

NTE2387 MOSFET N-Channel Enhancement Mode, High Speed Switch

Absolute Maximum Ratings:

Drain-Source Voltage, V_{DS}	800V
Drain-Gate Voltage ($R_{GS} = 20k\Omega$), V_{DGR}	800V
Gate-Source Voltage, V_{GS}	$\pm 30V$
Pulsed Drain Current, I_{DM}	16A
Continuous Drain Current, I_D	
$T_C = +25^\circ C$	4.0A
$T_C = +100^\circ C$	2.5A
Total Dissipation ($T_C = +25^\circ C$), P_{tot}	125W
Operating Junction Temperature, T_J	+150°C
Storage Temperature Range, T_{stg}	-55° to +150°C
Maximum Thermal Resistance, Junction-to-Case, R_{thJC}	1.0°C/W
Typical Thermal Resistance, Junction-to-Ambient, R_{thJA}	60°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250\mu A, V_{GS} = 0$	800	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{GS} = 0, V_{DS} = 800V, T_C = +25^\circ C$	-	2	20	μA
		$V_{GS} = 0, V_{DS} = 800V, T_C = +125^\circ C$	-	0.1	1.0	mA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0, V_{GS} = \pm 30V$	-	10	100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 1mA$	2.1	3.0	4.0	V
Static Drain-Source On Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 1.5A$	-	2.7	3.0	Ω
Dynamic Characteristics						
Forward Transconductance	g_{fs}	$V_{DS} = 25V, I_D = 1.5A$	3.0	4.3	-	mho
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0, f = 1MHz$	-	1000	1250	pf
Output Capacitance	C_{oss}		-	80	120	pf
Reverse Transfer Capacitance	C_{rss}		-	30	50	pf
Turn-On Time	$t_{d(on)}$		$V_{DD} = 30V, I_D = 2.3A, V_{GS} = 10V,$ $R_{GS} = 50\Omega, R_{gen} = 50\Omega$	-	10	25
Rise Time	t_r	-		25	40	ns
Turn-Off Delay Time	$t_{d(off)}$	-		130	150	ns
Fall Time	t_f	-		40	60	ns

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Dynamic Characteristics (Cont'd)						
Internal Drain Inductance	L_D	Measured from contact screw on tab to center of die	–	3.5	–	nH
		Measured from drain lead 6mm from package to center of die	–	4.5	–	nH
Internal Source Inductance	L_S	Measured from the source lead 6mm from package to source bonding pad	–	7.5	–	nH
Source–Drain Diode Ratings and Characteristics						
Continuous Reverse Drain Current	I_{DR}		–	–	4	A
Pulsed Reverse Drain Current	I_{DRM}		–	–	16	A
Diode Forward Voltage	V_{SD}	$I_F = 4\text{A}, V_{GS} = 0$	–	1.0	1.3	V
Reverse Recovery Time	t_{rr}	$I_F = 4\text{A}, di_F/dt = 100\text{A}/\mu\text{s}, V_{GS} = 0,$ $V_R = 100\text{V}$	–	1800	–	ns
Reverse Recovered Charge	Q_{rr}		–	12	–	μC

