High-Speed Step-Down Controller with LDO Controller for Notebook Computer

Features

--PWM Controller

- **Ultra-High Efficiency**
- **No Current-Sense Resistor (Lossless I_{LIMIT})**
- **Quasi-PWM with 100ns Load-Step Response**
- **1% VOUT Accuracy Over Line and Load**
- **0.75V to 3.6V Adjustable Output Range**
- **4.5V to 24V Battery Input Range**
- **OVP & UVP**
- **1.7ms Soft-Start**
- **Drives Large Synchronous-Rectifier FETs**
- **Power-Good Indicator**

--LDO Controller

- **1.5% Accuracy Over Line and Load**
- **Adjustable Output down to 0.75V**
- **Independent Enable and Power Good Indicator**
- **Drives N-channel MOSFET within Rail to Rail Controller Voltage**
- **MLCC and POSCAP Stable**

Applications

- **Notebook Computers**
- **CPU Core Supply**
- **Chipset/RAM Supply as Low as 0.75V**
- **1.8V and 2.5V I/O Supply**
- **Networking Power Supply**

General Description

G5601A PWM controller uses constant on-time control scheme to handle wide input/output voltage ratios with ease and provides 100ns “instant-on” response to load transients while maintaining a relatively constant switching frequency. The G5601A achieves high efficiency at a reduced cost by eliminating the current-sense resistor found in traditional current-mode PWMs. Efficiency is further enhanced by an ability to drive very large synchronous rectifier MOSFETs. Single-stage buck conversion allows these devices to directly step down high-voltage batteries for the highest possible efficiency. Alternatively, two-stage conversion (stepping down the +5V system supply instead of the battery) at a higher switching frequency allows the minimum possible physical size. The G5601A is intended for CPU core, chipset, DRAM, or other low-voltage supplies as low as 0.75V. G5601A LDO controller can drive an external NMOSFET to provide a second output voltage from PWM output or other power source. It is adjusted output from 0.75V. The independent enable input, open-drain power good indicator, under-voltage protection and soft-start are provided for system application.

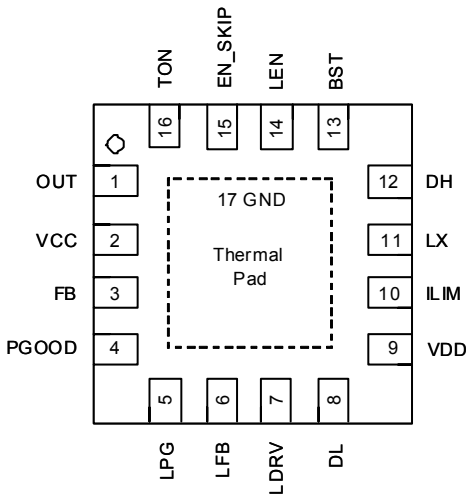
The G5601A is available in 16-pin TQFN (3X3) package.

Ordering Information

ORDER NUMBER	MARKING	TEMP. RANGE	PACKAGE (Green)
G5601AR41U	5601A	-40°C to +85°C	TQFN3X3-16

Note:R4:TQFN3X3-16
1: Bonding Code
U : Tape & Reel

Pin Configuration



G5601A TQFN3X3-16