MAXIMUM RATINGS

Symbol	Parameter	Value	Unit	
V _{CC}	DC Supply Voltage		-0.5 to +7.0	V
V _{IN}	DC Input Voltage		-0.5 to +7.0	V
V _{OUT}	DC Output Voltage		−0.5 to +7.0	V
I _{IK}	DC Input Diode Current	V _{IN} < GND	-20	mA
I _{OK}	DC Output Diode Current	V _{OUT} < GND	±20	mA
ΙO	DC Output Source/Sink Current		±12.5	mA
I _{CC}	DC Supply Current Per Supply Pin		±25	mA
I_{GND}	DC Ground Current per Ground Pin	±25	mA	
T _{STG}	Storage Temperature Range	-65 to +150	°C	
TL	Lead Temperature, 1 mm from Case for 10 Seconds	3	260	°C
TJ	Junction Temperature Under Bias	150	°C	
MSL	Moisture Sensitivity		Level 1	
F _R	Flammability Rating Oxy	gen Index: 28 to 34	UL 94 V-0 @ 0.125 in	
I _{LATCHUP}	Latchup Performance Above V _{CC} and Below GND a	at 125°C (Note 2)	±500	mA

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.

1. Measured with minimum pad spacing on an FR4 board, using 10 mm-by-1 inch, 2 ounce copper trace no air flow.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V _{CC}	Positive DC Supply Voltage	1.65	5.5	V
V_{IN}	Digital Input Voltage	0	5.5	V
V _{OUT}	Output Voltage	0	5.5	V
T _A	Operating Free–Air Temperature	-55	+125	°C
Δt/ΔV	Input Transition Rise or Fall Rate $ \begin{array}{c} V_{CC} = 3.3 \ V \pm 0.3 \ V \\ V_{CC} = 5.0 \ V \pm 0.5 \ V \end{array} $	0	100 20	ns/V

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.

^{2.} Tested to EIA / JESD78.

DC ELECTRICAL CHARACTERISTICS

			T _A = 25 °C		°C	T _A = +85°C		T _A = -55°C to +125°C			
Symbol	Parameter	Conditions	V _{CC} (V)	Min	Тур	Max	Min	Max	Min	Max	Unit
V _{IH}	Low-Level Input Voltage		3.0 4.5 to 5.5	1.4 2.0			1.4 2.0		1.4 2.0		V
V_{IL}	Low-Level Input Voltage		3.0 4.5 to 5.5			0.53 0.8		0.53 0.8		0.53 0.8	V
V _{OH}	High-Level Output Voltage	$V_{IN} = V_{IH} \text{ or } V_{IL}$ $I_{OH} = -50 \mu A$	3.0 4.5	2.9 4.4	3.0 4.5		2.9 4.4		2.9 4.4		٧
		$V_{IN} = V_{IH} \text{ or } V_{IL}$ $I_{OH} = -4 \text{ mA}$ $I_{OH} = -8 \text{ mA}$	3.0 4.5	2.58 3.94			2.48 3.80		2.34 3.66		
V _{OL}	Low-Level Output Voltage	$V_{IN} = V_{IH} \text{ or } V_{IL}$ $I_{OL} = 50 \mu\text{A}$	3.0 4.5		0 0	0.1 0.1		0.1 0.1		0.1 0.1	V
		$V_{IN} = V_{IH} \text{ or } V_{IL}$ $I_{OL} = 4 \text{ mA}$ $I_{OL} = 8 \text{ mA}$	3.0 4.5			0.36 0.36		0.44 0.44		0.52 0.52	
I _{IN}	Input Leakage Current	$0 \le V_{IN} \le 5.5 V$	0 to 5.5			±0.1		±1.0		±1.0	μΑ
I _{CC}	Quiescent Supply Current	$0 \le V_{IN} \le V_{CC}$	5.5			1.0		20		40	μΑ
I _{CCT}	Quiescent Supply Current	V _{IN} = 3.4 V Other Input: V _{CC} or GND	5.5			1.35		1.50		1.65	mA
I _{OPD}	Output Leakage Current	V _{OUT} = 5.5 V	0			0.5		5.0		10	μΑ
I _{OZ}	3-State Leakage Current	$V_{IN} = V_{IH} \text{ or } V_{IL}$ $V_{OUT} = V_{CC} \text{ or }$ GND	0			±0.25		±2.5		±2.5	μΑ

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.

AC ELECTRICAL CHARACTERISTICS (Input $t_r = t_f = 3.0 \text{ ns}$)

		V _{CC}	Test	т	A = 25 °	°C	T _A =	+85°C		–55°C I25°C	
Symbol	Parameter	(V)	Condition	Min	Тур	Max	Min	Max	Min	Max	Unit
t _{PLH} , t _{PHL}	Propagation Delay, A to Y (Figures 3 and 5)	3.0 to 3.6	$C_L = 15 \text{ pF}$ $C_L = 50 \text{ pF}$		5.6 8.1	8.0 11.5	1.0 1.0	9.5 13		12 16	ns
		4.5 to 5.5	$C_L = 15 \text{ pF}$ $C_L = 50 \text{ pF}$		3.8 5.3	5.5 7.5	1.0 1.0	6.5 8.5		8.5 10.5	
t _{PZL} , t _{PZH}	Output Enable Time, OE to Y (Figures 4 and 6)	3.0 to 3.6	$C_L = 15 \text{ pF}$ $C_L = 50 \text{ pF}$		5.4 7.9	8.0 11.5	1.0 1.0	9.5 13		11.5 15	ns
		4.5 to 5.5	$C_L = 15 \text{ pF}$ $C_L = 50 \text{ pF}$		3.6 5.1	5.1 7.1	1.0 1.0	6.0 8.0		7.5 9.5	
t _{PLZ} , t _{PHZ}	Output Disable Time, OE to Y (Figures 4 and 6)	3.0 to 3.6	$C_L = 15 \text{ pF}$ $C_L = 50 \text{ pF}$		6.5 8.0	9.7 13.2	1.0 1.0	11.5 15		14.5 18.5	ns
		4.5 to 5.5	$C_L = 15 \text{ pF}$ $C_L = 50 \text{ pF}$		4.8 7.0	6.8 8.8	1.0 1.0	8.0 10		10 12	
C _{IN}	Input Capacitance				4	10		10		10	pF
C _{OUT}	3-State Output Capacitance (Output in High Impedance State)				6						pF
C _{PD}	Power Dissipation Capacitance (Note 3)	5.0			14						pF

^{3.} C_{PD} is defined as the value of the internal equivalent capacitance which is calculated from the dynamic operating current consumption without load. Average operating current can be obtained by the equation I_{CC(OPR)} = C_{PD} • V_{CC} • f_{in} + I_{CC}. C_{PD} is used to determine the no–load dynamic power consumption: P_D = C_{PD} • V_{CC}² • f_{in} + I_{CC} • V_{CC}.

SWITCHING WAVEFORMS

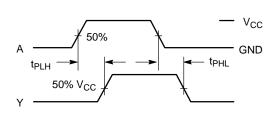
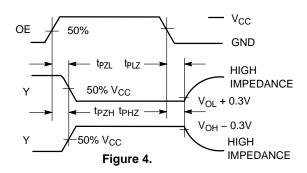
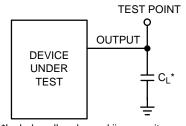
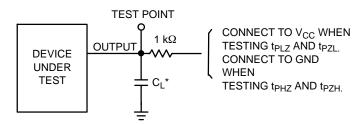


Figure 3. Switching Waveforms





*Includes all probe and jig capacitance



*Includes all probe and jig capacitance

Figure 5. Test Circuit

Figure 6. Test Circuit

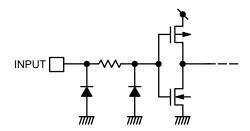


Figure 7. Input Equivalent Circuit

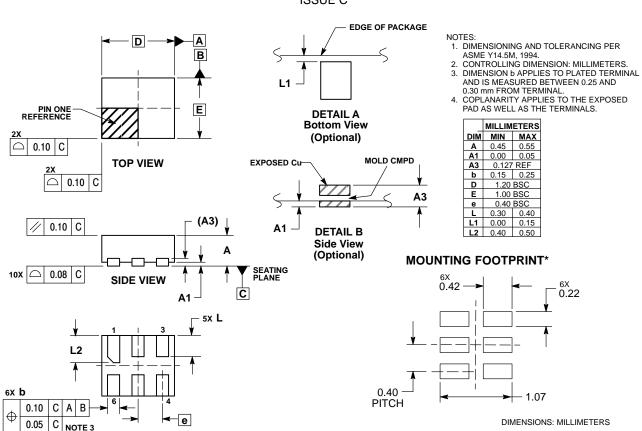
ORDERING INFORMATION

Device	Package	Shipping [†]		
NLU1GT126MUTCG	UDFN6, 1.2 x 1.0, 0.4P (Pb-Free)	3000 / Tape & Reel		
NLU1GT126AMX1TCG	ULLGA6, 1.45 x 1.0, 0.5P (Pb-Free)	3000 / Tape & Reel		
NLU1GT126BMX1TCG	ULLGA6, 1.2 x 1.0, 0.4P (Pb-Free)	3000 / Tape & Reel		
NLU1GT126CMX1TCG	ULLGA6, 1.0 x 1.0, 0.35P (Pb-Free)	3000 / Tape & Reel		
NLU1GT126AMUTCG	UDFN6, 1.45 x 1.0, 0.5P (Pb–Free)	3000 / Tape & Reel		
NLU1GT126CMUTCG	UDFN6, 1.0 x 1.0, 0.35P (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.

PACKAGE DIMENSIONS

UDFN6, 1.2x1.0, 0.4P CASE 517AA ISSUE C

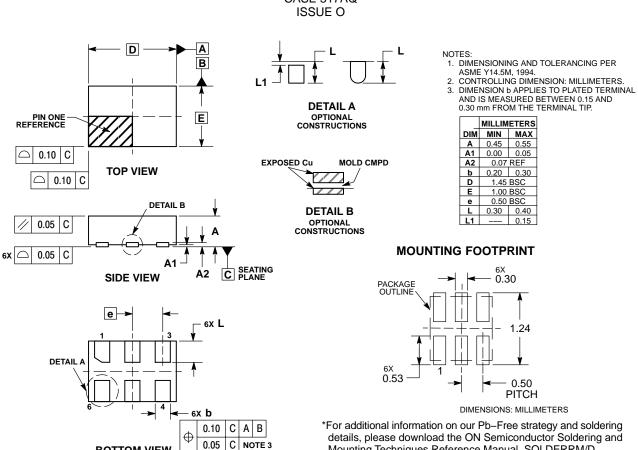


BOTTOM VIEW

^{*}For additional information on our Pb–Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PACKAGE DIMENSIONS

UDFN6 1.45x1.0, 0.5P CASE 517AQ



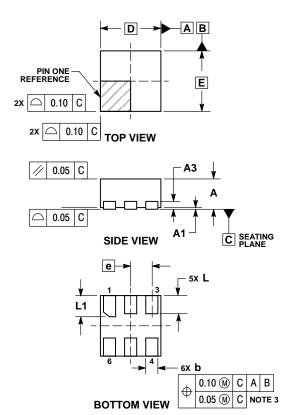
Mounting Techniques Reference Manual, SOLDERRM/D.

0.05

BOTTOM VIEW

PACKAGE DIMENSIONS

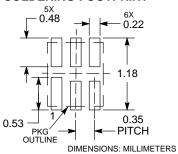
UDFN6 1.0x1.0, 0.35P CASE 517BX **ISSUE O**



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. DIMENSION & APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.20 MM FROM TERMINAL TIP.
 4. PACKAGE DIMENSIONS EXCLUSIVE OF BURRS AND MOLD FLASH.

	MILLIMETERS				
DIM	MIN	MAX			
Α	0.45	0.55			
A1	0.00	0.05			
A3	0.13 REF				
b	0.12	0.22			
D	1.00 BSC				
E	1.00	BSC			
е	0.35 BSC				
L	0.25	0.35			
L1	0.30	0.40			

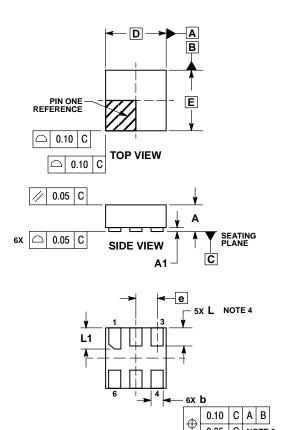
RECOMMENDED SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PACKAGE DIMENSIONS

ULLGA6 1.0x1.0, 0.35P CASE 613AD **ISSUE A**



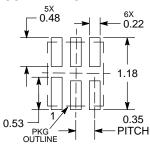
BOTTOM VIEW

0.05 C NOTE 3

- NOTES:
 1. DIMENSIONING AND TOLERANCING PER
- DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 CONTROLLING DIMENSION: MILLIMETERS.
 DIMENSION & APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 mm FROM THE TERMINAL TIP.
 A MAXIMUM OF 0.05 PULL BACK OF THE PLATED TERMINAL FROM THE EDGE OF THE PACKAGE IS ALLOWED.

	MILLIMETERS				
DIM	MIN	MAX			
Α	-	0.40			
A1	0.00	0.05			
b	0.12	0.22			
D	1.00	BSC			
Е	1.00 BSC				
е	0.35 BSC				
L	0.25	0.35			
L1	0.30	0.40			

MOUNTING FOOTPRINT SOLDERMASK DEFINED*

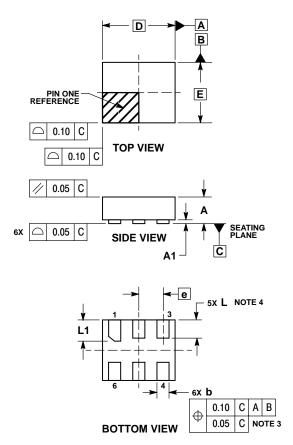


DIMENSIONS: MILLIMETERS

^{*}For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PACKAGE DIMENSIONS

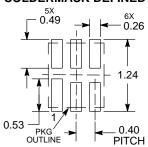
ULLGA6 1.2x1.0, 0.4P CASE 613AE **ISSUE A**



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. DIMENSION & APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 mm FROM THE TERMINAL TIP.
 4. A MAXIMUM OF 0.05 PULL BACK OF THE PLATED TERMINAL FROM THE EDGE OF THE PEACKAGE IS ALLOWED. PACKAGE IS ALLOWED.

ſ		MILLIMETERS					
L	DIM	MIN	MAX				
	Α		0.40				
	A1	0.00	0.05				
	b	0.15	0.25				
	D	1.20	BSC				
	Е	1.00	BSC				
	е	0.40 BSC					
	L	0.25	0.35				
	L1	0.35	0.45				

MOUNTING FOOTPRINT SOLDERMASK DEFINED*

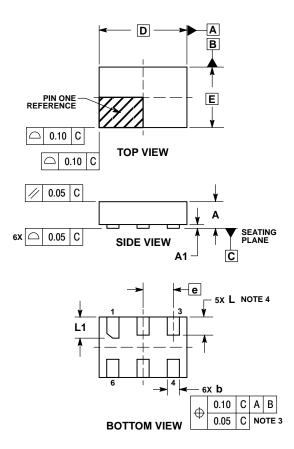


DIMENSIONS: MILLIMETERS

^{*}For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PACKAGE DIMENSIONS

ULLGA6 1.45x1.0, 0.5P CASE 613AF ISSUE A

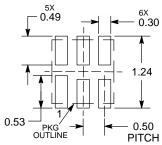


NOTES:

- 1. DIMENSIONING AND TOLERANCING PER
- ASME Y14.5M, 1994. 2. CONTROLLING DIMENSION: MILLIMETERS.
- DIMENSION 6 APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 mm FROM THE TERMINAL TIP.
 A MAXIMUM OF 0.05 PULL BACK OF THE
- A MAXIMUM OF 0.05 PULL BACK OF THE PLATED TERMINAL FROM THE EDGE OF THE PACKAGE IS ALLOWED.

	MILLIMETERS				
DIM	MIN	MAX			
Α		0.40			
A1	0.00	0.05			
b	0.15	0.25			
D	1.45	BSC			
E	1.00	BSC			
е	0.50	BSC			
Ĺ	0.25	0.35			
L1	0.30	0.40			

MOUNTING FOOTPRINT SOLDERMASK DEFINED*



DIMENSIONS: MILLIMETERS

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