

LC898121XA



ON Semiconductor®

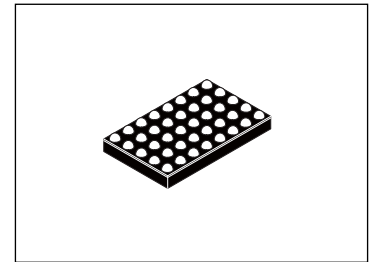
www.onsemi.com

CMOS LSI

Optical Image Stabilization (OIS) Controller & Driver

Overview

The LC898121XA is a system LSI integrating a digital signal processing function for Optical Image Stabilization (OIS) and a saturation-driven H bridge driver function.



WLCSP40, 2.44x3.94

Function

Digital signal processing

- Built-in digital servo circuit
- Built-in Gyro filter
- AD converter
 - 12bit
 - Input 3ch
 - Equipped with a sample-hold circuit
- DA converter
 - 8bit
 - Output 2ch
- Built-in Serial I/F circuit
(4-wire SPI or 2-wire I²C-Bus interface)
- Built-in Hall Bias circuit
- Built-in Hall Amp
- Built-in OSC (Oscillator)
Typ. 48MHz
- Built-in LDO (Low Drop-Out regulator)
Generation Logic Power (typ 1.8V)
- Digital Gyro I/F for the companies
(Please refer for the details)

Motor Driver

- Saturation-drive H bridge ×2ch
- I_O max : 300mA

Package

- WLCSP40, 2.44mm × 3.94mm,
thickness max 0.65mm
- Pb-Free / Halogen Free

Power Supply Voltage

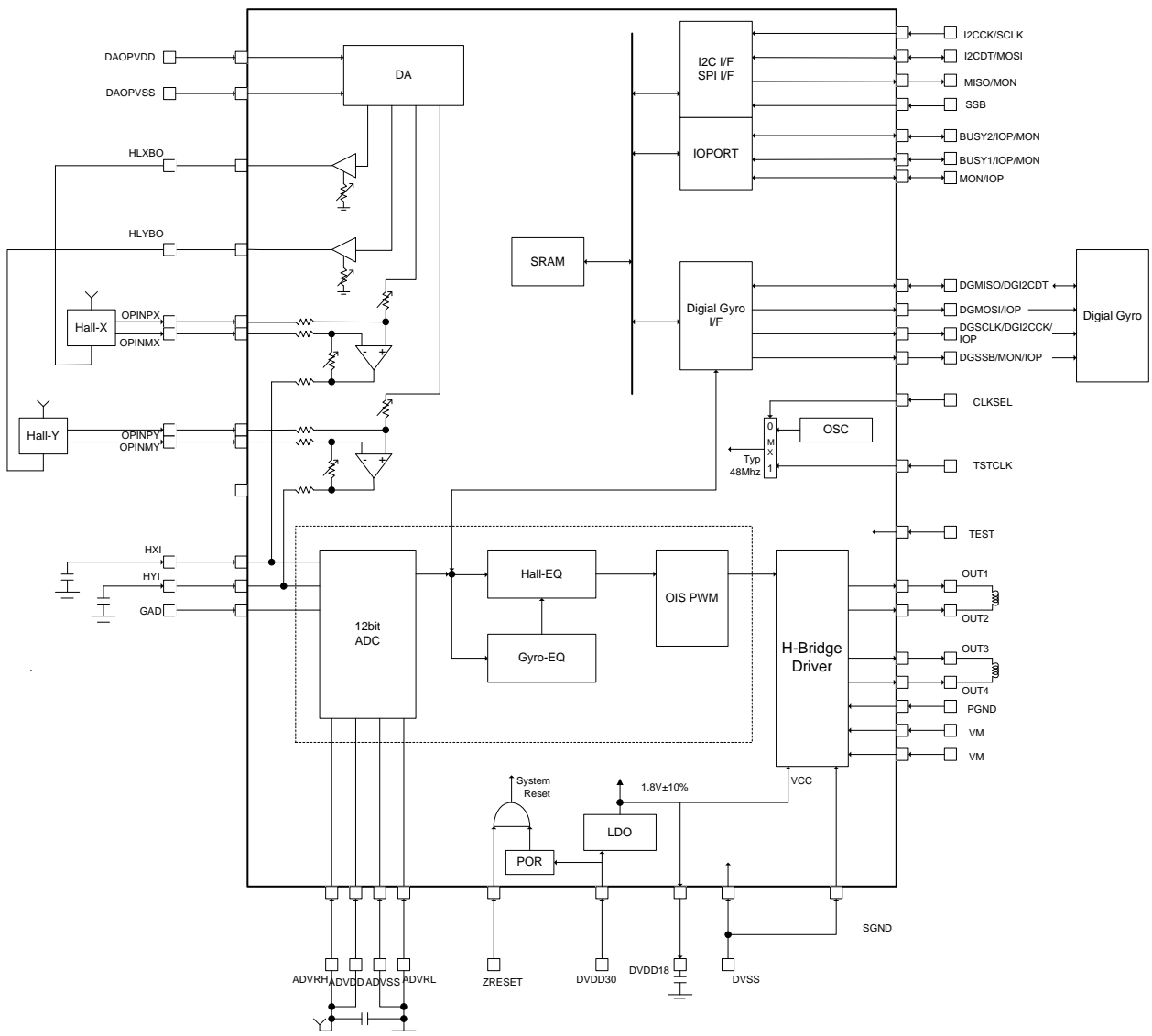
- DA/VGA : DAOPVDD = 2.6V to 3.6V
- AD : ADVDD = 2.6V to 3.6V
- IO/OSC/LDO : DVDD30 = 2.6V to 3.6V
- Driver : VM = 2.6V to 5.5V
- Core Logic : Use built-in LDO/External VDD :
DVDD18 = 1.8V±10%

* I²C Bus is a trademark of Philips Corporation.

ORDERING INFORMATION

See detailed ordering and shipping information on page 6 of this data sheet.

Block Diagram

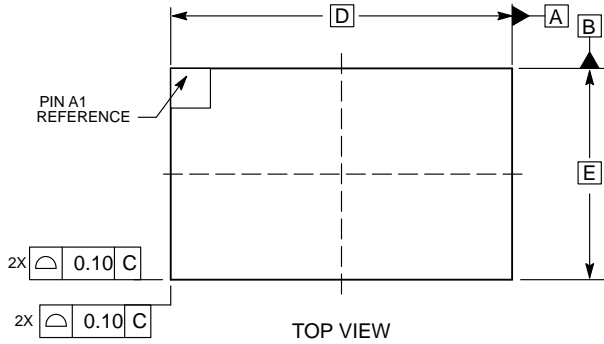


Example of wiring diagram [Hall] in LC898121XA (WLP40)

Package Dimensions

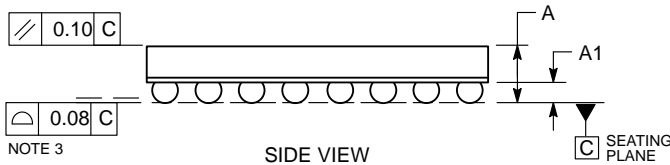
unit : mm

WLCSP40, 2.44x3.94
CASE 567JB
ISSUE O

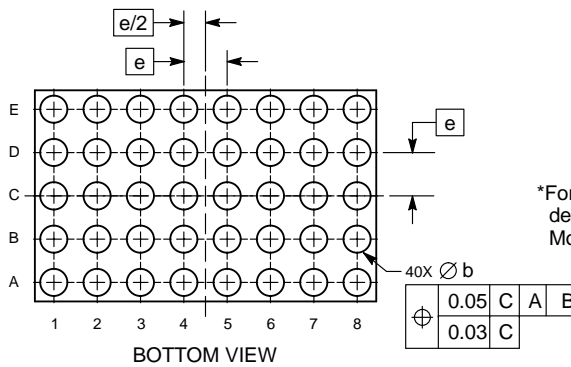
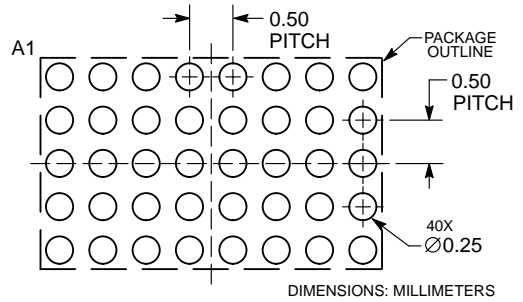


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. COPLANARITY APPLIES TO SPHERICAL CROWNS OF SOLDER BALLS.

MILLIMETERS		
DIM	MIN	MAX
A	iii	0.65
A1	0.15	0.24
b	0.22	0.32
D	2.44 BSC	
E	3.94 BSC	
e	0.50 BSC	



RECOMMENDED SOLDERING FOOTPRINT*



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

Pin Assignment
WLP40

Bottom View

	E	D	C	B	A
8	OPINPX	OPINMY	ADVDD	ADVSS	HXI
7	OPINMX	OPINPY	ADVRH	ADVRL	HYI
6	HLXBO	HLYBO	DAOPVDD	DAOPVSS	I2CCK
5	DGCLK	DGMOSI	GAD	MISO	I2CDT
4	DGMISO	DGSSB	MON	SSB	DVDD18
3	DVSS	CLKSEL	TSTCLK	TEST	DVDD30
2	VM	BUSY2	BUSY1	ZRESET	VM
1	OUT4	OUT3	PGND	OUT2	OUT1

	Driver		Digital GND
	AD 3V		Digital 3V VDD
	VGA&DAC 3V		Logic Core 1.8V VDD (Output)

LC898121XA

<typ> I : INPUT, O : OUTPUT, B : BIDIRECTION, P : Power

Ball No	Pin Name	type	Description
A1	OUT1	O	Driver Output
A2	VM	P	Driver VDD (2.6V to 5.5V)
A3	DVDD30	P	Logic 3V VDD (2.6V to 3.6V)
A4	DVDD18	P	LDO Power supply out (Logic Core VDD (typ 1.8 V))
A5	I2CDT	B	I2C_IF data (B) / SPI IF data (I)
A6	I2CCK	I	I2C_IF clock / SPI IF clock
A7	HYI	I	Hall-Y AD input
A8	HXI	I	Hall-X AD input
B1	OUT2	O	Driver output
B2	ZRESET	I	HardWafer Reset
B3	TEST	I	SPI & External clock case sets [1]. other cases set [0]
B4	SSB	B	SPI I/F Chip Select (I) / General-purpose IOPORT(B) / inner signal monitor(O)
B5	MISO	B	SPI I/F data(O) / inner signal monitor / General-purpose IOPORT
B6	DAOPVSS	P	DA&OpAmp VSS
B7	ADVRL	I	ADC ReferenceVoltage Low input
B8	ADVSS	I	AD GND
C1	PGND	P	Driver GND
C2	BUSY1	B	BUSY1(O) / General-purpose IOPORT(B) / inner signal monitor(O)
C3	TSTCLK	I	CLKSEL=1 : External Clock, CLKSEL=0 : change pin of I ² C(0) and SPI(1)
C4	MON	B	inner signal monitor / general-purpose IOPORT
C5	GAD	I	General AD input
C6	DAOPVDD	P	DA&OpAmp VDD (2.6V to 3.6V)
C7	ADVRH	I	ADC ReferenceVoltage High input
C8	ADVDD	P	AD VDD (2.6V to 3.6V)
D1	OUT3	O	Driver output
D2	BUSY2	B	BUSY2 (O) / General-purpose IOPORT(B) / inner signal monitor(O)
D3	CLKSEL	I	change pin of OSC(0) and External clock(1)
D4	DGSSB	B	Digital Gyro SPI IF Chip Select(O) / inner signal monitor(O) / General-purpose IOPORT(B)
D5	DGMOSI	B	Digital Gyro (4-wire) IF data(O) / General-purpose IOPORT(B)
D6	HLYBO	O	Hall-Y Bias (Current drive)
D7	OPINPY	I	Hall-Y OpAmp input+
D8	OPINMY	I	Hall-Y OpAmp input-
E1	OUT4	O	Driver output
E2	VM	P	Driver VDD (2.6V to 5.5V)
E3	DVSS	P	Logic GND
E4	DGMISO	B	Digital Gyro SPI IF data(I) / Digital Gyro I ² C IF data(B)
E5	DGSKL	B	Digital Gyro SPI IF clock (O) / Digital Gyro I ² C IF clock(O) / General purpose IOPORT (B)
E6	HLXBO	O	Hall-Y Bias (Current drive)
E7	OPINMX	I	Hall-X OpAmp input-
E8	OPINPX	I	Hall-X OpAmp input+

ORDERING INFORMATION

Device	Package	Shipping (Qty / Packing)
LC898121XA-MH	WLCP40, 2.44x3.94 (Pb-Free / Halogen Free)	4000 / 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. http://www.onsemi.com/pub_link/Collateral/BRD8011-D.PDF

ON Semiconductor and the ON logo are registered trademarks of Semiconductor Components Industries, LLC (SCILLC) or its subsidiaries in the United States and/or other countries. SCILLC owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of SCILLC's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC 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. "Typical" parameters which may be provided in SCILLC 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. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC 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 SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.