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

Absolute Maximum Ratings:

Drain–Source Voltage (T_J = +25° to +150°C), V_{DSS} 900V
Drain–Gate Voltage (T_J = +25° to +150°C, R_{GS} = 1M±), V_{DGR} 900V
Gate–Source Voltage, V_{GS}
  Continuous . . . . . ±20V
  Transient . . . . . ±30V
Drain Current (T_C = +25°C), I_D
  Continuous 6A
  Pulsed (T_{JM} = +150°C) 24A
Total Dissipation (T_C = +25°C), P_{tot} 180W
Operating Junction Temperature Range, T_J . . . . . –55° to +150°C
Maximum Operating Junction Temperature, T_{JM} . . . . . +150°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°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°C

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 3mA, V_{GS} = 0	900	–	–	V
Zero–Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0, V_{DS} = 640V, T_J = +25°C	–	–	250	≤A
		V_{GS} = 0, V_{DS} = 640V, T_J = +125°C	–	–	1.0	mA
Gate–Body Leakage Current	I_{GSS}	V_{DS} = 0, V_{GS} = ±20V	–	–	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250≤A	2.0	–	4.5	V
Static Drain–Source On Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 3A, Note 1	–	–	1.4	±
Dynamic Characteristics						
Forward Transconductance	g_{fs}	V_{DS} = 10V, I_D = 3A, Pulse Test	4	6	–	S
Input Capacitance	C_{iss}	V_{DS} = 25V, V_{GS} = 0, f = 1MHz	–	2600	–	pf
Output Capacitance	C_{oss}		–	180	–	pf
Reverse Transfer Capacitance	C_{rss}		–	45	–	pf
Turn–On Time	$t_{d(on)}$	V_{GS} = 10V, V_{DS} = 450V, I_D = 3A, R_G = 4.7± (External)	–	35	100	ns
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 ≤ 300≤s, duty cycle d ≤ 2%.

Electrical Characteristics (Cont'd): (T_J = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Dynamic Characteristics (Cont'd)						
Total Gate Charge	$Q_{g(on)}$	V_{GS} = 10V, V_{DS} = 450V, I_D = 3A	–	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°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 = 100A/≤s, V_R = 100V	–	900	–	ns

Note 1. Pulse test, t ≤ 300≤s, duty cycle d ≤ 2%.