



New Product Announcement

AP22980

Three-Level, Slew-Rate Controlled Power Switch Simplifies and Enhances Power-Rail Management in SSD System

The DIODES™ AP22980 is a single-channel, high-side power switch with a configurable slew-rate control that enhances system power-rail management control.

Its three-level SS pin provides three different output slew rates for optimal inrush control to meet the different needs of systems and applications.

The device uses an internal ultra-low (5.1mΩ) N-channel MOSFET with a charge-pump to support maximum continuous load currents up to 6A. It has a separate VBIAS pin that extends the operating input voltage range to a wide 0.285V to 5.5V.

The wide-input voltage range and high-current capability allow the device to be used in various systems and applications. An ultra-low ON-resistance minimizes voltage drop and power loss.

The device has quick output discharge (50Ω on-chip resistor) for when the switch is disabled. This avoids unknown states to the downstream load, ensuring restarts from 0V conditions.

Overtemperature protection circuitry is triggered if junction temperatures exceed 150°C, thereby protecting the device and downstream circuit from potential damage.

The AP22980 is available in the W-QFN1520-10 package.



The DIODES™ Advantage

Three-level, slew-rate controlled power switch simplifies power-rail management in solid state drive systems (SSD).

- Three-Level SS Pin for Simplified and Enhanced Output Slew-Rate Control**
 Optimizes ramp up of Vout for different applications while limiting inrush currents
- NMOS Pass Switch with Charge Pump for Lowest R_{ds(on)} (5.1mΩ)**
 Reduces voltage losses and power dissipation even at 6A
- Separate Bias Pin Extends Operating Voltage of Power Rail Being Controlled, from 5.5V Down to 0.285V**
 One device supports latest core voltages as well as I/O voltages
- Low 50Ω Automatic Output Discharge Resistor**
 Ensures downstream systems start in a known state, and avoids sequencing/start-up issues

Applications

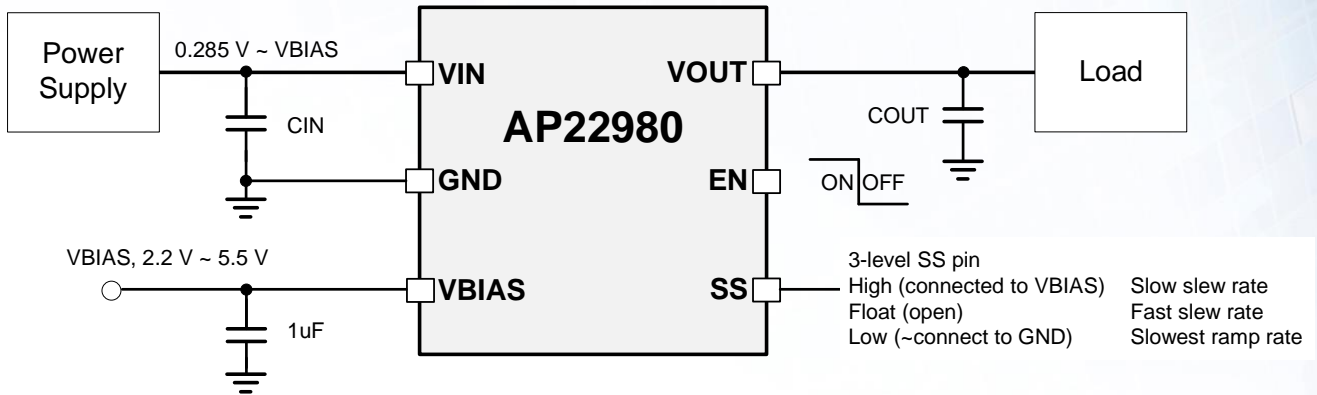
- Solid state drives
- Desktop PCs
- Laptops
- Data storage/centers
- Portable devices

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Typical Application



Low $R_{DS(ON)}$ (<10m Ω) Load Switch Portfolio

| Part Number | VIN Voltage Range | VBIAS Voltage Range | Max Current | Output Discharge | Output Slew Rate Control | Operating Temperature Range | Package |
|-------------------------|-------------------|---------------------|-------------|------------------|--------------------------|-----------------------------|--------------|
| | V | V | | | | Ω | |
| AP22980 | 0.285 ~ VBIAS | 2.2 ~ 5.5 | 6.0 | 50 | 3-Levels | -40 ~ +105 | W-QFN1520-10 |

Ordering Information

| Orderable Part Number | Compliance (Only Automotive supports PPAP) | Package | Moisture Sensitivity | Packing | |
|--------------------------------|--|--------------|----------------------|----------|------------------|
| | | | | Quantity | Carrier |
| AP22980FCF10-7 | Standard | W-QFN1520-10 | MSL-1 | 3,000 | 7" Tape and Reel |