



# MP5496

2.8V-5.5V, Power Management IC with  
Four 4.5A/2.5A/4A/2A Buck Converters, 5 LDOs,  
And Flexible System Settings via I2C and OTP

**PRELIMINARY SPECIFICATIONS SUBJECT TO CHANGE**

## DESCRIPTION

The MP5496 is a complete power management solution that 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 1.5MHz 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 I<sup>2</sup>C 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 I<sup>2</sup>C bus online.

The MP5496 requires a minimal number of external components and is available in a space-saving, 28-pin QFN (4mmx4mm) package.

By using I2C or OTP, users can use the MP5496 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 MP5496 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.

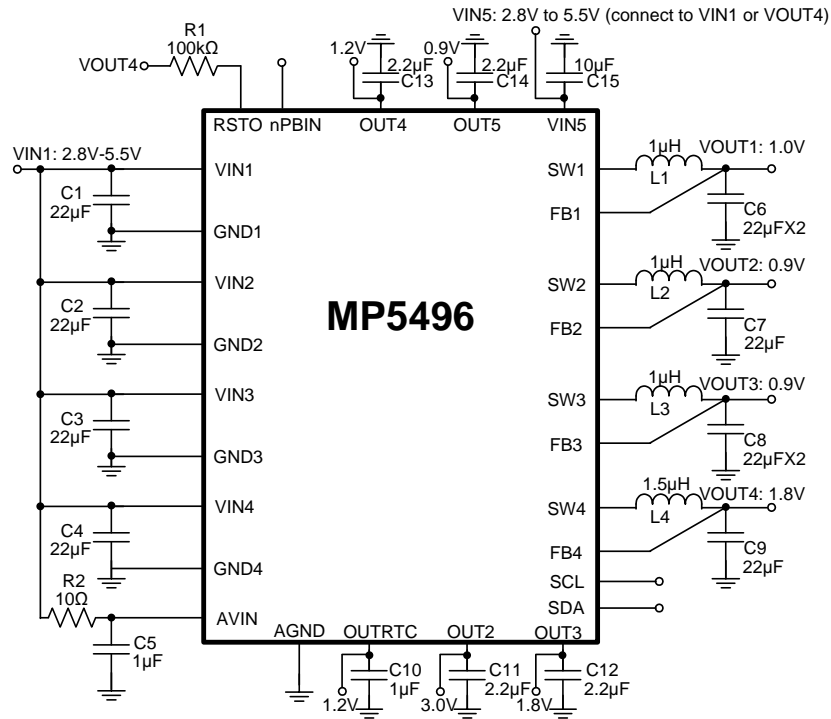
## FEATURES

- Four High-Efficiency Step-Down Converters
  - Buck1: 4.5ADC/DC Converter
  - Buck2: 2.5A DC/DC Converter
  - Buck3: 4A DC/DC Converter
  - Buck4: 2A DC/DC Converter
  - 0.6V-2.1875V/ 12.5mV step Vout range
  - 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
  - I<sup>2</sup>C 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
  - ±4kVHBM and ±2kV CDM ESD Rating for All Pins

## APPLICATIONS

- Cable Modems, Set-Top Boxes
- Televisions
- MID, Tablets
- POS Machines
- SSD
- IP Cameras

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**TYPICAL APPLICATION**

**OTP eFuse Selected Table by Default (MP5496GR-0001)**

OTP Items	Buck1	Buck2	Buck3	Buck4	LDORTC	LDO2	LDO3	LDO4	LDO5
Output Voltage	1.0V	0.9V	0.9V	1.8V	1.2V	3V	1.8V	1.2V	0.9V
Initial On/Off	On	On	On	On	On	On	Off	On	On
Mode	FPWM	FPWM	FPWM	FPWM	N/A				
Power-On Delay/Time Slot #	0ms/0	4ms/2	2ms/1	6ms/3	Always on	12ms/6	2ms/1	8ms/4	10ms/5
Automatic Turn-On	Yes								
Switching Frequency	1.5MHz								
Push-Button Timer	2 seconds								
RSTO Delay	100ms								
Buck 1 Peak Current Limit	6.8A								
Buck 3 Peak Current Limit	5.6A								
I <sup>2</sup> C Slave Address	0x69								
OTP Version	0004								

**Other Parameters Information for MP5496-0001**

	Buck1	Buck2	Buck3	Buck4	LDORTC	LDO2	LDO3	LDO4	LDO5
Input voltage_Min.	3V								
Input voltage_Typ.	3.3V								
Input voltage_Max.	3.6V								