ANALOG PRODUCTS

MC33702 FACT SHEET

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Freescale Semiconductor, Inc.

APPLICATIONS

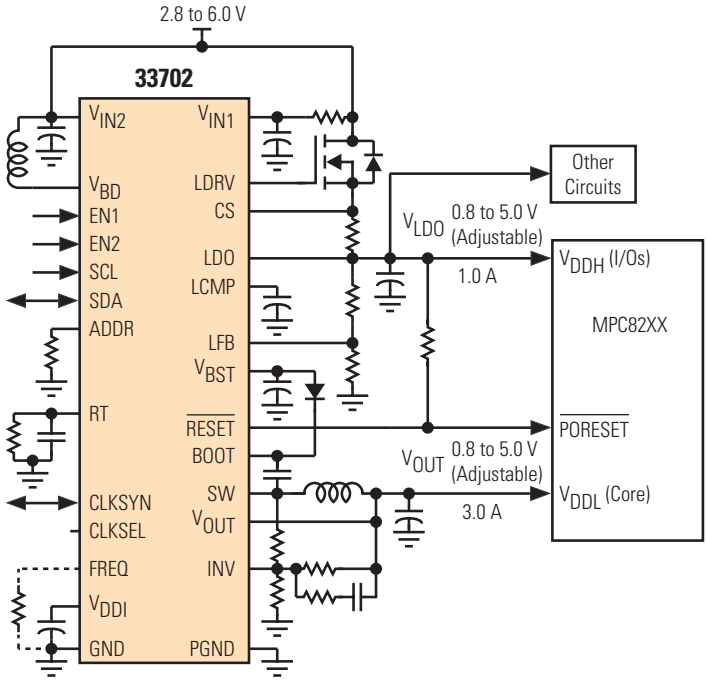
- Power Management of Advanced Microprocessor Based Systems
- Telecom and Network Cards
- Wireless Modems
- ADSL Line Cards
- Cable Modems
- Li-ion Cell Equipment
- Portable Equipment

33702 MICROPROCESSOR POWER SUPPLY (3.0 A)

The 33702 is a monolithic IC providing an efficient means of obtaining power for the Motorola Power QUICC I and II microprocessor families and other advanced microprocessors. The IC incorporates a high-performance synchronous switching regulator. The regulator is capable of delivering 3.0 A to power the microprocessor's core and linear circuitry to control an external low-drop FET for powering the microprocessor's I/O operations. Both regulator output voltages are independently adjustable.

A boost converter allows high-accuracy output voltages to be developed from source operating voltages as low as 2.8 V. Seven ±1.0% Output Voltage Margining steps are provided to facilitate easy system development.

Simplified Application Diagram



For More Information On This Product,
Go to: www.freescale.com

FEATURES

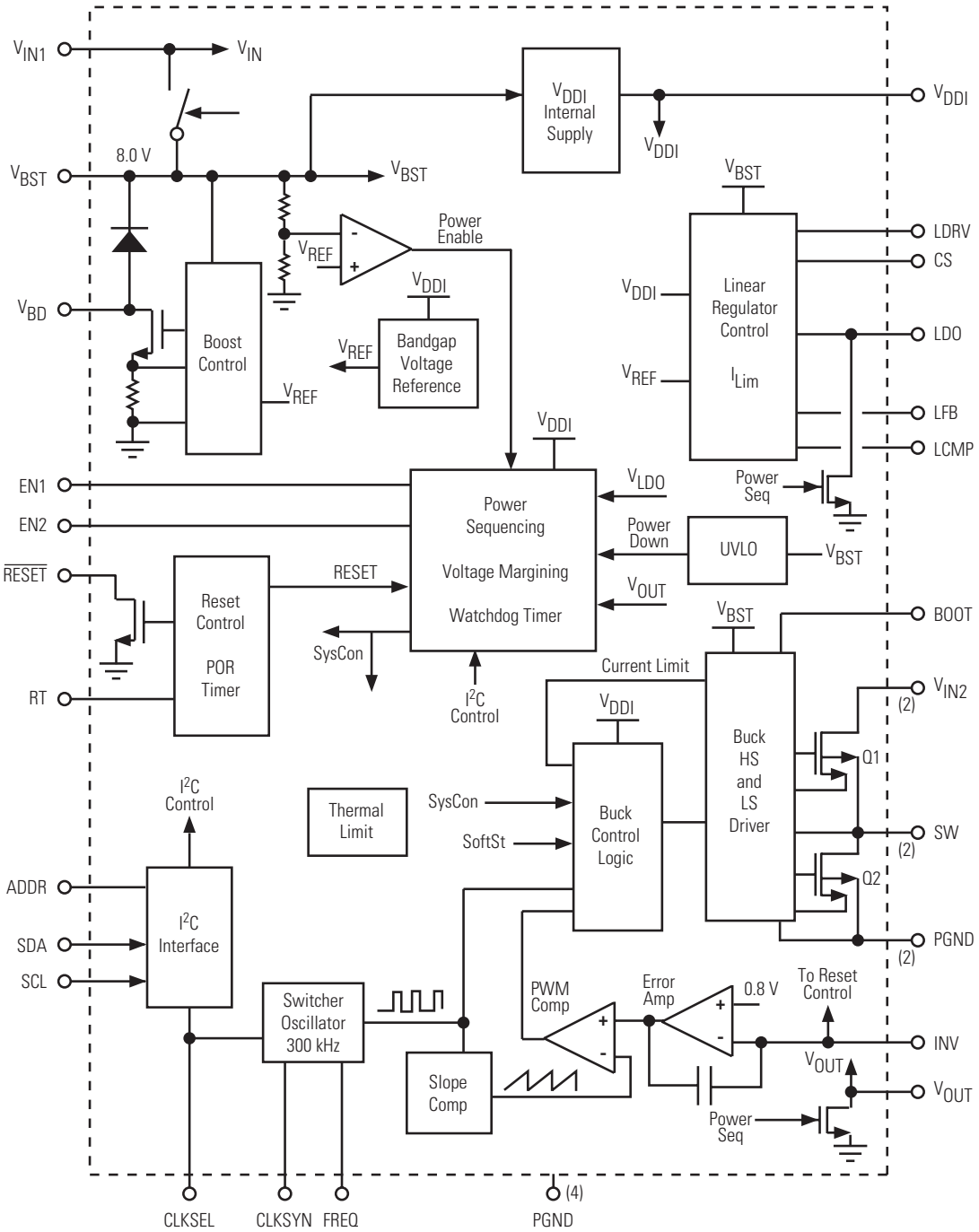
- I^2C with address register selection for programming control
- Programmable internal Watchdog and Power-ON Reset to ensure MCU performance integrity
- Synchronous buck converter with cycle-by-cycle PWM current mode control for enhanced output voltage accuracy
- Boost converter for enhanced low-voltage performance
- Adjustable switching regulator output voltage via external resistor divider
- External RC programmed Reset Power-UP Delay timer
- Additional devices available for comparison in Analog Selector Guide SG1002/D

CUSTOMER BENEFITS

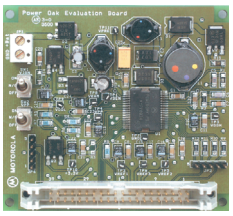
- High-performance power source supporting advanced microprocessors
- High-efficiency step-down switching regulator
- Reduced PC board space resulting in enhanced application reliability and lower costs
- Self-contained Watchdog with Power-ON Reset
- Predictable up/down power sequencing to ensure CPU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

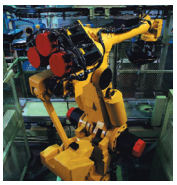
Performance	Typical Values
Operating Voltage	2.8 V to 6.0 V
Output Voltages:	
SW (Adjustable)	0.8 to 5.0 V @ 3.0 A
LDO (Adjustable)	0.8 to 5.0 V @ 1.0 A
Voltage Margining	7 steps ± 1.0%
Buck Converter	
Line & Load Reg.	± 1.0%
Current Limit	4.5 A
PWM Freq. (Adjustable)	200 to 400 kHz
Operating Temp	$-40°C \le T_A \le 105°C$

33702 Internal Block Diagram



Protection	Detect	Limiting	Shut Down	Auto Recovery
Input Under Voltage	•		•	
Output Over Voltage	•	•		
Output Under Voltage	•		•	
Over Current/SC	•	•	•	•
Over Temperature	•		•	•





Ordering Information	Package	Ship Method	Motorola Part Number
	32 SOICW	Rail	**33702DWB
		T/R	**33702DWBR2
Data Sheet Order Number			MC33702/D

Contact Sales for Evaluation Kit Availability

**Prefix Index:
PC = Eng Samples; XC = In Qual; MC = Production

QUESTIONS

- Do you need an accurate power management IC to power an advanced micro-processor?
- 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?

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 5405, Denver, Colorado 80217
1-800-521-6274 or 480-768-2130

JAPAN: Motorola Japan Ltd.; SPS, Technical Information Center,
3–20–1, Minami–Azabu. Minato–ku, Tokyo 106–8573 Japan
81–3–3440–3569

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Centre,
2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong
852–26668334

HOME PAGE: http://motorola.com/semiconductors

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