

NTE2970 MOSFET N-Channel, Enhancement Mode High Speed Switch

Applications:

- SMPS
- DC-DC Converter
- Battery Charger
- Power Supply of Printer
- Copier
- HDD, FDD, TV, VCR
- Personal Computer

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

Drain-Source Voltage ($V_{GS} = 0\text{V}$), V_{DSS}	500V
Gate-Source Voltage ($V_{DS} = 0\text{V}$), V_{GS}	$\pm 30\text{V}$
Drain Current, I_D	
Continuous	22A
Pulsed	66A
Maximum Power Dissipation, P_D	275W
Channel Temperature Range, T_{ch}	-55° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Channel-to-Case, $R_{th(ch-c)}$	0.45°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{DS} = 0\text{V}$, $I_D = 1\text{mA}$	500	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$V_{DS} = 0\text{V}$, $I_G = \pm 100\mu\text{A}$	± 30	—	—	V
Gate-Source Leakage	I_{GSS}	$V_{GS} = \pm 25\text{V}$, $V_{DS} = 0\text{V}$	—	—	± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 500\text{V}$, $V_{GS} = 0$	—	—	1.0	mA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = 10\text{V}$, $I_D = 1\text{mA}$	2.0	3.0	4.0	V
Static Drain-Source ON Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 11\text{A}$	—	0.22	0.29	Ω
Drain-Source On-State Voltage	$V_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 11\text{A}$	—	2.4	3.2	V
Forward Transfer Admittance	$ y_{fs} $	$V_{GS} = 10\text{V}$, $I_D = 11\text{A}$	7	10	—	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}	$V_{GS} = 0\text{V}, V_{DS} = 25\text{V}, f = 1\text{MHz}$	–	2800	–	pF
Output Capacitance	C_{oss}		–	350	–	pF
Reverse Transfer Capacitance	C_{rss}		–	55	–	pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 200\text{V}, I_D = 11\text{A}, V_{GS} = 10\text{V},$ $R_{GEN} = R_{GS} = 50\Omega$	–	60	–	ns
Rise Time	t_r		–	80	–	ns
Turn-Off Delay Time	$t_{d(off)}$		–	270	–	ns
Fall Time	t_f		–	80	–	ns
Diode Forward Voltage	V_{SD}	$I_S = 11\text{A}, V_{GS} = 0\text{V}$	–	1.5	2.0	V

