Analog Products Fact Sheet

MC34701

1.5 A Switch-Mode Power Supply with Linear Regulator

Power Management

Switching Regulators

ARCHIVE INFORMATION

DESCRIPTION

The 34701 provides the means to efficiently supply the Power QUICC™ I, II, and other families of Freescale microprocessors and DSPs. The 34701 incorporates a high-performance switching regulator, providing the direct supply for the microprocessor's core, and a low dropout (LDO) linear regulator control circuit providing the microprocessor I/O and bus voltage.

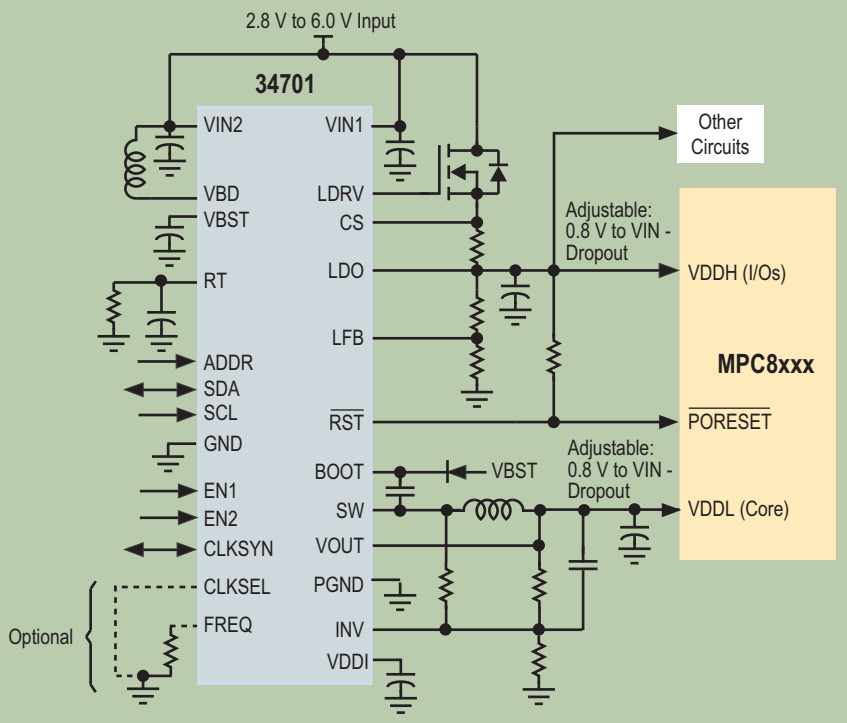
The switching regulator is a high-efficiency synchronous buck regulator with integrated N-channel power MOSFETs to provide protection features and to allow space-efficient, compact design.

The 34701 incorporates many advanced features; e.g., precisely maintained up/down power sequencing, ensuring the proper operation and protection of the CPU and power system.

APPLICATIONS

- Power Management of Advanced Microprocessor Based Systems
- Telecom and Network Cards
- Wireless Modems
- ADSL Line Cards
- Cable Modems
- Lithium Ion Cell Equipment
- Portable Equipment

34701 SIMPLIFIED APPLICATION DIAGRAM



ARCHIVE INFORMATION

freescale™ semiconductor

FEATURES

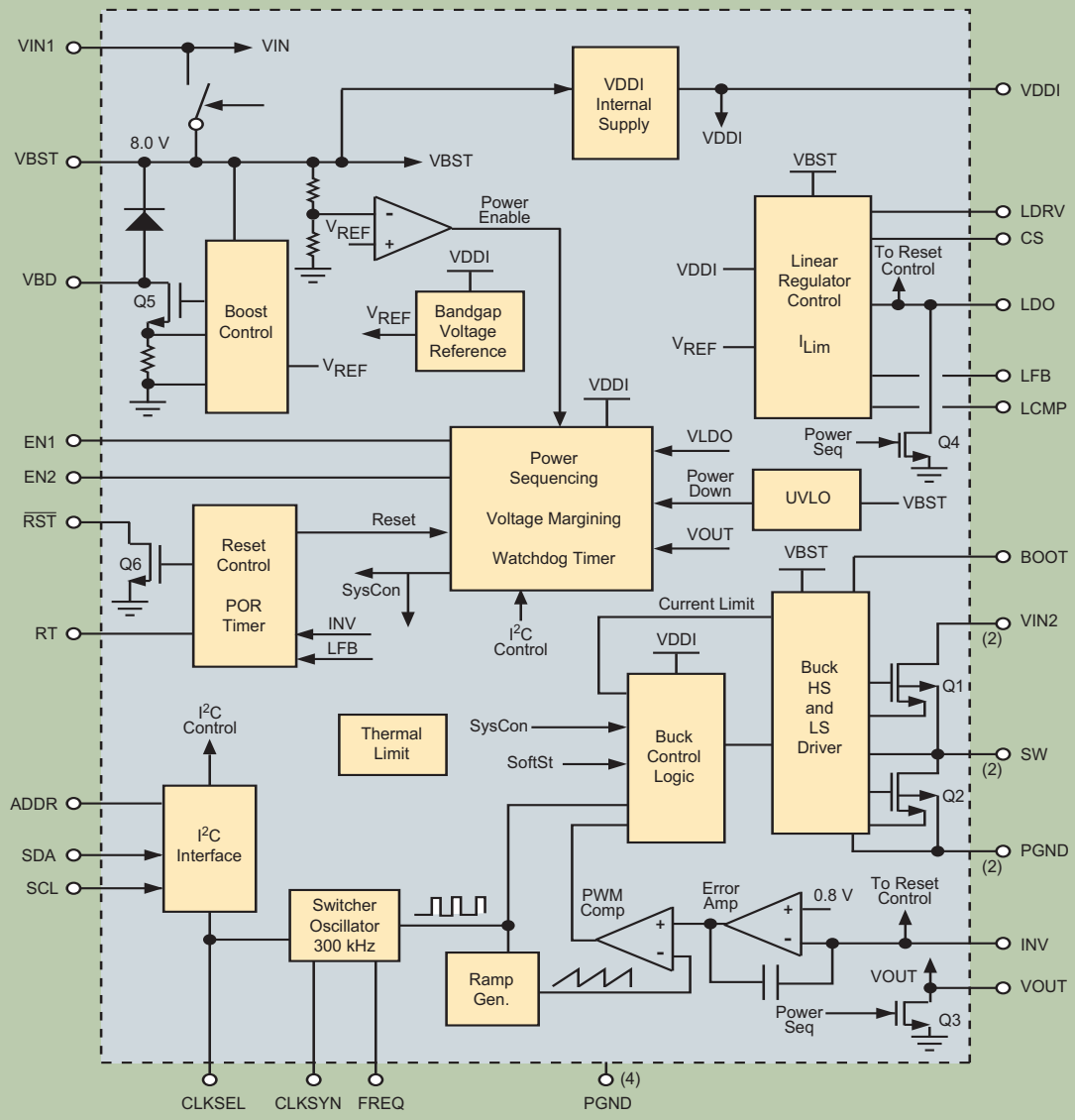
- High-accuracy output voltages
- Fast transient response
- Undervoltage lockout and overcurrent protection
- Enable inputs and programmable watchdog timer
- Voltage margining via I^2C™ bus
- Reset with programmable power-ON delay
- Pb-free packaging designated by suffix code EK
- Additional devices available for comparison in Analog Product Selector Guide - SG1002 and Automotive Product Selector Guide - SG187

PERFORMANCE	TYPICAL VALUES
Operating Voltage	2.8 V to 6.0 V
Output Voltages	
Switcher (Adjustable)	0.8 V to 5.0 V @ 1.5 A
Low Dropout (Adjustable)	0.8 V to 5.0 V @ 2.0 A
Voltage Margining	7 Steps of ±1.0% Steps
Buck Converter	
Line and Load Regulation	±1.0%
Current Limit	2.0 A
PWM Frequency (Adjustable)	200 to 400 kHz
Operating Temperature	$-40°C \leq T_A \leq 85°C$

CUSTOMER BENEFITS

- High-performance power source supporting advanced microprocessors
- High-efficiency step-down switching regulator
- Reduced PC board space resulting in enhanced application reliability and lower costs
- Self-contained watchdog with power-ON reset
- Predictable up/down power sequencing to ensure CPU integrity
- Flexible application protection and programmable performance features
- Voltage margining for easy system development

34701 INTERNAL BLOCK DIAGRAM



PROTECTION	DETECT	LIMITING	SHUT DOWN	AUTO RECOVERY
Input Undervoltage	●		●	
Output Overvoltage	●	●		
Output Undervoltage	●		●	
Overcurrent/Short Circuit	●	●	●	
Overtemperature	●		●	●

QUESTIONS

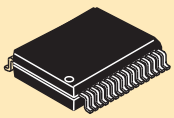
- Do you need an accurate power management IC to power an advanced microprocessor?
- Do you have little PC board space available for power management?
- Are you looking for an easy-to-design power management IC with protection and operating features that can be performance programmed?

ORDERING INFORMATION

Device	Temperature Range (T_A)	Package
**34701EK/R2	-40°C to 85°C (Pb-free)	32 SOICW
Datasheet Order Number		MC34701

**Prefix Index:
PC = Engineering Samples; MC = Production

Contact Sales for Evaluation Kit Availability



32-Terminal SOICW
0.65 mm Pitch
11.0 mm x 7.5 mm Body

Communicating

Protecting

Controlling

MC34701FS
REV 3.0

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