



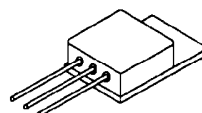
NEC

NEW ENGLAND SEMICONDUCTOR

NSFY30509

POWER MOSFET N CHANNEL

TO-257



7.0 AMPERE

500 VOLT

0.9 Ohms

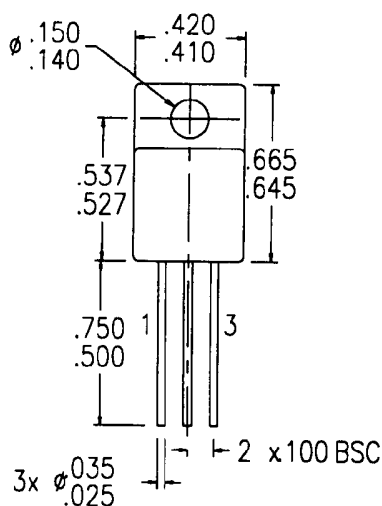
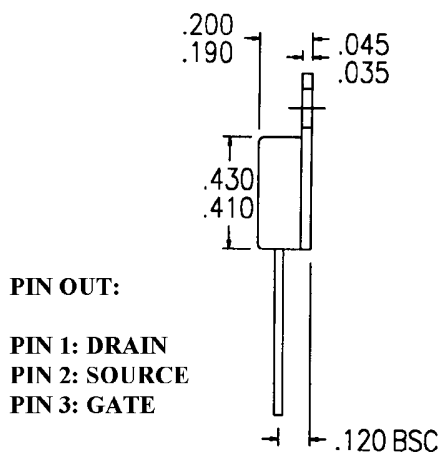
ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

PARAMETERS / TEST CONDITIONS	SYMBOL	VALUE	UNITS
Drain-Source Voltage	V_{DS}	500	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current	I_D	7.0	A
Pulsed Drain Current (1)	I_{DM}	28	A
Power Dissipation	P_D	100	W
Operating Junction & Storage Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYP.	MAX.	UNITS
Junction-to-Case	R_{thJC}		1.2	$^\circ\text{C/W}$

MECHANICAL OUTLINE



NEW ENGLAND SEMICONDUCTOR

6 Lake Street Lawrence, MA 01841
1-800-446-1158 / (978) 794-1666 / FAX: (978) 689-0803

T4-4.8-860-940 REV: --



NES

NEW ENGLAND SEMICONDUCTOR

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

PARAMETERS / TEST CONDITIONS		SYMBOL	MIN.	TYP.	MAX.	UNITS
Drain-Source Breakdown Voltage $V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$		$V_{(BR)DSS}$	500			V
Gate Threshold Voltage $V_{DS} = V_{GS}, I_D = 1.0\text{ mA}$		$V_{GS(th)}$	2.0		4.0	V
Diode Forward Voltage (1) $V_{GS} = 0\text{ V}, I_S = I_D (\text{con't})$		V_{SD}			1.3	V
Gate Source Leakage Current $V_{GS} = \pm 30\text{ V}, V_{DS} = 0\text{ V}$		I_{GSS}			± 100	nA
Zero Gate Voltage Drain Current $V_{DS} = V_{DSS}, V_{GS} = 0\text{ V}, T_A = 25^\circ\text{C}$		I_{DSS}			250	μA
Zero Gate Voltage Drain Current $V_{DS} = 0.8 V_{DSS}, V_{GS} = 0\text{ V}, T_A = 125^\circ\text{C}$		I_{DSS}			1000	μA
Drain-Source On-State Resistance (1) $V_{GS} = 10\text{ V}, I_D = 0.5, I_D (\text{con't})$		$R_{DS(on)}$			0.9	Ω
On-State Current Drain (1) $V_{GS} = 10\text{ V}, (V_{DS} \geq I_{D(on)} \times R_{DS(on)} \text{ max})$		$I_{D(on)}$	7.0			A
Input Capacitance	$V_{GS} = 0\text{ V}$	C_{iss}			950	pF
Output Capacitance	$V_{DS} = 25\text{ V}$	C_{oss}			234	
Reverse Transfer Capacitance	$f = 1.0\text{ MHz}$	C_{rss}			94	
Turn-On Delay Time	$V_{dd} = 50\% V_{DS},$ $I_D = I_D (\text{con't})$ $R_G = 1.8\text{ }\Omega$ (Switching time is essentially independent of operating temperature.)	$t_{d(on)}$			18	ns
Rise Time		t_r			18	
Turn-Off Delay Time		$t_{d(off)}$			14	
Fall Time		t_f			12	

(1) Pulse Test: Pulse width $< 300\text{ }\mu\text{sec}$. Duty cycle $\leq 2\%$.

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