intersil®

ISL8601

Single-Phase, PMBus-Enabled PWM Controller with Integrated FET Drivers

The ISL8601 is a single-phase PWM controller with integrated MOSFET drivers utilizing analog voltage mode control. The ISL8601 features extensive PMBus compliance that enables rapid and flexible power supply design and comprehensive product evaluation and testing. Exceptional flexibility in the customization of operating parameters and system monitoring functions is provided via the large PMBus command set. The ISL8601 supports both low-side MOSFET $r_{DS(ON)}$ and Inductor DCR current sensing. Programmable temperature compensation for sensed current values is provided to ensure maximum accuracy. In addition to the I^2C interface, select PMBus commands for the ISL8601 can also be programmed via external resistors, bringing the power and flexibility of PMBus into low-cost power supply systems.

Ordering Information

PART NUMBER	TEMP RANGE (°C)	PACKAGE	PKG. DWG. #
ISL8601IRZ	-40 to +85	40 Ld 6x6 QFN	L40.6x6

NOTE: Intersil Pb-free plus anneal products employ special Pb-free material sets; molding compounds/die attach materials and 100% matte tin plate termination finish, which are RoHS compliant and compatible with both SnPb and Pb-free soldering operations. Intersil Pb-free products are MSL classified at Pb-free peak reflow temperatures that meet or exceed the Pb-free requirements of IPC/JEDEC J STD-020.

Pinout

ISL8601
(40 LD 6x6 QFN)
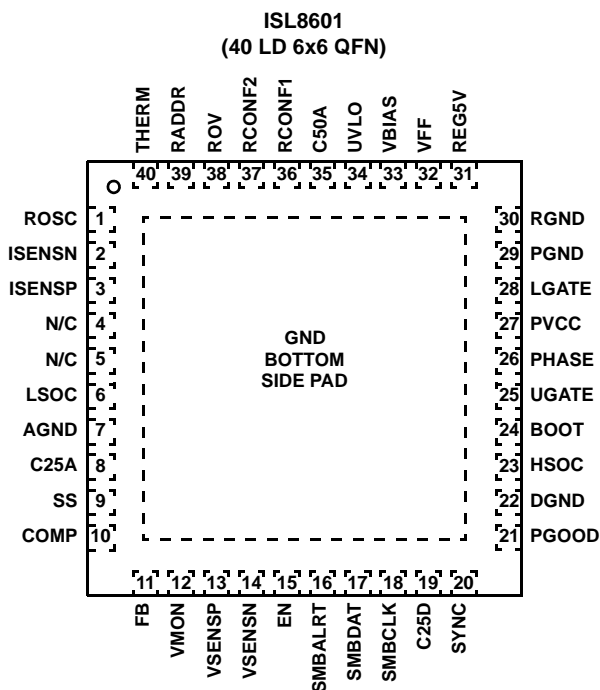
Features

- Input Voltage Range: +1.8V to 13.2V
- VBIAS Voltage Range: +4.5V to 13.2V
- Minimum Output Voltage: +0.5V
- ±1.0% System Accuracy Over the Range of -40°C to +85°C When Using the 0.8V Reference
- Internal Reference Voltage Programmable from 0.4V to 0.9V in 4mV Steps
- Integrated 2A to 4A MOSFET Drivers
- External Frequency Synchronization
- Selectable Phase Delay: 0°, 90°, 120°, 180°, 240°, or 270°
- Precision MOSFET $r_{DS(ON)}$ or Inductor DCR Current Sensing
- Voltage Feedforward Compensation
- Extensive PMBus Compliance
- Broad PMBus Programmability Including Output Voltage, Overvoltage Threshold, Overcurrent Threshold, Overtemperature Threshold, Switching Frequency, Turn-On and Turn-Off
- PMBus Monitoring of Load Current, Input Voltage, Output Voltage and Temperature
- PMBus Programming Via I^2C Interface
- Resistor Programming of Select PMBus Parameters
- Operating Frequency Range: 200kHz to 2MHz
- Internal and External Temperature Measurement
- Overvoltage, Undervoltage and Overtemperature Protection
- Low-Side and High-Side Overcurrent Protection
- Programmable Supply Sequencing and Tracking
- Digital Soft-Start with Multiple Soft-Start Modes
- Multiple Programmable Fault-Handling Modes
- Multiple Prebiased Startup Options
- Differential Remote Voltage Sensing
- Power-Good Output with Programmable Delay

Applications

- Ethernet Routers and Switches
- Point-of-Load Modules
- Industrial Power Management

Functional Block Diagram

ISL8601
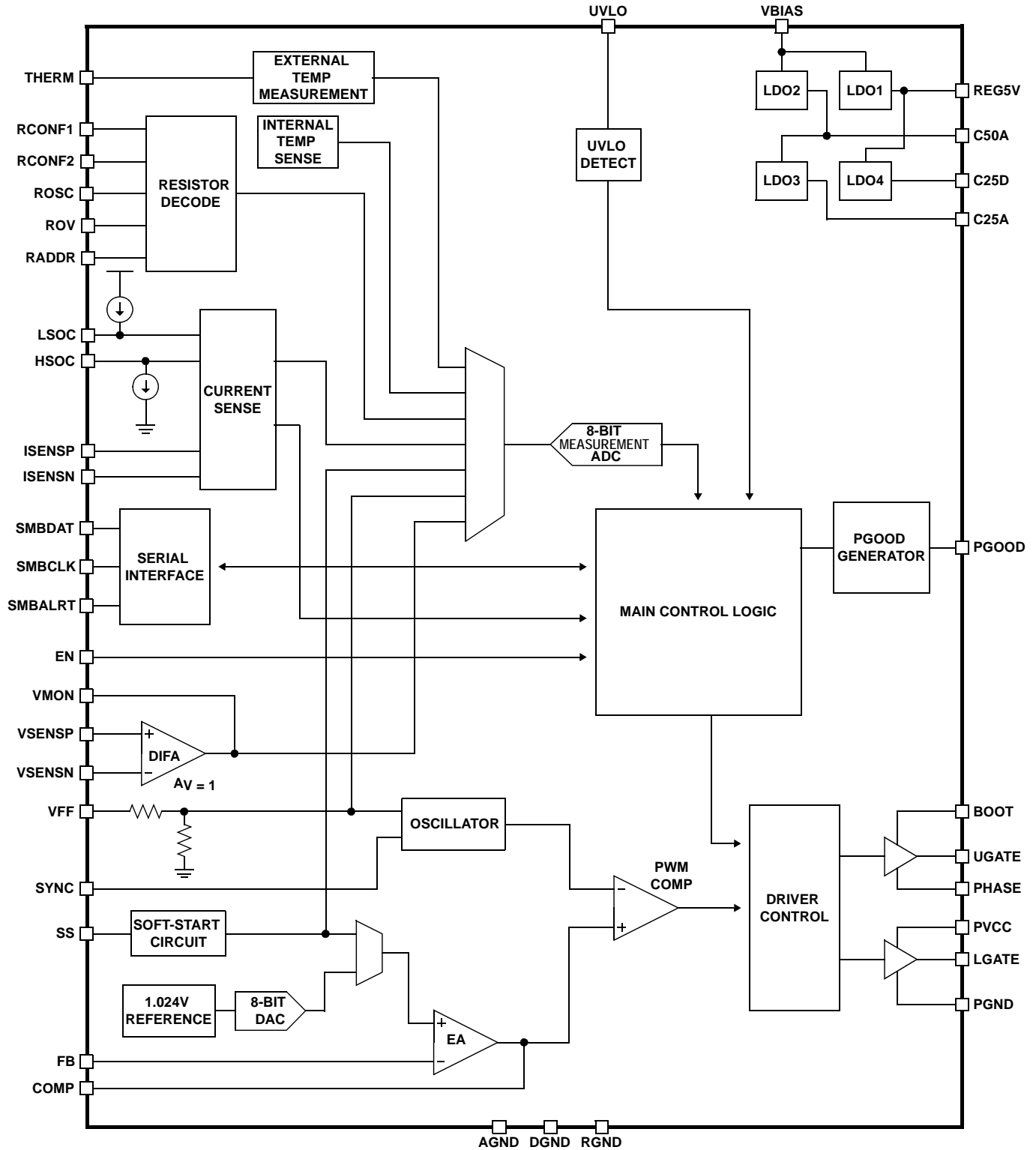
Typical Application Circuit
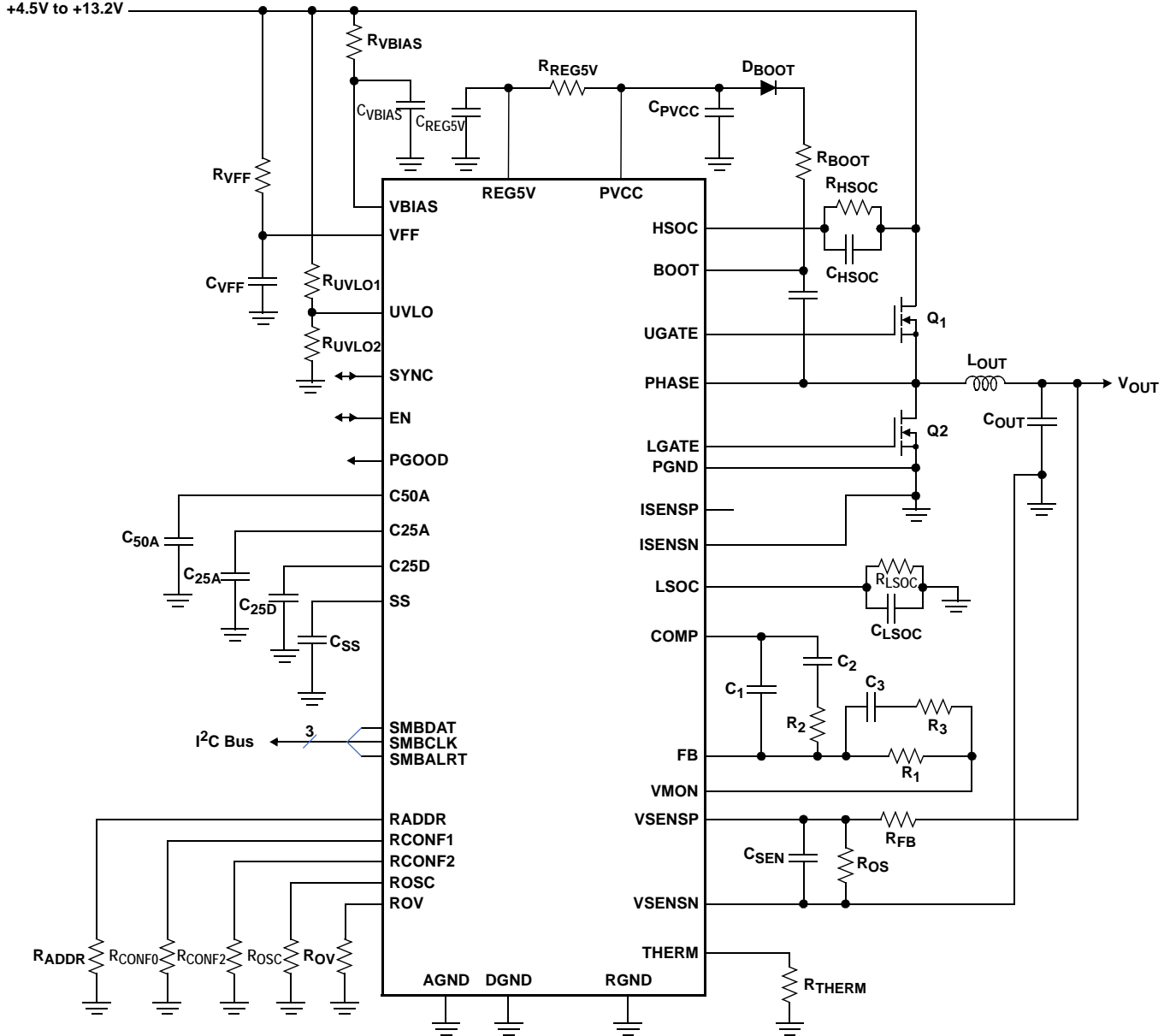
All Intersil U.S. products are manufactured, assembled and tested utilizing ISO9000 quality systems.
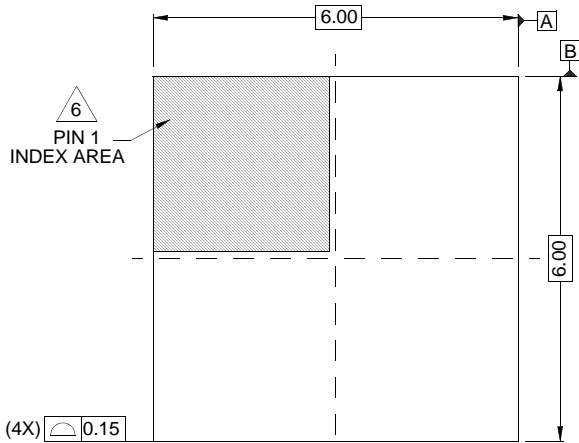Intersil Corporation's quality certifications can be viewed at www.intersil.com/design/quality

For information regarding Intersil Corporation and its products, see www.intersil.com
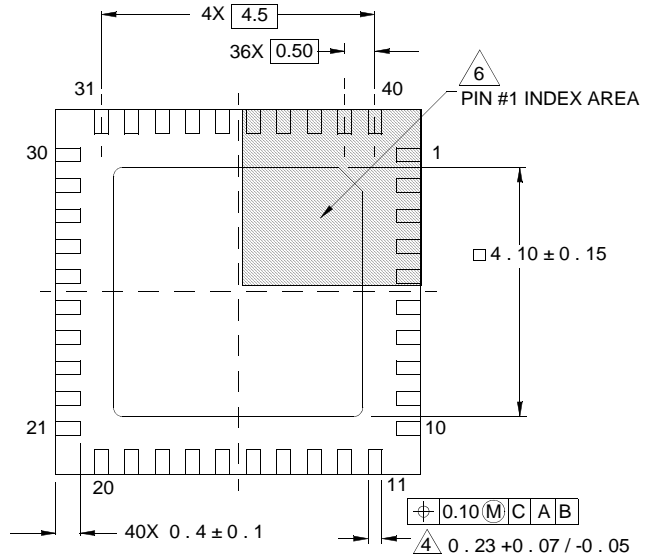
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Package Outline Drawing

L40.6x6
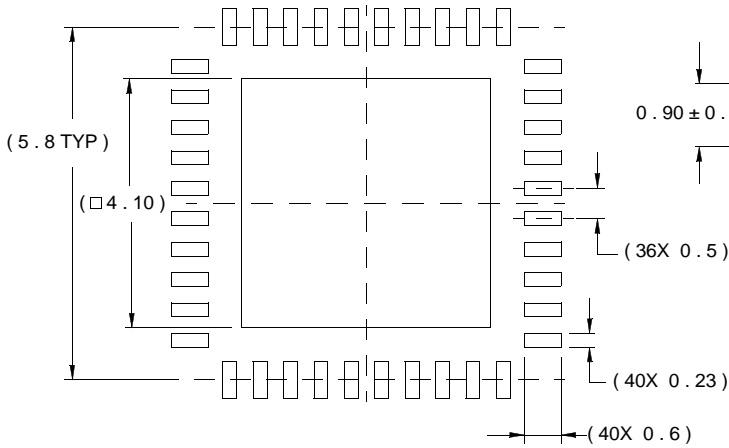**40 LEAD QUAD FLAT NO-LEAD PLASTIC PACKAGE**
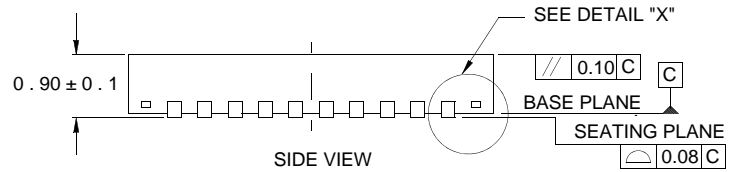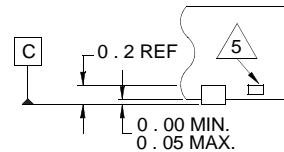**Rev 3, 10/06**

TOP VIEW

BOTTOM VIEW

TYPICAL RECOMMENDED LAND PATTERN

SIDE VIEW

DETAIL "X"

NOTES:

1. Dimensions are in millimeters.
   Dimensions in ( ) for Reference Only.

2. Dimensioning and tolerancing conform to AMSE Y14.5m-1994.

3. Unless otherwise specified, tolerance : Decimal ± 0.05

4. Dimension b applies to the metallized terminal and is measured between 0.15mm and 0.30mm from the terminal tip.

5. Tiebar shown (if present) is a non-functional feature.

6. The configuration of the pin #1 identifier is optional, but must be located within the zone indicated. The pin #1 indentifier may be either a mold or mark feature.