

## IR383x/IR384x

### Gen2 SuplRBuck™ Integrated Synchronous Buck Regulators

The Gen2 SuplRBuck™ family of high-efficiency integrated Point-Of-Load (POL) voltage regulator modules integrates International Rectifier's advanced synchronous buck control ICs with IR's benchmark MOSFETs in a low-profile, thermally enhanced 5 mm x 6 mm Power-QFN package.

These devices are designed to offer benchmark efficiency, up to 10% higher than other integrated solutions.

The four Gen2 SuplRBuck™ devices (IR3840/1/2 and IR3831) are integrated POL DC-DC voltage regulator modules and are designed for embedded POL applications up to 12A. They are fully featured for server, Netcom, telecom, storage and high-performance consumer applications. The devices represent an upgrade to the Gen1 SuplRBuck™ family.

#### Features

- Wide output voltage range: (0.7V to 90% of  $V_{IN}$ )
- Pin-compatible solutions for 4A, 8A and 12A
- Small footprint (5 mm x 6 mm) and low height (0.9 mm)
- Programmable switching frequency up to 1.5 MHz
- 1% accurate 0.7V reference voltage
- Programmable hiccup current limit
- Programmable soft start
- Enhanced pre-bias start up
- Thermal protection
- Enable pin with voltage monitoring capability
- Power good output
- Optimized solution for DDR tracking (IR383x) or sequencing (IR384x)
- Operating junction temperature range: -40°C to +125°C

#### Applications

- Server
- Netcom
- Storage
- Communications
- Computing
- Digital TV and set-top boxes

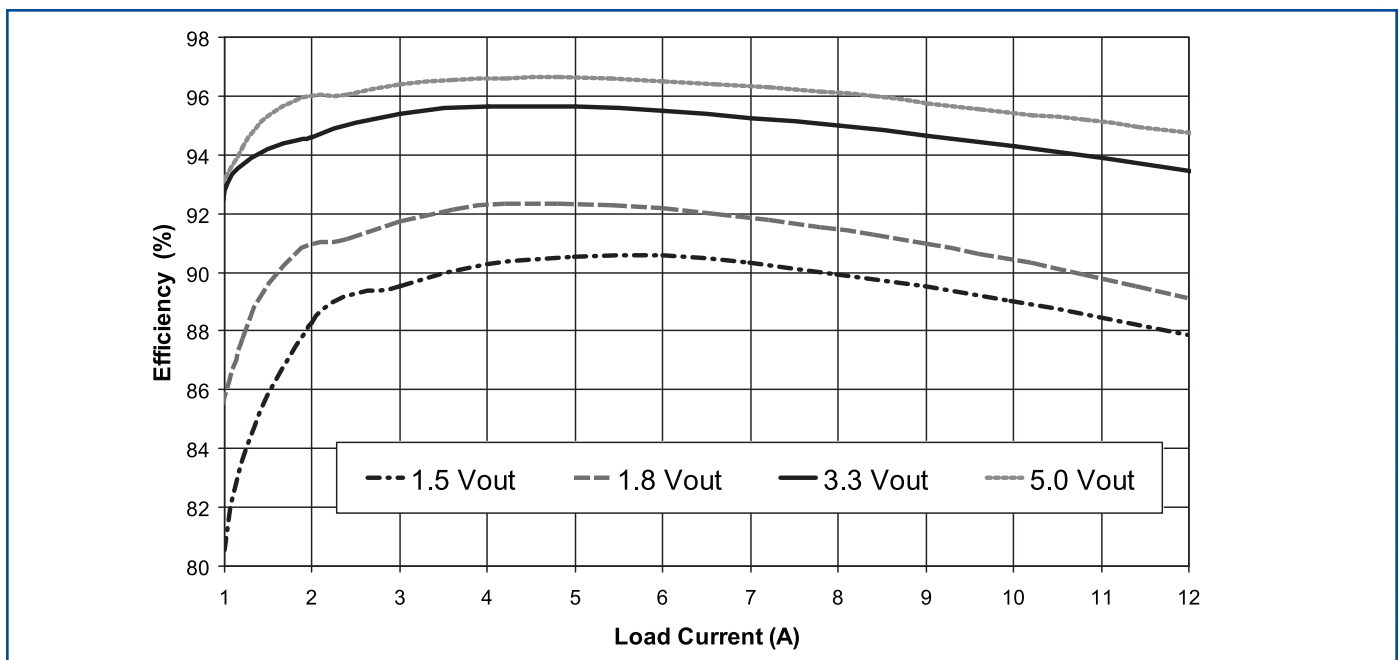
#### Key Points

- Integrated POL solution for up to 12 Amps
  - Delivers high current rating in a 5 mm x 6 mm QFN package
- Common footprint for 4A, 8A, and 12A devices
  - Provides design flexibility and allows cut-and-paste layout for fast time-to-market
- Eliminates the need for traditional dual stage POL conversion
  - Saves energy, size and cost by operating directly from 12  $V_{IN}$
- High efficiency over entire load range—greater than 96% peak
  - Results in energy savings and very simple thermal management
- Excellent package thermal properties and low height
  - Allows back-side board mounting for additional space saving
- Fully featured for server, storage, and netcom applications
  - Easy on-board implementation
- Small footprint and high-switching frequency
  - Smaller total solution size and cost

## SupIRBuck™ Family of Integrated POL Voltage Regulator Modules



## IR3840 Efficiency at 600 kHz with 12V Input



## Part Specification Table

| Part Number | $V_{IN}$ Range | $V_{OUT}$ Range         | $I_{OUT}$ (A) | Switching Frequency | Features   |
|-------------|----------------|-------------------------|---------------|---------------------|--|
| IR3831MPbF  | 1.5V to 16V    | 0.7% to 90% of $V_{IN}$ | 8             | 250 kHz to 1.5 MHz  | Over current protection; over temperature protection; programmable frequency; soft start; pre bias; PGOOD; enable; tracking  |
| IR3840MPbF  | 1.5V to 16V    | 0.7% to 90% of $V_{IN}$ | 12            | 250 kHz to 1.5 MHz  | Over current protection; over temperature protection; programmable frequency; soft start; pre bias; PGOOD; enable; SEQ input |
| IR3841MPbF  | 1.5V to 16V    | 0.7% to 90% of $V_{IN}$ | 8             | 250 kHz to 1.5 MHz  | Over current protection; over temperature protection; programmable frequency; soft start; pre bias; PGOOD; enable; SEQ input |
| IR3842MPbF  | 1.5V to 16V    | 0.7% to 90% of $V_{IN}$ | 4             | 250 kHz to 1.5 MHz  | Over current protection; over temperature protection; programmable frequency; soft start; pre bias; PGOOD; enable; SEQ input |

For more information, such as datasheets and app notes, visit [www.arrow.com/arrowedge](http://www.arrow.com/arrowedge).