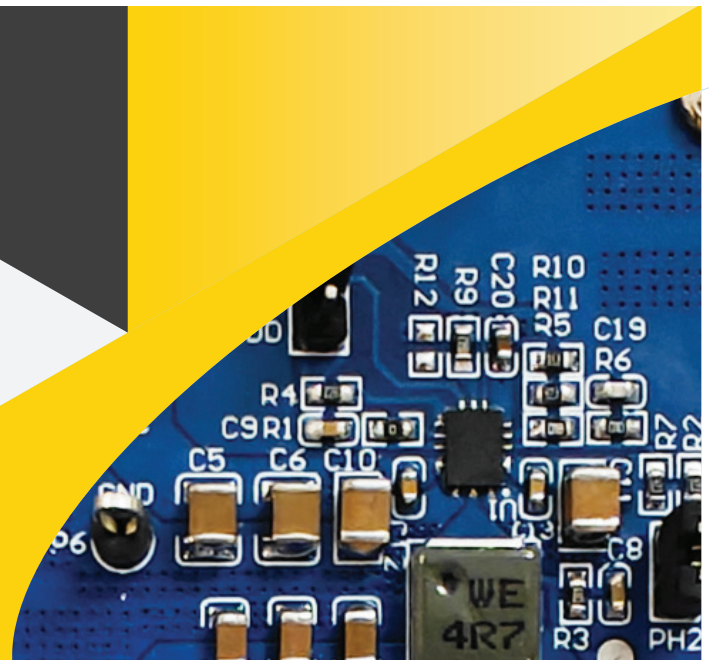




## Synchronous Step-Down Voltage Regulators

IS32PM3426/7 & IS32PM3420A/B



### IS32PM342X FAMILY: MAXIMIZING EFFICIENCY ACROSS LIGHT AND FULL LOAD CONDITIONS

The IS32PM342X family consists of high-efficiency synchronous step-down voltage regulators designed for both industrial and automotive applications. These devices support an input voltage range of 3.8V to 36V and provide up to 4A of output current, with adjustable output voltages from 1V to 24V. The IS32PM342X family is ideal for high-efficiency applications where performance, reliability, and space are critical. These devices feature high efficiency (up to 93% at full load), protection mechanisms, and support for both FCCM and PFM operational modes to optimize performance across varying load conditions. The IS32PM342X family is ideal for power-conscious applications where longer battery life, high efficiency and small footprint, are critical, making them perfect for energy-saving markets such as the Internet of Things (IoT), wearables, and battery-operated devices. The IS32PM342X family is available in compact WFCQFN-14 and SOP-8-EP packages and includes integrated features such as spread spectrum frequency modulation and internal soft-start, making them perfect for space-constrained and high-reliability applications.

### KEY FEATURES

- **Operating Voltage Range:** 3.8V to 36V.
- **Low Power Consumption:** Typical shutdown current of only 1μA and a quiescent current of 25μA.
- **High Output Current Capability:** IS32PM3426 supports up to 2A output current, IS32PM3420A/B supports up to 3A, while IS32PM3427 delivers up to 4A output current.
- **High Efficiency:** 93% at full load and >85% at light load.
- **Flexible Operating Modes:** Offers pin-selectable Forced Continuous Conduction Mode [FCCM] or Pulse Frequency Modulation [PFM] mode.
- **Compact Package size:** Available in WFCQFN-14 and SOP-8-EP packages.

### APPLICATIONS

- Industrial Power Systems
- 12/24V Battery Powered Applications
- Automotive Electronics
- Noise-Sensitive Applications

### PRODUCT FAMILY



#### IS32PM3426

- Up to 2A Output Current
- 93% Efficiency at full load 5V/2A
- >85% Efficiency at light load 5V/100mA
- WFCQFN-14 Package



#### IS32PM3427

- Up to 4A Output Current
- 93% Efficiency at full load 5V/4A
- >85% Efficiency at light load 5V/100mA
- WFCQFN-14 Package



#### IS32PM3420A

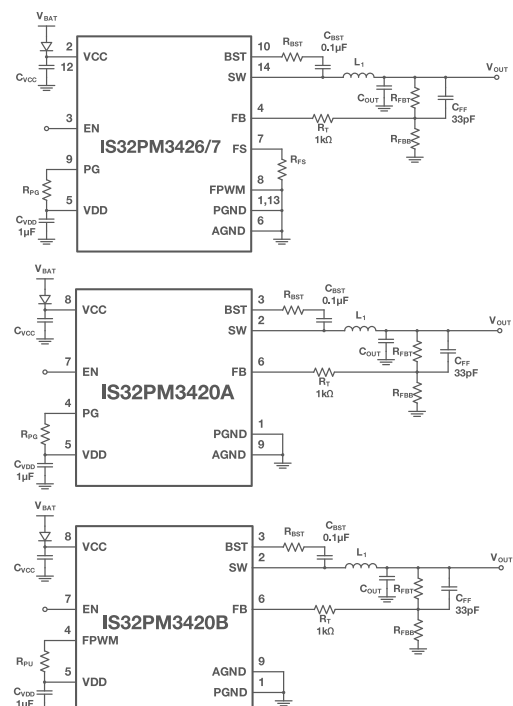
- Up to 3A Output Current
- 91% Efficiency at full load 5V/3A
- FCCM Mode
- SOP-8-EP Package



#### IS32PM3420B

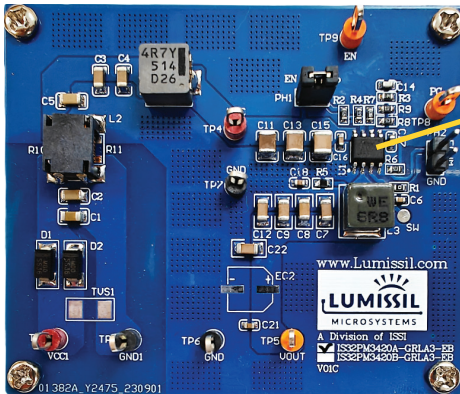
- Up to 3A Output Current
- 91% Efficiency at full load 5V/3A
- >85% Efficiency at light load 5V/100mA
- SOP-8-EP Package

### DC-DC TYPICAL APPLICATION CIRCUIT



### REFERENCE BOARD (EVALUATION KIT)

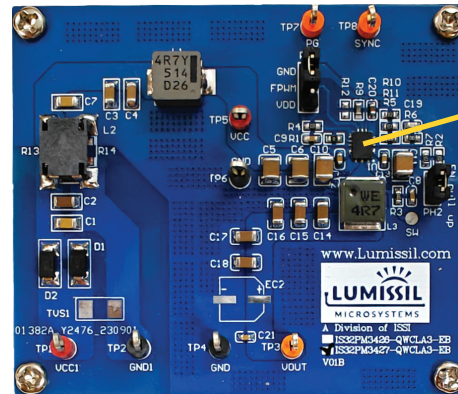
The evaluation boards offer a platform for testing and development. The boards come with detailed documentation, including a complete Bill of Materials (BOM) and a layout that serves as a reference design for circuits meeting CISPR-25 Class 5 standards.



Eval Board : IS32PM3420A-GRLA3-EB



SOP-8-EP



Eval Board : IS32PM3427-QWCLA3-EB



WFCQFN-14

### EMI & EFFICIENCY INFORMATION

The conducted EMI scan results in Figure 1 indicate that the DC-DC Converter evaluation boards are designed for low radiated emissions. They meet the CISPR-25 Class 5 standards, demonstrating the ICs' effective minimization of electromagnetic interference. CISPR-25 is an international standard that sets EMI limits in vehicles to ensure the proper functioning of electronic devices without interference. The integrated spread spectrum and slew rate control technologies reduce EMI by minimizing interference-causing emissions, ensuring smooth and reliable performance. With peak and average EMI levels well within acceptable limits, the DC-DC Converters provide interference free operation in automotive environments.

The graph in Figure 2 illustrates the efficiency performance of the IS32PM342x across various output current levels and supply voltages. The efficiency remains above 85% under both light and full load conditions, meaning it maintains high efficiency regardless of the load. This high efficiency results in lower energy consumption and reduced heat generation, ensuring reliable and cost-effective operation for automotive and industrial power conversion applications.

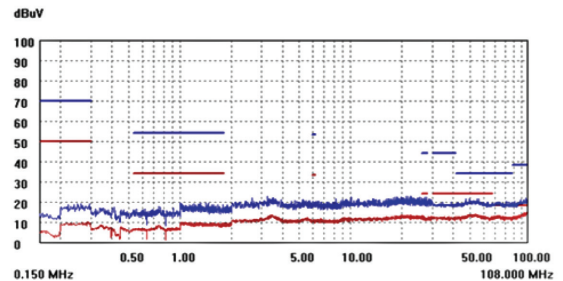


Figure 1: CISPR-25 Class 5 Conducted EMI Scan

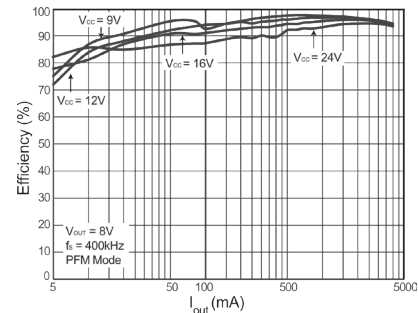


Figure 2

### PRODUCT INFORMATION

Parameters	IS32PM3426*	IS32PM3427*	IS32PM3420A*	IS32PM3420B*
Input Voltage Range [V]	3.8 - 36	3.8 - 36	3.8 - 36	3.8 - 36
Shutdown Current [μA]	1 [Typ.]	1 [Typ.]	1 [Typ.]	1 [Typ.]
Quiescent Current [μA]	25 [Typ.]	25 [Typ.]	1mA (non-switching)	25 [Typ.]
Output Voltage Range [V]	1 - 24V	1 - 24V	1 - 24V	1 - 24V
Output Current [A]	Up to 2	Up to 4	Up to 3	Up to 3
Efficiency at Full Load	93% at 5V/2A	93% at 5V/4A	91% at 5V/3A	91% at 5V/3A
Efficiency at Light Load	>85% at 5V/100mA	>85% at 5V/100mA	N/A	>85% at 5V/100mA
Operating Frequency Range [kHz]	100 - 2200	100 - 2200	400	400
Fast Transient Response	Yes	Yes	Yes	Yes
Spread Spectrum	Yes	Yes	Yes	Yes
Power Good Flag	Yes	Yes	Yes	Yes
Operation Modes	FCCM, PFM	FCCM, PFM	FCCM	FCCM, PFM
Qualifications	AEC-Q100	AEC-Q100	AEC-Q100	AEC-Q100

\*Note: The following parts are also available in [IS31] industrial version