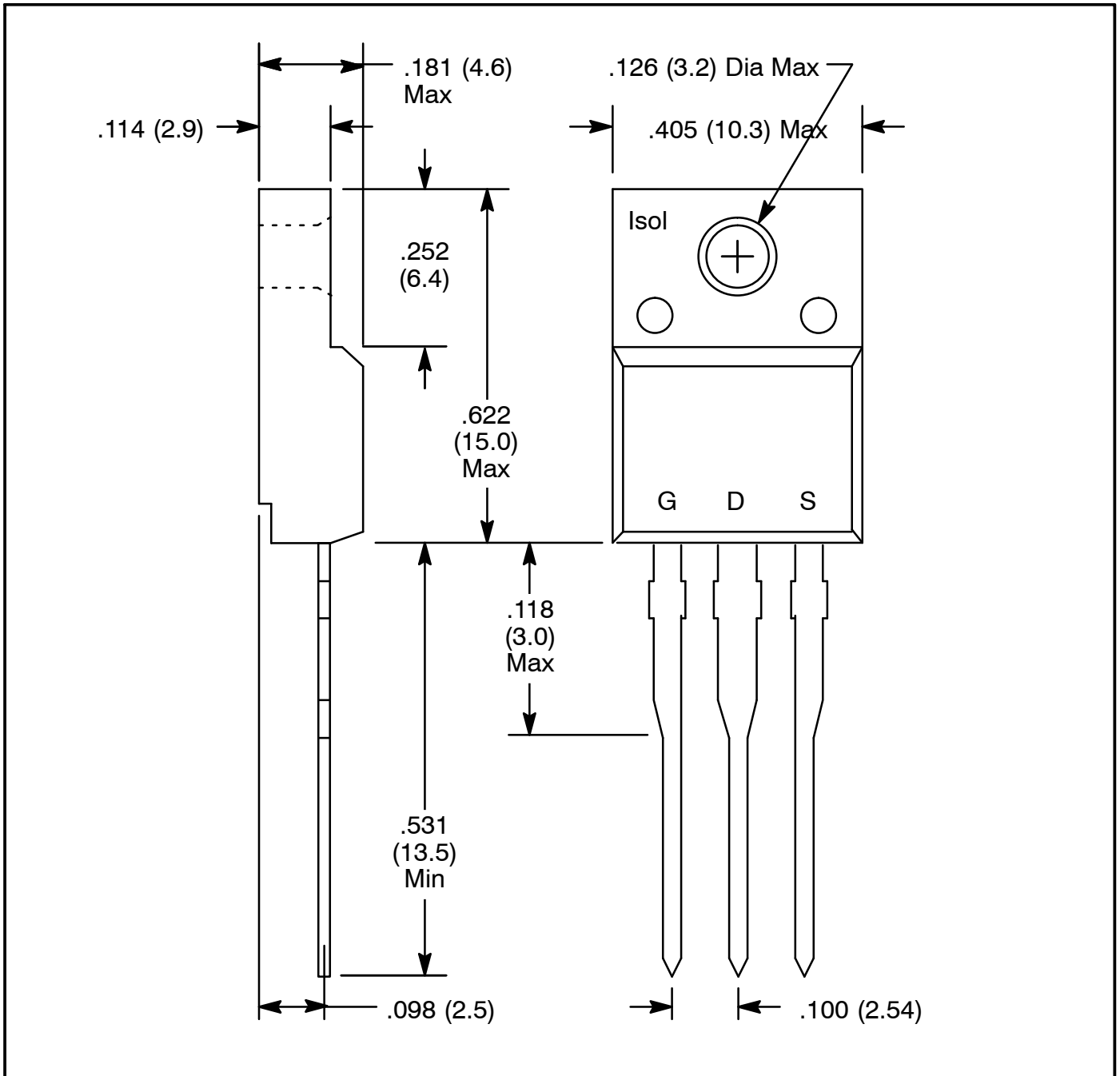
Electrical Characteristics: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

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	μA
			$T_{Ch} = +125^\circ\text{C}$	-	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	Ω	
Forward Transfer Admittance	g_{fs}	$I_D = 5\text{A}$, $V_{DS} = 25\text{V}$	2.5	5.0	-	S	



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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
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
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	-	μC



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