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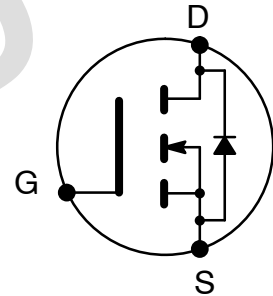
NTE2956 MOSFET N-Channel, Enhancement Mode High Speed Switch TO-220 Full Pack Type Package

Features:

- $R_{DS(on)} = 380m\Omega$ Max @ $V_{GS} = 10V, I_D = 8A$
- Low Gate Charge: 32nC Typ
- Low C_{RSS} : 20pF 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 (Note 1), I_D	
Continuous	
$T_C = +25^\circ C$	16A
$T_C = +100^\circ C$	9.6A
Pulsed (Note 2)	64A
Single Pulsed Avalanche Energy (Note 3), E_{AS}	780mJ
Avalanche Current (Note 2), I_{AR}	16A
Repetitive Avalanche Energy (Note 2), E_{AR}	20mJ
Peak Diode Recovery dv/dt (Note 4), dv/dt	4.5V/ns
Power Dissipation ($T_C = +25^\circ C$), P_D	38.5W
Derate Above $+25^\circ C$	0.3W/ $^\circ C$
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}	3.3 $^\circ C/W$
Maximum Thermal Resistance, Junction-to-Ambient, R_{thJA}	62.5 $^\circ C/W$

- Note 1. Drain current limited by maximum junction temperature.
 Note 2. Repetitive rating; pulse width limited by maximum junction temperature.
 Note 3. $L = 5.5mH, I_{AS} = 16A, V_{DD} = 50V, R_G = 25\Omega$, starting $T_J = +25^\circ C$.
 Note 4. $I_{SD} \leq 16A, di/dt \leq 200A/\mu s, V_{DD} \leq V_{(BR)DSS}$, 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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	3.0	–	5.0	V
Static Drain–Source ON Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 8A$	–	0.31	0.38	Ω
Forward Transconductance	g_{FS}	$V_{DS} = 40V, I_D = 8A$	–	23	–	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V,$ $f = 1\text{MHz}$	–	1495	1945	pF
Output Capacitance	C_{oss}		–	235	310	pF
Reverse Transfer Capacitance	C_{rss}		–	20	30	pF
Switching Characteristics						
Turn–On Delay Time	$t_{d(on)}$	$V_{DD} = 250V, I_D = 16A,$ $R_G = 25\Omega$, Note 5	–	40	90	ns
Rise Time	t_r		–	150	310	ns
Turn–Off Delay Time	$t_{d(off)}$		–	65	140	ns
Fall Time	t_f		–	80	170	ns
Total Gate Charge	Q_g	$V_{DD} = 400V, I_D = 16A,$ $V_{GS} = 10V$, Note 5	–	32	45	nC
Gate–Source Charge	Q_{gs}		–	8.5	–	nC
Gate–Drain Charge	Q_{gd}		–	14	–	nC
Drain–Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain–Source Diode Forward Current	I_S		–	–	9.2	A
Maximum Pulsed Drain–Source Diode Forward Current	I_{SM}		–	–	37	A
Drain–Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 16A$	–	–	1.4	V
Reverse Recovery Time	t_{rr}	$V_{GS} = 0V, I_S = 16A,$ $dI_F/dt = 100A/\mu s$	–	490	–	ns
Reverse Recovery Charge	Q_{rr}		–	5.0	–	μC

Note 5. Essentially independent of operating temperature typical characteristics.

