

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 Converters, 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

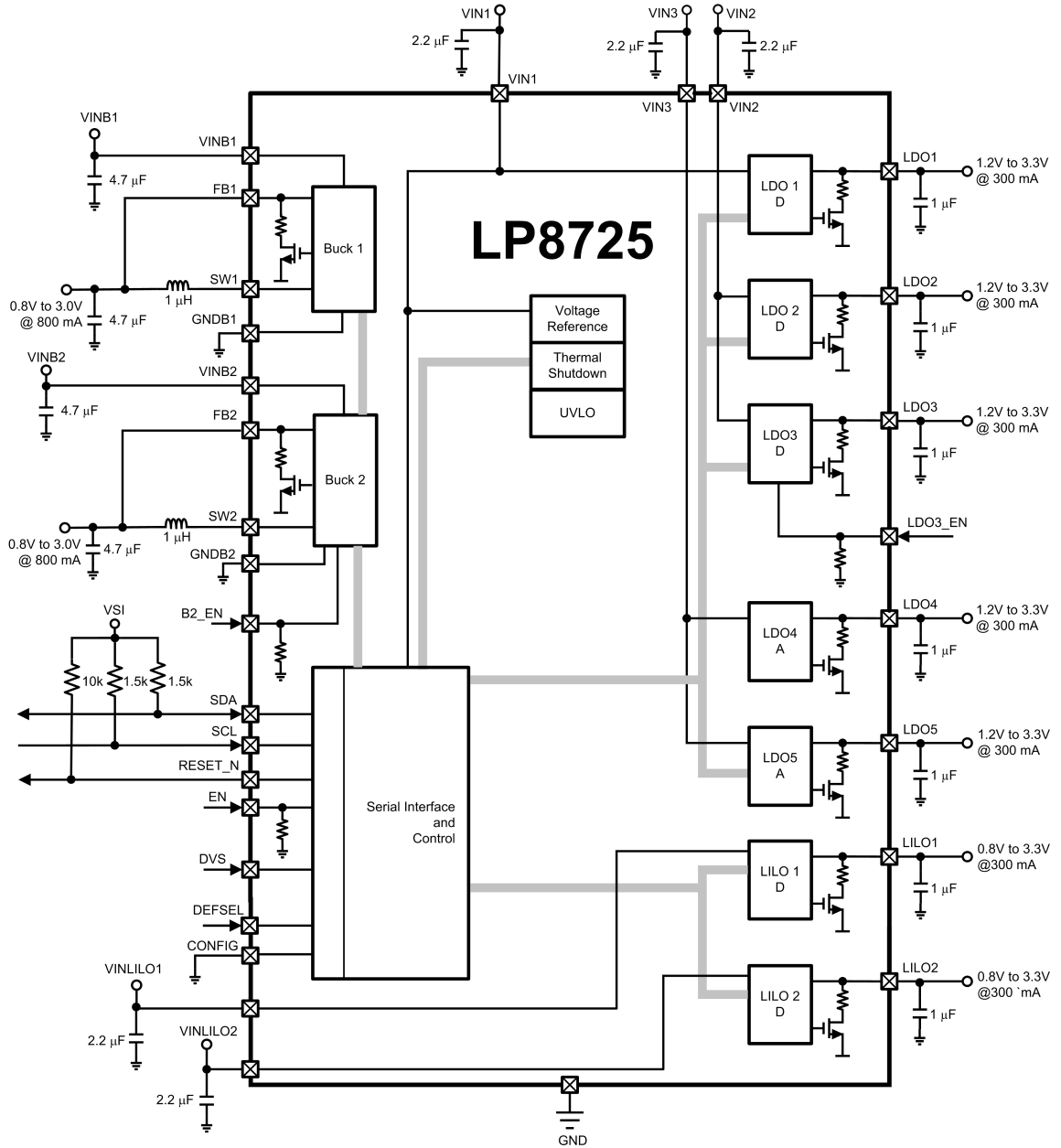
Key Specifications

- 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

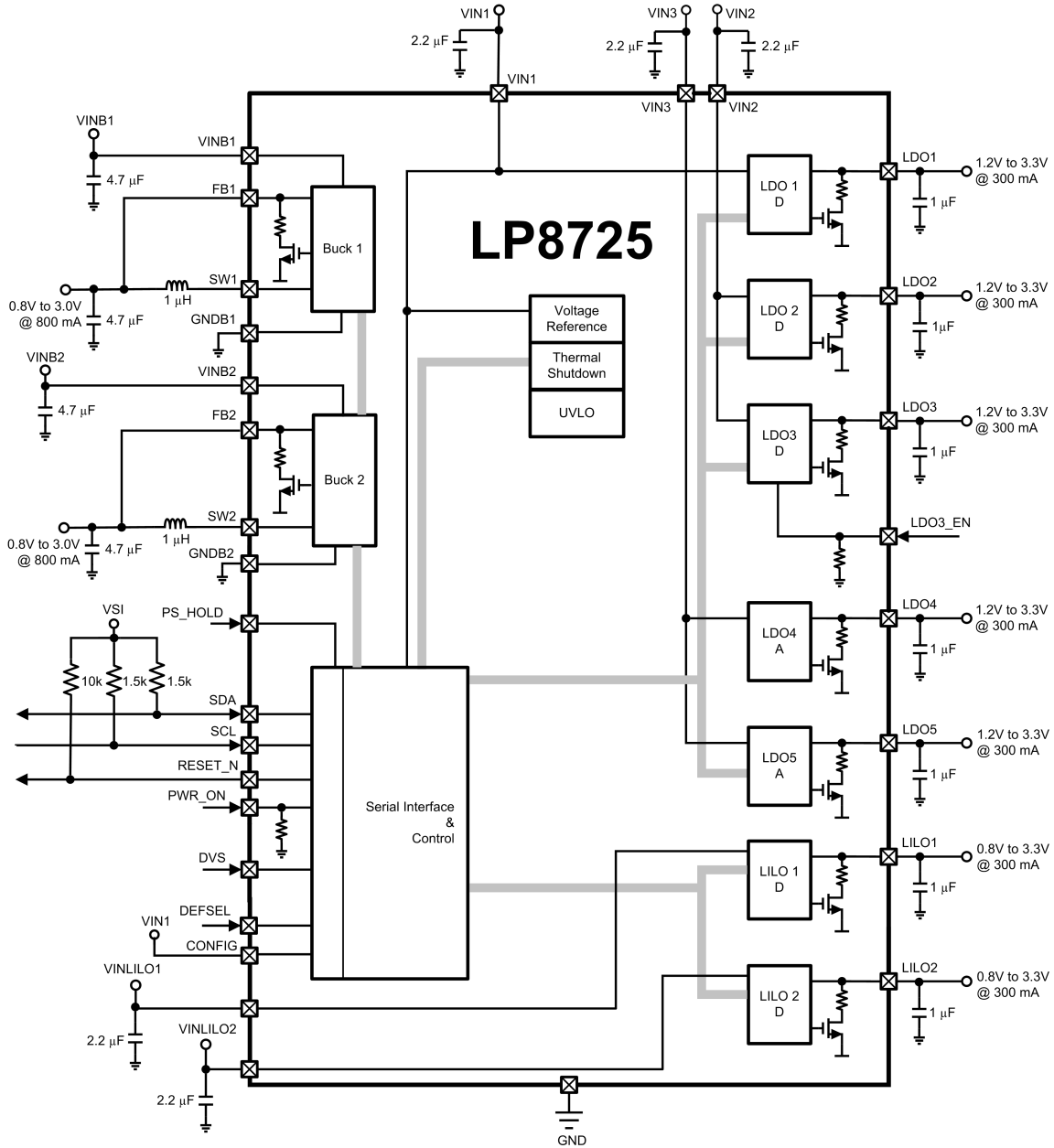
- Multi-media Processors
- Portable Handheld Products

Typical Application (SUB-PMU)



30098001

Typical Application (PMU)



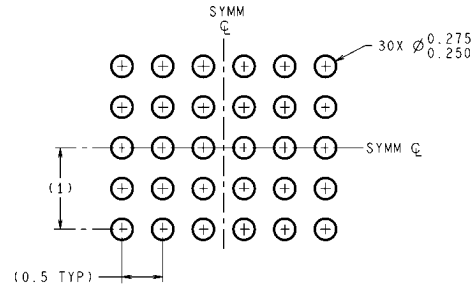
30098005

Ordering Information

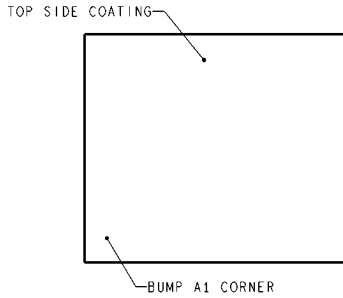
Order Number	Package Type	Product Identification	Supplied as
LP8725TLE	micro SMD	8725	250 Tape & Reel
LP8725TLX	micro SMD	8725	3000 Tape & Reel
LP8725TLE-A	micro SMD	V023	250 Tape & Reel
LP8725TLX-A	micro SMD	V023	3000 Tape & Reel
LP8725TLE-B	micro SMD	V028	250 Tape & Reel
LP8725TLX-B	micro SMD	V028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

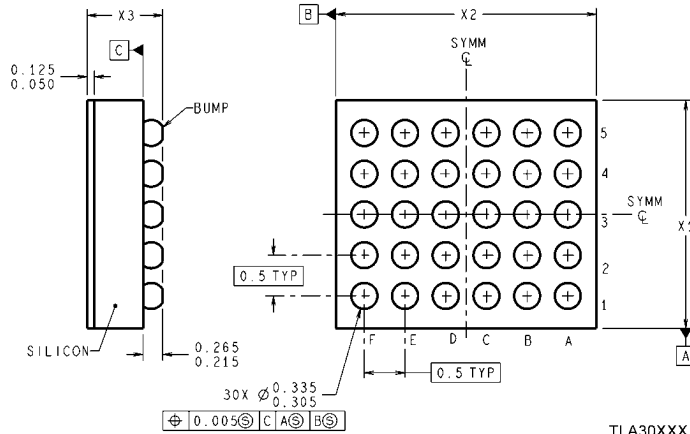
Physical Dimensions inches (millimeters) unless otherwise noted



LAND PATTERN RECOMMENDATION



DIMENSIONS ARE IN MILLIMETERS
DIMENSIONS IN () FOR REFERENCE ONLY



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

Notes

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www.national.com

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Interface	www.national.com/interface	Eval Boards	www.national.com/evalboards
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Switching Regulators	www.national.com/switchers	Distributors	www.national.com/contacts
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LED Lighting	www.national.com/led	Feedback/Support	www.national.com/feedback
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