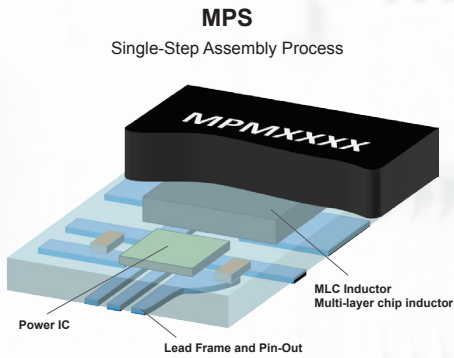


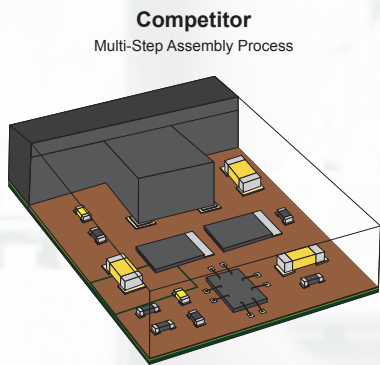
MPM Power Module Family

Simple Manufacturing

Lead-frame with all components (regulator IC, inductor, and other passives) integrated onto the same lead frame. Utilizing standard IC assembly process, packaging, and test equipment to cost effectively mass produce. Our modules can be easily implemented during system circuit development; they are easier to test, solder, and rework; No expensive Optical alignment BGA rework machines and X-ray inspection required.



PCB with all components soldered onto PCB. Pin-outs are on the bottom and around the sides, making them difficult to implement during system circuit development; they are difficult to solder, inspect, test, and rework. Expensive X-ray machines, Industrial CT Scanning machines, special microscopes, and BGA rework machines are required.



Product Highlight

NEW

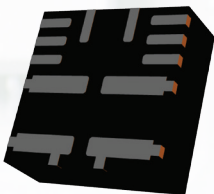
MPM38222

Dual 2A, 2.7V-6V, Power Module, Synchronous, Step-Down Converter with Integrated Inductors

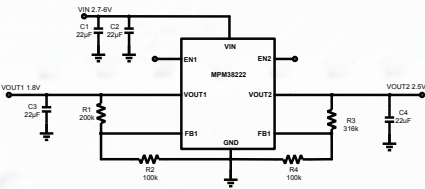
Features & Benefits:

- 2.7V-6V Input Range
- Dual 2A Output Current
- 45µA Quiescent Current
- 100% Duty Cycle Operation
- Up to 93% Efficiency
- Small Size: 4mmx4mmx1.6mm
- Low Ripple/Low Noise

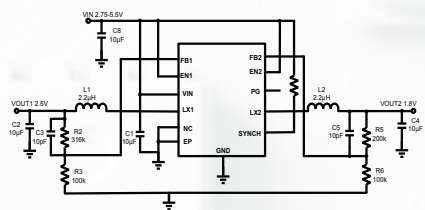
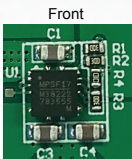
Backside Pinout



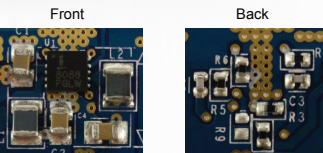
Ease of Design



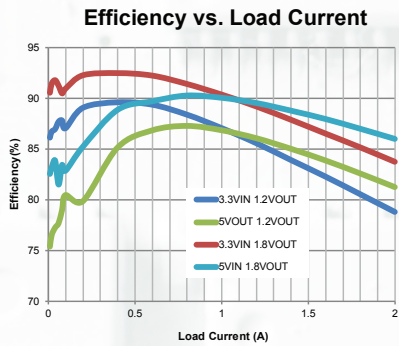
MPM38222 Solution: Single Side
7mmx9mm



Competitor Solution: Two Sides
8mmx9.5mm



Performance

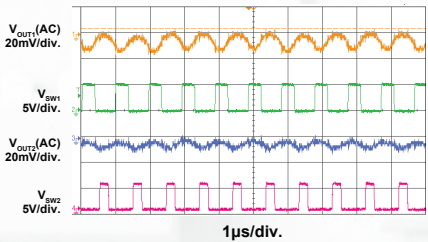


Output Voltage Ripple

$$V_{IN} = 5V, V_{OUT}/2A$$

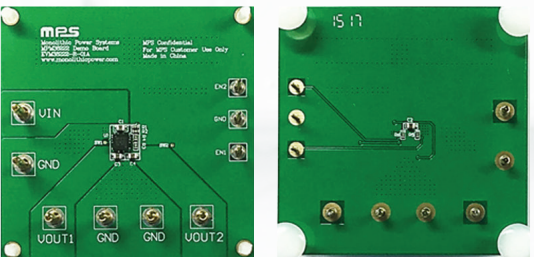
$$CH1=1.8, CH2=1.2V/2A$$

$$C_{OUT1}=C_{OUT2}=22\mu F$$



EV Board

The EVM38222 is an evaluation board for MPM38222, a dual 2A output, 2.7V-5.5V input, step-down power module in a 4mmx4mmx1.6mm QFN package. The evaluation allows quick test set-up to verify performance, such as efficiency, ripple, transient, load/line regulation, stability, and EMI.



Product Highlight

Sampling

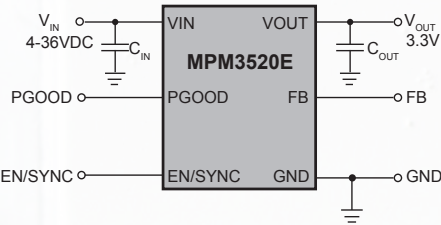
MPM3520E

36V, 2A Power Module with Metal Can

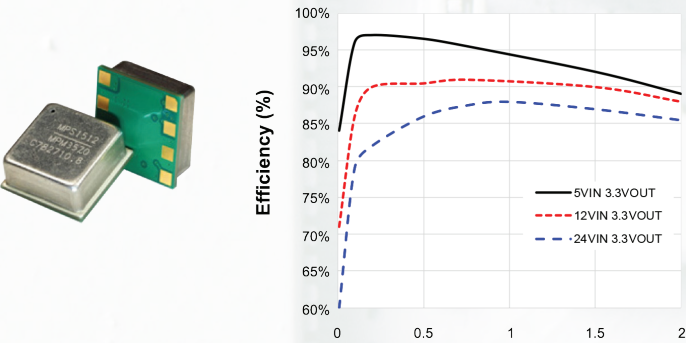
Features & Benefits:

- Ultra Low EMI Noise
- 4.0V-36V Input Range
- 1.0V-5.0V Output Range
- Front End EMI Filter Included
- Metal Can Shielding
- OCP, OTP Enabled
- Size: 10mm×10mm×4.2mm

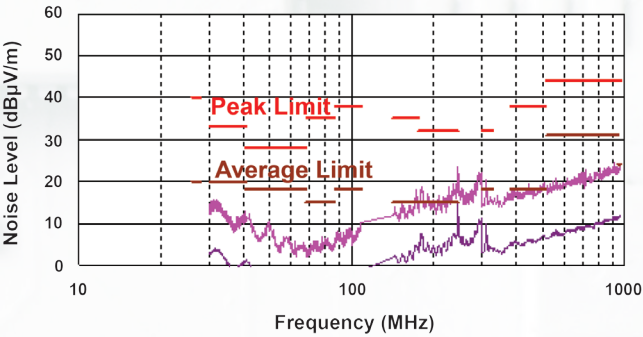
Typical Application



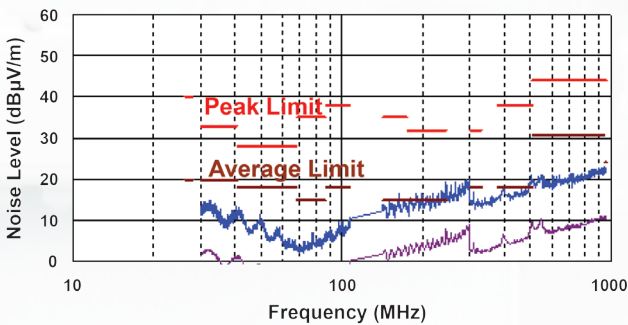
Efficiency vs. Load Current



Radiated EMI Test: High Frequency, Horizontal



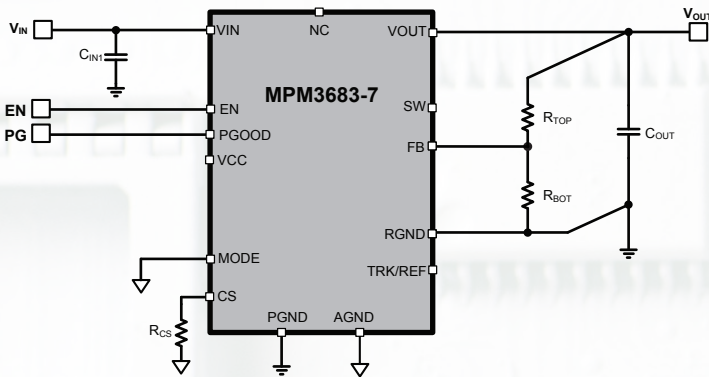
Radiated EMI Test: High Frequency, Vertical



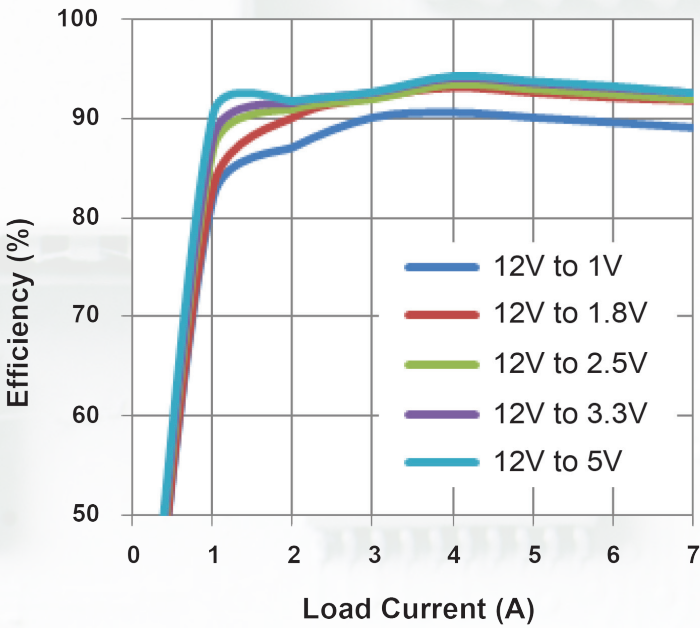
MPM3683-7
2.7-16V, 7A Input Step-Down Power Module in 7x7x4mm QFN

- Features & Benefits:
- 0.6V-5.5V Vout Range
 - Differential Output Voltage Remote Sense
 - Adaptive COT for Ultrafast Transient Response
 - 1% Reference Voltage for -40°C-125°C Tj Range
 - Selectable Pulse Skip or Forced CCM Operation
 - Output Voltage Tracking
 - Non-Latch OCP, OVP, UVP, and Thermal Shutdown

Typical Application



Efficiency vs. Load Current



Buck Families

MPM38xx Low-Voltage Buck Family with High Light-Load Efficiency

Part Number	Iout (A)	Vin (V)	Vout (V)	Iq Current (μA)	Power Good	Soft Start	Protection Features OCP/SCP UVLO/OTP	Package Size (LxWxH)	Solution Size
MPM3804	0.6	2.3-5.5	Adj	11		Internal	✓	2x2x0.9mm QFN10	3.7x3.7mm
MPM3805	0.6	2.5-6	Adj	17	✓	Internal	✓	3x2.5x0.9mm QFN12	6.0x3.8mm
MPM3805-1.2V	0.6	2.5-6	1.2	17	✓	Internal	✓	3x2.5x0.9mm QFN12	3.81x5.97mm
MPM3805-1.8V	0.6	2.5-6	1.8	17	✓	Internal	✓	3x2.5x0.9mm QFN12	3.81x5.97mm
MPM3805-2.5V	0.6	2.5-6	2.5	17	✓	Internal	✓	3x2.5x0.9mm QFN12	3.81x5.97mm
MPM3805-3.3V	0.6	2.5-6	3.3	17	✓	Internal	✓	3x2.5x0.9mm QFN12	3.81x5.97mm
MPM3810	1.2	2.5-6	Adj	17	✓	Internal	✓	3x2.5x0.9mm QFN12	3.81x5.97mm
MPM3810-1.2V	1.2	2.5-6	1.2	17	✓	Internal	✓	3x2.5x0.9mm QFN12	3.81x5.97mm
MPM3810-1.8V	1.2	2.5-6	1.8	17	✓	Internal	✓	3x2.5x0.9mm QFN12	3.81x5.97mm
MPM3810-2.5V	1.2	2.5-6	2.5	17	✓	Internal	✓	3x2.5x0.9mm QFN12	3.81x5.97mm
MPM3810-3.3V	1.2	2.5-6	3.3	17	✓	Internal	✓	3x2.5x0.9mm QFN12	3.81x5.97mm
MPM3820	2	2.5-6	Adj	40	✓	Internal	✓	3x5x1.6mm QFN20	4.5x8.5mm
MPM3830	3	2.7-6	Adj	40	✓	Internal	✓	3x5x1.6mm QFN20	4.5x8.5mm
MPM3840	4	2.8-5.5	Adj	40	✓	Internal	✓	3x5x1.6mm QFN20	6.7x6.3mm
MPM38111	1 (2x)	2.7-6	Adj	45		Internal	✓	4x4x1.6mm QFN20	7.0x9.0mm
MPM38222	2 (2x)	2.7-6	Adj	45		Internal	✓	4x4x1.6mm QFN20	7.0x9.0mm

MPM36xx Mid-Voltage Buck Family with High Light-Load Efficiency

Part Number	Iout (A)	Vin (V)	Vout (V)	Iq Current (μA)	Power Good	AAM (External Light-Load Mode)	Protection Features OCP/SCP UVLO/OTP	Package Size (LxWxH)	Solution Size
MPM3606	0.6	4.5-21	0.8-5.5	200		✓	✓	3x5x1.6mm QFN20	6.3x6.7mm
MPM3606A	0.6	4.5-21	0.8-17.4	200	✓		✓	3x5x1.6mm QFN20	6.3x6.7mm
MPM3610	1.2	4.5-21	0.8-17.8	200		✓	✓	3x5x1.6mm QFN20	6.3x6.7mm
MPM3610A	1.2	4.5-21	0.8-17.4	200	✓		✓	3x5x1.6mm QFN20	6.3x6.7mm
MPM3620	2	4.5-24	0.8-18.4	200		✓	✓	3x5x1.6mm QFN20	6.3x6.7mm
MPM3620A	2	4.5-24	0.8-19.9	200	✓		✓	3x5x1.6mm QFN20	6.3x6.7mm
MPM3630	3	4.5-18	0.6-16.2	320	✓	✓	✓	3x5x1.6mm QFN20	4.5x8.5mm
MPM3680	6	4.5-18	0.65-5.0	860	✓	✓	✓	12x12x4mm QFN57	15x16mm
MPM3682	10	4.5-18	0.65-5.0	860	✓	✓	✓	12x12x4mm QFN57	15x16mm
MPM3683-7	7	2.7-16	0.6-5.5	850	✓	Auto PFM/PWM	✓	7x7x4mm QFN32	<14x12.5mm
MPM3684	15	4.5-18	0.65-5.0	860	✓	✓	✓	12x15x4mm QFN65	16x17mm
MPM3686	20	4.5-18	0.65-5.0	860	✓	✓	✓	12x15x4mm QFN65	16x17mm
MPM3695-10	10	4.5-16	0.5-5.5	2000	✓	✓	✓	8x8x1.6mm QFN45	12x16mm
MPM3695-25	25	4.5-16	0.5-3.3	2200	✓	✓	✓	10x12x4mm QFN55	15x18mm

Scalable, Digital Programmable Power Modules (Coming Soon)

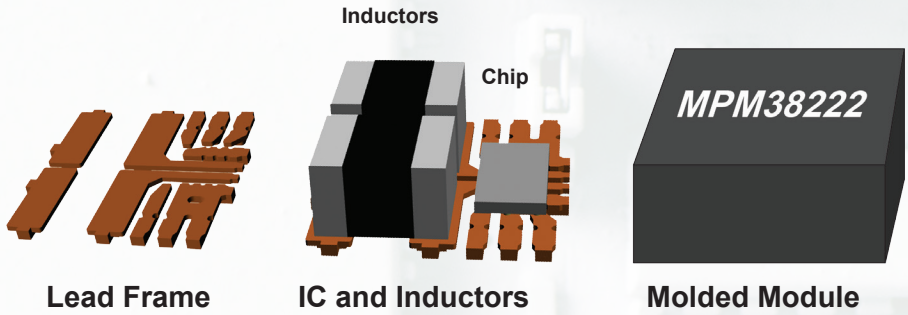
MPM35xx High-Voltage Buck Family with High Light-Load Efficiency

Part Number	Iout (A)	Vin (V)	Vout (V)	Iq Current (μA)	Power Good	AAM (External Light-Load Mode)	Protection Features OCP/SCP UVLO/OTP	Package Size (LxWxH)	Solution Size
MPM3506A	0.6	4.5-36	0.81-33.1	580	✓	✓	✓	3x5x1.6mm QFN19	6.7x6.3mm
MPM3510A	1.2	4.5-36	0.81-33.1	580	✓	✓	✓	3x5x1.6mm QFN19	6.7x6.3mm
MPM3515	1.5	4.0-36	0.80-30.6	600	✓		✓	3x5x1.6mm QFN17	6.7x6.3mm
MPM3520E	2	4.0-36	1.0-5.5	700	✓	✓	✓	10x10x4.2mm LGA8	12x15mm
MPM3550E	5	4.0-36	1.0-5.0	450	✓	✓	✓	12x12x4.2mm LGA18	15x15mm
MPM3570E	0.3	4.5-75	1.0-5.0	30	✓	✓	✓	10x10x4.2mm LGA8	12x15mm

MPM Power Modules

Power Management Solutions

Less Design Work
DC/DC Power Module Family



30% BOM Reduction
Smaller Footprint

Through the use of MPS' innovative single-step assembly process, our modules have superior performance and inherent reliability by eliminating unnecessary assembly steps and minimizing external components. They are easy to use and rework due to our standard QFN packaging, which eliminates some of the disadvantages that may have been associated with BGA or NDY packages. As a result, MPS modules are also inherently more cost effective.