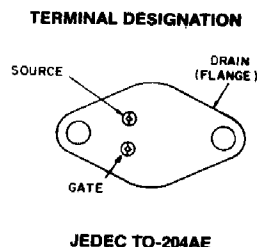


**Power Field Effect Transistor**  
**N-Channel Enhancement-Mode**  
**Silicon Gate TMOS**

**MTM30N50**

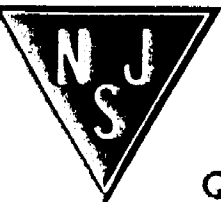
**MAXIMUM RATINGS** ( $T_C = 25^\circ\text{C}$  unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-Source Voltage	$V_{DSS}$	500	Vdc
Drain-Gate Voltage ( $R_{GS} = 1\text{ M}\Omega$ )	$V_{DGR}$	500	Vdc
Gate-Source Voltage — Continuous	$V_{GS}$	$\pm 20$	Vdc
— Non-Repetitive ( $t_p \leq 10\text{ ms}$ )	$V_{GSM}$	$\pm 40$	Vpk
Drain Current — Continuous @ $T_C = 25^\circ\text{C}$	$I_D$	30	Adc
— Single Pulse ( $t_p \leq 10\ \mu\text{s}$ )	$I_{DM}$	80	Apk
Total Power Dissipation Derate above $25^\circ\text{C}$	$P_D$	300 2.38	Watts W/ $^\circ\text{C}$
Operating and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	$^\circ\text{C}$
Single Pulse Drain-to-Source Avalanche Energy — Starting $T_J = 25^\circ\text{C}$ ( $V_{DD} = 100\text{ Vdc}$ , $V_{GS} = 10\text{ Vdc}$ , Peak $I_L = 30\text{ Apk}$ , $L = 10\text{ mH}$ , $R_G = 25\ \Omega$ )	EAS	3000	mJ
Thermal Resistance — Junction to Case	$R_{\theta JC}$	0.42	$^\circ\text{C/W}$
— Junction to Ambient	$R_{\theta JA}$	40	$^\circ\text{C/W}$
Maximum Lead Temperature for Soldering Purposes, 1/8" from case for 10 seconds	$T_L$	260	$^\circ\text{C}$



**ELECTRICAL CHARACTERISTICS** ( $T_J = 25^\circ\text{C}$  unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Drain-Source Breakdown Voltage ( $V_{GS} = 0$ , $I_D = 250\ \mu\text{A}$ ) Temperature Coefficient (Positive)	$V_{(BR)DSS}$	500 —	— 566	— —	Vdc mV/ $^\circ\text{C}$
Zero Gate Voltage Drain Current ( $V_{DS} = 500\text{ Vdc}$ , $V_{GS} = 0\text{ Vdc}$ ) ( $V_{DS} = 500\text{ Vdc}$ , $V_{GS} = 0\text{ Vdc}$ , $T_J = 125^\circ\text{C}$ )	$I_{DSS}$	— —	— —	10 200	$\mu\text{Adc}$
Gate-Body Leakage Current ( $V_{GS} = \pm 20\text{ Vdc}$ , $V_{DS} = 0$ )	$I_{GSS}$	—	—	100	nAdc
<b>ON CHARACTERISTICS (1)</b>					
Gate Threshold Voltage ( $V_{DS} = V_{GS}$ , $I_D = 250\ \mu\text{Adc}$ ) Threshold Temperature Coefficient (Negative)	$V_{GS(th)}$	2 —	— 7	4 —	Vdc mV/ $^\circ\text{C}$
Static Drain-Source On-Resistance ( $V_{GS} = 10\text{ Vdc}$ , $I_D = 15\text{ Adc}$ )	$R_{DS(on)}$	—	—	0.55	Ohm
Drain-Source On-Voltage ( $V_{GS} = 10\text{ Vdc}$ ) ( $I_D = 30\text{ Adc}$ ) ( $I_D = 15\text{ Adc}$ , $T_J = 125^\circ\text{C}$ )	$V_{DS(on)}$	— —	4.1 —	5 7	Vdc
Forward Transconductance ( $V_{DS} = 15\text{ Vdc}$ , $I_D = 15\text{ Adc}$ )	gFS	6	—	—	mhos



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.