

Part Number	Input Voltage	Output Voltage	Current Rating
ISM6401A	2.7V~16V	0.6V~5V	8A

## Description

The ISM6401A power module is a highly integrated 8-A power solution that combines a 16-V input step-down DC/DC converter, a shielded inductor, and passive components in a thermally-enhanced QFN package. The 7 mm x 7 mm x 4 mm, 46-pin QFN package uses routable lead-frame technology for enhanced thermal performance, small footprint, and low EMI. The footprint has all pins accessible from the perimeter for simple layout and easy to manufacture.

The ISM6401A power module minimizes the use of external components and provides simplified output inductor design. It is full feature set including power good, pre-bias start-up as well as the full protection features such as OCP, NOCP, OVP, UVP and over temperature protection (OTP). The ISM6401A is an excellent device for powering a wide range of point of load applications.

The ISM6401A also has an internal 5V LDO, which can be particularly useful for a single input supply application condition. A differential sensing scheme and a 0.6V internal feedback reference voltage achieve  $\pm 1\%$  tolerance over full operating temperature range and provides an excellent line and load regulation.

The ISM6401A is programmed with a fixed switching frequency of 1MHz among three different switching frequencies (600 kHz, 800 kHz and 1 MHz). Furthermore, it uses patented Turbo Constant on Time (TCOT™) algorithm to improve transient response. Internal ramp compensation is designed such that All MLCC output capacitors can be used to save space and cost.

## Applications

- Telecom/Datacom
- Computers and Servers
- Point of Load

## Features

- 7 mm x 7 mm x 4 mm, 46-pin QFN package.
- Industry's smallest 16-V, 8-A footprint:
- Excellent thermal performance; Up to 40 W output power at 25°C ambient without airflow.
- VIN Input Voltage Range: 2.7 V to 16V with External Bias VCC voltage, or 4.0V to 16V with Internal Bias VCC.
- Output voltage range: 0.6 V to 5.0 V.
- Efficiency up to 95%.
- Power-good flag.
- Built-in hiccup-mode short-circuit protection, over-temperature protection, start-up into pre-bias output, soft start, and UVLO.
- Operating IC junction range: -40°C to +125°C.
- Operating ambient range: -40°C to +85°C.
- Moisture Sensitivity Level 3.