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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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ON Semiconductor®

<http://onsemi.com>

# LC898212XD

CMOS LSI

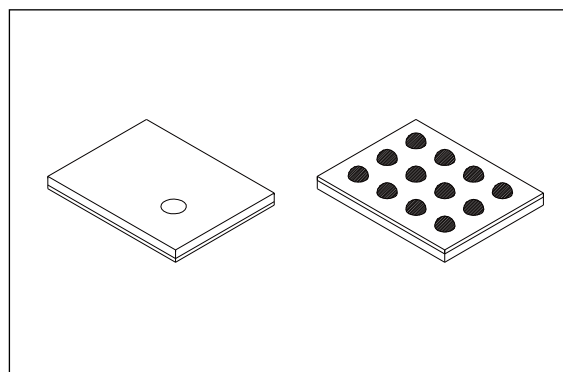
## AF Controller

### Overview

This LSI is AF control LSI. It consists of 1 system of feed back circuit for AF control.

### Features

- Built-in equalizer circuit using digital operation
  - AF control equalize circuit
  - Any coefficient can be specified by I<sup>2</sup>C I/F
- I<sup>2</sup>C Interface
- Built-in A/D converter
  - Maximum 10-bit
  - Input 2 channel
- Built-in D/A converter
  - 8-bit
  - Output 2-channel (Hall offset, Constant current Bias)
- Built-in OP Amp
  - 1 channel
  - Hall Amp
- Built-in OSC
  - 48MHz (Frequency adjustment function)
- Built-in PWM pulse generator circuit
  - PWM circuit for AF control
- 1-chip motor driver
  - Saturation drive H bridge 1 channel
- Package
  - WL-CSP 12-pin
  - Lead-free, halogen-free
- Supply voltage
  - Logic unit : Internal core typ 1.2V, AVDD (2.6V to 3.6V)
  - Driver unit : VM (2.6V to 3.6V)



WLP12J(1.77X1.37)

\* I<sup>2</sup>C Bus is a trademark of Philips Corporation.

### ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.

# LC898212XD

## Pin Description

| TYPE |             |   |                      |    |             |
|------|-------------|---|----------------------|----|-------------|
| I    | INPUT       | P | Power supply,<br>GND | NC | NOT CONNECT |
| O    | OUTPUT      |   |                      |    |             |
| B    | BIDIRECTION |   |                      |    |             |

- I<sup>2</sup>C interface
 

|       |   |                            |
|-------|---|----------------------------|
| I2CCK | B | I <sup>2</sup> C Clock pin |
| I2CDT | B | I <sup>2</sup> C Data pin  |
  
- D/A interface
 

|       |   |                              |
|-------|---|------------------------------|
| BIASO | O | D/A output (Hall bias input) |
|-------|---|------------------------------|
  
- Op-Amp interface
 

|       |   |              |
|-------|---|--------------|
| OPINP | I | Op-Amp input |
| OPINM | I | Op-Amp input |
  
- Driver interface
 

|      |   |                     |
|------|---|---------------------|
| OUT1 | O | Actuator output pin |
| OUT2 | O | Actuator output pin |
  
- Power supply pin
 

|      |   |                      |
|------|---|----------------------|
| VDD  | P | Digital power supply |
| VSS  | P | Digital GND          |
| VDDO | P | LDO power supply out |
| VM   | P | Motor power supply   |
| PGND | P | Power GND            |

PIN TYPE “O” – Ensure that it is set to OPEN.

PIN TYPE “I” – OPEN is inhibited. Ensure that it is connected to the VDD or VSS even when it is unused.

(Please contact our company for more information about selection of VDD or VSS.)

PIN TYPE “B” – If you are unsure about processing method on the pin description of pin layout table, please contact us.

Note that incorrect processing of unused pins may result in defects.

If you have any question, please feel free to contact us.

# LC898212XD

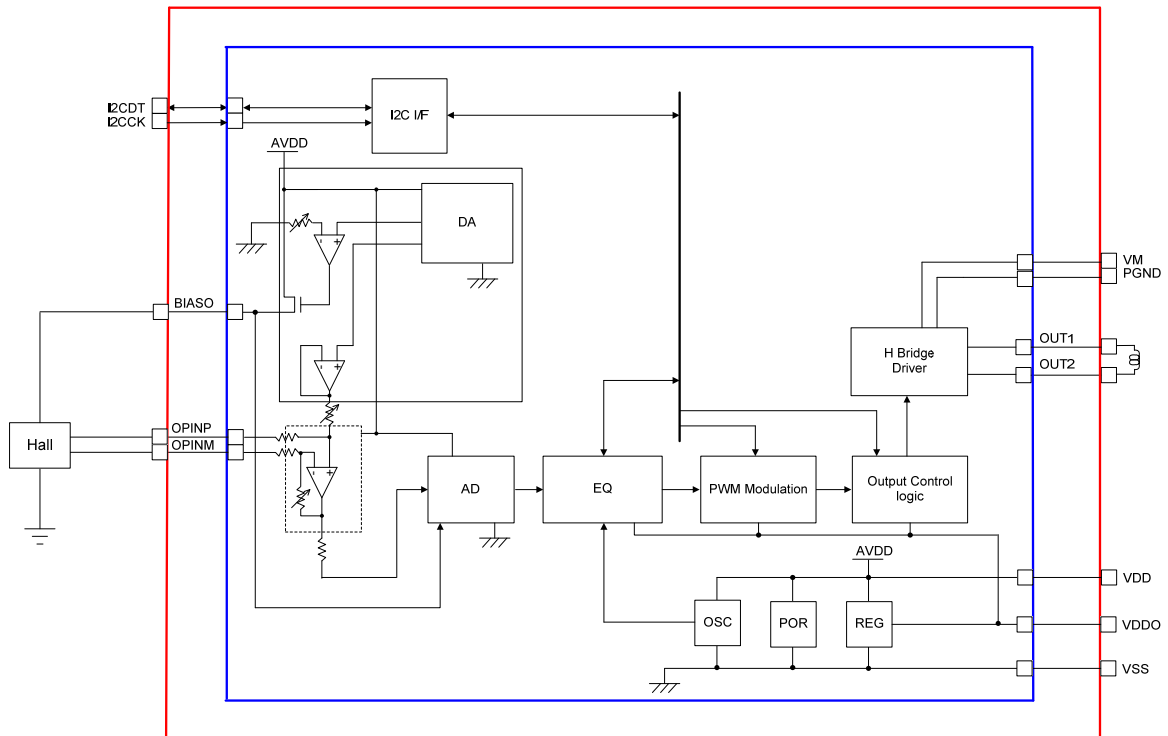
## Pin Layout

| Circuit Name | Number of Pins | Circuit Name | Number of Pins |
|--------------|----------------|--------------|----------------|
| Analog       | 4              | Driver       | 4              |
| Logic        | 4              |              |                |

Backside pin layout diagram (Top View from the mold side)

|   |       |       |       |
|---|-------|-------|-------|
| 4 | VDDO  | VM    | PGND  |
| 3 | AVDD  | I2CDT | OUT1  |
| 2 | OPINP | I2CCK | OUT2  |
| 1 | VSS   | OPINM | BIASO |
|   | A     | B     | C     |

## Block Diagram



# LC898212XD

## Package Dimensions

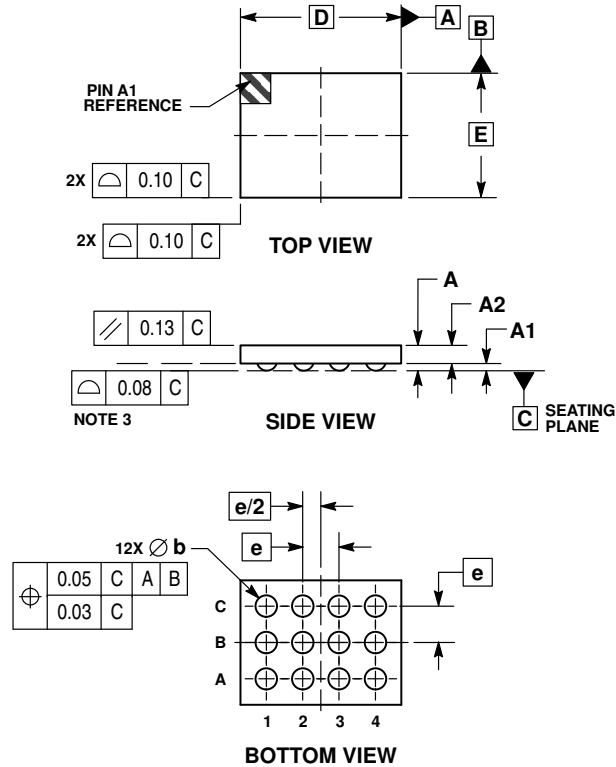
WLP12J(1.77X1.37)

unit : mm

WLCSP12, 1.77x1.37

CASE 567GH

ISSUE O

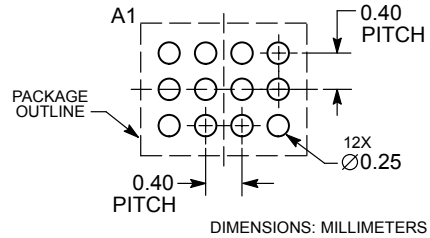


**NOTES:**

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

| DIM | MILLIMETERS |      |
|-----|-------------|------|
|     | MIN         | MAX  |
| A   | ---         | 0.33 |
| A1  | 0.03        | 0.13 |
| A2  | 0.20 REF    |      |
| b   | 0.15        | 0.25 |
| D   | 1.77 BSC    |      |
| E   | 1.37 BSC    |      |
| e   | 0.40 BSC    |      |

**RECOMMENDED SOLDERING FOOTPRINT\***



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

## ORDERING INFORMATION

| Device        | Package                                       | Shipping (Qty / Packing) |
|---------------|---|--------------------------|
| LC898212XD-SH | WLP12J(1.77X1.37)<br>(Pb-Free / Halogen Free) | 5000 / Tape & Reel       |

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