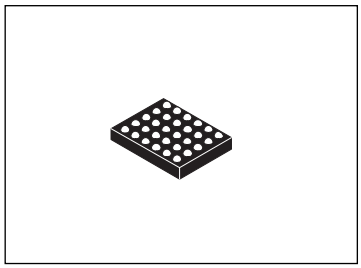
LC898122XA

CMOS LSI

Optical Image Stabilization (OIS) / Auto Focus (AF) Controller & Driver

ON Semiconductor®

www.onsemi.com



WLCSP30, 2.59x1.99

Overview

LC898122XA is a system LSI (WLP type) integrating a digital signal processing function for Optical Image Stabilization (OIS) / Auto Focus (AF) control and driver.

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 3ch
- Built-in Serial I/F circuit (2-wire I^2C-Bus)
- Built-in Hall Bias circuit
- Built-in Hall Amp
  (Gain of Op-amp :
  ×6, ×12, ×50, ×75, ×100, ×150, ×200)
- Built-in OSC (Oscillator)
  - Typ. 48MHz
- Built-in LDO (Low Drop-Out regulator)
- Digital Gyro I/F for the companies (SPI Bus)
  (Please refer for the details)

■ Motor Driver
- OIS control & drive H bridge ×2ch, $I_O$max : 220mA
- AF control & driver H bridge/constant current ×1ch : 150mA

■ Package
- WLCSP30, 2.59mm × 1.99mm,
  thickness Max. 0.45mm, with B/C
- Pb-Free / Halogen Free

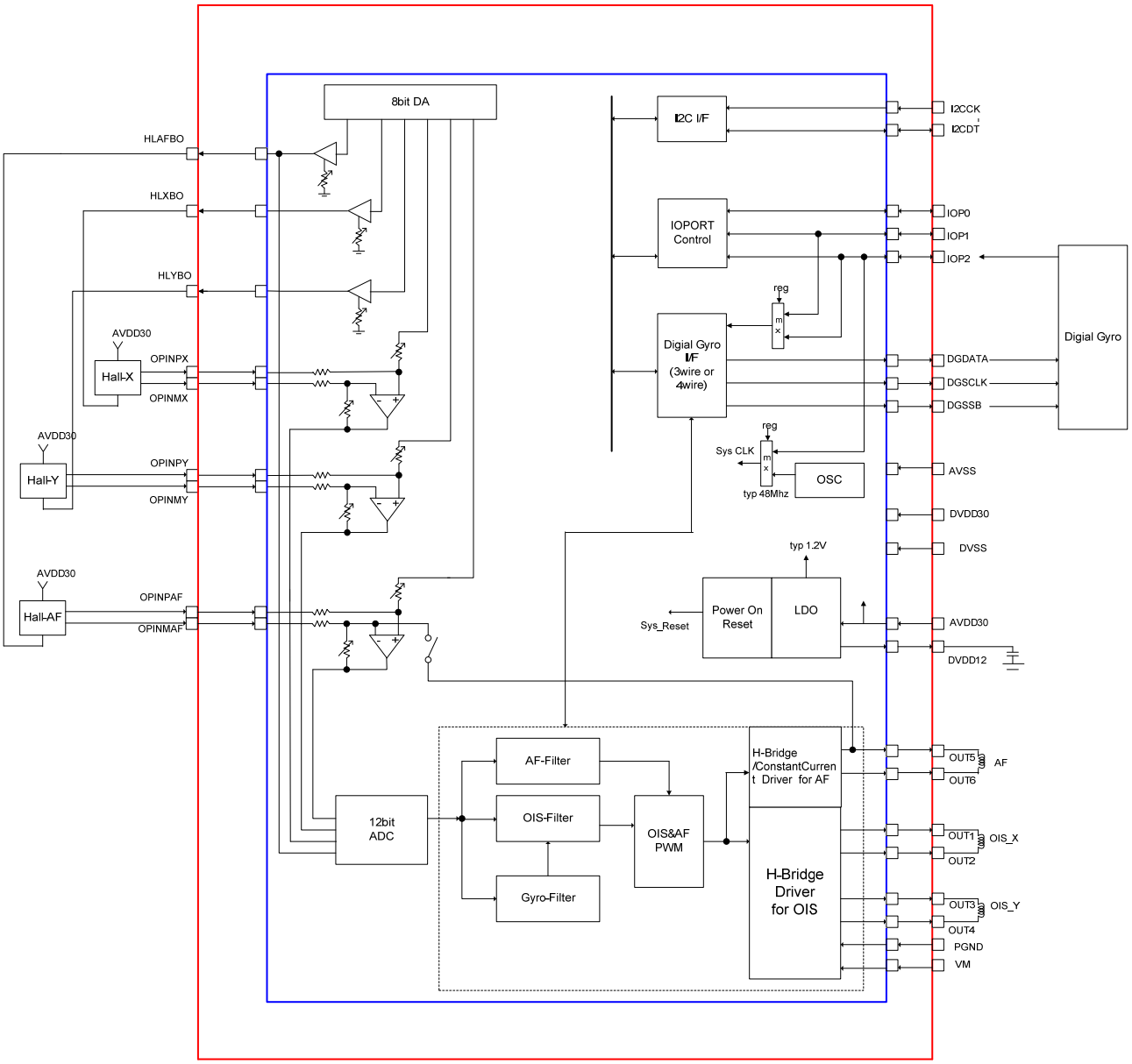
■ Power Supply Voltage
- AD/DA/VGA/LDO/OSC : AVDD30 = 2.6V to 3.6V
- Digital I/O : DVDD30 = 2.6V to 3.6V
- Driver : VM = 2.6V to 3.6V
- Core Logic : Generation in LDO
  DVDD12 = typ 1.2V output

* I^2C Bus is a trademark of Philips Corporation.

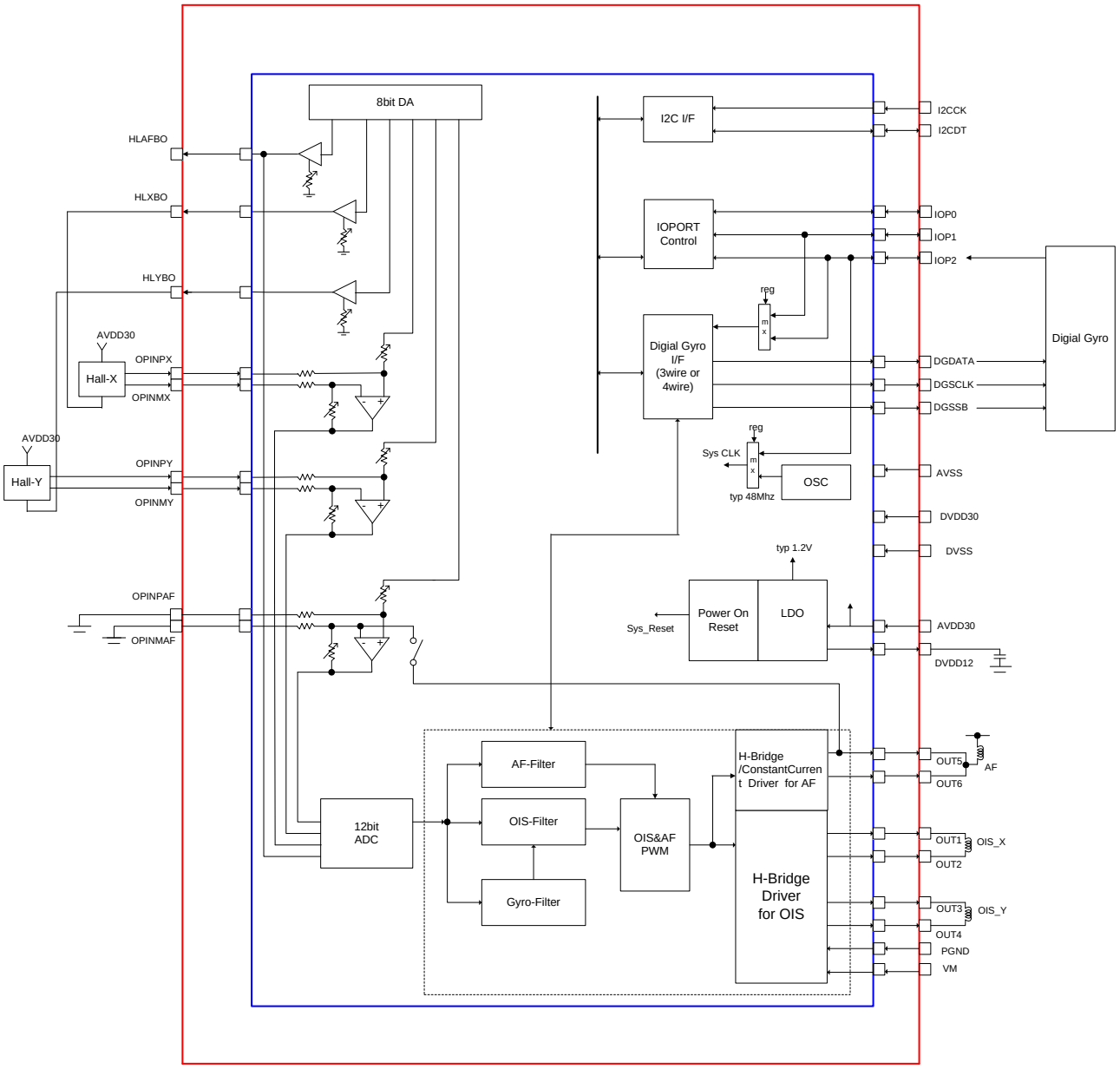
ORDERING INFORMATION

See detailed ordering and shipping information on page 7 of this data sheet.

Block Diagram



Example of wiring diagram [Hall, Closed AF] in LC898122XA

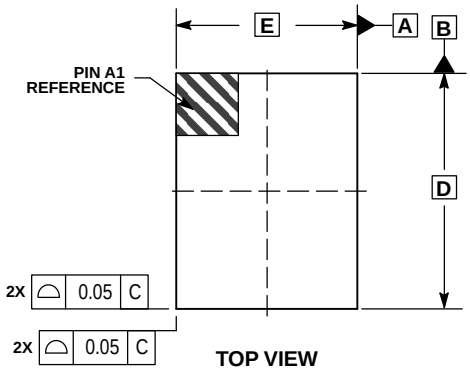


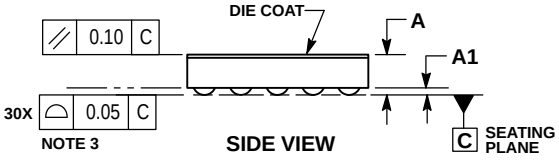
Example of wiring diagram [Hall(OIS), Open AF] in LC898122XA

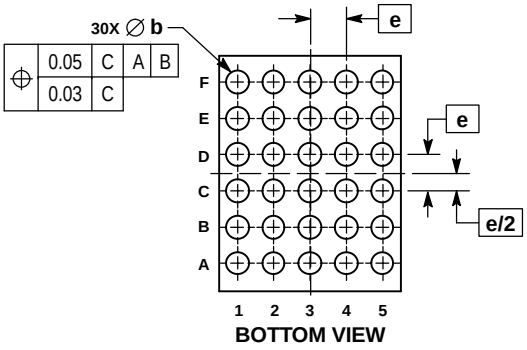
Package Dimensions

unit : mm

WLCSP30, 2.59x1.99
CASE 567HG
ISSUE O



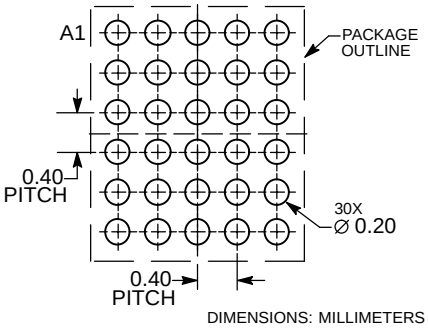




NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. COPLANARITY APPLIES TO SPHERICAL CROWNS OF SOLDER BALLS.

	MILLIMETERS	
DIM	MIN	MAX
A	---	0.45
A1	0.03	0.13
b	0.15	0.25
D	2.59 BSC	
E	1.99 BSC	
e	0.40 BSC	

RECOMMENDED SOLDERING FOOTPRINT*



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.

Pin Assignment

Bottom View

	F	E	D	C	B	A
5	OUT5	OUT4	OUT3	PGND	OUT2	OUT1
4	OUT6	DGDATA	DGSSB	VM	I2CDT	I2CCK
3	HLAFBO	DVSS	DGSCLK	DVDD30	IOP2	IOP1
2	HLYBO	HLXBO	OPINMAF	OPINMX	OPINMY	IOP0
1	OPINPAF	OPINPX	OPINPY	AVSS	AVDD30	DVDD12

Driver
Analog VDD
Analog GND
Digital GND
Digital VDD
Logic Core VDD (Output)

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

Ball No	Pin Name	type	Description
A1	DVDD12	P	LDO Power supply out (Logic Core VDD (typ 1.2V))
A2	IOP0	B	General-purpose IOPORT
A3	IOP1	B	General-purpose IOPORT
A4	I2CCK	I	I2C IF clock
A5	OUT1	O	OIS Driver output (H bridge)
B1	AVDD30	P	Analog Power (2.6 to 3.6V)
B2	OPINMY	I	OIS Hall-Y OpAmp input-
B3	IOP2	B	General-purpose IOPORT/ External Clock input (switch from OSC at Register)
B4	I2CDT	B	I2C_IF Data
B5	OUT2	O	OIS Driver output (H bridge)
C1	AVSS	P	Analog GND
C2	OPINMX	I	OIS Hall-X OpAmp input-
C3	DVDD30	P	IO Power (2.6V to 3.6V)
C4	VM	P	Driver Power (2.6V to 3.6V)
C5	PGND	P	Driver GND
D1	OPINPY	I	Hall-Y Bias (Current Drive) for OIS
D2	OPINMAF	I	AF Hall OpAmp input-
D3	DGSCLK	B	Digital Gyro IF clock / General-purpose IOPORT
D4	DGSSB	B	Digital Gyro IF Chip Select / General-purpose IOPORT
D5	OUT3	O	OIS Driver output (H bridge)
E1	OPINPX	I	Hall-X OpAmp input+ for OIS
E2	HLXBO	O	Hall-X Bias (Current Driver) for OIS
E3	DVSS	P	Logic GND
E4	DGDATA	B	Digital Gyro IF Data (3wire : Data in/out, 4wire : Data out)
E5	OUT4	O	OIS Driver output (H bridge)
F1	OPINPAF	I	AF Hall OpAmp input+
F2	HLYBO	O	Hall-Y Bias (current drive) for OIS
F3	HLAFBO	O	Hall Bias (current drive) for AF
F4	OUT6	O	AF Driver output (H bridge/constant current)
F5	OUT5	O	AF Driver output (H bridge/constant current)

ORDERING INFORMATION

Device	Package	Shipping (Qty / Packing)
LC898122XA-VH	WLCSP30, 2.59x1.99 (Pb-Free / Halogen Free)	5000 / 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