



MP5415

**2.8V-5.5V, Power Management IC with
Four 2A/2A/2A/2A Buck Converters, 5 LDOs
And Flexible System Settings via I2C and OTP**

PRELIMINARY SPECIFICATIONS SUBJECT TO CHANGE

DESCRIPTION

The MP5415 is a complete power management solution which integrates four high-efficiency, step-down, DC/DC converters, five low-dropout regulators and a flexible logic interface.

A constant-on-time (COT) control DC/DC converter provides fast transient response. The 2MHz default fixed switching frequency during continuous conduction mode (CCM) reduces the external inductor and capacitor values greatly. Full protection features include under-voltage lockout (UVLO), over-current protection (OCP), and thermal shutdown.

The output voltage is adjustable through the I²C bus or pre-set by the one-time programmable (OTP) function. The power on/off sequence is also programmable by the OTP or can be controlled through the I²C bus online.

The MP5415 requires a minimal number of external components, and is available in a space-saving, 28-pin QFN-28 (4x4mm) package.

By using I²C or OTP, users can use the MP5415 to program the buck and LDO output voltages, MODE, current limit of buck1 and buck 3, and the enable function of all the bucks and LDO (ENBUCK/LDO).

When using just I²C and no OTP, the MP5415 allows users to program current limit of buck 2 and 4, slew rate (DVS Slew rate), Discharge (DISCHG), system enable (SYSEN), and software reset (SFRST). Status and ID2 registers can also be read via I²C.

Some other features, such as AUTOON, Frequency, PWR on delay, RST delay, pushbutton time, LDORTC output voltage, OTP version, and I²C slave address can only be programmed via OTP.

FEATURES

- Four High-Efficiency Step-Down Converters
 - Buck1: 2A DC/DC Converter
 - Buck2: 2A DC/DC Converter
 - Buck3: 2A DC/DC Converter
 - Buck4: 2A DC/DC Converter
 - 2.8V to 5.5V Operating Input Range
 - Adjustable Switching Frequency
 - Programmable Forced PWM, Auto PFM/PWM Mode
 - Hiccup Over-Current Protection (OCP)
- Five Low-Dropout Regulators
 - One RTC Dedicate LDO
 - Four Low Noise LDOs
 - Two Separate Input Power Supplies
 - 100mV Dropout at 300mA Load
- System
 - I²C Bus and OTP
 - Power-On/-Off Button
 - Power-On Reset Output
 - Flexible Power-On/-Off Sequence via OTP
 - Flexible DC/DC, LDO On/Off via OTP
 - ±4kV HBM and ±2kV CDM ESD Rating For All Pins

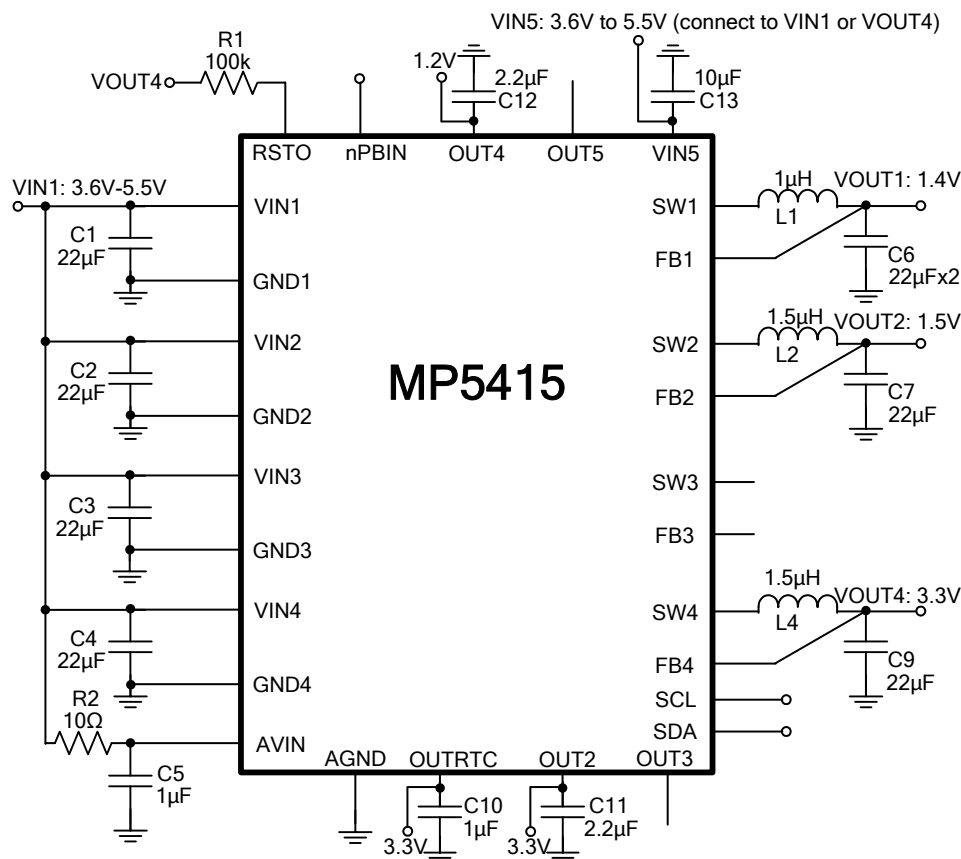
APPLICATIONS

- Cable Modem, Set-Top-Box
- Televisions
- MID, Tablets
- POS Machine
- SSD
- IP Camera

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TYPICAL APPLICATION



OTP-EFUSE SELECTED TABLE BY DEFAULT (MP5415-0001)

OTP Items	Buck1	Buck2	Buck3	Buck4	LDORTC	LDO2	LDO3	LDO4	LDO5
Output Voltage	1.4V	1.5V	N/A	3.3V	3.3V	3.3V	N/A	1.2V	N/A
Initial On/Off	On	On	Off	On	On	On	Off	On	Off
Mode	Auto PFM/PWM	Auto PFM/PWM	N/A	Auto PFM/PWM	N/A				
Power-On Delay/Time Slot #	3ms/2	4.5ms/3	N/A	6ms/4	Always on	1.5ms/1	N/A	6ms/4	N/A
Automatic Turn-On	Yes								
Switching Frequency	2MHz								
Push-Button Timer	0.75 seconds								
RSTO Delay	8.4ms								
Buck 1 Peak Current Limit	3.8A								
Buck 3 Peak Current Limit	3.8A								
I ² C Slave Address	0x69								

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