NTMYS003N08LH

Product Preview

MOSFET – Power, Single N-Channel

80 V, 3.5 mΩ, 128 A

Features

- Small Footprint (5x6 mm) for Compact Design
- Low $R_{DS(on)}$ to Minimize Conduction Losses
- Low Q_G and Capacitance to Minimize Driver Losses
- LFPAK4 Package, Industry Standard
- These Devices are Pb−Free and are RoHS Compliant

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

Parameter			Symbol	Value	Unit
Drain−to−Source Voltage			V_{DSS}	80	V
Gate−to−Source Voltage			V_{GS}	±20	V
Continuous Drain Current $R_{\theta JC}$ (Notes 1, 3)	Steady State	T_C = 25°C	I_D	128	A
		T_C = 100°C		90	
Power Dissipation $R_{\theta JC}$ (Note 1)		T_C = 25°C	P_D	137	W
		T_C = 100°C		68	
Continuous Drain Current $R_{\theta JA}$ (Notes 1, 2, 3)	Steady State	T_A = 25°C	I_D	22	A
		T_A = 100°C		15	
Power Dissipation $R_{\theta JA}$ (Notes 1, 2)		T_A = 25°C	P_D	3.9	W
		T_A = 100°C		2.0	
Pulsed Drain Current	T_A = 25°C, t_p = 10 μs		I_{DM}	900	A
Operating Junction and Storage Temperature Range			T_J, T_{stg}	−55 to +175	°C
Source Current (Body Diode)			I_S	114	A
Single Pulse Drain−to−Source Avalanche Energy ($I_{L(pk)}$ = 9 A)			E_{AS}	TBD	mJ
Lead Temperature for Soldering Purposes (1/8″ from case for 10 s)			T_L	260	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL RESISTANCE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Junction−to−Case − Steady State	$R_{\theta JC}$	1.1	°C/W
Junction−to−Ambient − Steady State (Note 2)	$R_{\theta JA}$	38	

1. The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.
2. Surface−mounted on FR4 board using a 650 mm^2, 2 oz. Cu pad.
3. Maximum current for pulses as long as 1 second is higher but is dependent on pulse duration and duty cycle.

This document contains information on a product under development. ON Semiconductor reserves the right to change or discontinue this product without notice.

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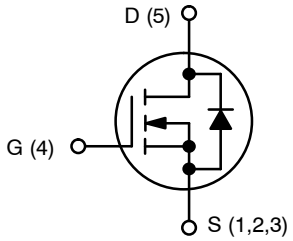
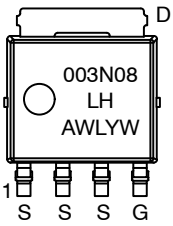
$V_{(BR)DSS}$	$R_{DS(ON)}$ MAX	I_D MAX
80 V	3.5 mΩ @ 10 V	128 A
	4.4 mΩ @ 4.5 V	



N−CHANNEL MOSFET

LFPAK4
CASE 760AB

MARKING DIAGRAM



003N08LH	= Specific Device Code
A	= Assembly Location
WL	= Wafer Lot
Y	= Year
W	= Work Week

ORDERING INFORMATION

See detailed ordering, marking and shipping information in the package dimensions section on page 2 of this data sheet.

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
OFF CHARACTERISTICS							
Drain−to−Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 250 μA		80			V
Drain−to−Source Breakdown Voltage Temperature Coefficient	$V_{(BR)DSS}/T_J$				20		mV/°C
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0 V, V_{DS} = 80 V	T_J = 25°C			10	μA
			T_J = 125°C			250	
Gate−to−Source Leakage Current	I_{GSS}	V_{DS} = 0 V, V_{GS} = 20 V				100	nA
ON CHARACTERISTICS (Note 4)							
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} = V_{DS}, I_D = 183 μA		1.2		2.0	V
Threshold Temperature Coefficient	$V_{GS(TH)}/T_J$				TBD		mV/°C
Drain−to−Source On Resistance	$R_{DS(on)}$	V_{GS} = 10 V	I_D = 50 A		2.9	3.5	mΩ
		V_{GS} = 4.5 V	I_D = 50 A		3.5	4.4	
Forward Transconductance	g_{FS}	V_{DS} =15 V, I_D = 50 A			TBD		S
CHARGES, CAPACITANCES & GATE RESISTANCE							
Input Capacitance	C_{ISS}	V_{GS} = 0 V, f = 1 MHz, V_{DS} = 40 V			TBD		pF
Output Capacitance	C_{OSS}				TBD		
Reverse Transfer Capacitance	C_{RSS}				TBD		
Total Gate Charge	$Q_{G(TOT)}$	V_{GS} = 10 V, V_{DS} = 40 V; I_D = 50 A			TBD		nC
Total Gate Charge	$Q_{G(TOT)}$	V_{GS} = 4.5 V, V_{DS} = 40 V; I_D = 50 A			TBD		nC
Threshold Gate Charge	$Q_{G(TH)}$				TBD		
Gate−to−Source Charge	Q_{GS}				TBD		
Gate−to−Drain Charge	Q_{GD}				TBD		
Plateau Voltage	V_{GP}				TBD		V
SWITCHING CHARACTERISTICS (Note 5)							
Turn−On Delay Time	$t_{d(ON)}$	V_{GS} = 4.5 V, V_{DS} = 64 V, I_D = 50 A, R_G = 2.5 Ω			TBD		ns
Rise Time	t_r				TBD		
Turn−Off Delay Time	$t_{d(OFF)}$				TBD		
Fall Time	t_f				TBD		
DRAIN−SOURCE DIODE CHARACTERISTICS							
Forward Diode Voltage	V_{SD}	V_{GS} = 0 V, I_S = 50 A	T_J = 25°C		TBD	1.2	V
			T_J = 125°C		TBD		
Reverse Recovery Time	t_{RR}	V_{GS} = 0 V, dIs/dt = 100 A/μs, I_S = 50 A			TBD		ns
Charge Time	t_a				TBD		
Discharge Time	t_b				TBD		
Reverse Recovery Charge	Q_{RR}				TBD		nC

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

4. Pulse Test: pulse width ≤ 300 μs, duty cycle ≤ 2%.
5. Switching characteristics are independent of operating junction temperatures.

DEVICE ORDERING INFORMATION

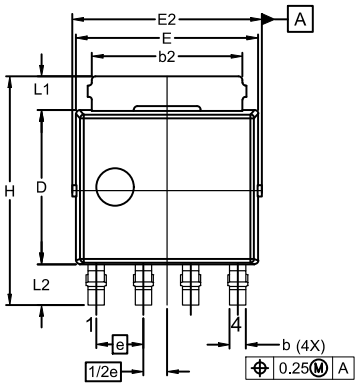
Device	Marking	Package	Shipping†
NTMYS003N08LHTWG	003N08LH	LFPAK4 (Pb−Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

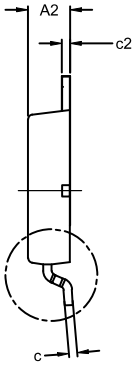
NTMYS003N08LH

PACKAGE DIMENSIONS

LFPAK4 5x6
CASE 760AB
ISSUE A

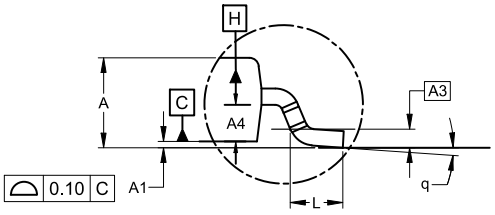


TOP VIEW



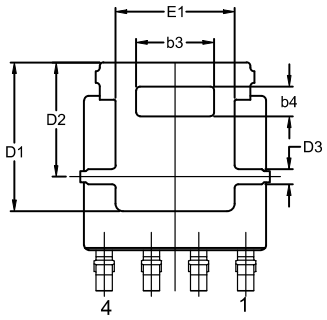
SIDE VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS. MOLD FLASH PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.150mm PER SIDE.
4. DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
5. DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.

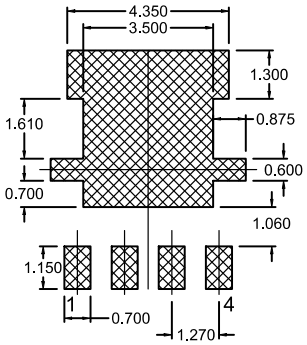


DETAIL 'A'
SCALE: 2:1

UNIT IN MILLIMETER			
DIM	MIN	NOM	MAX
A	1.10	1.20	1.30
A1	0.00	0.08	0.15
A2	1.10	1.15	1.20
A3		0.25	
A4	0.45	0.50	0.55
b	0.40	0.45	0.50
b2	3.80	4.10	4.40
b3	2.00	2.10	2.20
b4	0.70	0.80	0.90
c	0.19	0.22	0.25
c2	0.19	0.22	0.25
D	4.05	4.15	4.25
D1	-	-	4.20
D2	3.0	3.10	3.20
D3	0.30	0.40	0.50
E	4.80	4.90	5.00
E1	3.10	3.20	3.30
E2	5.00	5.15	5.30
e		1.27 BSC	
H	6.00	6.15	6.30
L	0.40	0.65	0.85
L1	0.80	0.90	1.00
L2	0.80	1.05	1.30
q	0°	4°	8°



BOTTOM VIEW



RECOMMENDED MOUNTING FOOTPRINT

PUBLICATION ORDERING INFORMATION

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