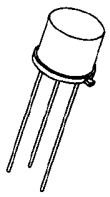
NEW ENGLAND SEMICONDUCTOR

NES230/5

POWER MOSFET
N CHANNEL

- REPETITIVE AVALANCHE RATINGS
- LOW $R_{DS(ON)}$
- LOW DRIVE REQUIREMENT
- DYNAMIC dv/dt RATING

TO-5



5.5 AMPERE

200 VOLTS

0.40 Ω

ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

PARAMETERS / TEST CONDITIONS		SYMBOL	VALUE	UNITS
Drain-Source Voltage		V_{DS}	200	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C = 25°C	I_D	5.5	A
Pulsed Drain Current (1)		I_{DM}	22	A
Power Dissipation	T_C = 25°C	P_D	25	W
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to + 150	°C
Lead Temperature (1/16" from case for 10 secs.)		T_L	300	°C

THERMAL RESISTANCE RATINGS

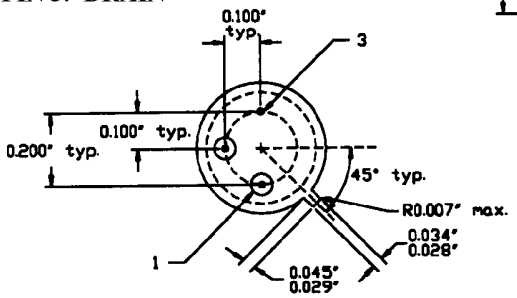
THERMAL RESISTANCE	SYMBOL	TYP.	MAX.	UNITS
Junction-to-Case	R_{thJC}		5.0	K/W
Junction-to-Ambient	R_{thJA}		175	K/W

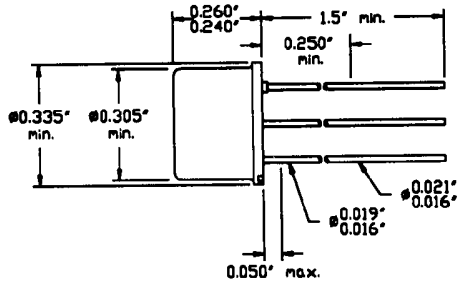
(1)Pulse width linited by maximum junction temperature.

MECHANICAL OUTLINE

PIN OUT:

PIN 1: SOURCE
PIN 2: GATE
PIN 3: DRAIN





NEW ENGLAND SEMICONDUCTOR
6 Lake Street Lawrence, MA 01841
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ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

PARAMETERS / TEST CONDITIONS		SYMBOL	MIN.	TYP.	MAX.	UNITS
Drain-Source Breakdown Voltage V_{GS} = 0 V, I_D = 250 µA		$V_{(BR)DSS}$	200			V
Gate Threshold Voltage V_{DS} = V_{GS}, I_D = 250 µA		$V_{GS(th)}$	2.0		4.0	V
Gate-Body Leakage V_{GS} = At Rated V_{GS}		I_{GSS}			±100	nA
Zero Gate Voltage Drain Current V_{DS} = 0.8 max Rating, V_{GS} = 0 V		I_{DSS}			250	µA
Zero Gate Voltage Drain Current V_{DS} = 80% $V_{(BR)DSS}$, V_{GS} = 0 V, T_J = 125°C		I_{DSS}			1000	µA
Drain-Source On-State Resistance (2) V_{GS} = 10 V, I_D = 5 A		$r_{DS(on)}$			0.4	Ω
Forward Transconductance (2) V_{DS} = 15 V, I_D = 5 A ($V_{DS} \geq I_{D(ON)} \times R_{DS(ON)}$ max)		g_{fs}	3.0			S(Ω)
Input Capacitance	V_{GS} = 0 V	C_{iss}			800	
Output Capacitance	V_{DS} = 25 V	C_{oss}			450	pF
Reverse Transfer Capacitance	f = 1.0 MHz	C_{rss}			150	
Total Gate Charge	V_{DS} = 80 %$V_{(BR)DSS}$ V_{GS} = 10 V, I_D = 12 A	Q_g			30	
Gate-Source Charge	(Gate charge is essentially independent of operating	Q_{gs}			-	nC
Gate -Drain Charge	temperature.)	Q_{gd}			-	
Turn-On Delay Time	V_{dd} = 50% V, I_D = 50% A,	$t_{d(on)}$			30	
Rise Time	R_G = 15 Ω	t_r			50	ns
Turn-Off Delay Time	(Switching time is essentially independent of	$t_{d(off)}$			50	
Fall Time	operating temperature.)	t_f			40	

SOURCE-DRAIN DIODE RATINGS & CHARACTERISTICS (T_j = 25°C unless otherwise noted)

PARAMETERS / TEST CONDITIONS	SYMBOL	MIN.	TYP.	MAX	UNITS
Continuous Current	I_S			5.5	A
Pulsed Current (1)	I_{SM}			22	A
Forward Voltage (2) I_F = I_S, V_{GS} = 0 V	V_{SD}			2.0	V
Reverse Recovery Time I_F = I_S, dI/dt = 100 A/µS, V_{DD} = 50 v	t_{rr}		450		ns
Reverse Recovered Charge I_F = I_S, dI/dt = 100 A/µS, V_{DD} = 50 v	Q_{rr}		3.0		µC

(1)Pulsed width limited by maximum junction temperature.
(2)Pulse Test: Pulse width < 300 µsec. Duty cycel ≤ 2%.

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