NTE ELECTRONICS, INC.
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NTE2384
MOSFET
N–Channel Enhancement Mode, High Speed Switch

Absolute Maximum Ratings:

Drain–Source Voltage, V_{DS} 800V
Drain–Gate Voltage (R_{GS} = 20kΩ), V_{DGR} 800V
Gate–Source Voltage, V_{GS} . . . . . ±20V
Pulsed Drain Current (T_C = +25°C), I_{DM} 24A
Continuous Drain Current, I_D
T_C = +30°C 6.0A
T_C = +100°C 3.9A
Total Dissipation (T_C = +25°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} . . . . . 35°C/W

Electrical Characteristics: (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 250μA, V_{GS} = 0	800	–	–	V
Zero–Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0, V_{DS} = 800V, T_J = +25°C	–	20	250	μA
		V_{GS} = 0, V_{DS} = 800V, T_J = +125°C	–	0.1	1.0	mA
Gate–Body Leakage Current	I_{GSS}	V_{DS} = 0, V_{GS} = ±20V	–	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 = 3A	–	1.3	1.5	Ω
Dynamic Characteristics						
Forward Transconductance	g_{fs}	V_{DS} = 25V, I_D = 3A	1.8	3.0	–	mho
Input Capactiance	C_{iss}	V_{DS} = 25V, V_{GS} = 0, f = 1MHz	–	3900	5000	pf
Output Capacitance	C_{oss}		–	200	350	pf
Reverse Transfer Capactiance	C_{rss}		–	80	140	pf
Turn–On Time	$t_{d(on)}$	V_{DD} = 30V, I_D = 2.6A, V_{GS} = 10V, R_{GS} = 50Ω, R_{gen} = 50Ω	–	60	90	ns
Rise Time	t_r		–	90	140	ns
Turn–Off Delay Time	$t_{d(off)}$		–	330	430	ns
Fall Time	t_f		–	110	140	ns

Electrical Characteristics (Cont'd): (T_C = +25°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 header closer to source pin and center of die	–	5.0	–	nH
Internal Source Inductance	L_S	Measured from the source lead 6mm from package to source bonding pad	–	12.5	–	nH
Source–Drain Diode Ratings and Characteristics						
Continuous Reverse Drain Current	I_{DR}	T_C = +25°C	–	–	6	A
Pulsed Reverse Drain Current	I_{DRM}	T_C = +25°C	–	–	24	A
Diode Forward Voltage	V_{SD}	I_F = 12A, V_{GS} = 0, T_J = +25°C	–	1.1	1.5	V
Reverse Recovery Time	t_{rr}	I_F = 6A, T_J = +25°C	–	1800	–	ns
Reverse Recovered Charge	Q_{rr}	V_{GS} = 0, V_R = 100V, T_J = +25°C, di_F/dt = 100A/μs,	–	25	–	μC