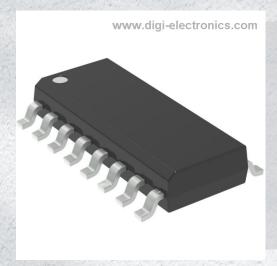


# MC74HCT4094ADTG Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number MC74HCT4094ADTG-DG

Manufacturer onsemi

Manufacturer Product Number MC74HCT4094ADTG

Description IC BUS REG TRE-ST 8STG 16TSSOP

Detailed Description Shift Shift Register 1 Element 8 Bit 16-SOIC



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:
MC74HCT4094ADTG	onsemi
Series:	Product Status:
74HCT	Obsolete
Logic Type:	Output Type:
Shift Register	Tri-State
Number of Elements:	Number of Bits per Element:
1	8
Function:	Voltage - Supply:
Serial to Parallel	4.5V ~ 5.5V
Operating Temperature:	Mounting Type:
-55°C ~ 125°C	Surface Mount
Package / Case:	Supplier Device Package:
16-SOIC (0.154", 3.90mm Width)	16-SOIC
Base Product Number:	
74HCT4094	

# **Environmental & Export classification**

8542.39.0001

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

# 8-Bit Shift and Store **Register with LSTTL Compatible Inputs**

## **High-Performance Silicon-Gate CMOS**

The MC74HCT4094A is a high speed CMOS 8-bit serial shift and storage register. This device consists of an 8-bit shift register and latch with 3-state output buffers. Data is shifted on positive clock (CP) transitions. The data in the shift register is transferred to the storage register when the Strobe (STR) input is high. The output buffers are enabled when the Output Enable (OE) input is set high. Two serial outputs (QS<sub>1</sub>, QS<sub>2</sub>) are available for cascading multiple devices.

The MC74HCT4094A can be used to interface TTL or CMOS outputs to high speed CMOS inputs.

#### **Features**

- Wide Operating Voltage Range: 4.5 to 5.5 V
- Low Power Dissipation:  $I_{CC} = < 10 \,\mu\text{A}$
- THIS DEVICE PLEASENTATIVE POR INF. REPRESENTATIVE PRESENTATIVE PRESENT • In Compliance with the Requirements Defined by JEDEC Standard No. 7A
- These are Pb-Free Devices

#### **Typical Applications**

- Serial-to-Parallel Conversion
- Remote Control Storage Register



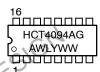
#### ON Semiconductor®

http://onsemi.com

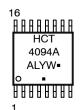
#### **MARKING DIAGRAMS**



SOIC-16 D SUFFIX CASE 751B







Assembly Location

= Wafer Lot = Year WW, W = Work Week = Pb-Free Package

(Note: Microdot may be in either location)

#### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 9 of this data sheet.

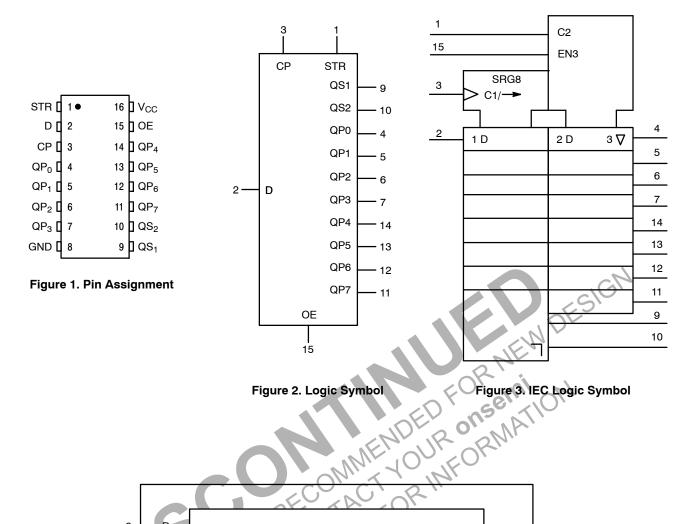


Figure 2. Logic Symbol

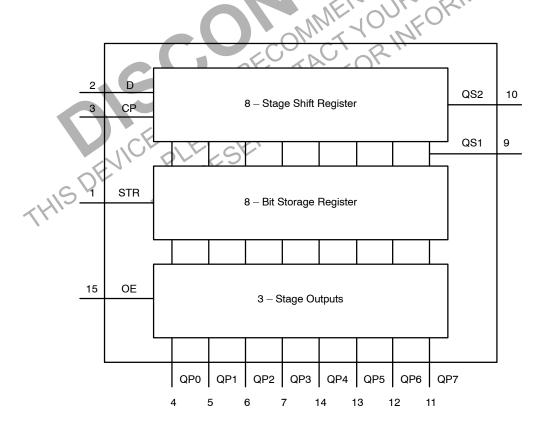
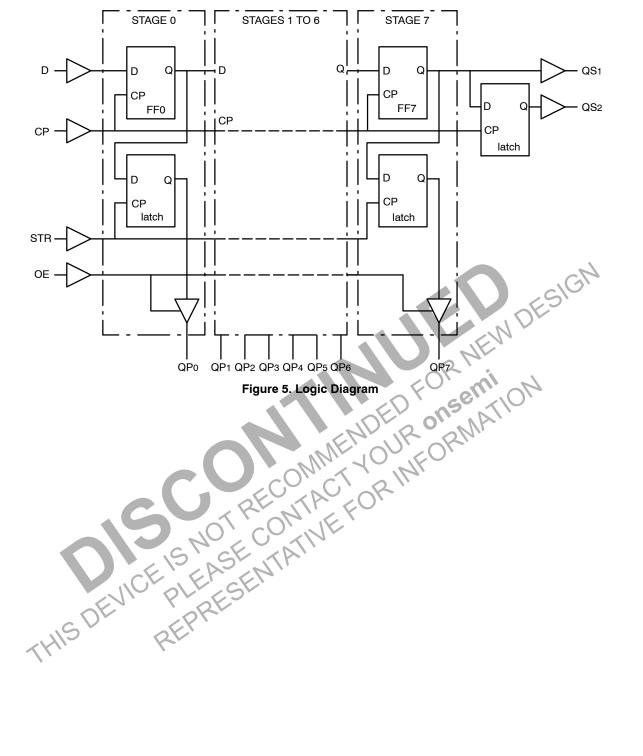


Figure 4. Functional Diagram



#### **MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	DC Supply Voltage (Referenced to GND)	- 0.5 to + 7.0	V
V <sub>in</sub>	DC Input Voltage (Referenced to GND)	- 0.5 to V <sub>CC</sub> + 0.5	V
V <sub>out</sub>	DC Output Voltage (Referenced to GND)	- 0.5 to V <sub>CC</sub> + 0.5	V
I <sub>in</sub>	DC Input Current, per Pin	± 20	mA
l <sub>out</sub>	DC Output Current, per Pin	± 35	mA
I <sub>CC</sub>	DC Supply Current, V <sub>CC</sub> and GND Pins	± 75	mA
P <sub>D</sub>	Power Dissipation in Still Air, SOIC Package† TSSOP Package†	500 450	mW
T <sub>stg</sub>	Storage Temperature	- 65 to + 150	°C

#### This device contains protection circuitry to guard against damage due to high static voltages or electric fields. However, precautions must be taken to avoid applications of any voltage higher than maximum rated voltages to this high-impedance circuit. For proper operation, $V_{\text{in}}$ and Vout should be constrained to the range GND $\leq$ (V<sub>in</sub> or V<sub>out</sub>) $\leq$ V<sub>CC</sub>.

Unused inputs must always be tied to an appropriate logic voltage level (e.g., either GND or  $V_{CC}$ ). Unused outputs must be left open.

#### RECOMMENDED OPERATING CONDITIONS

T <sub>stg</sub>	Storage Temperature	– 65 to	+ 150	°C	Unused outputs must be left open.
ratings only Extended of reliability. †Derating	usceeding Maximum Ratings may damage the device. It is represented by Functional operation above the Recommended Operation above the Recommended Operation in the stresses above the Recommended Operating - SOIC Package: - 7 mW/°C from 65° to 125°C TSSOP Package: - 6.1 mW/°C from 65° to 125°C	ting Conditi	ons is not	implied.	NEW DESIGN
Symbol	Parameter	Min	Max	Unit	NEW
V <sub>CC</sub>	DC Supply Voltage (Referenced to GND)	4.5	5.5	V	
V <sub>in</sub> , V <sub>out</sub>	DC Input Voltage, Output Voltage (Referenced to GND)	0	Vcc	V	Semilon
T <sub>A</sub>	Operating Temperature, All Package Types	<del>-</del> 55	+125	TO T	MA
t <sub>r</sub> , t <sub>f</sub>	Input Rise and Fall Time (Figure 1)	0	500	ns.	K,
4	Input Rise and Fall Time (Figure 1)	TAC	OR		

#### **FUNCTIONAL TABLE**

	INPUTS				OUTPUTS	SERIAL OUTPUTS	
СР	OE	STR	D	QP0	QPn	QS1	QS2
1	L	Х	Х	Z	Z	Q'6	NC
<b>\</b>	L	Х	Х	Z	Z	NC	QP7
1	Н	L	Х	NC	NC	Q'6	NC
1	Н	Н	L	L	QPn-1	Q'6	NC
1	Н	Н	Н	Н	QPn-1	Q'6	NC
<b>\</b>	Н	Н	Н	NC	NC	NC	QP7

#### **Notes**

- 1. H = HIGH voltage level
  - L = LOW voltage level
  - X = don't care
  - Z = high impedance OFF-state

NC = no change

- ↑ = LOW-to-HIGH CP transition ↓ = HIGH-to-LOW CP transition

Q'6 = the information in the seventh register stage is transferred to the 8th register stage and QSn output at the positive clock edge

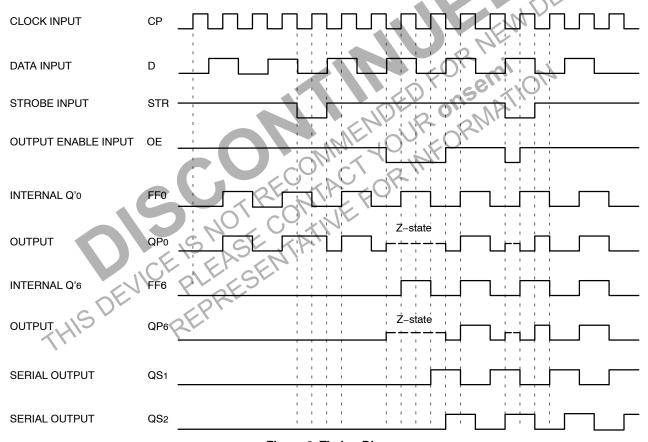


Figure 6. Timing Diagram

#### **DC CHARACTERISTICS**

				Guar	anteed Limit	s	
Symbol	Parameter	Test Conditions	V <sub>CC</sub> (V)	-55°C to 25°C	≤ <b>85°C</b>	≤ 125°C	Unit
V <sub>IH</sub>	Minimum High-Level Input	V <sub>OUT</sub> = 0.1 V or V <sub>CC</sub> – 0.1 V	4.5	2.0	2.0	2.0	V
	Voltage	<b>J</b> <sub>OUT</sub>  ≤ 20 μA	5.5	2.0	2.0	2.0	
$V_{IL}$	Maximum Low-Level Input	$V_{OUT} = 0.1 \text{ V or } V_{CC} - 0.1 \text{ V}$	4.5	0.8	0.8	0.8	V
	Voltage	<b>I</b> <sub>OUT</sub>  ≤ 20 μA	5.5	0.8	0.8	0.8	
V <sub>OH</sub>	Minimum High-Level Output	$V_{IN} = V_{IH} \text{ or } V_{IL}$	4.5	4.4	4.4	4.4	V
	Voltage	<b>I</b> <sub>OUT</sub>  ≤ 20 μA	5.5	5.4	5.4	5.4	
		$V_{IN} = V_{IH}$ or $V_{IL}$ , $  _{OUT}   = 6$ mA	4.5	4.25	4.2	4.1	
V <sub>OL</sub>	Maximum Low-Level Output	$V_{IN} = V_{IH} \text{ or } V_{IL}, \mid I_{OUT} \mid \leq 20 \mu A$	4.5	0.1	0.1	0.1	V
	Voltage		5.5	0.1	0.1	0.1	
		V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub> , I <sub>OUT</sub>  = 6 mA	4.5	0.25	0.3	0.4	
I <sub>IN</sub>	Maximum Input Leakage Current	V <sub>IN</sub> = V <sub>CC</sub> or GND	5.5	±0.1	±1	S/(A)	μА
I <sub>OZ</sub>	Maximum Tri-State Output Leakage Current	$V_{IN} = V_{CC}$ or GND $V_{OUT} = V_{CC}$ or GND	5.5	±0.5	(±5)	±10	μА
I <sub>CC</sub>	Maximum Quiescent Supply Current	V <sub>IN</sub> = V <sub>CC</sub> or GND	5.5	4.0	40	80	μΑ
	<u> </u>			£0, 4	11 11		+
$\Delta I_{CC}$	Additional Quiescent Supply Current	V <sub>in</sub> = 2.4V, Any One Input V <sub>in</sub> = V <sub>CC</sub> or GND, Other Inputs		≥ -55° <b>C</b>	25 to	125°C	_

mΑ

#### AC CHARACTERISTICS ( $t_f = t_r = 6 \text{ ns}, C_L = 50 \text{ pF}$ )

				Guai	anteed Limit	s	
Symbol	Parameter	Test Conditions	V <sub>CC</sub> (V)	-55°C to 25°C	≤ <b>85°C</b>	≤ 125°C	Unit
t <sub>PHL</sub> , t <sub>PLH</sub>	Maximum Propagation Delay CP to QS <sub>1</sub>	Figure 7	4.5	30	38	45	ns
t <sub>PHL</sub> , t <sub>PLH</sub>	Maximum Propagation Delay CP to QS <sub>2</sub>	Figure 7	4.5	27	34	41	ns
t <sub>PHL</sub> , t <sub>PLH</sub>	Maximum Propagation Delay CP to QP <sub>n</sub>	Figure 7	4.5	39	49	59	ns
t <sub>PHL</sub> , t <sub>PLH</sub>	Maximum Propagation Delay STR to QP <sub>n</sub>	Figure 8	4.5	36	45	54	ns
t <sub>PZH</sub> , t <sub>PZL</sub>	Maximum 3-State Output Enable Time OE to QP <sub>n</sub>	Figure 9	4.5	35	44	53	ns
t <sub>PHZ</sub> , t <sub>PLZ</sub>	Maximum 3-State Output Enable Time OE to QP <sub>n</sub>	Figure 9	4.5	25	31	38	ns
t <sub>THL</sub> , t <sub>TLH</sub>	Maximum Output Transition Time	Figure 7	4.5	18	22	25	ns
t <sub>W</sub>	Minimum Clock Pulse Width High or Low	Figure 7	4.5	16	20	24	ns
t <sub>W</sub>	Minimum Strobe Pulse Width High	Figure 8	4.5	16	20	24	ns
t <sub>SU</sub>	Minimum Set-up Time D to CP	Figure 10	4.5	E 010	13	15	ns
t <sub>SU</sub>	Minimum Set-up Time CP to STR	Figure 8	4.5	205	25	30	ns
t <sub>h</sub>	Minimum Hold Time D to CP	Figure 10	4.5	5 35 M	3	3	ns
t <sub>h</sub>	Minimum Hold Time CP to STR	Figure 8	4.5	1 0	0	0	ns
f <sub>MAX</sub>	Minimum Clock Pulse Frequency	Figure 7	4.5	30	24	20	MHz
C <sub>in</sub>	Maximum Input Capacitance	.OP.IE	-	10	10	10	pF
C <sub>out</sub>	Maximum Output Capacitance	7.77	-	15	15	15	pF
C <sub>PD</sub>	Power Dissipation Capacitance (Note 2)	7/1	-	140	140	140	pF

C<sub>PD</sub> is defined as the value of the IC's equivalent capacitance from which the operating current can be calculated from: I<sub>CC</sub>(operating) ≈ C<sub>PD</sub> x V<sub>CC</sub> x f<sub>IN</sub> x N<sub>SW</sub> where N<sub>SW</sub> = total number of outputs switching and f<sub>IN</sub> = switching frequency.

#### **AC WAVEFORMS**

 $(V_{M} = 1.3 V)$ 

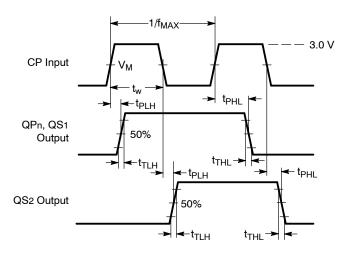
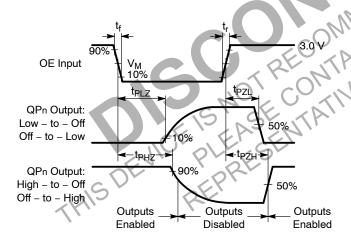
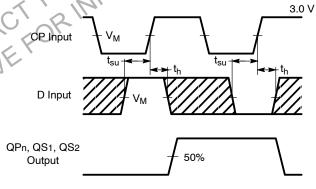


Figure 7. Waveforms showing the clock (CP) to output (QPn, QS1, QS2) propagation delays, the clock pulse width and the maximum clock frequency.

Figure 8. Waveforms showing the strobe (STR) to output (QPn) propagation delays, the strobe pulse width, the clock set-up and hold times for the strobe input.



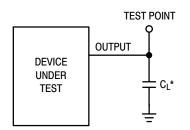


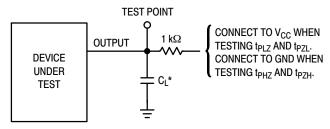
The shaded areas indicate when the input is permitted to change for predictable output performance.

Figure 9. Waveforms showing the 3-state enable and disable times for input OE.

Figure 10. Waveforms showing the data set-up and hold times for the data input.

#### **TEST CIRCUITS**





\*Includes all probe and jig capacitance

Figure 11. AC Characteristics Load Circuits

#### **ORDERING INFORMATION**

Device	Package	Shipping <sup>†</sup>
MC74HCT4094ADG	SOIC-16 (Pb-Free)	48 Units / Rail
MC74HCT4094ADR2G	SOIC-16 (Pb-Free)	2500 Tape & Reel
MC74HCT4094ADT	TSSOP-16*	96 Units / Rail
MC74HCT4094ADTR2G	TSSOP-16*	2500 Tape & Reel
TFor information on tape and reel specifications, in Specifications Brochure, BRD8011/D. This package is inherently Pb-Free.	RECONNER POUR SENTATIVE FOR IN	ORMA

<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.

<sup>\*</sup>Includes all probe and jig capacitance

<sup>\*</sup>This package is inherently Pb-Free.



## **MECHANICAL CASE OUTLINE**



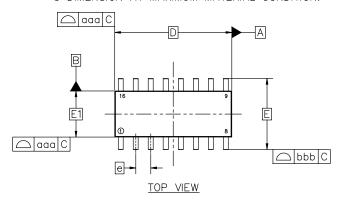


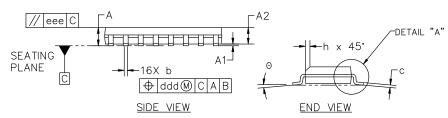
#### SOIC-16 9.90x3.90x1.37 1.27P CASE 751B ISSUE M

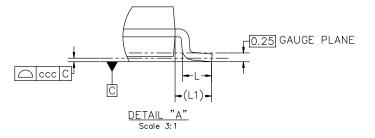
#### **DATE 18 OCT 2024**

#### NOTES:

- DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
- DIMENSION IN MILLIMETERS. ANGLE IN DEGREES.
- DIMENSIONS D AND E1 DO NOT INCLUDE MOLD PROTRUSION.
- MAXIMUM MOLD PROTRUSION 0.15mm PER SIDE.
- DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127mm TOTAL IN EXCESS OF THE b DIMENSION AT MAXIMUM MATERIAL CONDITION.







MILLIMETERS							
DIM	MIN	NOM	MAX				
А	1.35	1.55	1.75				
A1	0.10	0.18	0.25				
A2	1.25	1.37	1.50				
b	0.35	0.42	0.49				
С	0.19	0.22	0.25				
D		9.90 BSC					
E		6.00 BSC					
E1	3.90 BSC						
е		1.27 BSC					
h	0.25		0.50				
L	0.40	0.83	1.25				
L1		1.05 REF					
Θ	0.		7.				
TOLERAN	CE OF FO	RM AND	POSITION				
aaa	0.10						
bbb		0.20					
ccc	0.10						
ddd		0.25					
eee		0.10					



#### RECOMMENDED MOUNTING FOOTPRINT

\*FOR ADDITIONAL INFORMATION ON OUR PB-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE onsemi SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D

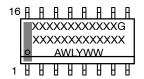
DOCUMENT NUMBER:	98ASB42566B	Electronic versions are uncontrolled except when accessed directly from the Document Repositor Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.			
DESCRIPTION:	SOIC-16 9.90X3.90X1.37 1	.27P	PAGE 1 OF 2		

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# **SOIC-16 9.90x3.90x1.37 1.27P**CASE 751B ISSUE M

**DATE 18 OCT 2024** 

# GENERIC MARKING DIAGRAM\*



XXXXX = Specific Device Code

A = Assembly Location
WL = Wafer Lot

Y = Year
WW = Work Week
G = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

STYLE 1:		STYLE 2:		STYLE 3:	S	STYLE 4:	
PIN 1.	COLLECTOR	PIN 1.	CATHODE	PIN 1.	COLLECTOR, DYE #1	PIN 1.	COLLECTOR, DYE #1
2.	BASE	2.	ANODE	2.	BASE, #1	2.	COLLECTOR, #1
3.	EMITTER	3.	NO CONNECTION	3.	EMITTER, #1	3.	COLLECTOR, #2
4.	NO CONNECTION	4.	CATHODE	4.	COLLECTOR, #1	4.	COLLECTOR, #2
5.	EMITTER	5.	CATHODE	5.	COLLECTOR, #2	5.	COLLECTOR, #3
6.	BASE	6.	NO CONNECTION	6.	BASE, #2	6.	COLLECTOR, #3
7.	COLLECTOR	7.	ANODE	7.	EMITTER, #2	7.	COLLECTOR, #4
8.	COLLECTOR	8.	CATHODE	8.	COLLECTOR, #2	8.	COLLECTOR, #4
9.	BASE	9.	CATHODE	9.	COLLECTOR, #3	9.	BASE, #4
10.	EMITTER	10.	ANODE	10.	BASE, #3	10.	EMITTER, #4
11.	NO CONNECTION	11.	NO CONNECTION	11.		11.	
	EMITTER	12.	CATHODE	12.		12.	
13.		13.	CATHODE	13.	COLLECTOR, #4	13.	
14.	COLLECTOR	14.	NO CONNECTION	14.	BASE, #4	14.	
	EMITTER	15.	ANODE	15.	EMITTER, #4	15.	
16.	COLLECTOR	16.	CATHODE	16.	COLLECTOR, #4	16.	EMITTER, #1
STYLE 5:		STYLE 6:		STYLE 7:			
STYLE 5: PIN 1.	DRAIN, DYE #1	STYLE 6: PIN 1.		STYLE 7: PIN 1.	SOURCE N-CH		
	DRAIN, #1	PIN 1. 2.	CATHODE	PIN 1. 2.	COMMON DRAIN (OUTPUT)		
PIN 1.	DRAIN, #1 DRAIN, #2	PIN 1. 2. 3.	CATHODE CATHODE	PIN 1.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT)		
PIN 1. 2.	DRAIN, #1 DRAIN, #2 DRAIN, #2	PIN 1. 2. 3. 4.	CATHODE CATHODE CATHODE	PIN 1. 2.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH		
PIN 1. 2. 3.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3	PIN 1. 2. 3. 4. 5.	CATHODE CATHODE CATHODE CATHODE	PIN 1. 2. 3. 4. 5.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT)		
PIN 1. 2. 3. 4. 5.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3 DRAIN, #3	PIN 1. 2. 3. 4. 5.	CATHODE CATHODE CATHODE CATHODE CATHODE	PIN 1. 2. 3. 4. 5.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT)		
PIN 1. 2. 3. 4. 5. 6.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3 DRAIN, #3 DRAIN, #4	PIN 1. 2. 3. 4. 5. 6.	CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE	PIN 1. 2. 3. 4. 5. 6.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT)		
PIN 1. 2. 3. 4. 5. 6. 7.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3 DRAIN, #3 DRAIN, #4 DRAIN, #4	PIN 1. 2. 3. 4. 5. 6. 7.	CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE	PIN 1. 2. 3. 4. 5. 6. 7.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) SOURCE P-CH		
PIN 1. 2. 3. 4. 5. 6. 7. 8. 9.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3 DRAIN, #3 DRAIN, #4 DRAIN, #4 GATE, #4	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9.	CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE ANODE	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) SOURCE P-CH SOURCE P-CH		
PIN 1. 2. 3. 4. 5. 6. 7. 8. 9.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3 DRAIN, #3 DRAIN, #4 DRAIN, #4 SOURCE, #4	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9.	CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE ANODE ANODE	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) SOURCE P-CH SOURCE P-CH COMMON DRAIN (OUTPUT)		
PIN 1. 2. 3. 4. 5. 6. 7. 8. 9.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3 DRAIN, #3 DRAIN, #4 DRAIN, #4 SOURCE, #4 GATE, #4 GATE, #3	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9.	CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE ANODE ANODE ANODE ANODE	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) SOURCE P-CH SOURCE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT)		
PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3 DRAIN, #3 DRAIN, #4 DRAIN, #4 GATE, #4 SOURCE, #4 GATE, #3 SOURCE, #3	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE ANODE ANODE ANODE ANODE ANODE ANODE	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) SOURCE P-CH SOURCE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT)		
PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3 DRAIN, #3 DRAIN, #4 DRAIN, #4 SOURCE, #4 GATE, #3 SOURCE, #3 GATE, #2	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE ANODE ANODE ANODE ANODE ANODE ANODE ANODE ANODE	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) SOURCE P-CH SOURCE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE N-CH		
PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3 DRAIN, #3 DRAIN, #3 DRAIN, #4 DRAIN, #4 GATE, #4 SOURCE, #4 GATE, #3 SOURCE, #3 SOURCE, #2 SOURCE, #2	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE ANODE	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) SOURCE P-CH SOURCE P-CH COMMON DRAIN (OUTPUT) CATE N-CH COMMON DRAIN (OUTPUT)		
PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3 DRAIN, #3 DRAIN, #3 DRAIN, #4 DRAIN, #4 GATE, #4 SOURCE, #4 GATE, #3 SOURCE, #3 GATE, #2 SOURCE, #2 GATE, #1	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE ANODE	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) SOURCE P-CH SOURCE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE N-CH COMMON DRAIN (OUTPUT) GATE N-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT)		
PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	DRAIN, #1 DRAIN, #2 DRAIN, #2 DRAIN, #3 DRAIN, #3 DRAIN, #3 DRAIN, #4 DRAIN, #4 GATE, #4 SOURCE, #4 GATE, #3 SOURCE, #3 SOURCE, #2 SOURCE, #2	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE CATHODE ANODE	PIN 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) GATE P-CH COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) COMMON DRAIN (OUTPUT) SOURCE P-CH SOURCE P-CH COMMON DRAIN (OUTPUT) CATE N-CH COMMON DRAIN (OUTPUT)		

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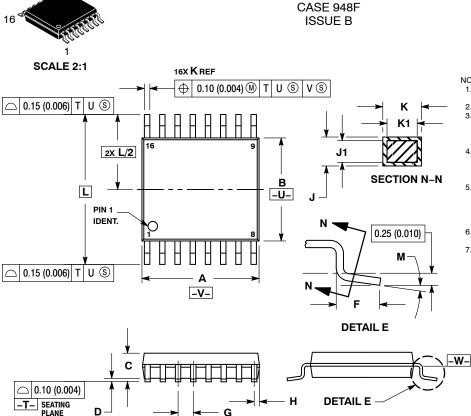
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## **MECHANICAL CASE OUTLINE**

PACKAGE DIMENSIONS



#### NOTES

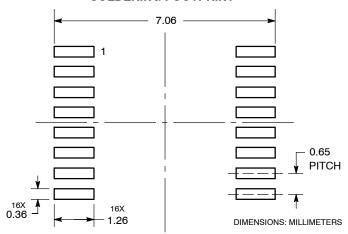
- DIMENSIONING AND TOLERANCING PER
- ANSI Y14.5M, 1982. CONTROLLING DIMENSION: MILLIMETER.

**DATE 19 OCT 2006** 

- DIMENSION A DOES NOT INCLUDE MOLD FLASH. PROTRUSIONS OR GATE BURRS. MOLD FLASH OR GATE BURRS SHALL NOT
- EXCEED 0.15 (0.006) PER SIDE.
  DIMENSION B DOES NOT INCLUDE
  INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL
- IN TERLEAD FLASH OH PROTHOSION SHALL NOT EXCEED 0.25 (0.010) PER SIDE. DIMENSION K DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE K DIMENSION AT MAXIMUM MATERIAL CONDITION.
- TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
- DIMENSION A AND B ARE TO BE DETERMINED AT DATUM PLANE -W-.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
Α	4.90	5.10	0.193	0.200
В	4.30	4.50	0.169	0.177
С		1.20		0.047
D	0.05	0.15	0.002	0.006
F	0.50	0.75	0.020	0.030
G	0.65 BSC		0.026 BSC	
Н	0.18	0.28	0.007	0.011
J	0.09	0.20	0.004	0.008
J1	0.09	0.16	0.004	0.006
K	0.19	0.30	0.007	0.012
K1	0.19	0.25	0.007	0.010
L	6.40 BSC		0.252 BSC	
М	0 °	8 °	0 °	8 °

#### **RECOMMENDED** SOLDERING FOOTPRINT\*



<sup>\*</sup>For additional information on our Pb-Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

#### **GENERIC MARKING DIAGRAM\***



= Specific Device Code XXXX Α = Assembly Location

= Wafer Lot L = Year W = Work Week G or • = Pb-Free Package

\*This information is generic. Please refer to

device data sheet for actual part marking. Pb-Free indicator, "G" or microdot " ■", may or may not be present. Some products may not follow the Generic Marking.

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