

Single and Dual Power Regulator ICs for DDR-I, -II or -III

# MC34712 and MC34716

## Fact Sheet

### Applications

- Graphic cards
- Servers
- Set top boxes
- Game consoles
- FPGAs
- Networking
- PCs
- TVs

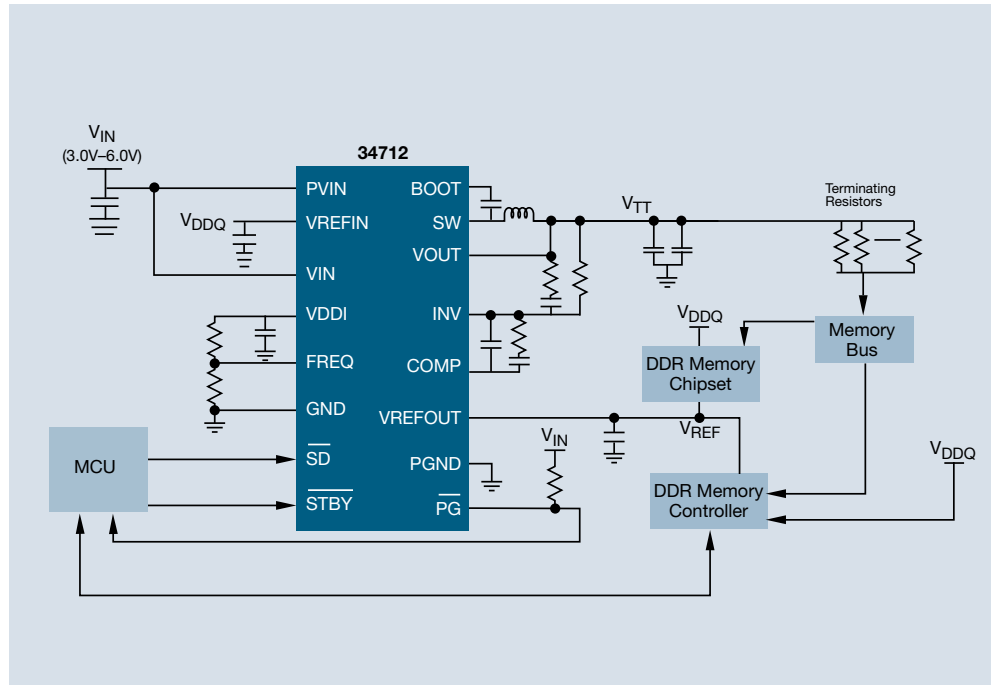
### Overview

The MC34712 and MC34716 devices are single and dual power regulator ICs for Double-Data-Rate (DDR) I, II or III memory. These highly integrated, efficient devices are ideal for space constrained applications such as graphics cards, blade servers, set top boxes, HBA cards—any application that needs a small form factor, high-efficiency device. DDR memory is used in TVs, networking, PCs, game consoles and FPGAs. Many current solutions consume too much board space. The MC34712 and MC34716 devices fulfill the design engineers need for a small, compact, power source for DDR memory.

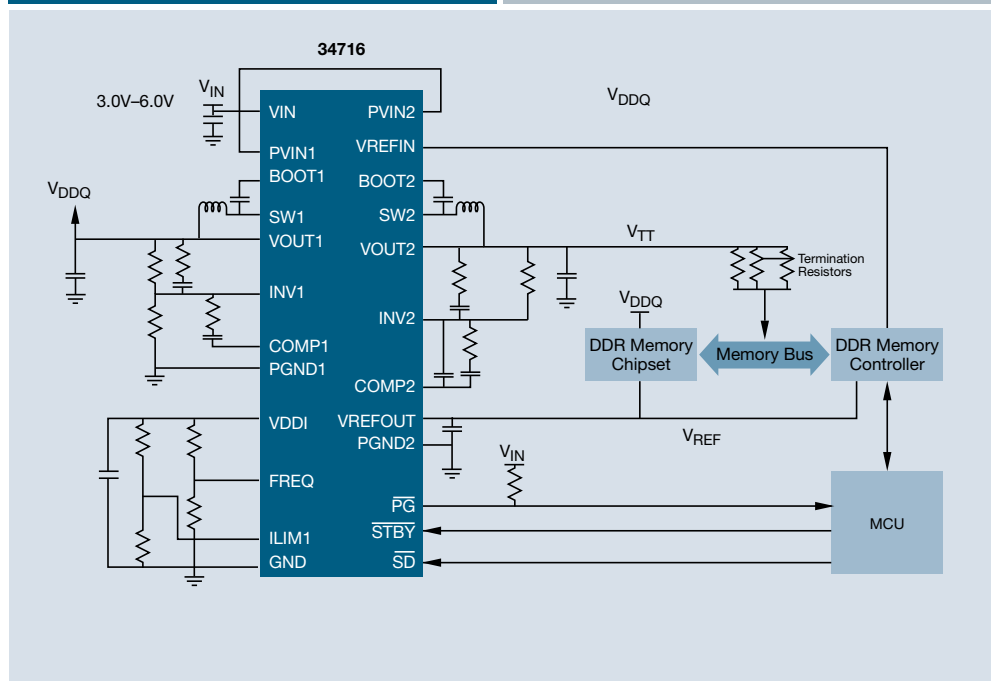
The MC34712 is a single power regulator for DDR-I, -II and -III memory. The MC34716 is a dual power regulator for DDR-I, -II and -III. These power regulators supply the tracking voltage for the DDR as well as for the power up sequencing. A DDR-I, -II and -III standard exists for these types of products. The MC34712 device powers up to 3 amps and the MC34716 device powers up to 5 amps for DDR space constrained applications.

The MC34712 and MC34716 devices are one of many power management solutions offered by Freescale, where board constrained manufacturers can benefit from highly integrated, high-efficiency functionality.

### MC34712 Simplified Application Diagram



### MC34716 Simplified Application Diagram



Product Features	Benefits
Synchronous buck switching regulators	Increased efficiency (up to 93 percent)
Programmable switching frequency (200 kHz–1 MHz)	Allows for optimized magnetics/capacitors
Sink/source capability + voltage tracking/sequencing	Specifically designed to drive DDR memory
4 mm x 4 mm and 5 mm x 5 mm package size is ideal for space constrained applications	Reduced space, enhanced reliability for graphics cards, blade servers, set top boxes and HBA cards
Flexible solution for any version of DDR	DDR-I, -II and -III compatible according to the JEDEC industry standard
Extensive interface and control	PGOOD output standby and shutdown inputs

Part Number	Operating Input Voltage	Output Current	Temperature Range	Package
MC34712EP	3.0–6.0	3A	-40°C to +85°C	24-pin QFN
MC34716EP	3.0–6.0	5A/3A	-40°C to +85°C	26-pin QFN

Development Tools		
Part Number	Description	Pricing
KIT34712EPEVBE	Evaluation board to demonstrate the key features of MC34712	\$74.34
KIT34716EPEVBE	Evaluation board to demonstrate the key features of MC34716	\$108.56

## Key Features and Specifications

### MC34712 and MC34716—Single and Dual Power Regulator ICs for DDR-I, -II or -III

- Input operating voltage 3.0–6.0V
- 1 MHz synchronous single and dual switching regulators
  - o Programmable switching frequency 200 KHz–1 MHz
  - o Integrated MOSFETs
  - o 5A sourcing/3A sink/source
- Supports VTT for DDR I, II or III
  - o Reference-In pin for tracking voltage output
- Supports VDDQ and VTT for DDR-I, -II -III or mobile DDR
- Output voltage +/-2% accuracy
  - o Adjustable output 0.7–1.35V
  - o Separate VREF output +/-2% accuracy
- PGOOD, STDBY and Shutdown inputs (active low)
- Soft Start—single and dual outputs
- Extensive protection
  - o Overvoltage, undervoltage, over current, short circuit and thermal
  - o Programmable over current limit on Ch1
  - o Default over current limit on Ch2

Documentation		
Freescale Document Number	Title	Description
MC34712	Data Sheet	Presents the specifications for this product
MC34716	Data Sheet	Presents the specifications for this product
SG1002	Analog Product Selector Guide	Devices are available for comparison

Freescale Semiconductor is a leading provider for over 25 years of high-performance products that use SMARTMOS™ technology that combines digital, power and standard analog functions. The company supplies analog and power management ICs for the automotive, consumer, networking and industrial markets. Freescale's analog and power ICs complement our broad portfolio of microcontrollers, microprocessors, ZigBee™ technology, digital signal processors, sensors and development tools. Freescale offers superior support for system solutions to help all customers.



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