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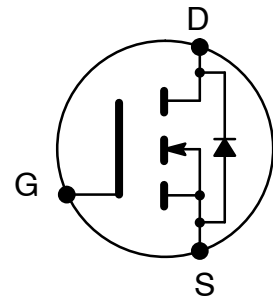
**NTE2928
 MOSFET
 N-Channel, Enhancement Mode
 High Speed Switch
 TO-220 Type Package**

Features:

- $R_{DS(on)} = 550m\Omega$ Max @ $V_{GS} = 10V, I_D = 6A$
- Low Gate Charge: 22nC Typ
- Low C_{RSS} : 11pF Typ
- 100% Avalanche Tested

Applications:

- LCD/LED/PDP TV
- Lighting
- Uninterruptible Power Supply



Absolute Maximum Ratings: ($T_C = +25^\circ C$ unless otherwise specified)

Drain-Source Voltage, V_{DSS}	500V
Gate-Source Voltage, V_{GSS}	$\pm 30V$
Drain Current, I_D	
Continuous	
$T_C = +25^\circ C$	11.5A
$T_C = +100^\circ C$	6.9A
Pulsed (Note 1)	46A
Single Pulsed Avalanche Energy (Note 2), E_{AS}	456mJ
Avalanche Current (Note 1), I_{AR}	11.5A
Repetitive Avalanche Energy (Note 1), E_{AR}	16.7mJ
Peak Diode Recovery dv/dt (Note 3), dv/dt	4.5V/ns
Power Dissipation ($T_C = +25^\circ C$), P_D	165W
Derate Above $+25^\circ C$	1.33W/ $^\circ C$
Operating Temperature Range, T_J	-55° to $+150^\circ C$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ C$
Maximum Lead temperature (During Soldering, 1/8" from case, 5 sec), T_L	$+300^\circ C$
Maximum Thermal Resistance, Junction-to-Case, R_{thJC}	0.75 $^\circ C/W$
Maximum Thermal Resistance, Junction-to-Ambient, R_{thJA}	62.5 $^\circ C/W$

Note 1. Repetitive rating; pulse width limited by maximum junction temperature.

Note 2. $L = 6.9mH, I_{AS} = 11.5A, V_{DD} = 50V, R_G = 25\Omega$, starting $T_J = +25^\circ C$.

Note 3. $I_{SD} \leq 11.5A, di/dt \leq 200A/\mu s, V_{DD} \leq V_{(BR)DSS}$, starting $T_J = +25^\circ C$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A, T_J = +25^\circ\text{C}$	500	–	–	V
Breakdown Voltage Temperature Coefficient	$\Delta V_{(BR)DSS}/\Delta T_J$	$I_D = 250\mu A$, Referenced to $+25^\circ\text{C}$	–	0.5	–	$V/^\circ\text{C}$
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 500V, V_{GS} = 0$	–	–	1.0	μA
		$V_{DS} = 400V, T_C = +125^\circ\text{C}$	–	–	10	μA
Gate–Body Leakage Current	I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$	–	–	± 100	nA
ON Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	3.0	–	5.0	V
Static Drain–Source ON Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 6A$	–	0.55	0.65	Ω
Forward Transconductance	g_{FS}	$V_{DS} = 40V, I_D = 6A$	–	11.5	–	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V,$ $f = 1\text{MHz}$	–	985	1315	pF
Output Capacitance	C_{oss}		–	140	190	pF
Reverse Transfer Capacitance	C_{rss}		–	11	17	pF
Total Gate Charge	Q_g	$V_{DD} = 400V, I_D = 11.5A,$ $V_{GS} = 10V$, Note 4	–	22	30	nC
Gate–Source Charge	Q_{gs}		–	6	–	nC
Gate–Drain Charge	Q_{gd}		–	9	–	nC
Switching Characteristics						
Turn–On Delay Time	$t_{d(on)}$	$V_{DD} = 250V, I_D = 11.5A,$ $V_{GS} = 10V, R_G = 25\Omega$, Note 4	–	24	60	ns
Rise Time	t_r		–	50	110	ns
Turn–Off Delay Time	$t_{d(off)}$		–	45	100	ns
Fall Time	t_f		–	30	70	ns
Drain–Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain–Source Diode Forward Current	I_S		–	–	11.5	A
Maximum Pulsed Drain–Source Diode Forward Current	I_{SM}		–	–	46	A
Drain–Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 11.5A$	–	–	1.4	V
Reverse Recovery Time	t_{rr}	$V_{GS} = 0V, I_{SD} = 11.5A,$ $dl_F/dt = 100A/\mu s$	–	375	–	ns
Reverse Recovery Charge	Q_{rr}		–	3.5	–	μC

Note 4. Essentially independent of operating temperature typical characteristics.

