



New Product Announcement

AP63200/1/3/5

Synchronous Buck Converters with Best-In-Class EMI Performance and Ultra-Low Quiescent Current

The AP63200, AP63201, AP63203, and AP63205 are 2A synchronous buck converters with a wide input voltage range of 3.8V to 32V supporting 5V, 12V and 24V power supplies. Integrated 125mΩ high-side and a 68mΩ low-side power MOSFETs provide high efficiency step-down DC-DC conversion.

The AP63200, AP63203, and AP63205 utilize Pulse Frequency Modulation (PFM) with an ultra-low quiescent current of 22μA – which provides efficiencies up to 80% and 88% during light load conditions of 1mA and 5mA, respectively. The AP63203 and AP63205 are fixed output buck converters with optimized design for reduced Electromagnetic Interference (EMI). The AP63201 operates in Pulse Width Modulation (PWM) where the switching frequency is relatively fixed regardless of output load.

All members have optimized EMI, utilizing Frequency Spread Spectrum (FSS) with a switching frequency jitter of ±6% further reduces EMI. Further EMI improvements is achieved through its proprietary gate driver scheme which reduces switching node ringing without sacrificing MOSFET turn-on and turn-off times. The device is available in a low-profile TSOT26 package.



The Diodes Advantage

AP63200/AP63201/AP63203/AP63205 provide ultra-low I_Q solution with best-in-class EMI performance

- **V_{IN} 3.8V to 32V. Withstand 40V 400ms Input Surge**
Works across the full voltage range of consumer electronics, industrial and appliance applications.
- **Wide Output Voltage range: 0.8V to near 100% of V_{IN} (LDO Mode)**
Duty cycle extends to 100% essentially supporting LDO-like functionality
- **Ultra-Low (22μA) Quiescent Current (I_Q)**
Maximizes light load efficiency
- **Designed for Best-In-Class EMI Performance**
SW ringing resistant @4ns rise time. Frequency Spread Spectrum (FSS)
- **Simple PCB Layout Design - Pinout supports single layer PCB**
Minimal number of external components, short current loops on PCB further easing EMI issues.
Fixed 3.3V and 5V output options to further reduce external components
- **Pinout Compatible with 3A version (expected Q2 2019)**

Applications

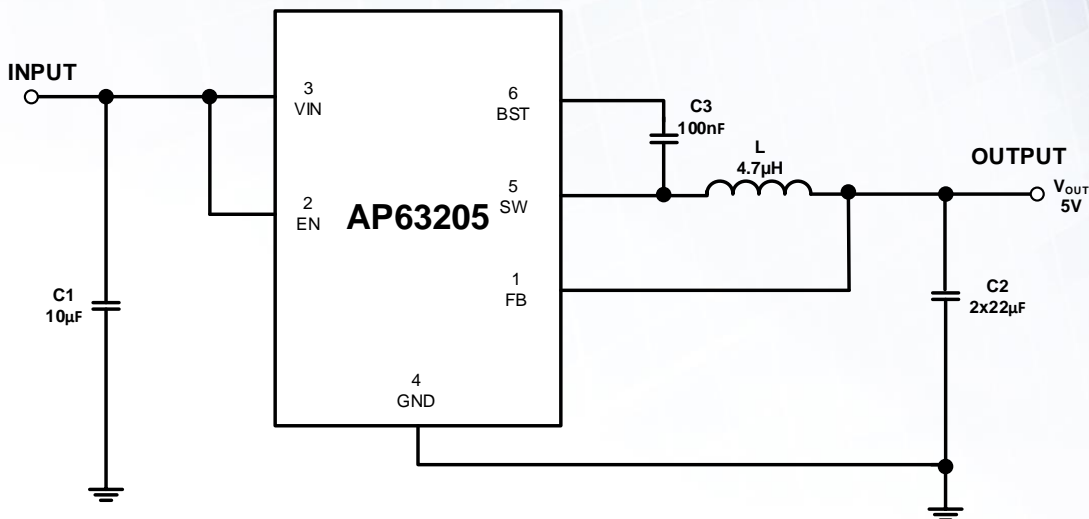
- Gaming Consoles
- Flat Screen TV Sets and Monitors
- Set Top Boxes
- White Goods and Small Home Appliance
- Home Audio
- Network Systems
- Power Tools and Laser Printers



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Typical Application Schematic



Product Portfolio

| Part # | VIN Range (V) | VOUT Range (V) | Output Current (A) | Mode | Switching Frequency (kHz) | Iq (µA) | Ambient Temperature (°C) | Package |
|---------|---------------|----------------|--------------------|-----------|---------------------------|---------|--------------------------|---------|
| AP63200 | 3.8 – 32 | 0.8 – VIN | 2 | PWM / PFM | 500 | 22 | -40 – +85 | TSOT26 |
| AP63201 | 3.8 – 32 | 0.8 – VIN | 2 | PWM | 500 | 258 | -40 – +85 | TSOT26 |
| AP63203 | 3.8 – 32 | 3.3 | 2 | PWM / PFM | 1,100 | 22 | -40 – +85 | TSOT26 |
| AP63205 | 3.8 – 32 | 5.0 | 2 | PWM / PFM | 1,100 | 22 | -40 – +85 | TSOT26 |

Ordering Information

| Part Number | Package Code | Package | Identification Code | Reel Size | Quantity |
|--------------|--------------|---------|---------------------|-----------|----------|
| AP63200WU-7* | WU | TSOT26 | T2 | 7 inch | 3,000 |
| AP63201WU-7* | WU | TSOT26 | T3 | 7 inch | 3,000 |
| AP63203WU-7* | WU | TSOT26 | T4 | 7 inch | 3,000 |
| AP63205WU-7* | WU | TSOT26 | T5 | 7 inch | 3,000 |

*Parts will be available to order March 2019.