



Analog, Mixed Signal and Power Management

MC34704

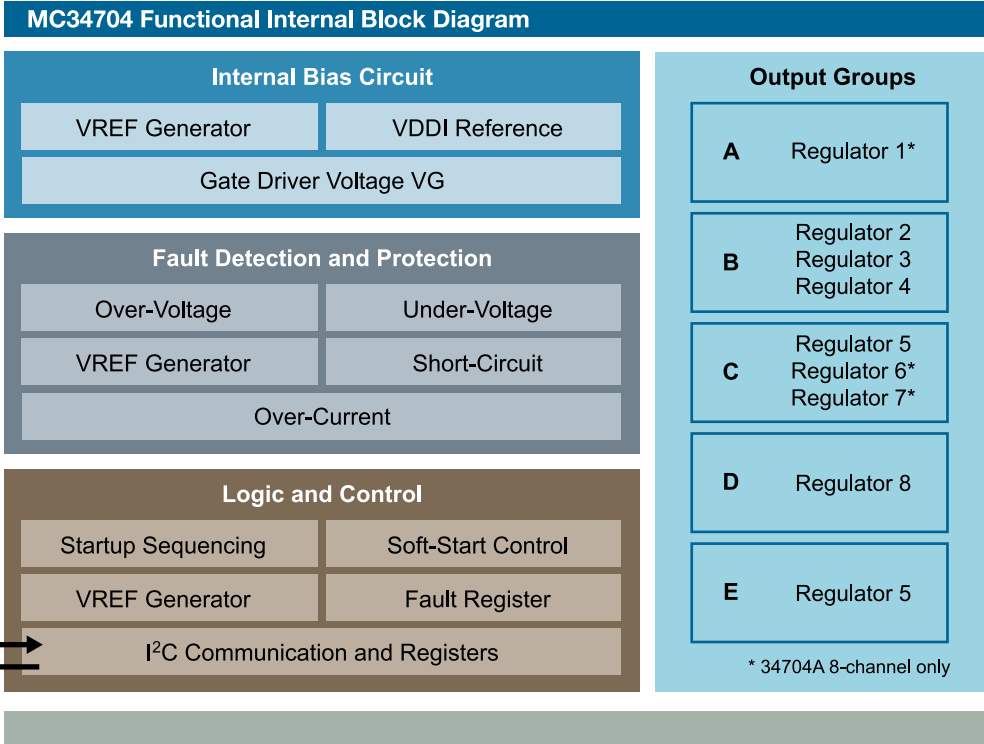
Multi-channel PMIC for multimedia microprocessors

Choose between five or eight independent output voltages

The MC34704 is a multi-channel power management IC (PMIC) used to address power management needs for various multimedia application microprocessors. Its ability to provide either five or eight independent regulator output voltages with a single input power supply (2.7V and 5.5V), together with its high efficiency, makes it ideal for portable devices powered by Li-Ion or Li-Polymer batteries or for USB-powered devices.

The MC34704 features eight (version A) or five (version B) buck and boost DC/DC switching regulators, with up to ± 2 percent output voltage accuracy. It provides dynamic voltage scaling on all regulators and is capable of operating at a switching frequency of up to 2 MHz. The device utilizes I²C programmability.

The MC34704 is housed in a 7 mm x 7 mm, Pb-free, QFN56 package. The PMIC is designed to reduce external component size and to implement full, space-efficient power management solutions.



Parametric Table

Part Number	Buck-Boost Regulators	Supply Current Range	Supply Voltage Range	Features	Interface and Input Control	Temperature Ranges	Package
MC34704AEP	Boost	5V @ 500 mA	2.7V to 5.5V	Output under-voltage & over-voltage protection, over-current limit detection and short circuit protect	I ² C	-20°C to +85°C	7 x 7 mm 56-pin QFN exposed pad
	Buck-boost	3.3V @ 500 mA					
	Buck	1.2V @ 500 mA					
	Buck	1.8V @ 300 mA					
	Buck-boost	3.3V @ 500 mA					
	Boost	15V @ 60 mA					
MC34704BEP	Inverting boost	-7V @ 60 mA	2.7V to 5.5V	Output under-voltage & over-voltage protection, over-current limit detection and short circuit protect	I ² C	-20°C to +85°C	7 x 7 mm 56-pin QFN exposed pad
	Boost	15V @ 30 mA					
	Buck-boost	3.3V @ 500 mA					
	Buck	1.2V @ 500 mA					
MC34704BEP	Buck	1.8V @ 300 mA	2.7V to 5.5V	Output under-voltage & over-voltage protection, over-current limit detection and short circuit protect	I ² C	-20°C to +85°C	7 x 7 mm 56-pin QFN exposed pad
	Buck-boost	3.3V @ 500 mA					
	Boost	15V @ 30mA					

MC34704 Key Features

- Eight DC/DC (34704A) or five DC/DC (34704B) switching regulators with up to ±2 percent output voltage accuracy
- Dynamic voltage scaling on all regulators
- Selectable voltage mode control or current mode control on REG8
- I²C programmability
- Output under-voltage and over-voltage detection for each regulator
- Over-current limit detection and short-circuit protection for each regulator
- Thermal limit detection for each regulator, except REG7
- Integrated compensation for REG1, REG3, REG6, and REG8
- 5 µA maximum shutdown current (All regulators are off, 5.5V VIN)
- True cutoff on all of the boost and buck-boost regulators

Development Tools

Part Number	Description
KIT34704AEPEVBE	Power management IC evaluation board
KIT34704BEPEVBE	Power management IC evaluation board

Documentation

Document Number	Document Type	Description
MC34704	Data Sheet	Presents the specifications of this product
AN1902	Application note	Describes quad flat pack no-lead (QFN) package
SG1002	Selector Guide	Analog and power management device comparison

MC34704 Applications

Well-suited for power supply designs in:

- Portable media players
- Smart phones
- Wireless PDAs
- Portable navigation devices
- Security or digital still cameras
- Remote controls
- Laser printers or fax machines
- Mobile gaming consoles
- Small appliances
- Point-of-sale terminals

Learn More:

For more information, visit www.freescale.com/analog and select Power Management > Switching Regulators.