

# NC7SV57L6X Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number NC7SV57L6X-DG

Manufacturer onsemi

Manufacturer Product Number NC7SV57L6X

Description IC GATE ULP-A UNIV 2INP 6-MCRPAK

Detailed Description Configurable Multiple Function Configurable 1 Circ

uit 3 Input 6-MicroPak



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.



## **Purchase and inquiry**

Manufacturer Product Number:	Manufacturer:
NC7SV57L6X	onsemi
Series:	Product Status:
7SV	Obsolete
Logic Type:	Number of Circuits:
Configurable Multiple Function	1
Number of Inputs:	Schmitt Trigger Input:
3	No
Output Type:	Current - Output High, Low:
Single-Ended	24mA, 24mA
	241101, 241101
Voltage - Supply:	Operating Temperature:
Voltage - Supply: 0.9V ~ 3.6V	
	Operating Temperature:
0.9V ~ 3.6V	Operating Temperature: -40°C ~ 85°C
0.9V ~ 3.6V  Mounting Type:	Operating Temperature: -40°C ~ 85°C Package / Case:

## **Environmental & Export classification**

8542.39.0001

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	

1



## **TinyLogic ULP-A Universal Configurable Logic Gates**

## **NC7SV57, NC7SV58**

The NC7SV57 and NC7SV58 are universal configurable logic gates in tiny footprint packages. The devices are designed to operate for  $V_{CC} = 0.9 \text{ V}$  to 3.6 V.

#### **Features**

- Designed for 0.9 V to 3.6 V V<sub>CC</sub> Operation
- 2.4 ns t<sub>PD</sub> at 3.3 V (Typ)
- Inputs/Outputs Over-Voltage Tolerant up to 3.6 V
- I<sub>OFF</sub> Supports Partial Power Down Protection
- Source/Sink 24 mA at 3.3 V
- Available in SC-88 and MicroPak<sup>TM</sup> Packages
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

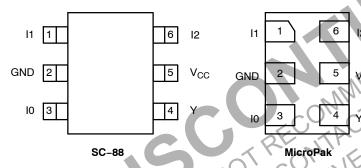


Figure 1. Pinout Diagrams (Top Views)

## **PIN ASSIGNMENT**

Pin	SC-88	MicroPak
1	(1)	11
2	GND	GND
3	10	10
4	Y	Υ
5	V <sub>CC</sub>	V <sub>CC</sub>
6	12	12

### **MARKING DIAGRAM**



SIP6 1.45X1.0 MicroPak CASE 127EB





UDFN6 1.0X1.0, 0.35P MicroPak2<sup>TM</sup> CASE 517DP



= Specific Device Code ΚK

= 2-Digit Lot Run Traceability Code

XY 2-Digit Date Code

Assembly Plant Code





XXX = Specific Device Code

= Date Code

= Pb-Free Package

#### ORDERING INFORMATION

See detailed ordering, marking and shipping information on page 9 of this data sheet.

### **FUNCTION TABLE**

	Inputs		NC7SV57	NC7SV58
l2	l1	10	$Y = (\overline{10}) \cdot (\overline{12}) + (\overline{11}) \cdot (\overline{12})$	$Y = (\overline{10}) \cdot (\overline{12}) + (\overline{11}) \cdot (\overline{12})$
L	L	L	Н	L
L	L	Н	L	Н
L	Н	L	Н	L
L	Н	Н	L	Н
Н	L	L	L	Н
Н	L	Н	L	Н
Н	Н	L	Н	L
Н	Н	Н	Н	L

#### **FUNCTION SELECTION TABLE**

2-Input Logic Function	Device Selection	Connection Configuration
2-Input AND	NC7SV57	Figure 2
2-Input AND with inverted input	NC7SV58	Figure 8, 9
2-Input AND with both inputs inverted	NC7SV57	Figure 5
2-Input NAND	NC7SV58	Figure 7
2-Input NAND with inverted input	NC7SV57	Figure 3, 4
2-Input NAND with both inputs inverted	NC7SV58	Figure 10
2-Input OR	NC7SV58	Figure 10
2-Input OR with inverted input	NC7SV57	Figure 3, 4
2-Input OR with both inputs inverted	NC7SV58	Figure 7
2-Input NOR	NC7SV57	Figure 5
2-Input NOR with inverted input	NC7SV58	Figure 8, 9
2-Input NOR with both inputs inverted	NC7SV57	Figure 2
2-Input XOR	NC7SV58	Figure 11
2-Input XNOR	NC7SV57	Figure 6

### **Logic Configurations NC7SV57**

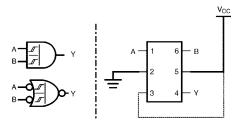


Figure 2. 2-Input AND Gate

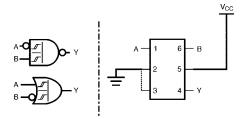


Figure 3. 2-Input NAND with Inverted A Input

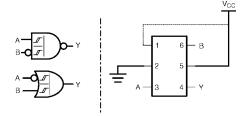


Figure 4. 2-Input NAND with Inverted B Input

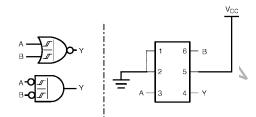


Figure 5. 2-Input NOR Gate

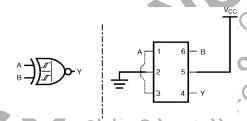
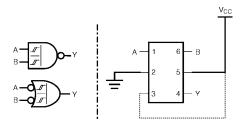


Figure 6, 2-Input XNOR Gate

NOTE: Figure 2 through Figure 6 show the logical functions that can be implemented using the NC7SV57. The diagrams show the DeMorgan's equivalent logic duals for a given 2-input function. Next to the logical implementation is the board level physical implementation of how the pins of the function should be connected.

### **Logic Configurations NC7SV58**



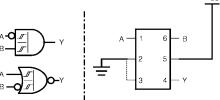
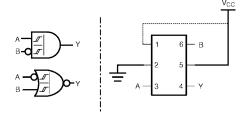


Figure 7. 2-Input NAND Gate

Figure 8. 2-Input AND with Inverted A Input



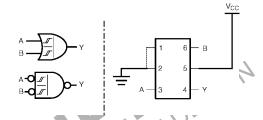


Figure 9. 2-Input AND with Inverted B Input

Figure 10. 2-Input OR Gate

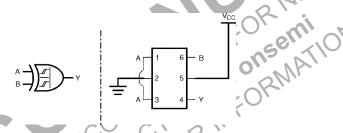


Figure 11. 2-Input XOR Gate

NOTE: Figure 7 through Figure 11 show the logical functions that can be implemented using the NC7SV58. The diagrams show the DeMorgan's equivalent logic duals for a given 2-input function. Next to the logical implementation is the board level physical implementation of how the pins of the function should be connected. THIS DEV

#### **MAXIMUM RATINGS**

Symbol	Characteristics	Value	Unit
V <sub>CC</sub>	DC Supply Voltage	-0.5 to +4.3	V
V <sub>IN</sub>	DC Input Voltage	-0.5 to +4.3	V
V <sub>OUT</sub>	DC Output Voltage Active-Mode (High or Low State)  Tri-State Mode (Note 1)  Power-Down Mode (V <sub>CC</sub> = 0 V)	-0.5 to V <sub>CC</sub> + 0.5 -0.5 to +4.3 -0.5 to +4.3	V
I <sub>IK</sub>	DC Input Diode Current V <sub>IN</sub> < GND	-50	mA
lok	DC Output Diode Current V <sub>OUT</sub> < GND	-50	mA
lout	DC Output Source/Sink Current	±50	mA
I <sub>CC</sub> or I <sub>GND</sub>	DC Supply Current per Supply Pin or Ground Pin	±50	mA
T <sub>STG</sub>	Storage Temperature Range	-65 to +150	°C
TL	Lead Temperature, 1 mm from Case for 10 Seconds	260	°C
TJ	Junction Temperature Under Bias	+150	<b>7</b> .c
θЈА	Thermal Resistance (Note 2) SC-88 MicroPak	377 154	°C/W
P <sub>D</sub>	Power Dissipation in Still Air SC-88 MicroPak	332 812	mW
MSL	Moisture Sensitivity	Level 1	
F <sub>R</sub>	Flammability Rating Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in	
V <sub>ESD</sub>	ESD Withstand Voltage (Note 3) Charged Device Model Human Body Model	2000 1000	V
I <sub>Latchup</sub>	Latchup Performance (Note 4)	±100	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. Applicable to devices with outputs that may be tri-stated.

- Measured with minimum pad spacing on an FR4 board, using 10 mm-by-1 inch, 2 ounce copper trace no air flow per JESD51-7.
   HBM tested to EIA / JESD22-A114-A. CDM tested to JESD22-C101-A. JEDEC recommends that ESD qualification to EIA/JESD22-A115A (Machine Model) be discontinued.
- 4. Tested to EIA/JESD78 Class II.

## RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V <sub>CC</sub>	Positive DC Supply Voltage	0.9	3.6	٧
V <sub>IN</sub>	DC Input Voltage	0	3.6	V
V <sub>OUT</sub>	DC Output Voltage Active–Mode (High or Low State) Tri–State Mode (Note 5) Power–Down Mode (V <sub>CC</sub> = 0 V)	0 0 0	V <sub>CC</sub> 3.6 3.6	V
T <sub>A</sub>	Operating Temperature Range	-40	+85	°C
t <sub>r</sub> , t <sub>f</sub>	Input Transition Rise and Fall Time	0	No Limit	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.

5. Applicable to devices with outputs that may be tri-stated.

## DC ELECTRICAL CHARACTERISTICS

					T <sub>A</sub> = 25°C		T <sub>A</sub> = -40°C	to +85°C	
Symbol	Parameter	Condition	V <sub>CC</sub> (V)	Min	Тур	Max	Min	Max	Unit
V <sub>P</sub>	Positive		0.9	-	0.62	-	-	ı	V
	Threshold Voltage		1.1	-	-	1.0	-	1.0	
			1.4	-	-	1.25	-	1.25	
			1.65	-	-	1.5	_	1.5	
			2.3	-	-	1.8	-	1.8	
			2.7	-	-	2.2	-	2.2	
V <sub>N</sub>	Negative		0.9	-	0.34	-	-	-	V
	Threshold Voltage		1.1	0.15	-	_	0.15	-	
			1.4	0.2	-	_	0.2	-	
			1.65	0.25	-	-	0.25	-	
			2.3	0.4	-	_	0.4	CN	
			2.7	0.6	-	-	0.6	3/2	
V <sub>H</sub>	Hysteresis		0.9	-	0.29	2	10	-	V
	Voltage		1.1	0.08	-	0.6	0.08	0.6	
			1.4	0.09		0.8	0.09	0.8	
			1.65	0.15	1 -	1.0	0.15	1.0	
			2.3	0.25		1.1	0.25	1.1	
			2.7	0.6	(-V	1.2	0.6	1.2	
V <sub>OH</sub>	High-Level	$V_{IN} = V_{IH}$ or $V_{IL}$		10	V.2	0. 1/1			V
	Output Voltage	I <sub>OH</sub> = -100 μA	0.9	AL	$V_{CC} = 0.1$	OL.	-	-	
			1.1 to 1.3	V <sub>CC</sub> – 0.1	1/1/2	-	V <sub>CC</sub> – 0.1	-	
			1.4 to 1.6	V <sub>CC</sub> - 0.1	2-11	_	V <sub>CC</sub> – 0.1	-	
			1.65 to 1.95	V <sub>CC</sub> - 0.2	), -	-	V <sub>CC</sub> – 0.2	-	
		40.	2.3 to <2.7	V <sub>CC</sub> – 0.2	-	-	V <sub>CC</sub> – 0.2	-	
		1,5,5	2.7 to 3.6	V <sub>CC</sub> – 0.2	-	-	V <sub>CC</sub> – 0.2	-	
		I <sub>OH</sub> = -2 mA	1.1 o 1.3	0.75 x V <sub>CC</sub>	-	-	0.75 x V <sub>CC</sub>	-	
		T <sub>OH</sub> = -4 mA	1.4 to 1.6	0.75 x V <sub>CC</sub>	-	-	0.75 x V <sub>CC</sub>	-	
	OF.	I <sub>OH</sub> = -6 mA	1.65 to 1.95	1.25	-	-	1.25	-	
115	2E	2.3 to <2.7	2.0	-	-	2.0	-		
	THISDE	I <sub>OH</sub> = -12 mA	2.3 to <2.7	1.8	-	-	1.8	-	
			2.7 to 3.6	2.2	-	-	2.2	-	
		I <sub>OH</sub> = -18 mA	2.3 to <2.7	1.7	-	-	1.7	-	
			2.7 to 3.6	2.4	-	-	2.4	-	
		I <sub>OH</sub> = -24 mA	2.7 to 3.6	2.2	-	_	2.2	-	

### DC ELECTRICAL CHARACTERISTICS (continued)

					T <sub>A</sub> = 25°C		T <sub>A</sub> = -40°0	C to +85°C	
Symbol	Parameter	Condition	V <sub>CC</sub> (V)	Min	Тур	Max	Min	Max	Unit
V <sub>OL</sub>	Low-Level	$V_{IN} = V_{IH}$ or $V_{IL}$							V
	Output Voltage	I <sub>OL</sub> = 100 μA	0.9	-	0.1	-	-	-	
			1.1 to 1.3	-	ı	0.1	-	0.1	
			1.4 to 1.6	-	-	0.1	-	0.1	
			1.65 to 1.95	-	-	0.2	-	0.2	
			2.3 to < 2.7	-	-	0.2	-	0.2	
			2.7 to 3.6	-	-	0.2	-	0.2	
		I <sub>OL</sub> = 2 mA	1.1 o 1.3	-	-	0.25 x V <sub>CC</sub>	-	0.25 x V <sub>CC</sub>	
		I <sub>OL</sub> = 4 mA	1.4 to 1.6	-	1	0.25 x V <sub>CC</sub>	-	0.25 x V <sub>CC</sub>	
		I <sub>OL</sub> = 6 mA	1.65 to 1.95	-	-	0.3	-	0.3	
		I <sub>OL</sub> = 12 mA	2.3 to <2.7	-	-	0.4	<b>]</b> (,	0.4	
			2.7 to 3.6	-	-	0.4	1-0	0.4	
		I <sub>OL</sub> = 18 mA	2.3 to <2.7	ı	-	0.6	77-	0.6	
			2.7 to 3.6	-		0,4	-	0.4	
		I <sub>OL</sub> = 24 mA	2.7 to 3.6	1-1		0.55	1.	0.55	
I <sub>IN</sub>	Input Leakage Current	V <sub>IN</sub> = 0 V to 3.6 V	0.9 to 3.6	-	EDF	±0.10	(IO)	±0.5	μΑ
I <sub>OFF</sub>	Power Off Leakage Current	V <sub>IN</sub> = 0 V to 3.6 V or V <sub>OUT</sub> = 0 V to 3.6 V	0	- IEN	NJR	0.5	-	0.5	μΑ
I <sub>CC</sub>	Quiescent Supply Current	V <sub>IN</sub> = V <sub>CC</sub> or GND	0.9 to 3.6	NIA.	MI	0.9	-	0.9	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.

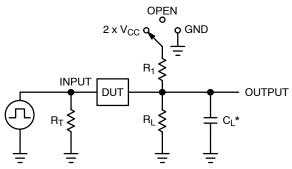
## **AC ELECTRICAL CHARACTERISTICS**

					T <sub>A</sub> = 25°C		$T_A = -40^{\circ}C$	C to +85°C	
Symbol	Parameter	Condition	V <sub>CC</sub> (V)	Min	Тур	Max	Min	Max	Unit
t <sub>PLH</sub> ,		$R_L = 1 M\Omega$ , $C_L = 15 pF$	0.9	ı	22.2	_	ı	-	ns
t <sub>PHL</sub>	(I0 or I1 or I2) to Y (Figures 12 and 13)	$R_L = 2 \text{ k}\Omega, C_L = 15 \text{ pF}$	1.10 to 1.30	ı	7.1	16.5	ı	31.0	
	115	2E	1.40 to 1.60	ı	4.4	10.0	ı	12.0	
	(L),	$R_L$ = 500 Ω, $C_L$ = 30 pF	1.65 to 1.95	ı	3.7	9.1	ı	10.0	
			2.3 to 2.7	1	2.9	6.2	1	6.7	
			3.0 to 3.6	_	2.4	5.4	-	6.1	

#### **CAPACITIVE CHARACTERISTICS**

Symbol	Parameter	Parameter Test Condition		Unit
C <sub>IN</sub>	Input Capacitance	V <sub>CC</sub> = 0 V	8.0	pF
C <sub>OUT</sub>	Output Capacitance	V <sub>CC</sub> = 0 V	12	pF
C <sub>PD</sub>	Power Dissipation Capacitance (Note 6)	f = 10 MHz, $V_{CC}$ = 0.9 to 3.6 V, $V_{IN}$ = 0 V or $V_{CC}$	10	pF

<sup>6.</sup>  $C_{PD}$  is defined as the value of the internal equivalent capacitance which is calculated from the operating current consumption without load. Average operating current can be obtained by the equation  $I_{CC(OPR)} = C_{PD} \bullet V_{CC} \bullet f_{in} + I_{CC} \cdot C_{PD}$  is used to determine the no–load dynamic power consumption:  $P_D = C_{PD} \bullet V_{CC}^2 \bullet f_{in} + I_{CC} \bullet V_{CC}$ .



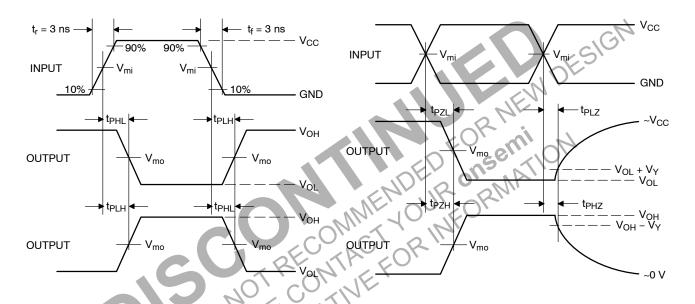
Test	Switch Position
t <sub>PLH</sub> / t <sub>PHL</sub>	Open
t <sub>PLZ</sub> / t <sub>PZL</sub>	2 x V <sub>CC</sub>
t <sub>PHZ</sub> / t <sub>PZH</sub>	GND

 $C_L$  includes probe and jig capacitance

 $R_T$  is  $Z_{OUT}$  of pulse generator (typically 50  $\Omega$ )

f = 1 MHz

Figure 12. Test Circuit



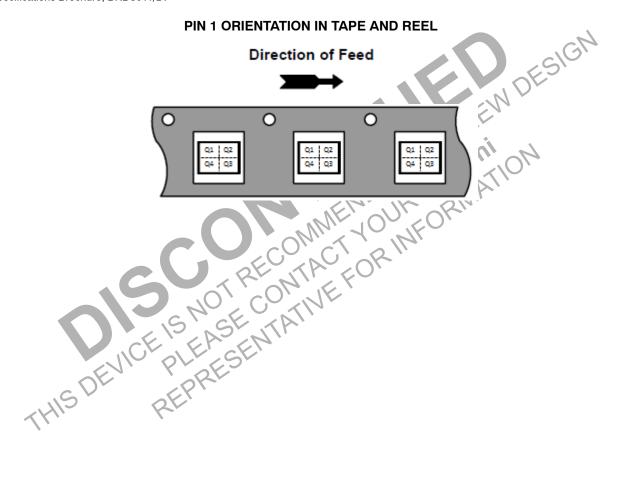
V <sub>CC</sub> , V	V <sub>mi</sub> , V	V <sub>mo</sub> , V	V <sub>Y</sub> , V
0.9	Vce+2	V <sub>CC</sub> /2	0.1
1.1 to 1.3	V <sub>CC</sub> / 2	V <sub>CC</sub> / 2	0.1
1.4 to 1.6	V <sub>CC</sub> /2	V <sub>CC</sub> / 2	0.1
1.65 to 1.95	V <sub>CC</sub> /2	V <sub>CC</sub> / 2	0.15
2.3 to 2.7	V <sub>CC</sub> /2	V <sub>CC</sub> / 2	0.15
3.0 to 3.6	1.5	1.5	0.3

Figure 13. Switching Waveforms

#### **ORDERING INFORMATION**

Device	Package	Marking	Pin 1 Orientation (See below)	Shipping <sup>†</sup>
NC7SV57P6X	SC-88	V57	Q4	3000 / Tape & Reel
NC7SV57L6X	MicroPak	НЗ	Q4	5000 / Tape & Reel
NC7SV57FHX	MicroPak2	НЗ	Q4	5000 / Tape & Reel
NC7SV57FHX-L22780	MicroPak2	НЗ	Q4	5000 / Tape & Reel
NC7SV58P6X	SC-88	V58	Q4	3000 / Tape & Reel
NC7SV58L6X	MicroPak	H4	Q4	5000 / Tape & Reel
NC7SV58FHX	MicroPak2	H4	Q4	5000 / Tape & Reel

<sup>†</sup>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.



MicroPak and MicroPak2 are trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries.



## **MECHANICAL CASE OUTLINE** PACKAGE DIMENSIONS

#### SIP6 1.45X1.0 CASE 127EB **ISSUE O DATE 31 AUG 2016** 2X 0.05 C 1.45 В 2X (1) $\bigcirc$ 0.05 $\mid$ C (0.49)(0.254)1.00 5X (0.75)(0.52)TOP VIEW Α 1X <u>1</u> PIN 1 IDENTIFIER 0.50±0.05 (0.30)6X PIN 1 0.05 RECOMMENED 0.00 LAND PATTERN 0.05 C - 0.35±0.05 С 1.45±0.05 -0.20±0.05 6X DETAIL A 1.0 CBA 0.10(M)

0.05(M)

0.30±0.05 5X

0.35±0.05 5X

(0.125)

4X

NOTES:

1.00±0.05

(0.050)

6X

1. CONFORMS TO JEDEC STANDARD MO-252 VARIATION UAAD

0.5

- 2. DIMENSIONS ARE IN MILLIMETERS
- 3. DRAWING CONFORMS TO ASME Y14.5M-2009
  4. PIN ONE IDENTIFIER IS 2X LENGTH OF ANY

**BOTTOM VIEW** 

- OTHER LINE IN THE MARK CODE LAYOUT.

DOCUMENT NUMBER:	98AON13590G	Electronic versions are uncontrolled except when accessed directly from the Document Repository Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.	
DESCRIPTION:	SIP6 1.45X1.0		PAGE 1 OF 1

onsemi and Onsemi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries, onsemi reserves brisefin and of 160 m are trademarked to demonstrate the right to make changes without further notice to any products herein. **onsemi** makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights nor the rights of others.

0.40±0.05

**PIN 1 TERMINAL** 

**DETAIL** A

0.075 X 45°

CHAMFER



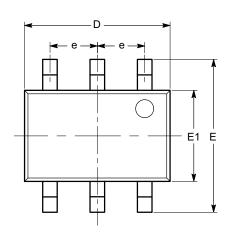
## MECHANICAL CASE OUTLINE

**PACKAGE DIMENSIONS** 

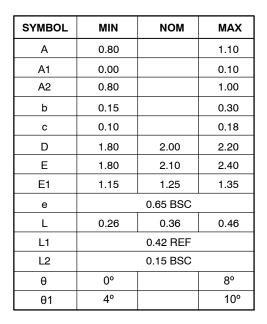


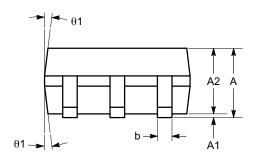
### SC-88 (SC-70 6 Lead), 1.25x2 CASE 419AD ISSUE A

**DATE 07 JUL 2010** 

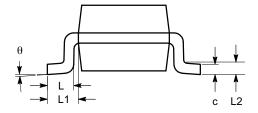


**TOP VIEW** 





SIDE VIEW



**END VIEW** 

#### Notes:

- (1) All dimensions are in millimeters. Angles in degrees.
- (2) Complies with JEDEC MO-203.

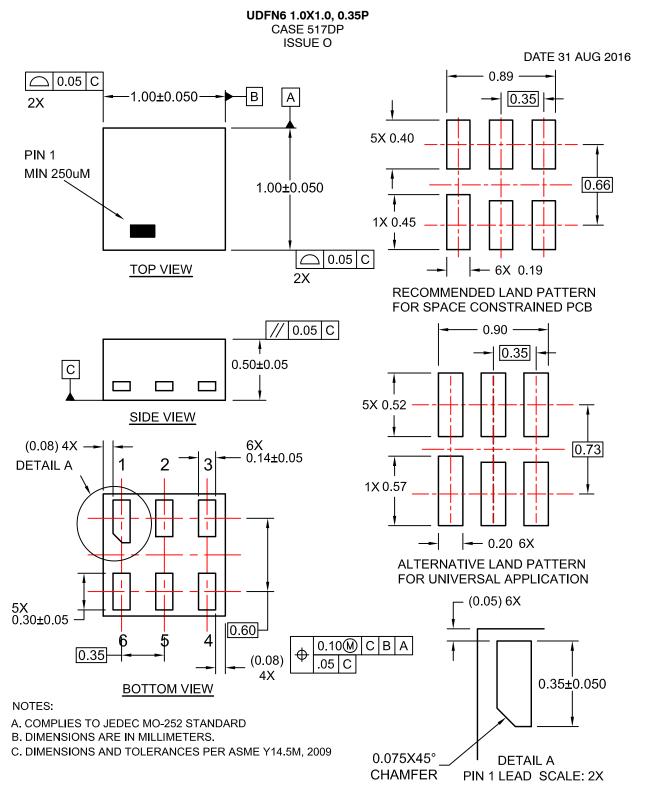
DOCUMENT NUMBER:	98AON34266E	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.		
DESCRIPTION:	SC-88 (SC-70 6 LEAD), 1.25X2		PAGE 1 OF 1	

onsemi and ONSEMi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries. onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights nor the rights of others.



## **MECHANICAL CASE OUTLINE**

## PACKAGE DIMENSIONS



DOCUMENT NUMBER:	98AON13593G	Electronic versions are uncontrolled except when accessed directly from the Document Repository Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.	
DESCRIPTION:	UDFN6 1.0X1.0, 0.35P		PAGE 1 OF 1

onsemi and Onsemi are trademarks of Semiconductor Components Industries, LLC dba onsemi or its subsidiaries in the United States and/or other countries, onsemi reserves the right to make changes without further notice to any products herein. onsemi makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. onsemi does not convey any license under its patent rights nor the rights of others.

onsemi, ONSEMI, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "onsemi" or its affiliates and/or subsidiaries in the United States and/or other countries. onsemi owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of onsemi's product/patent coverage may be accessed at <a href="www.onsemi.com/site/pdf/Patent-Marking.pdf">www.onsemi.com/site/pdf/Patent-Marking.pdf</a>. onsemi reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and onsemi makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does onsemi assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that onsemi was negligent regarding the design or manufacture of the part. onsemi is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

#### ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

 $\textbf{Technical Library:} \ \underline{www.onsemi.com/design/resources/technical-documentation}$ 

onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at

www.onsemi.com/support/sales



## **OUR CERTIFICATE**

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com

















Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com