National Semiconductor

October 14, 2010

LP8725 PRODUCT BRIEF

Power Management Unit for Application/Multimedia Processors and Sub-Systems

General Description

This device is a multi-function, programmable Power Management Unit (PMU), optimized for sub block power solutions. This device integrates two highly efficient 600 mA step-down DC/DC converters configurable up to 800 mA load with Dynamic Voltage Scaling (DVS) through an I2C, two low noise analog LDOs, three digital LDOs for up to 300 mA load current each, two Low Input Low Output (LILO) regulators and an I2C-compatible serial interface to allow a host controller access to the internal control registers. The device also features programmable power-on sequencing. LDO regulators provide high PSRR and low noise ideally suited for supplying power to both analog and digital loads.

The device can be configured either as a Sub_PMU for modules (for example, camera/multimedia modules) or as a stand-alone PMU that powers the processor itself.

"Notice: This document is not a datasheet. For more information regarding this product or to order samples please contact your local National Semiconductor sales office or visit http://www.national.com/support/dir.html.

Features

- Two High Efficiency Step-Down DC/DC Convertors, I_{OUT} = 600 mA, with a 4MHz switching frequency using small 1µH inductors, with options up to 800 mA.
- Three digital LDOs for up to 300 mA load current each
- Two low-noise analog 300 mA LDOs
- Two low-input low output regulators, I_{OUT} = 300 mA
- I2C-compatible interface for the controlling of internal registers
- Adjustable startup sequence through I2C or configuration
- Thermal shutdown protection

Key Specifications

- 190 mV typ. Dropout Voltage on digital LDOs @ 300 mA
- 2% typ. Output Voltage Accuracy on digital and analog LDOs
- 10 µVrms Output Noise on analog LDOs
- ±2% typ. Output Voltage Bucks up to 93% efficiency
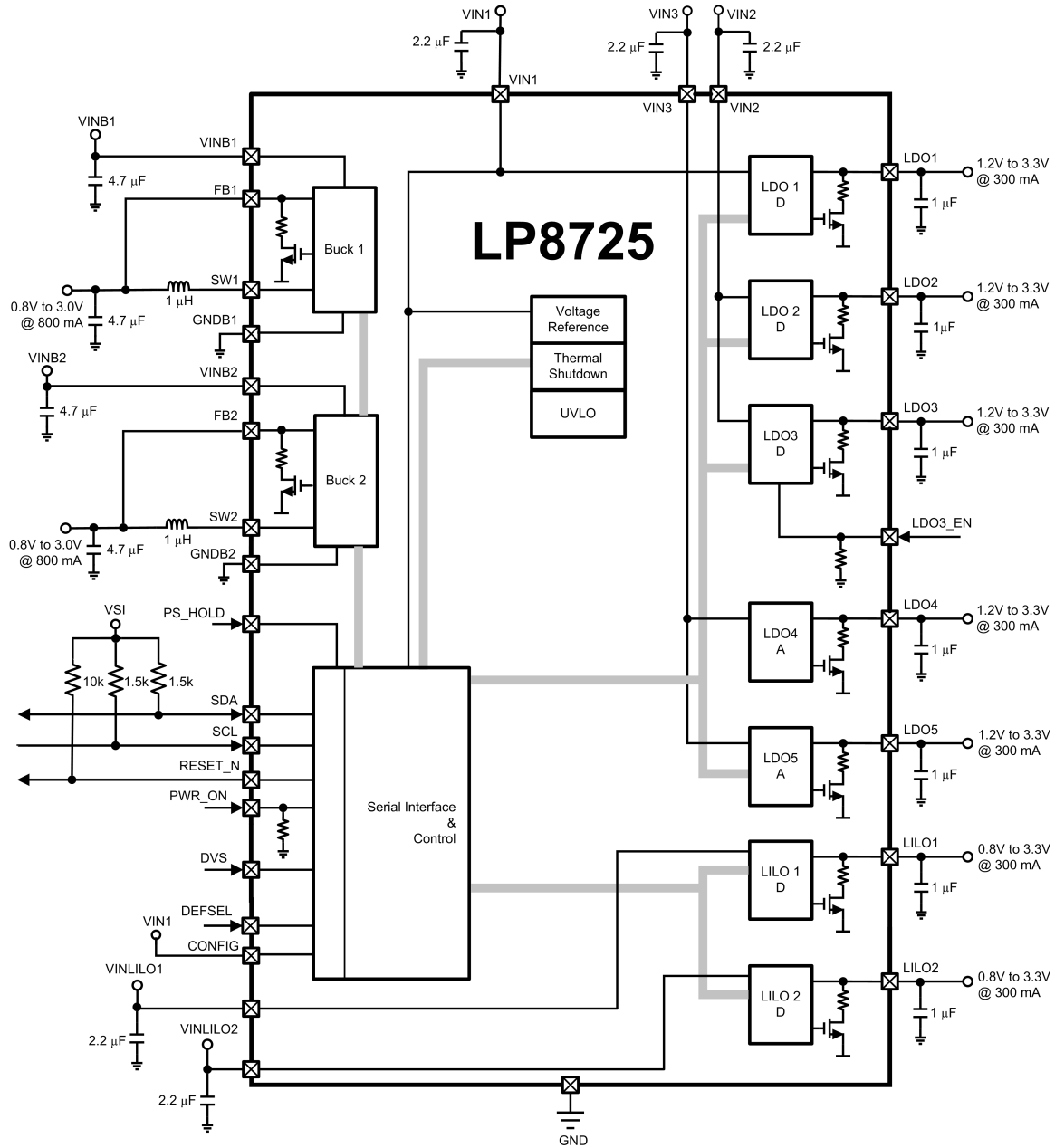- 30-bump micro SMD package (0.5 mm pitch)

Applications

- Multi-media Processors
- Portable Handheld Products

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Typical Application (SUB-PMU)

30098001

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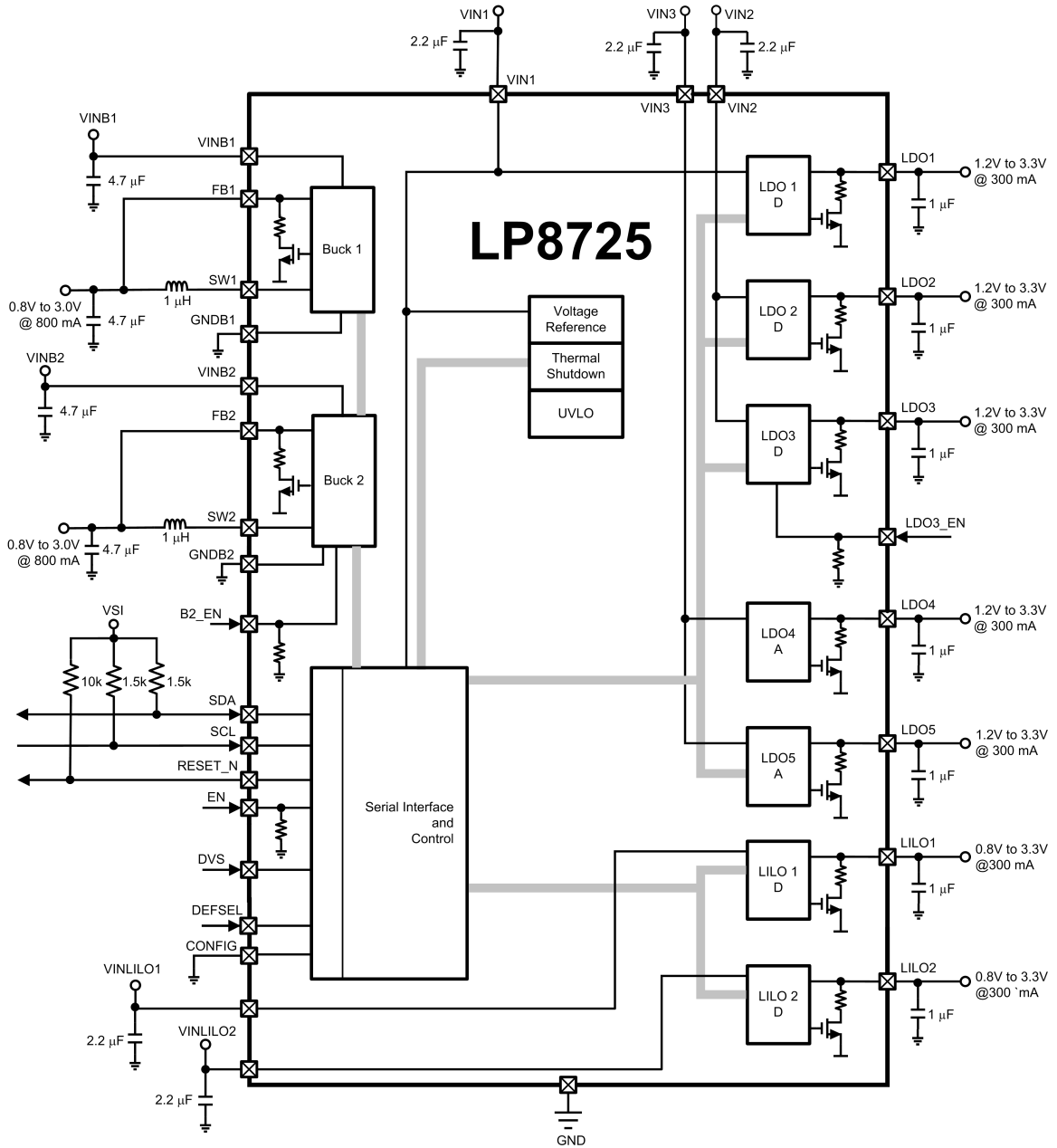
Typical Application (PMU)

LP8725

30098005

Ordering Information

Order Number	Package Type	Product Identification	Supplied as
LP8725TLE	micro SMD	8725	250 Tape & Reel
LP8725TLX	micro SMD	8725	3000 Tape & Reel
LP8725TLE-A	micro SMD	V023	250 Tape & Reel
LP8725TLX-A	micro SMD	V023	3000 Tape & Reel
LP8725TLE-B	micro SMD	V028	250 Tape & Reel
LP8725TLX-B	micro SMD	V028	3000 Tape & Reel
LP8725TLE-D	micro SMD	V031	250 Tape & Reel
LP8725TLX-D	micro SMD	V031	3000 Tape & Reel

The LP8725-A, LP8725-B and LP8725–D variants offer alternative startup default configurations to the standard LP8725 part (see Start-up Sequences and Default Output Voltages).
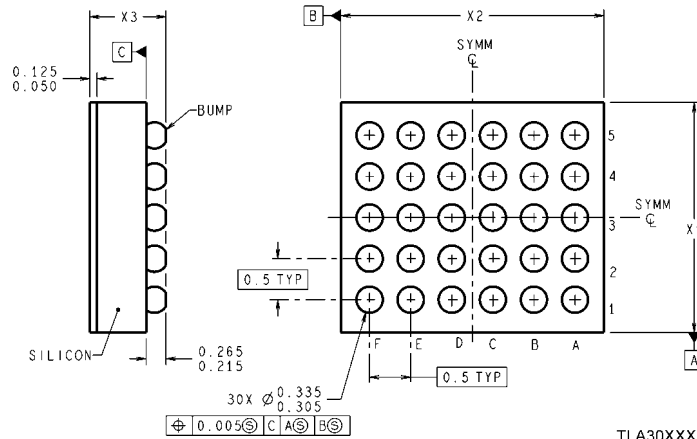
THE

Physical Dimensions inches (millimeters) unless otherwise noted

SYMM

30X Ø 0.275 / 0.250

SYMM

(1)

(0.5 TYP)
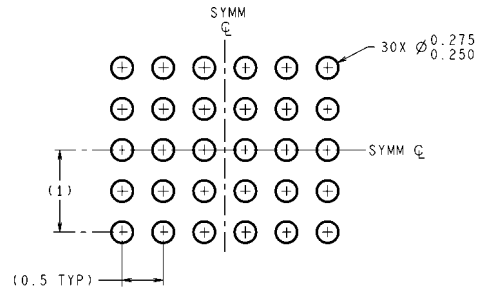
LAND PATTERN RECOMMENDATION
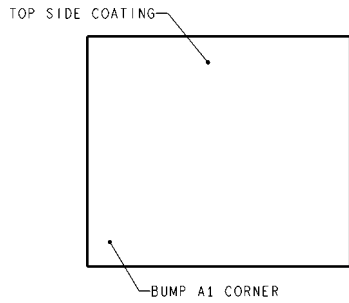
DIMENSIONS ARE IN MILLIMETERS
DIMENSIONS IN ( ) FOR REFERENCE ONLY

TOP SIDE COATING

BUMP A1 CORNER

X3

C

0.125 / 0.050

BUMP

SILICON

0.265 / 0.215

30X Ø 0.335 / 0.305

⊕ 0.005 Ⓢ C AⓈ BⓈ

B

X2

SYMM

5
4
SYMM
3
2
1

F E D C B A

0.5 TYP

0.5 TYP

X1

A

TLA30XXX (Rev C)

30-bump micro SMD Package
NS Package Number TLA30D1A
X1 = 2.568 mm ±0.030 mm
X2 = 2.974 mm ±0.030 mm
X3 = 0.600 mm ±0.075 mm

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Notes

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