



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089
<http://www.nteinco.com>

NTE2384 MOSFET N-Channel Enhancement Mode, High Speed Switch TO3 Type Package

Absolute Maximum Ratings:

Drain-Source Voltage ($T_J = +25^\circ$ to $+150^\circ\text{C}$), V_{DSS}	900V
Drain-Gate Voltage ($T_J = +25^\circ$ to $+150^\circ\text{C}$, $R_{GS} = 1M\pm$), V_{DGR}	900V
Gate-Source Voltage, V_{GS}	
Continuous	$\pm 20\text{V}$
Transient	$\pm 30\text{V}$
Drain Current ($T_C = +25^\circ\text{C}$), I_D	
Continuous	6A
Pulsed ($T_{JM} = +150^\circ\text{C}$)	24A
Total Dissipation ($T_C = +25^\circ\text{C}$), P_{tot}	180W
Operating Junction Temperature Range, T_J	-55° to $+150^\circ\text{C}$
Maximum Operating Junction Temperature, T_{JM}	$+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Maximum Thermal Resistance, Junction-to-Case, R_{thJC}	0.7K/W
Typical Thermal Resistance, Junction-to-Ambient, R_{thJA}	0.25K/W
Lead Temperature (During Soldering, 1.6mm from Case, 10sec), T_L	$+300^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 3\text{mA}$, $V_{GS} = 0$	900	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{GS} = 0$, $V_{DS} = 640\text{V}$, $T_J = +25^\circ\text{C}$	-	-	250	$\leq \text{A}$
		$V_{GS} = 0$, $V_{DS} = 640\text{V}$, $T_J = +125^\circ\text{C}$	-	-	1.0	mA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0$, $V_{GS} = \pm 20\text{V}$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\leq \text{A}$	2.0	-	4.5	V
Static Drain-Source On Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 3\text{A}$, Note 1	-	-	1.4	\pm
Dynamic Characteristics						
Forward Transconductance	g_{fs}	$V_{DS} = 10\text{V}$, $I_D = 3\text{A}$, Pulse Test	4	6	-	S
Input Capacitance	C_{iss}	$V_{DS} = 25\text{V}$, $V_{GS} = 0$, $f = 1\text{MHz}$	-	2600	-	pf
Output Capacitance	C_{oss}		-	180	-	pf
Reverse Transfer Capacitance	C_{rss}		-	45	-	pf
Turn-On Time	$t_{d(on)}$		$V_{GS} = 10\text{V}$, $V_{DS} = 450\text{V}$, $I_D = 3\text{A}$, $R_G = 4.7\pm$ (External)	-	35	100
Rise Time	t_r	-		40	110	ns
Turn-Off Delay Time	$t_{d(off)}$	-		100	200	ns
Fall Time	t_f	-		60	100	ns

Note 1. Pulse test, $t \leq 300\leq \text{s}$, duty cycle $d \leq 2\%$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Dynamic Characteristics (Cont'd)						
Total Gate Charge	$Q_{g(on)}$	$V_{GS} = 10\text{V}, V_{DS} = 450\text{V}, I_D = 3\text{A}$	-	88	130	nC
Gate-Source Charge	Q_{gs}		-	21	30	nC
Gate-Drain Charge	Q_{gd}		-	38	70	nC
Source-Drain Diode Ratings and Characteristics						
Continuous Reverse Drain Current	I_{DR}	$V_{GS} = 0$	-	-	6	A
Pulsed Reverse Drain Current	I_{DRM}	$T_{JM} = +150^\circ\text{C}$	-	-	24	A
Diode Forward Voltage	V_{SD}	$I_F = I_{DR}, V_{GS} = 0$, Note 1	-	-	1.5	V
Reverse Recovery Time	t_{rr}	$I_F = I_{DR}, -di/dt = 100\text{A}/\mu\text{s}, V_R = 100\text{V}$	-	900	-	ns

Note 1. Pulse test, $t \leq 300\mu\text{s}$, duty cycle $d \leq 2\%$.

