



# MPQ4572

High-Efficiency, 2A, 60V  
Fully Integrated Synchronous Buck Converter  
AEC-Q100 Qualified

**PRELIMINARY SPECIFICATIONS SUBJECT TO CHANGE**

## DESCRIPTION

The MPQ4572 is a fully-integrated, fixed-frequency synchronous step-down converter. It can achieve up to 2A continuous output current with peak current control for excellent transient response.

The wide 4.5V to 60V input voltage range accommodates a variety of step down applications in automotive input environment. And 2 $\mu$ A shutdown mode quiescent current allows use in battery-powered applications.

The MPQ4572 integrates internal high-side and low-side power MOSFETs for high efficiency without an external schottky diode and is available in a 12-pin QFN package. With internal compensation, the MPQ4572 can offer a very compact solution with a minimum number of readily available standard external components.

The MPQ4572 employs AAM (Advanced Asynchronous Modulation) mode which helps achieve high efficiency during light load by scaling down the frequency to reduce the switching and gate driver losses.

The MPQ4572 offers standard features, including built-in soft-start, enable control and power good indicator. High-duty cycle and low drop-out mode are provided for the automotive cold crank condition. In addition, the chip provides over-current protection with valley current detection which is used to avoid current running away. Also it has hiccup short-circuit protection, input under-voltage lockout and auto recovery thermal protection.

## FEATURES

- Wide 4.5V to 60V Operating Input Range
- 2A Continuous Output current
- High Efficiency Synchronous Mode Control
- 250m $\Omega$ /45m $\Omega$  Internal Power MOSFETs
- Programmable Frequency up to 2.2MHz
- 180° Out of Phase SYNC Out Clock
- 40 $\mu$ A Quiescent Current
- Low Shutdown Mode Current: 2 $\mu$ A
- FB-Tolerance: 1% at Room Temp;  
2% at Full Temp
- Selectable AAM or Forced CCM Operation Option at Light Load
- Internal 0.45ms Soft-Start
- Remote EN Control
- Power Good Indicator
- Low Drop-out Mode
- Over-Current Protection
- Short-Circuit Protection with Hiccup Mode
- VIN Under-Voltage Lockout
- Thermal Shutdown
- QFN-12 (2.5mmX3mm)
- AEC-Q100 Grade-1

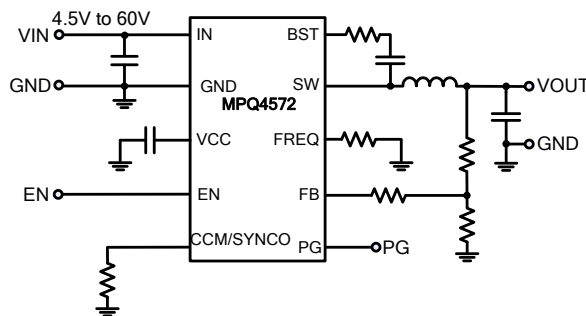
## APPLICATIONS

- Industrial Power Systems
- Automotive Systems
- Battery-Powered Equipment
- Distributed Power and POL Systems
- Printers and Scanners

All MPS parts are lead-free and adhere to the RoHS directive. For MPS green status, please visit MPS website under Products, Quality Assurance page.

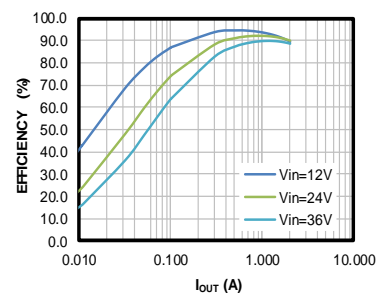
"MPS" and "The Future of Analog IC Technology" are registered trademarks of Monolithic Power Systems, Inc.

## TYPICAL APPLICATION



### Efficiency vs. Load Current

$V_{OUT}=5V$ ,  $L=15\mu H$ ,  $F_{SW}=400kHz$





# MPQ4572

High-Efficiency, 2A, 60V  
Fully Integrated Synchronous Buck Converter  
AEC-Q100 Qualified

**PRELIMINARY SPECIFICATIONS SUBJECT TO CHANGE**

## ORDERING INFORMATION

Part Number*	Package	Top Marking	MSL Rating****
MPQ4572GQB**	QFN-12 (2.5mmX3mm)	See Below	1
MPQ4572GQB-AEC1**			
MPQ4572GQBE-AEC1***			

\* For Tape & Reel, add suffix -Z (e.g. MPQ4572GQB-Z)

\*\* Under Qualification

\*\*\* Under Qualification, Wettable flank

\*\*\*\* Moisture Sensitivity Level Rating

## TOP MARKING (MPQ4572GQB & MPQ4572GQB-AEC1)

—  
AVN  
YWW  
LLL

AVN: product code of MPQ4572GQB and MPQ4572GQB-AEC1

Y: year code

WW: week code

LLL: lot number

## TOP MARKING (MPQ4572GQBE)

—  
BMM  
YWW  
LLL

BMM: product code of MPQ4572GQBE

Y: year code

WW: week code

LLL: lot number

**NOTICE:** The information in this document is subject to change without notice. Please contact MPS for current specifications. Users should warrant and guarantee that third party Intellectual Property rights are not infringed upon when integrating MPS products into any application. MPS will not assume any legal responsibility for any said applications.