NEW ENGLAND SEMICONDUCTOR

NCQ1004

N CHANNEL ENHANCEMENT-MODE MOS TRANSISTOR ARRAY

SURFACE MOUNT QUAD

20 PIN LCC

- **20 PIN LCC**
- **CERAMIC PACKAGE**
- **FAST SWITCHING**
- **LOW Rds (ON)**

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^0C$ unless otherwise noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current-Single	$T_A = 25^0C$	I_D	0.46	A
	$T_A = 100^0C$		0.26	
Pulsed Drain Current (1)		I_{DM}	±2	A
Power Dissipation-Single	$T_C = 25^0C$	P_D	TBD	W
	$T_C = 100^0C$		TBD	
Power Dissipation-Quad	$T_C = 25^0C$		TBD	
	$T_C = 100^0C$		TBD	
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	^0C
Lead Temperature ($\frac{1}{16}$" from case for 10 sec.)		T_L	300	

THERMAL RESISTANCE RATINGS

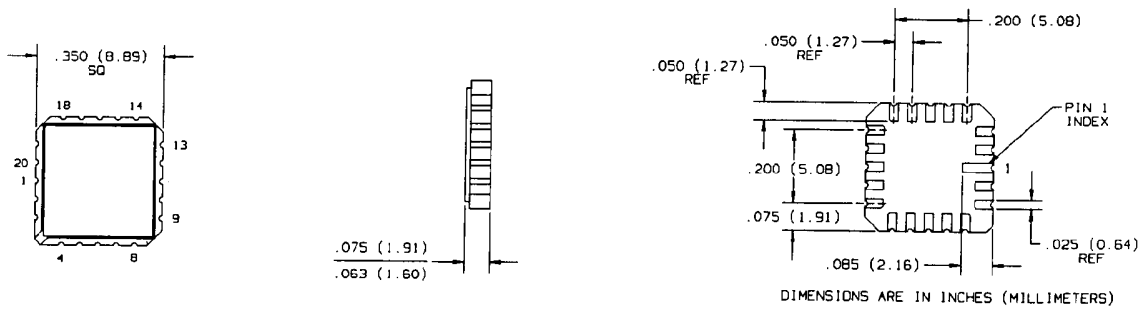
THERMAL RESISTANCE	Symbol	Limits	Units
Junction-to-Ambient - Single	R_{thJA}	TBD	$K/W/^0C$
Junction-to-Ambient - Quad		TBD	

(1) Pulse width limited by maximum junction temperature.

PIN OUT

PIN	FUNCTION
1	D1
2	S1
3	G1
4	NC
5	NC
6	NC
7	D2
8	S2
9	G2
10	NC
11	NC
12	D3
13	S3
14	G3
15	NC
16	NC
17	D4
18	S4
19	G4
20	NC

MECHANICAL OUTLINE



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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

PARAMETERS/TEST CONDITIONS	Symbol	Min	Typ(1)	Max.	Units
STATIC					
Drain-Source Breakdown Voltage V_{GS} = 0 V, I_D = 10μA	$V_{(BR)DDS}$	60	70		V
Gate Threshold Voltage V_{DS} = V_{GS}, I_D = 1.0mA	$V_{GS(th)}$	0.8	1.5	2.5	V
Gate-Body Leakage V_{GS} = ± 15 V, V_{DS} = 0 V T_J = 125°C	I_{GSS}			±100 ±500	nA
Zero Gate Voltage Drain Current V_{DS} = 48 V, V_{GS} = 0 V T_J = 125°C	I_{DSS}			1 500	μA
On-State Drain Current (2) V_{GS} = 10 V, V_{DS} = 10 V	$I_{D(ON)}$	1.5	1.8		A
Drain-Source On-State Resistance (2) V_{GS} = 5.0 V, I_D = 0.3 A V_{GS} = 10 V, I_D = 1.0 A T_J = 125°C	$r_{DS(ON)}$		1.8 1.3 2.6	5 3.5 4.9	Ω
Forward Transconductance (2) V_{DS} = 10 V, I_D = 0.5 A	g_{FS}	170	350		mS
Common Source Output Conductance (2) V_{DS} = 10 V, I_D = 0.1 A	g_{OS}		1100		μS
DYNAMIC					
Input Capacitance	V_{GS} = 0V, V_{DS} = 25V, f = 1.0MHz	C_{iss}		35	60	pF
Output Capacitance		C_{oss}		25	50	
Reverse Transfer Capacitance		C_{rss}		5	10	
SWITCHING						
Turn-On Time	V_{DD} = 25 V, R_L = 23Ω, I_D = 1A, V_{GEN} = 10 V, R_G = 25Ω (Switching time is essentially independent of operating temperature)	t_{on}		8	10	ns
Turn-Off Time		t_{off}		9	10	

(1)For design aid only, not subject to production testing.
(2)Pulse test: Pulse width = ≤300 μsec. Duty Cycle ≤ 2%.

SX LEVEL RELIABILITY TESTING

100% SCREENING	GROUP A	GROUP B (Sample)	GROUP C (Sample)
Internal Visual	Visual and Mechanical	Solderability	Physical Dimensions
Temp Cycle	DC Static Tests 25°C	Temp Cycle	Thermal Shock
Thermal Response	DC Static Tests High Temp	Fine and Gross Leak	Terminal Strength
Constant Acceleration	DC Static Tests Low Temp	Bond Strength	Hermetic Seal
PIND	Dynamic Tests @ 25°C	Intermittent Op Life	Moisture Resistance
Fine and Gross Leak		Steady State Op life	Shock Test
HTRB		Thermal Resistance	Vibration Test
Power Burn In		Hi-Temp (non operating)	Constant Acceleration
			Salt Atmosphere
			Operation Life

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