

Quad Analog Switch/ Multiplexer/Demultiplexer with Separate Analog and Digital Power Supplies

High-Performance Silicon-Gate CMOS

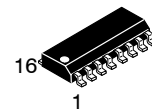
MC74VHC4316

The MC74VHC4316 utilizes silicon-gate CMOS technology to achieve fast propagation delays, low ON resistances, and low OFF-channel leakage current. This bilateral switch/multiplexer/demultiplexer controls analog and digital voltages that may vary across the full analog power-supply range (from V_{CC} to V_{EE}).

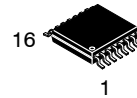
The VHC4316 is similar in function to the metal-gate CMOS MC14016 and MC14066, and to the High-Speed CMOS HC4066A. Each device has four independent switches. The device control and Enable inputs are compatible with standard CMOS outputs; with pullup resistors, they are compatible with LSTTL outputs. The device has been designed so that the ON resistances (R_{ON}) are much more linear over input voltage than R_{ON} of metal-gate CMOS analog switches. Logic-level translators are provided so that the On/Off Control and Enable logic-level voltages need only be V_{CC} and GND, while the switch is passing signals ranging between V_{CC} and V_{EE} . When the Enable pin (active-low) is high, all four analog switches are turned off.

Features

- Logic-Level Translator for On/Off Control and Enable Inputs
- Fast Switching and Propagation Speeds
- High ON/OFF Output Voltage Ratio
- Diode Protection on All Inputs/Outputs
- Analog Power-Supply Voltage Range ($V_{CC} - V_{EE}$) = 2.0 to 12.0 V
- Digital (Control) Power-Supply Voltage Range ($V_{CC} - GND$) = 2.0 V to 6.0 V, Independent of V_{EE}
- Improved Linearity of ON Resistance
- Chip Complexity: 66 FETs or 16.5 Equivalent Gates
- These Devices are Pb-Free and are RoHS Compliant

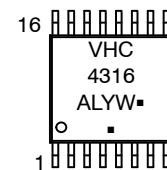
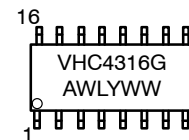


SOIC-16
D SUFFIX
CASE 751B



TSSOP-16
DT SUFFIX
CASE 948F

MARKING DIAGRAMS



A = Assembly Location
 WL, L = Wafer Lot
 Y = Year
 WW, W = Work Week
 G or ■ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
MC74VHC4316DR2G	SOIC-16 (Pb-Free)	2,500 / Tape & Reel
MC74VHC4316DTR2G	TSSOP16 (Pb-Free)	2,500 / Tape & Reel

DISCONTINUED (Note 1)

MC74VHC4316DG	SOIC-16 (Pb-Free)	48 Units / Rail
MC74VHC4316DTG	TSSOP16 (Pb-Free)	96 Units / Rail

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, [BRD8011/D](http://www.onsemi.com/BRD8011/D).

1. **DISCONTINUED:** These devices are not recommended for new design. Please contact your onsemi representative for information. The most current information on these devices may be available on www.onsemi.com.

MC74VHC4316

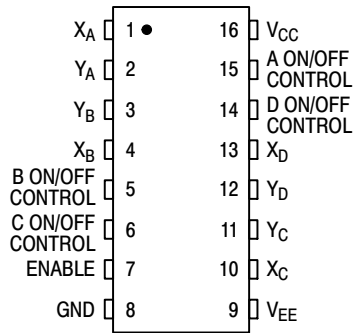


Figure 1. Pin Assignment

FUNCTION TABLE

Inputs		State of Analog Switch
Enable	On/Off Control	
L	H	On
L	L	Off
H	X	Off

X = Don't Care.

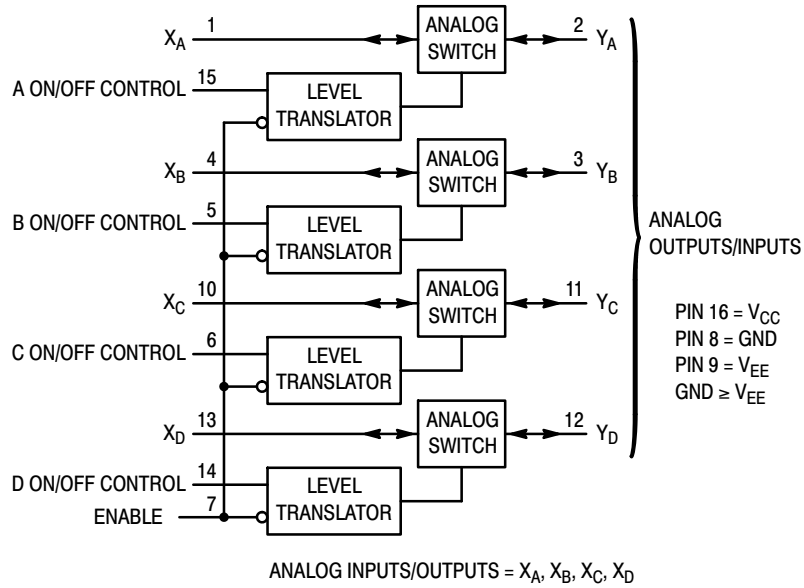


Figure 2. Logic Diagram

MC74VHC4316

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Positive DC Supply Voltage (Ref. to GND) (Ref. to V_{EE})	– 0.5 to + 7.0 – 0.5 to + 14.0	V
V_{EE}	Negative DC Supply Voltage (Ref. to GND)	– 7.0 to + 0.5	V
V_{IS}	Analog Input Voltage	$V_{EE} - 0.5$ to $V_{CC} + 0.5$	V
V_{in}	DC Input Voltage (Ref. to GND)	– 0.5 to $V_{CC} + 0.5$	V
I	DC Current Into or Out of Any Pin	± 25	mA
P_D	Power Dissipation in Still Air SOIC Package* TSSOP Package*	500 450	mW
T_{stg}	Storage Temperature	– 65 to + 150	°C
T_L	Lead Temperature, 1 mm from Case for 10 Seconds (SOIC or TSSOP Package)	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.

*Derating – SOIC Package: – 7 mW/°C from 65° to 125°C

TSSOP Package: – 6.1 mW/°C from 65° to 125°C

For high frequency or heavy load considerations, see Chapter 2 of the **onsemi** High-Speed CMOS Data Book (DL129/D).

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_{in} and V_{out} should be constrained to the range $GND \leq (V_{in} \text{ or } V_{out}) \leq V_{CC}$.

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. I/O pins must be connected to a properly terminated line or bus.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V_{CC}	Positive DC Supply Voltage (Ref. to GND)	2.0	6.0	V
V_{EE}	Negative DC Supply Voltage (Ref. to GND)	– 6.0	GND	V
V_{IS}	Analog Input Voltage	V_{EE}	V_{CC}	V
V_{in}	Digital Input Voltage (Ref. to GND)	GND	V_{CC}	V
V_{IO}^*	Static or Dynamic Voltage Across Switch	–	1.2	V
T_A	Operating Temperature, All Package Types	– 55	+ 125	°C
t_r, t_f	Input Rise and Fall Time (Control or Enable Inputs) (Figure 10)	$V_{CC} = 2.0 \text{ V}$ 0 $V_{CC} = 3.0 \text{ V}$ 0 $V_{CC} = 4.5 \text{ V}$ 0 $V_{CC} = 6.0 \text{ V}$ 0	1000 600 500 400	ns

*For voltage drops across the switch greater than 1.2 V (switch on), excessive V_{CC} current may be drawn; i.e., the current out of the switch may contain both V_{CC} and switch input components. The reliability of the device will be unaffected unless the Maximum Ratings are exceeded.

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DC ELECTRICAL CHARACTERISTICS Digital Section (Voltages Referenced to GND) $V_{EE} = \text{GND}$ Except Where Noted

Symbol	Parameter	Test Conditions	V_{CC} V	Guaranteed Limit			Unit
				-55 to 25°C	$\leq 85^{\circ}\text{C}$	$\leq 125^{\circ}\text{C}$	
V_{IH}	Minimum High-Level Voltage, Control or Enable Inputs	$R_{on} = \text{Per Spec}$	2.0 3.0 4.5 6.0	1.5 2.1 3.15 4.2	1.5 2.1 3.15 4.2	1.5 2.1 3.15 4.2	V
V_{IL}	Maximum Low-Level Voltage, Control or Enable Inputs	$R_{on} = \text{Per Spec}$	2.0 3.0 4.5 6.0	0.5 0.9 1.35 1.8	0.5 0.9 1.35 1.8	0.5 0.9 1.35 1.8	V
I_{in}	Maximum Input Leakage Current, Control or Enable Inputs	$V_{in} = V_{CC}$ or GND $V_{EE} = -6.0\text{ V}$	6.0	± 0.1	± 1.0	± 1.0	μA
I_{CC}	Maximum Quiescent Supply Current (per Package)	$V_{in} = V_{CC}$ or GND $V_{IO} = 0\text{ V}$ $V_{EE} = \text{GND}$ $V_{EE} = -6.0$	6.0 6.0	2 4	20 40	40 160	μA

NOTE: Information on typical parametric values can be found in Chapter 2 of the **onsemi** High-Speed CMOS Data Book (DL129/D).

DC ELECTRICAL CHARACTERISTICS Analog Section (Voltages Referenced to V_{EE})

Symbol	Parameter	Test Conditions	V_{CC} V	V_{EE} V	Guaranteed Limit			Unit
					-55 to 25°C	$\leq 85^{\circ}\text{C}$	$\leq 125^{\circ}\text{C}$	
R_{on}	Maximum "ON" Resistance	$V_{in} = V_{IH}$ $V_{IS} = V_{CC}$ to V_{EE} $I_S \leq 2.0\text{ mA}$	2.0*	0.0	—	—	—	Ω
			4.5	0.0	160	200	240	
			4.5	— 4.5	90	110	130	
			6.0	— 6.0	90	110	130	
		$V_{in} = V_{IH}$ $V_{IS} = V_{CC}$ or V_{EE} (Endpoints) $I_S \leq 2.0\text{ mA}$	2.0	0.0	—	—	—	
			4.5	0.0	90	115	140	
			4.5	— 4.5	70	90	105	
			6.0	— 6.0	70	90	105	
ΔR_{on}	Maximum Difference in "ON" Resistance Between Any Two Channels in the Same Package	$V_{in} = V_{IH}$ $V_{IS} = 1/2 (V_{CC} - V_{EE})$ $I_S \leq 2.0\text{ mA}$	2.0	0.0	—	—	—	Ω
			4.5	0.0	20	25	30	
			4.5	— 4.5	15	20	25	
			6.0	— 6.0	15	20	25	
I_{off}	Maximum Off-Channel Leakage Current, Any One Channel	$V_{in} = V_{IL}$ $V_{IO} = V_{CC}$ or V_{EE} Switch Off (Figure 3)	6.0	— 6.0	0.1	0.5	1.0	μA
I_{on}	Maximum On-Channel Leakage Current, Any One Channel	$V_{in} = V_{IH}$ $V_{IS} = V_{CC}$ or V_{EE} (Figure 4)	6.0	— 6.0	0.1	0.5	1.0	μA

NOTE: Information on typical parametric values can be found in Chapter 2 of the **onsemi** High-Speed CMOS Data Book (DL129/D).

*At supply voltage ($V_{CC} - V_{EE}$) approaching 2.0 V the analog switch-on resistance becomes extremely non-linear. Therefore, for low-voltage operation, it is recommended that these devices only be used to control digital signals.

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AC ELECTRICAL CHARACTERISTICS ($C_L = 50$ pF, Control or Enable $t_r = t_f = 6$ ns, $V_{EE} = \text{GND}$)

Symbol	Parameter	V_{CC} V	Guaranteed Limit			Unit
			– 55 to 25°C	≤ 85°C	≤ 125°C	
t_{PLH} , t_{PHL}	Maximum Propagation Delay, Analog Input to Analog Output (Figures 8 and 9)	2.0 4.5 6.0	40 6 5	50 8 7	60 9 8	ns
t_{PLZ} , t_{PHZ}	Maximum Propagation Delay, Control or Enable to Analog Output (Figures 10 and 11)	2.0 4.5 6.0	130 40 30	160 50 40	200 60 50	ns
t_{PZL} , t_{PZH}	Maximum Propagation Delay, Control or Enable to Analog Output (Figures 10 and 11)	2.0 4.5 6.0	140 40 30	175 50 40	250 60 50	ns
C	Maximum Capacitance ON/OFF Control and Enable Inputs	–	10	10	10	pF
	Control Input = GND	–	35	35	35	
	Analog I/O Feedthrough	–	1.0	1.0	1.0	

- For propagation delays with loads other than 50 pF, see Chapter 2 of the **onsemi** High-Speed CMOS Data Book (DL129/D).
- Information on typical parametric values can be found in Chapter 2 of the **onsemi** High-Speed CMOS Data Book (DL129/D).

C _{PD}	Power Dissipation Capacitance (Per Switch) (Figure 13)*	Typical @ 25°C, V _{CC} = 5.0 V	pF
		15	

*Used to determine the no-load dynamic power consumption: $P_D = C_{PD} V_{CC}^2 f + I_{CC} V_{CC}$. For load considerations, see Chapter 2 of the **onsemi** High-Speed CMOS Data Book (DL129/D).

ADDITIONAL APPLICATION CHARACTERISTICS (GND = 0 V)

Symbol	Parameter	Test Conditions	V_{CC} V	V_{EE} V	Limit* 25°C	Unit
BW	Maximum On-Channel Bandwidth or Minimum Frequency Response (Figure 5)	$f_{in} = 1$ MHz Sine Wave Adjust f_{in} Voltage to Obtain 0 dBm at V_{OS} Increase f_{in} Frequency Until dB Meter Reads – 3 dB $R_L = 50 \Omega$, $C_L = 10$ pF	2.25 4.50 6.00	– 2.25 – 4.50 – 6.00	150 160 160	MHz
–	Off-Channel Feedthrough Isolation (Figure 6)	$f_{in} \equiv$ Sine Wave Adjust f_{in} Voltage to Obtain 0 dBm at V_{IS} $f_{in} = 10$ kHz, $R_L = 600 \Omega$, $C_L = 50$ pF $f_{in} = 1.0$ MHz, $R_L = 50 \Omega$, $C_L = 10$ pF	2.25 4.50 6.00 2.25 4.50 6.00	– 2.25 – 4.50 – 6.00 – 2.25 – 4.50 – 6.00	– 50 – 50 – 50 – 40 – 40 – 40	dB
–	Feedthrough Noise, Control to Switch (Figure 7)	$V_{in} \leq 1$ MHz Square Wave ($t_r = t_f = 6$ ns) Adjust R_L at Setup so that $I_S = 0$ A $R_L = 600 \Omega$, $C_L = 50$ pF $R_L = 10$ k Ω , $C_L = 10$ pF	2.25 4.50 6.00 2.25 4.50 6.00	– 2.25 – 4.50 – 6.00 – 2.25 – 4.50 – 6.00	60 130 200 30 65 100	mV _{PP}
–	Crosstalk Between Any Two Switches (Figure 12)	$f_{in} \equiv$ Sine Wave Adjust f_{in} Voltage to Obtain 0 dBm at V_{IS} $f_{in} = 10$ kHz, $R_L = 600 \Omega$, $C_L = 50$ pF $f_{in} = 1.0$ MHz, $R_L = 50 \Omega$, $C_L = 10$ pF	2.25 4.50 6.00 2.25 4.50 6.00	– 2.25 – 4.50 – 6.00 – 2.25 – 4.50 – 6.00	– 70 – 70 – 70 – 80 – 80 – 80	dB
THD	Total Harmonic Distortion (Figure 14)	$f_{in} = 1$ kHz, $R_L = 10$ k Ω , $C_L = 50$ pF THD = THD _{Measured} – THD _{Source} $V_{IS} = 4.0$ V _{PP} sine wave $V_{IS} = 8.0$ V _{PP} sine wave $V_{IS} = 11.0$ V _{PP} sine wave	2.25 4.50 6.00	– 2.25 – 4.50 – 6.00	0.10 0.06 0.04	%

*Limits not tested. Determined by design and verified by qualification.

MC74VHC4316

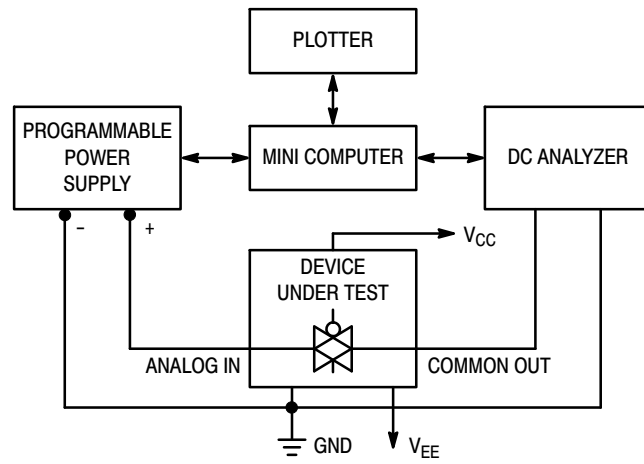


Figure 1. On Resistance Test Set-Up

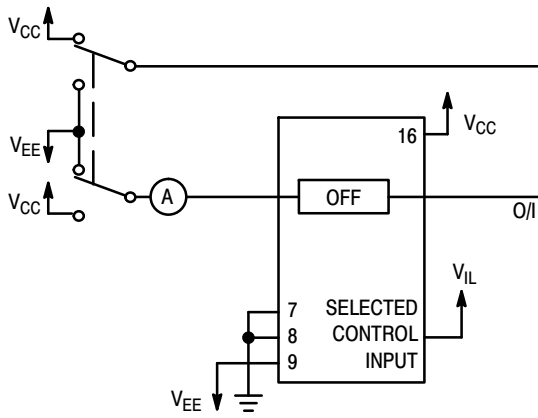


Figure 2. Maximum Off Channel Leakage Current, Any One Channel, Test Set-Up

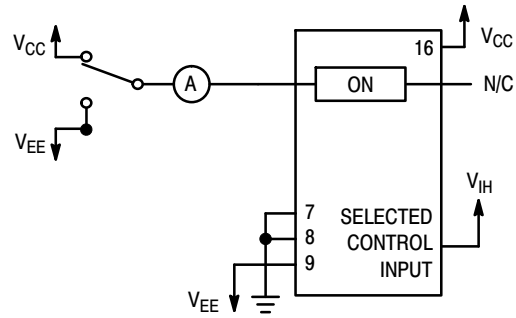
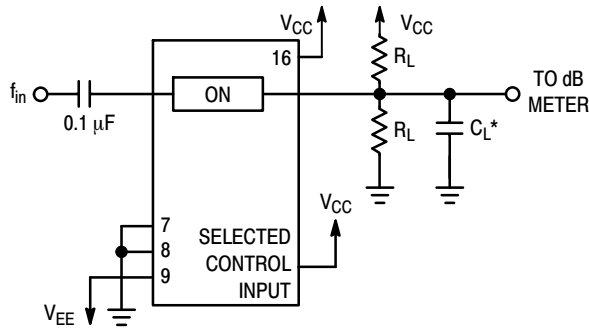
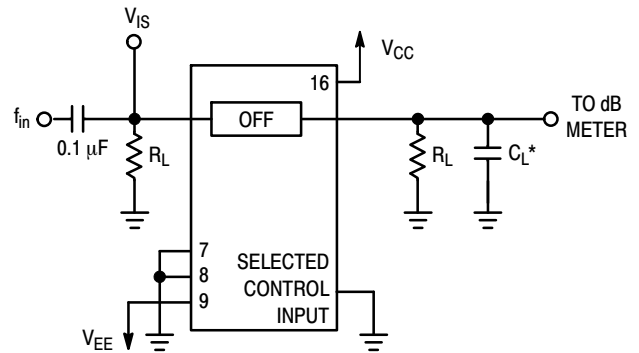


Figure 3. Maximum On Channel Leakage Current, Test Set-Up



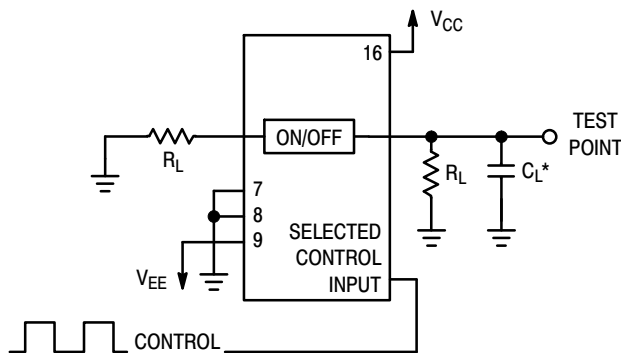
*Includes all probe and jig capacitance.

Figure 4. Maximum On-Channel Bandwidth Test Set-Up



*Includes all probe and jig capacitance.

Figure 5. Off-Channel Feedthrough Isolation, Test Set-Up



*Includes all probe and jig capacitance.

Figure 6. Feedthrough Noise, Control to Analog Out, Test Set-Up

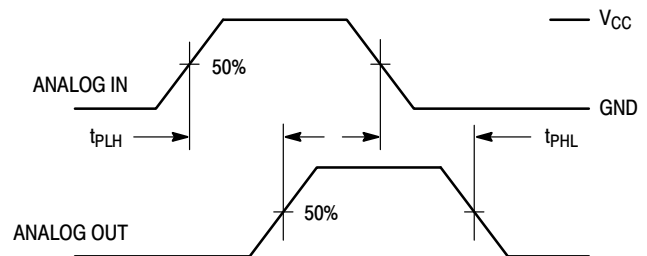
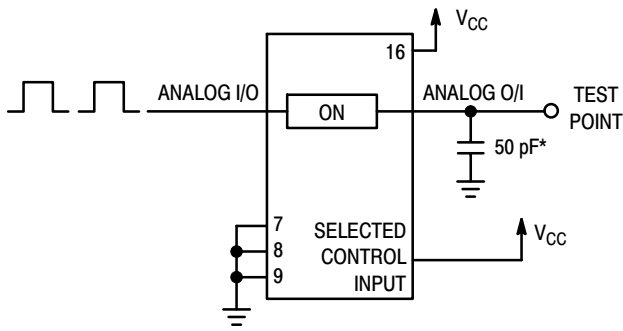


Figure 7. Propagation Delays, Analog In to Analog Out



*Includes all probe and jig capacitance.

Figure 8. Propagation Delay Test Set-Up

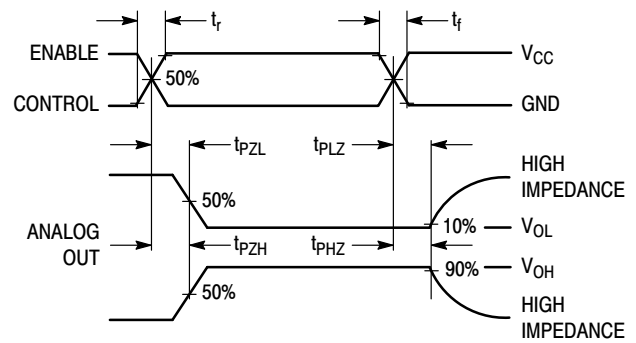
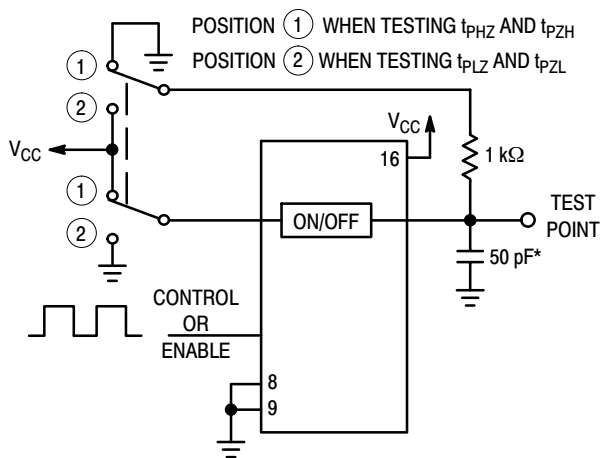
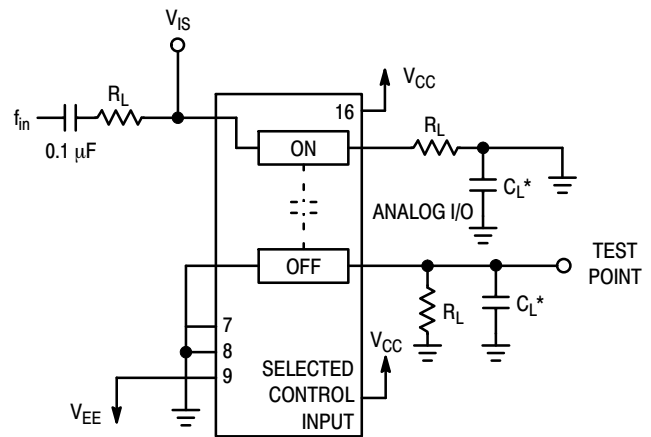


Figure 9. Propagation Delay, ON/OFF Control to Analog Out



*Includes all probe and jig capacitance.

Figure 10. Propagation Delay Test Set-Up



*Includes all probe and jig capacitance.

Figure 11. Crosstalk Between Any Two Switches, Test Set-Up (Adjacent Channels Used)

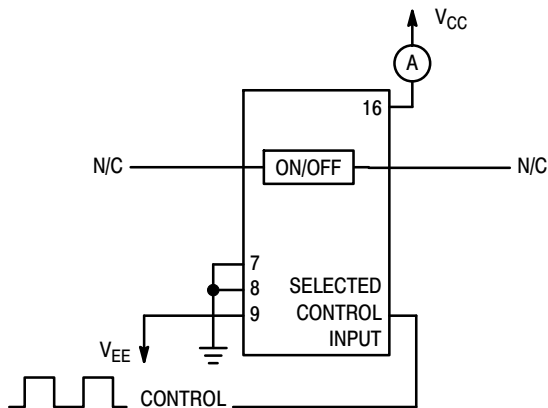
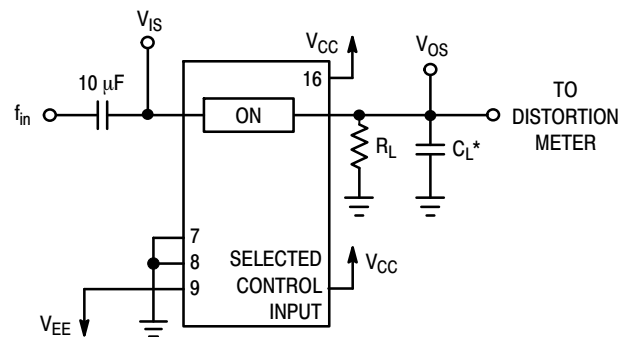


Figure 12. Power Dissipation Capacitance Test Set-Up



*Includes all probe and jig capacitance.

Figure 13. Total Harmonic Distortion, Test Set-Up

APPLICATIONS INFORMATION

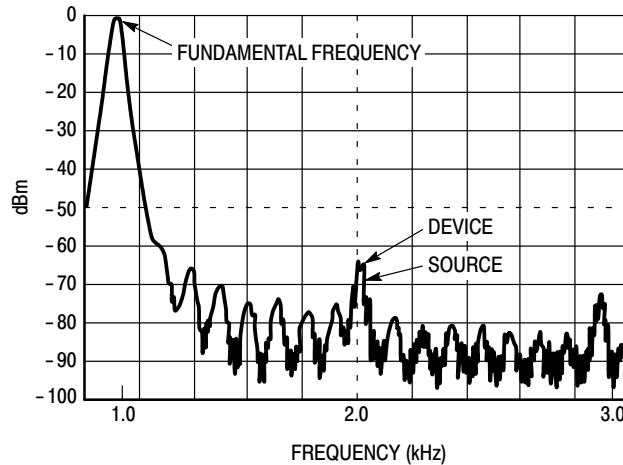


Figure 14. Plot, Harmonic Distortion

The Enable and Control pins should be at V_{CC} or GND logic levels, V_{CC} being recognized as logic high and GND being recognized as a logic low. Unused analog inputs/outputs may be left floating (not connected). However, it is advisable to tie unused analog inputs and outputs to V_{CC} or V_{EE} through a low value resistor. This minimizes crosstalk and feedthrough noise that may be picked up by the unused I/O pins.

The maximum analog voltage swings are determined by the supply voltages V_{CC} and V_{EE} . The positive peak analog voltage should not exceed V_{CC} . Similarly, the negative peak analog voltage should not go below V_{EE} . In the example below, the difference between V_{CC} and V_{EE} is 12 V.

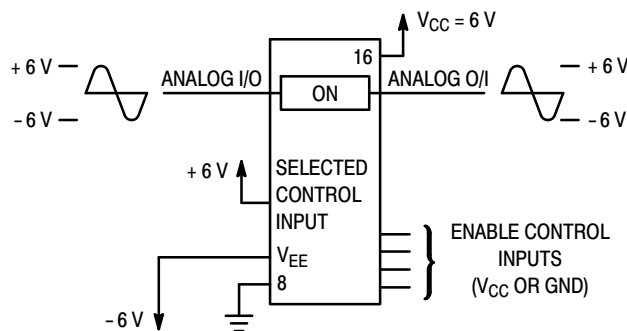


Figure 15.

Therefore, using the configuration in Figure 15, a maximum analog signal of twelve volts peak-to-peak can be controlled.

When voltage transients above V_{CC} and/or below V_{EE} are anticipated on the analog channels, external diodes (D_x) are recommended as shown in Figure 16. These diodes should be small signal, fast turn-on types able to absorb the maximum anticipated current surges during clipping. An alternate method would be to replace the D_x diodes with MOSORBs (MOSORB is an acronym for high current surge protectors). MOSORBs are fast turn-on devices ideally suited for precise dc protection with no inherent wear out mechanism.

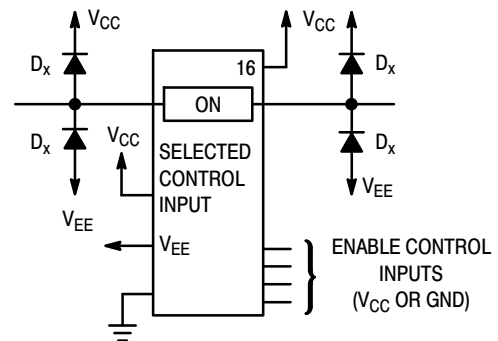


Figure 16. Transient Suppressor Application

MC74VHC4316

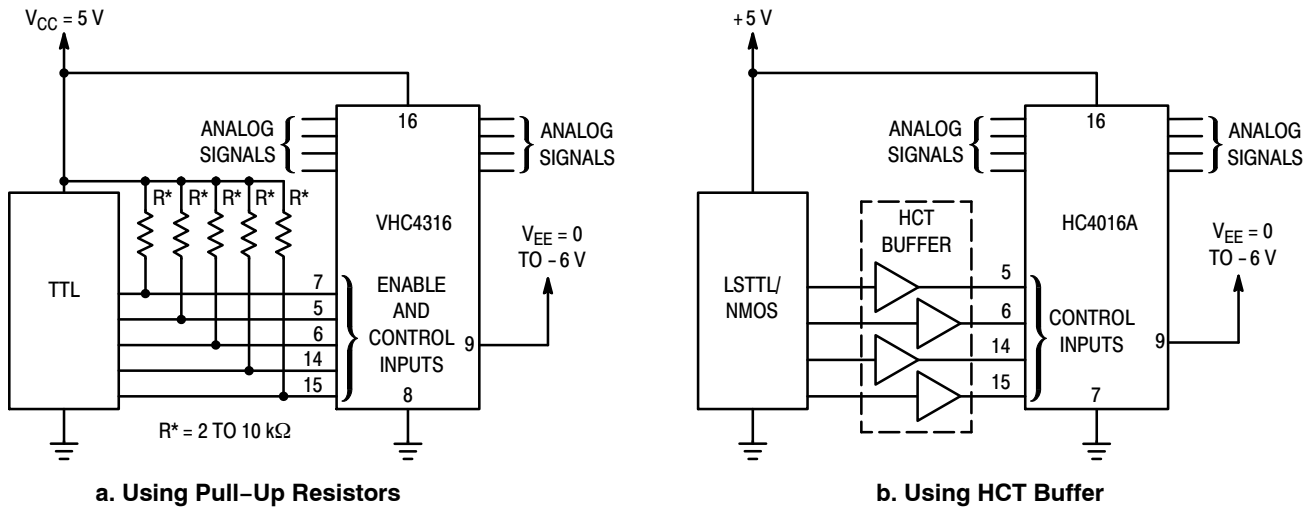


Figure 17. LSTTL/NMOS to HCMOS Interface

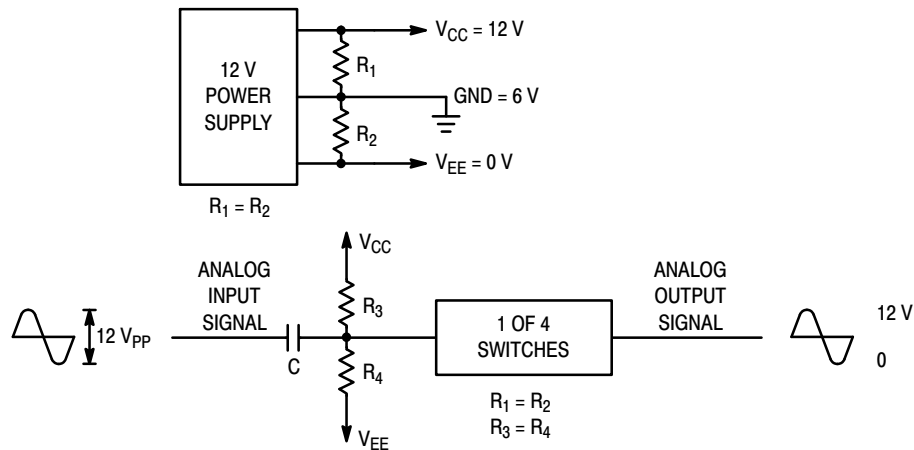


Figure 18. Switching a 0-to-12 V Signal Using a Single Power Supply ($GND \neq 0 V$)

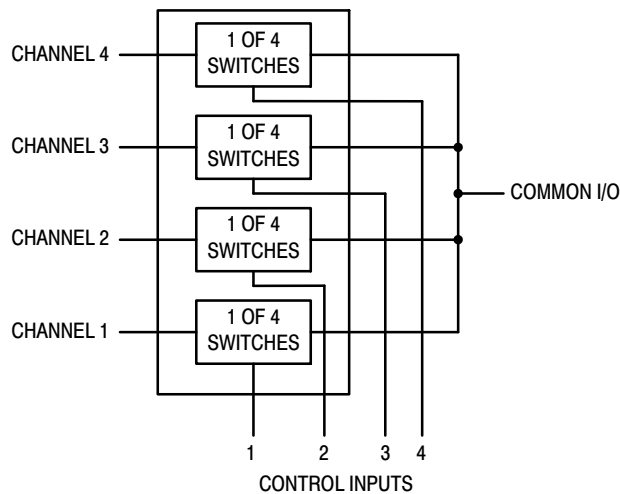


Figure 19. 4-Input Multiplexer

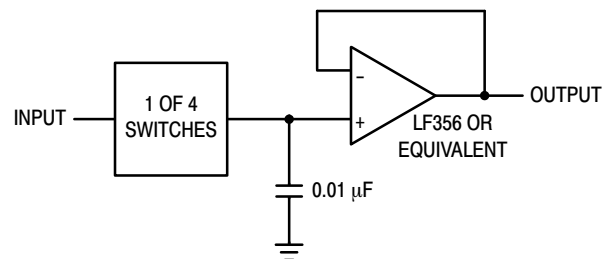
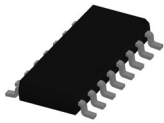


Figure 20. Sample/Hold Amplifier

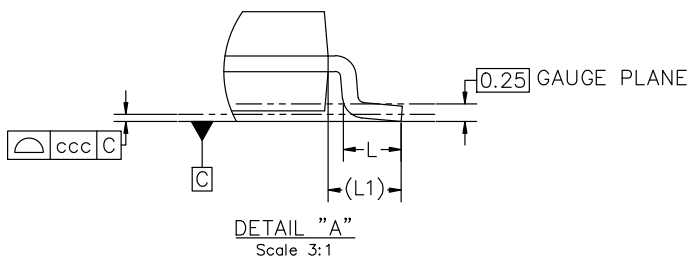
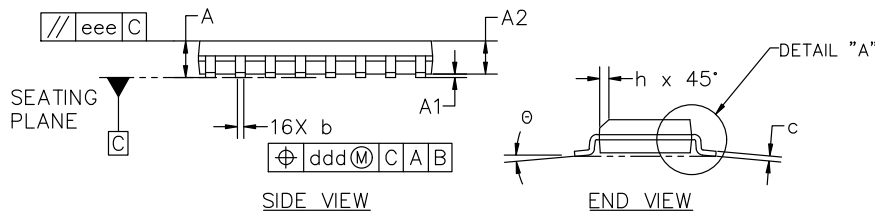
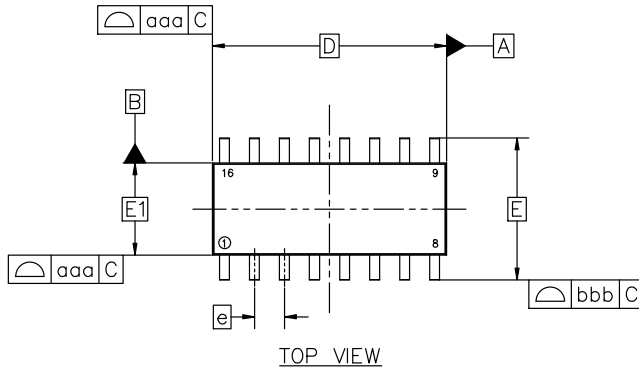


SOIC-16 9.90x3.90x1.37 1.27P
CASE 751B
ISSUE M

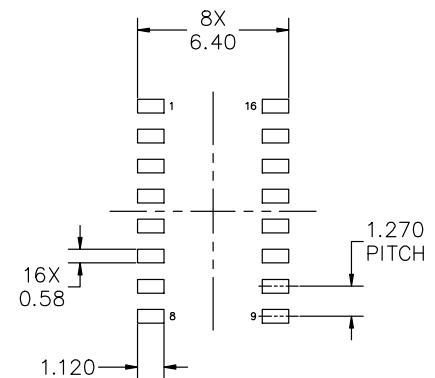
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NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. DIMENSION IN MILLIMETERS. ANGLE IN DEGREES.
3. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15mm PER SIDE.
5. 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
A	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
c	0.19	0.22	0.25
D	9.90 BSC		
E	6.00 BSC		
E1	3.90 BSC		
e	1.27 BSC		
h	0.25	---	0.50
L	0.40	0.83	1.25
L1	1.05 REF		
θ	0°	---	7°
TOLERANCE OF FORM 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, SOLDERM/D

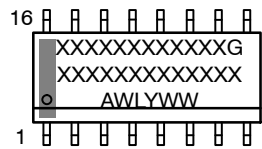
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DESCRIPTION:	SOIC-16 9.90X3.90X1.37 1.27P	PAGE 1 OF 2

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

DATE 18 OCT 2024

GENERIC
MARKING DIAGRAM*

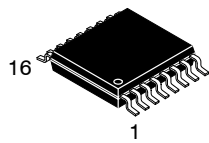


XXXXX = Specific Device Code
A = Assembly Location
WL = Wafer Lot
Y = Year
WW = Work Week
G = Pb-Free Package

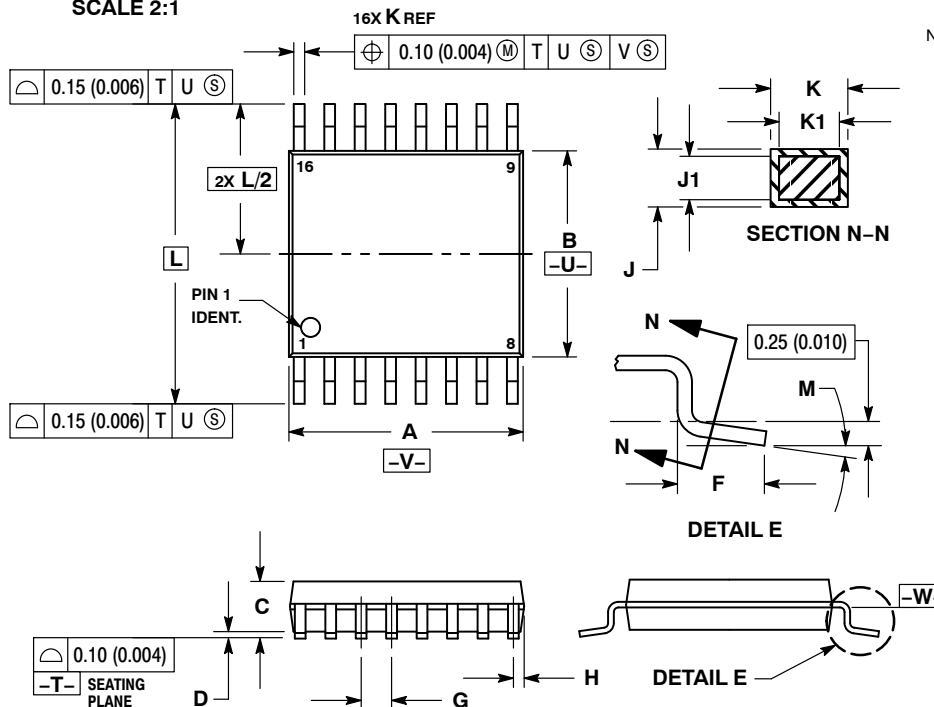
*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

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

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DESCRIPTION:	SOIC-16 9.90X3.90X1.37 1.27P	PAGE 2 OF 2
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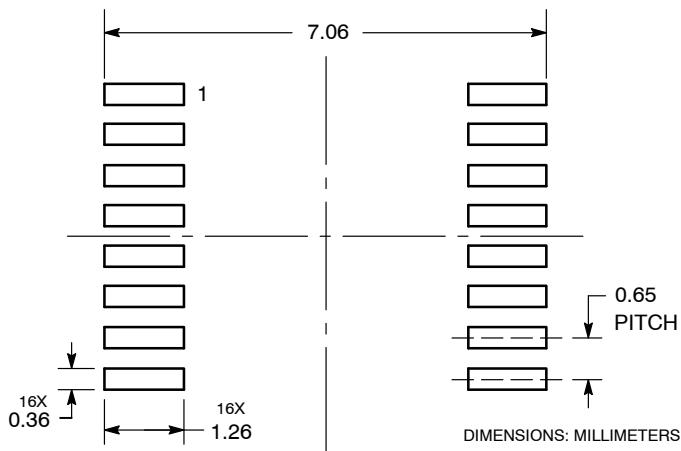

TSSOP-16 WB
CASE 948F
ISSUE B

DATE 19 OCT 2006

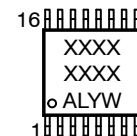

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. 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.
4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 (0.010) PER SIDE.
5. 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.
6. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
7. DIMENSION A AND B ARE TO BE DETERMINED AT DATUM PLANE -W-.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.90	5.10	0.193	0.200
B	4.30	4.50	0.169	0.177
C	---	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	
H	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	
M	0°	8°	0°	8°

**RECOMMENDED
SOLDERING FOOTPRINT***


*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***


XXXX = Specific Device Code
A = Assembly Location
L = Wafer Lot
Y = 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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