



AP62600

18V Versatile Synchronous Buck Converter Provides High Efficiency and Easy Optimization for 6A POL Design

The AP62600 is a high-efficiency 6A synchronous step-down DC-DC converter. Adopting Constant On-Time (COT) control, it achieves fast transient responses and eases loop stabilization.

The AP62600 has a 4.5V to 18V input voltage range and adjustable output voltage down to 0.6V. To allow the designer to optimize performance, the AP62600 has three selectable switching frequencies along with three selectable operation modes.

For further optimization, its soft-start time can be adjusted to prevent start-up inrush currents.

The buck converter includes a full protection feature set to make the system more robust including overcurrent protection, undervoltage lockout, and thermal shutdown.

The AP62600 is available in the tiny V-QFN2030-12 (2mm x 3mm).



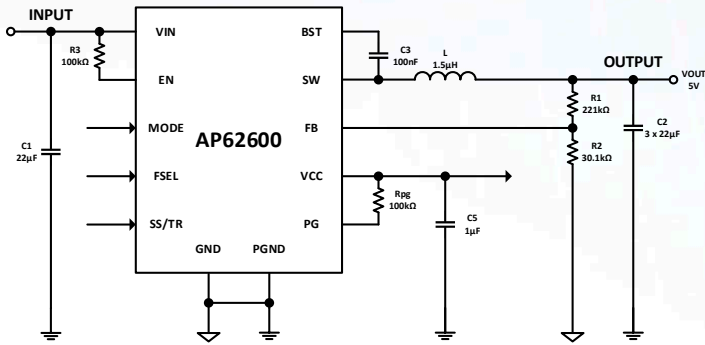
The DIODES Advantage

- **Selectable Switching Frequency: 400kHz/800kHz/1.2MHz**
 - ✓ Optimized converter which allows high-efficiency
- **Selectable Operation Modes: PFM/USM/PWM**
 - ✓ Pulse Frequency Modulation – increases light load efficiency
 - ✓ Ultrasonic Mode – avoids audible frequency range
 - ✓ Pulse Width Modulation – low output voltage ripple
- **Programmable Soft-Start and Tracking**
 - ✓ Reduced Inrush current and supports various tracking capabilities (ratiometric, coincidental, and sequencing)
- **Power-Good**
 - ✓ Detects and reports output faults during OVP, UVP, and thermal shutdown
- **Tight V_{REF} Tolerance**
 - ✓ $\pm 1\%$ across industrial temperatures

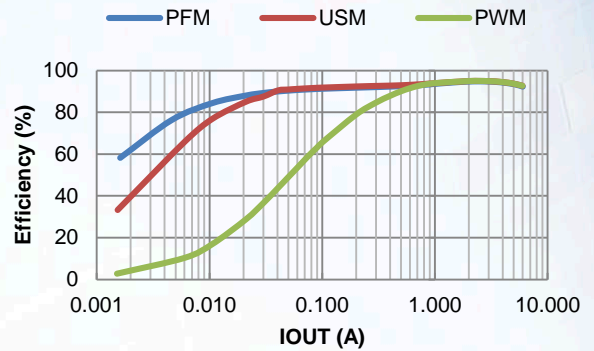
Applications

- 12V Input Distributed Power Bus Supplies
- Set-Top Box, IP Cameras, Gaming Consoles
- Small-Cell Base Stations
- Servers, Cloud Computing, Storage
- Home Audio
- Networks System

Typical Application Circuit



Efficiency vs. Output Current



VIN = 12V, VOUT = 5V, L = 1.5μH, f_{SW} = 800kHz

Product Details

| Part Number | VIN Range (V) | VOUT Range (V) | Output Current (A) | R _{DS(ON)} (mΩ) HS / LS | Switching Frequency (kHz) | I _q (μA) | Ambient Temperature (°C) | Package |
|-------------|---------------|----------------|--------------------|-------------------------------------|---------------------------|---------------------|--------------------------|--------------|
| AP62600 | 4.5 – 18 | 0.6 – 7 | 6 | 36 / 14 | 400/800/1200 | 360 | -40 to +85 | V-QFN2030-12 |

To find out more information:

<https://www.diodes.com/part/AP62600>

Ordering Information

| Orderable Device | Package Code | Package | Identification Code | Reel Size | Quantity |
|------------------|--------------|--------------|---------------------|-----------|----------|
| AP62600SJ-7 | SJ | V-QFN2030-12 | K2 | 7 inch | 3000 |