

MONOLITHIC POWER

MODULES

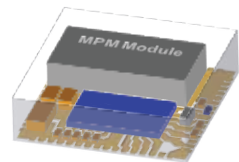
MONOLITHIC POWER

MPS Innovation

MPS IC

Monolithic IC
Distributed Gate
Drive Technology
Auto
Compensation
Module
Packaging

Solution on a Chip

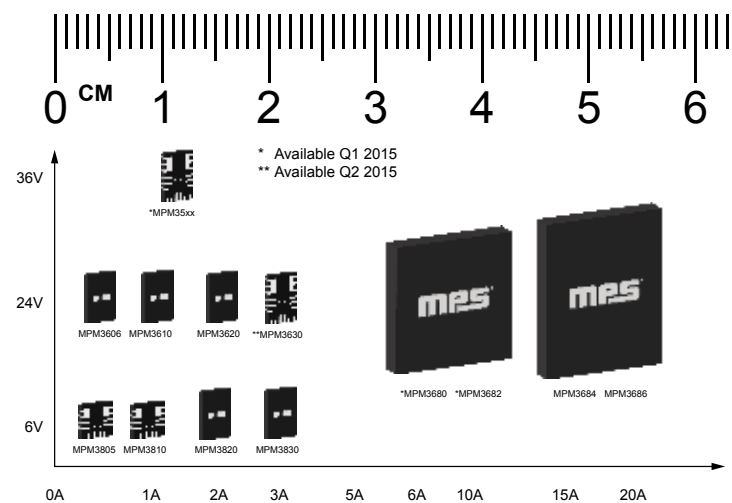


Monolithic Regulator
Passive Components
(Including Inductor)
Mold Compound

Ease of Design

System Simulated
and Qualified
Fully Validated
PCB Layout
Eliminates
Design Time
Minimal External
Components

MP Module Family 0.6A to 20A

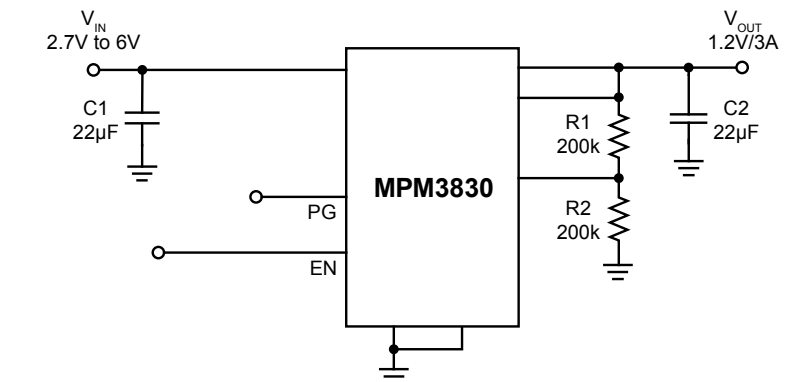


MPM38xx Low-Voltage Buck Family with High Light-Load Efficiency

Part Number	I _{OUT} (A)	V _{IN} (V)	V _{OUT} (V)	I _Q Current (μA)	Power Good	Soft Start	Protection Features OCP/SCP UVLO/OTP	Package Size (LxWxH)	Solution Size
MPM3805	0.6	2.5-6	Adj	17	✓	Internal	✓	3x2.5x0.9mm QFN12	3.81x5.97mm
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

MPM3830, 3A Module

- Small Solution Size (8.5x4.5mm)
- Simple Circuit with Less External Components and Less Output Capacitance
- Good Efficiency
- Low Noise in Terms of Ripple and EMI
- Excellent Transient Performance



Typical Application Circuit

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

Part Number	I _{OUT} (A)	V _{IN} (V)	I _Q 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	200	-	✓	✓	3x5x1.6mm QFN18	6.3x6.7mm
MPM3606A	0.6	4.5-21	200	✓	-	✓	3x5x1.6mm QFN18	6.3x6.7mm
MPM3610	1	4.5-21	200	-	✓	✓	3x5x1.6mm QFN18	6.3x6.7mm
MPM3610A	1	4.5-21	200	✓	-	✓	3x5x1.6mm QFN18	6.3x6.7mm
MPM3620	2	4.5-24	200	-	✓	✓	3x5x1.6mm QFN18	6.3x6.7mm
MPM3620A	2	4.5-24	200	✓	-	✓	3x5x1.6mm QFN18	6.3x6.7mm
MPM3630**	3	4.5-18	320	✓	-	✓	3x5x1.6mm QFN18	4.5x8.5mm
MPM3680*	6	4.5-18	800	✓	-	✓	12x12x4mm QFN65	15x16mm
MPM3682*	10	4.5-18	800	✓	-	✓	12x12x4mm QFN65	15x16mm
MPM3684	15	4.5-18	800	✓	-	✓	12x15x4mm QFN65	16x17mm
MPM3686	20	4.5-18	800	✓	-	✓	12x15x4mm QFN65	16x17mm

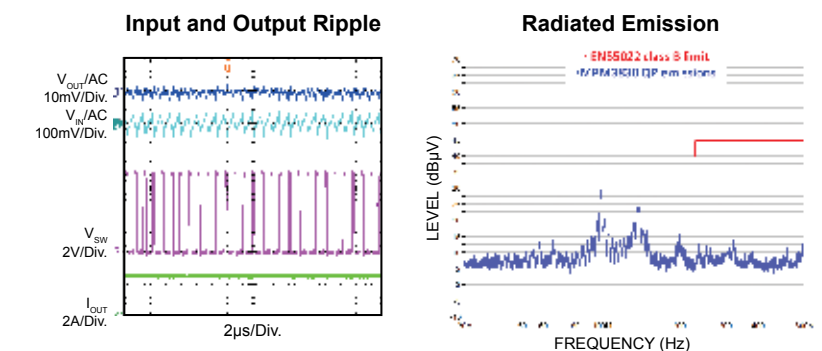
* Available Q1 2015 ** Available Q2 2015

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

Part Number	I _{OUT} (A)	V _{IN} (V)	I _Q Current (μA)	Power Good	AAM (External Light-Load Mode)	Protection Features OCP/SCP UVLO/OTP	Package Size (LxWxH)	Solution Size
MPM3506*	0.6	4.5-36	500	-	-	✓	3x5x1.6mm QFN20	7.5x8.5mm
MPM3510*	1.2	4.5-36	500	-	-	✓	3x5x1.6mm QFN20	7.5x8.5mm

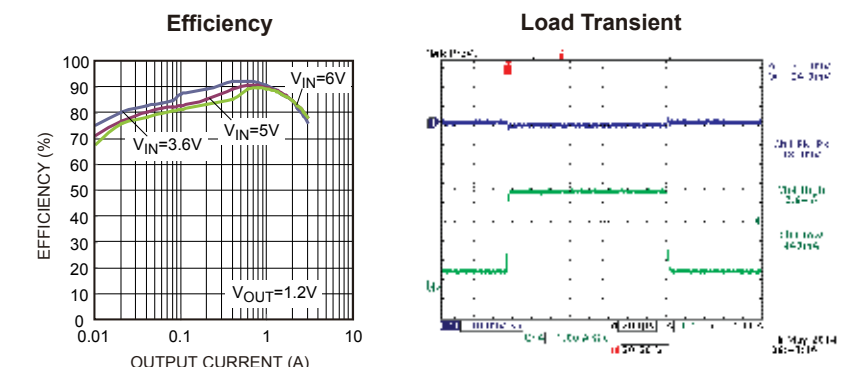
* Available Q1 2015

Low Noise



Conditions
V_{IN} = 5V, V_{OUT} = 1.2V, I_{OUT} = 3A, C_{IN} = 22μF (2x), C_{OUT} = 22μF (2x)

High Performance



Conditions
V_{IN} = 5V, V_{OUT} = 1.2V, I_{OUT} = 0-3A
C_{IN} = 22μF, C_{OUT} = 2x47μF

MPS
Monolithic Power Systems

MP Modules
(Step-Down Regulators with Integrated Inductor)

The Future of Analog IC Technology*

I _{OUT}	6V	Actual Size
0.6A	MPM3805	Pkg A
1A	MPM3810	
2A	MPM3820	Pkg B
3A	MPM3830	

I _{OUT}	4.5V-24V	Actual Size
0.6A	MPM3606/A	Pkg B
1A	MPM3610/A	
2A	MPM3620/A	

I _{OUT}	18V	Actual Size
6A	MPM3680	Pkg C
10A	MPM3682	
15A	MPM3684	Pkg D
20A	MPM3686	

Package A
QFN12 (2.5x3x0.9mm)

Package B
QFN18 (3x5x1.6mm)

Package C
QFN57 (12x12x4mm)

Package D
QFN65 (12x15x4mm)

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MODULES

MONOLITHIC POWER

The Future of Analog IC Technology®

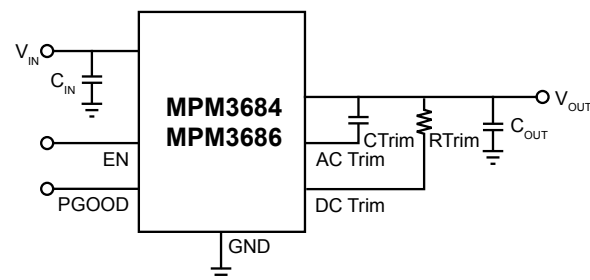
MPM3684, 15A Module

- Complete 15A DC-DC Solution
- Wide Input-Voltage Range: 2.5V to 18V
- Output Adjustable From 0.65V to 5V
- Best-in-Class Efficiency
- Ultrafast Transient Response
- Solution Stays Cool (Without Heat Sink)
- Smallest Solution Footprint

MPM3686, 20A Module

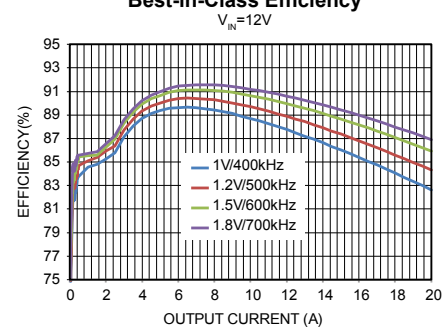
- Complete 20A DC-DC Solution
- Wide Input-Voltage Range: 4.5V to 18V
- Output Adjustable From 0.65V to 5V
- Best-in-Class Efficiency
- Ultrafast Transient Response
- Solution Stays Cool (Without Heat Sink)
- Smallest Solution Footprint

Simple
Solution

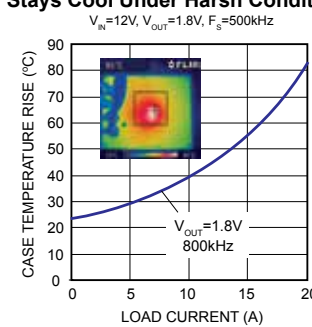


MPS Advantage

Best-in-Class Efficiency

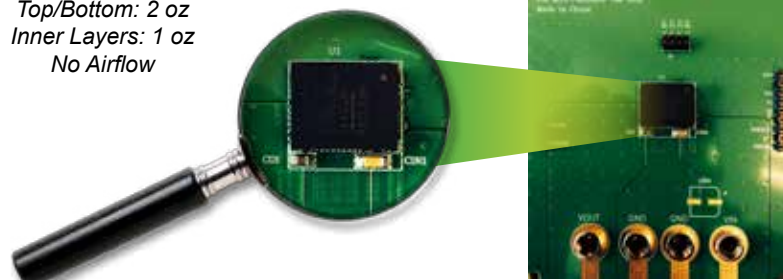


Stays Cool Under Harsh Conditions



20A Total Area = 16x17mm

4-Layer Board
Top/Bottom: 2 oz
Inner Layers: 1 oz
No Airflow



MPM Applications

- Automotive
- Computing: Blade/Rack/Micro Servers, HBA/NIC Cards, RAID Systems
- Enterprise Storage: Storage Systems, SSDs, SATA, SAS, mSATA, PCIe
- FPGA Applications
- Industrial & Embedded: Industrial Computing, POS Equipment, Security Systems
- Networking & Telecommunications: Base Stations, Media Gateway, Backhaul
- Test & Measurement: Scopes/Analyzers, Meters, ATEs

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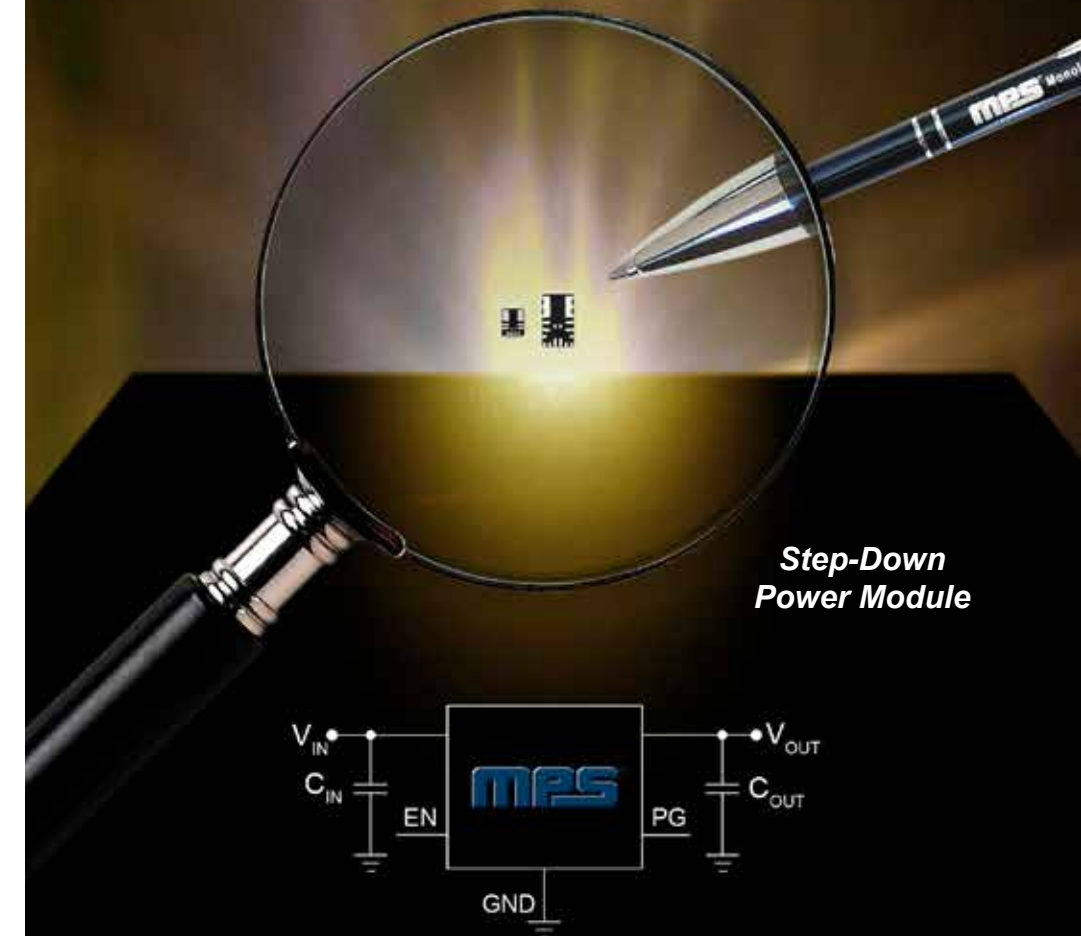
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Pure Power Modules
Monolithic Power Modules (MPM)
Low-Power and High-Power



Step-Down
Power Module



Powerful
Easy to Use
Small Solution Size
Fast Time-to-Market