



**ELECTRONICS, INC.**  
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## NTE2956 MOSFET N-Channel, Enhancement Mode High Speed Switch

**Applications:**

- Servo Motor Drive
- Robot
- UPS
- Inverter
- Fluorescent Lamp

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

Drain-Source Voltage ( $V_{GS} = 0V$ ), $V_{DSS}$ .....	300V
Gate-Source Voltage ( $V_{DS} = 0V$ ), $V_{GS}$ .....	$\pm 30V$
Drain Current, $I_D$	
Continuous .....	14A
Pulsed .....	42A
Source Current, $I_S$	
Continuous .....	14A
Pulsed .....	42A
Maximum Power Dissipation, $P_D$ .....	40W
Channel Temperature Range, $T_{ch}$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Thermal Resistance, Channel-to-Case, $R_{th(ch-c)}$ .....	$3.13^\circ\text{C/W}$
Isolation Voltage, $V_{ISO}$ .....	2000V

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{DS} = 0V, I_D = 1mA$	500	-	-	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$V_{DS} = 0V, I_G = \pm 100\mu A$	$\pm 30$	-	-	V
Gate-Source Leakage	$I_{GSS}$	$V_{GS} = \pm 25V, V_{DS} = 0V$	-	-	$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 500V, V_{GS} = 0$	-	-	1.0	mA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = 10V, I_D = 1mA$	2.0	3.0	4.0	V
Static Drain-Source ON Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 7A$	-	0.63	0.80	$\Omega$
Drain-Source On-State Voltage	$V_{DS(on)}$	$V_{GS} = 10V, I_D = 7A$	-	4.41	5.60	V
Forward Transfer Admittance	$ y_{fs} $	$V_{GS} = 10V, I_D = 7A$	4.5	7.0	-	S

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	$C_{iss}$	$V_{GS} = 0\text{V}, V_{DS} = 25\text{V}, f = 1\text{MHz}$	-	1500	-	pF
Output Capacitance	$C_{oss}$		-	180	-	pF
Reverse Transfer Capacitance	$C_{rss}$		-	30	-	pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 200\text{V}, I_D = 7\text{A}, V_{GS} = 10\text{V}, R_{GEN} = R_{GS} = 50\Omega$	-	30	-	ns
Rise Time	$t_r$		-	50	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	130	-	ns
Fall Time	$t_f$		-	50	-	ns
Diode Forward Voltage	$V_{SD}$	$I_S = 7\text{A}, V_{GS} = 0\text{V}$	-	1.5	2.0	V
Reverse Recovery Time	$t_{rr}$	$I_S = 15\text{A}, di_F/dt = 100\text{A}/\mu\text{s}$	-	-	150	ns

