



NESL

NEW ENGLAND SEMICONDUCTOR

NESL024

POWER MOSFET - N CHANNEL SURFACE MOUNT

- Switching Power Supplies
- Repetitive Avalanche Rating
- Ceramic Leadless Chip Carrier
- High Reliability

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

PARAMETERS/TEST CONDITIONS		SYMBOL	NESL024	UNITS
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$	I_D	5	A
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	1	W
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

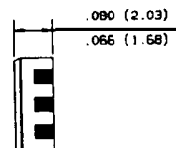
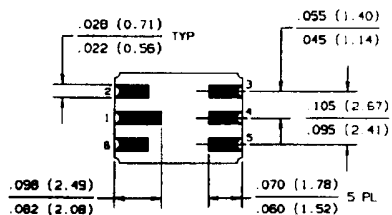
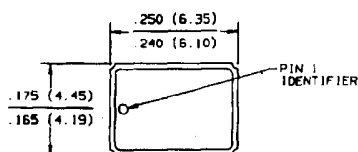


6 PIN LCC

PINOUT

PIN 1	DRAIN	PIN 4	N/C
PIN 2	N/C	PIN 5	GATE
PIN 3	SOURCE	PIN 6	N/C

MECHANICAL OUTLINE



DIMENSIONS ARE IN INCHES (MILLIMETERS)

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1-800-446-1158 / (978) 794-1666 / FAX: (978) 689-0803

T4-4.8-860-908 REV: --



NESL

NEW ENGLAND SEMICONDUCTOR

NESL024

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

PARAMETERS/TEST CONDITIONS		Symbol	Min	Typ.	Max.	Units
Drain-Source Breakdown Voltage $V_{GS} = 0, I_D = 1.0\text{mA}$		$V_{(BR)DDS}$	6.0			V
Gate Threshold Voltage $V_{DS} = V_{GS}, I_D = 250\mu\text{A}$		$V_{GS(th)}$	2.0		4.0	V
Gate-Body Leakage $V_{GS} = 20\text{V}$		I_{GSS}			100	nA
Zero Gate Voltage Drain Current $V_{DS} = 0.8 \text{ max Rating}, V_{GS} = 0\text{V}$		I_{DSS}			25	μA
Zero Gate Voltage Drain Current $V_{DS} = 0.8, V_{(BR)DSS}, V_{GS} = 0\text{V}, T_J = 125^{\circ}\text{C}$		I_{DSS}			250	μA
Drain-Source On-State Resistance (2) $V_{GS} = 10\text{V}, I_D = 4.0\text{A}$		$r_{DS(on)}$			0.17	Ω
Drain-Source On-State Resistance (2) $V_{GS} = 10\text{V}, I_D = 5.0\text{A}$		$r_{DS(on)}$			0.19	Ω
Forward Transconductance (2) $V_{DS} = 15\text{V}, I_D = 4.0\text{A}$		g_{fs}	3.7			S(Ω)
Input Capacitance	$V_{GS} = 0\text{V}$	C_{iss}		640		pF
Output Capacitance	$V_{DS} = 25\text{V}$	C_{oss}		340		
Reverse Transfer Capacitance	$f = 1.0\text{MHz}$	C_{rss}		75		
Total Gate Charge	$V_{DS} = 0.5 V_{(BR)DSS}, V_{GS} = 10\text{V}$ (Gate charge is essentially independent of operating temperature)	Q_g	7.5			nC
Gate-Source Charge		Q_{gs}	1.6			
Gate-Drain Charge		Q_{gd}	5.0			
Turn-On Delay Time	$V_{DD} = 30\text{V}, I_D = 5\text{A}, R_G = 7.5\Omega$ (Switching time is essentially independent of operating temperature)	$t_{d(on)}$		16		ns
Rise time		t_r		80		
Turn-Off Delay Time		$t_{d(off)}$		42		
Fall Time		t_f		49		

SOURCE-DRAIN DIODE RATINGS & CHARACTERISTICS ($T_J = 25^{\circ}\text{C}$ unless otherwise noted)

PARAMETERS/TEST CONDITIONS	Symbol	Min.	Typ.	Max.	Units
Continuous Current	I_S		5.0		A
Pulsed Current (1)	I_{SM}		25.0		A
Forward Voltage (2) $I_F = I_S, V_{GS} = 0\text{V}$	V_{SD}		2.5		V
Reverse Recovery Time $I_F = I_S, dI_F/dt = 100\text{A}/\mu\text{S}, V_{DD} = -50\text{V}$	t_{rr}		250		ns
Reverse Recovered Charge $I_F = I_S, dI_F/dt = 100\text{A}/\mu\text{S}, V_{DD} = -50\text{V}$	Q_{rr}		2.1		μC

(1) Pulse width limited by maximum junction temperature.

(2) Pulse test: Pulse width < 300 μsec . Duty Cycle $\leq 2\%$.

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