DCP3601 and DCP3603 buck converters

High-efficiency synchronous step-down converters

Compact, flexible and robust devices for industrial and home appliances

The DCP3601 and DCP3603 are high-performance synchronous buck converters designed for industrial power conversion from 3.3 V to 36 V input, delivering output currents up to 1 A and 3 A. These converters feature an extended input voltage range anda low-power consumption mode for enhanced energy efficiency. Housed in a small SOT23-6L package, they ensure easy integration into all major appliances.

KEY FEATURES & BENEFITS

- Wide input voltage range: 3.3 V to 36 V
- Dual modes: low consumption mode (LCM) & low noise mode (LNM)
- Comprehensive protection: overvoltage, overcurrent, thermal shutdown, undervoltage lockout
- Compact SOT23-6L package for space-saving designs
- Internal compensation and peak current mode control

KEY APPLICATIONS

- Industrial 12 V and 24 V bus power conversion
- Smart metering and IoT devices
- Major household appliances
- General-purpose wide input voltage power supplies
- Noise-sensitive industrial electronics

Technical comparison table

Feature	DCP3601	DCP3603
Output current	Up to 1 A	Up to 3 A
Efficiency	Up to 91%	Up to 93%
Switching frequency	1 MHz	500 kHz / 1 MHz
Quiescent current	110 µA	85 µA

Ready to start ?

Explore our evaluation boards:

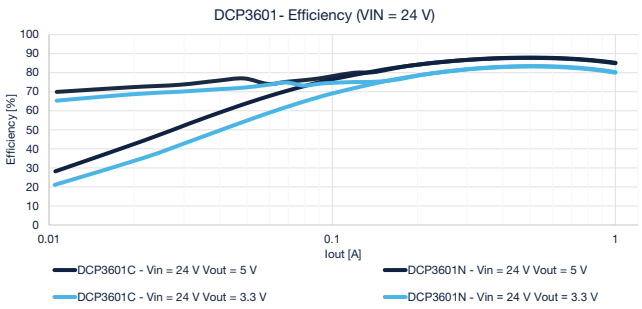
STEVAL-3601CV1

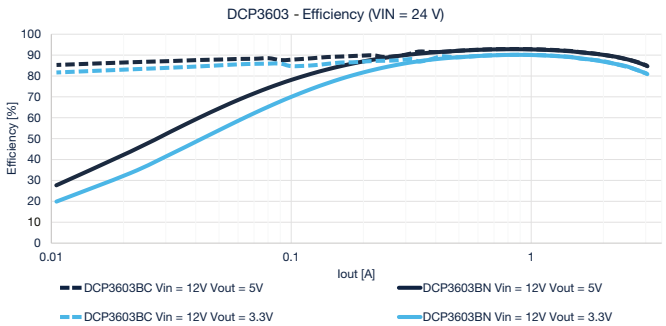
STEVAL-3603BC1

Performance insights: understanding efficiency across load conditions

The efficiency graphs below illustrate the performance of the DCP3601 and DCP3603 synchronous buck converters at fixed input voltages of 12 V and 24 V, across various load currents and output voltages (5 V and 3.3 V).
Variations in efficiency at different output voltages highlight the converters' flexibility in maintaining strong performance across common industrial voltage rails.
The DCP3603 offers dual switching frequency options (500 kHz and 1 MHz), allowing designers to balance efficiency and electromagnetic interference (EMI) according to application needs.
These efficiency profiles demonstarte that both converters are suited for industrial 12 V and 24 V bus power systems, smart metering, and noise-sensitive environments, where power savings and thermal constraints are critical.

Efficiency vs. load current





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