Low-power, Wide Vcc, NOR flash memory with fast read for code and data storage

AT25FF Series

Non-volatile dual / quad memory

Why Wide Vcc?

IoT edge devices need memory solutions that can continue to operate as the battery discharges and the supply voltage drops. Typical memory solutions have a limited operating voltage range. This means they can not operate over the entire range of the battery, which effectively shortens the operating time between charges.

Battery voltage drops as battery discharges



Dialog developed its line of Wide Vcc components to help system designers create more reliable, smaller, and better performing IoT devices. The AT25FF offers Wide Vcc, as well as pin and functional compatibility to 1.8 V and 3.0 V devices.



Code and Data Storage

The AT25FF was designed with the performance and battery life challenges of next generation IoT in mind. It offers low-power operation as well as a high-speed SPI, dual and quad interface. This allows rapid transfer of code or data for fast booting, execute in place, AI, data transfer, or system configuration.

Fast

Typically, using a Wide Vcc memory means you have to compromise on read performance. The AT25FF family supports a high-speed interface, as well as high-speed read operations, making it ideal for code download, execute in place and rapid data transfer.

Low Power

Wide Vcc components are often used in battery operated devices where power consumption is an important consideration. The AT25FF family offers low-power read, erase, and program to help increase battery life.

Ultra-deep Power-down

With its integrated 5 nA ultra-deep power-down mode, AT25FF rivals the capabilities of external power management ICs, but reduces system design complexity and saves BOM.

Universally Compatible

No hardware change required. The AT25FF is pin and functionally compatible with existing SPI, dual, and quad 1.8 V or 3.0 V NOR flash devices.



Technical Specifications

| Voltage Range: 1.65 V – 3.6 V (Wide Vcc) | Density: 4 Mbit to 32 Mbit |
|---|---|
| High-speed operation: up to 133 MHz | Low-power Read, Erase, and Program |
| Erase program suspend resume | Hardware reset option (via HOLD pin) |
| Security amd One Time Programmable (OTP) registers | Software controlled reset and stop commands |
| Serial Peripheral Interface (SPI) Single SPI (1-1-1) Dual output (1-1-2) Quad output (1-1-4) Quad I/O with continuous fast read (1-4-4) XiP operation (1-4-4, 0-4-4) | Power management low-power modes • Standby • Deep power-down • Ultra-deep power-down |
| Programming • Byte / page program (1 to 256 Bytes) • Sequential program mode capability | JEDEC compliant • Standard manufacturer and device ID • Serial Flash Discoverable Parameters (SFPD) version 1.6 • JEDEC hardware reset |

Dialog Family of Wide Vcc Memory Solutions

| Standard | | | | | | | | | |
|------------------------|--------------|----------|--|---|--|--|--|--|--|
| Single Dual Quad | AT25 | DF FF | Low power, universal compatibility for code and data | Fast Read 7nA sleep (FF only) | Battery powered designs | | | | |
| System Enhancing | | | | | | | | | |
| FusionHD™ | AT25 | XE XV | Ultra-low power, standard 8-pin socket | Reduced system power, lower MCU overhead, 7nA sleep | Battery powered designs, data logging systems | | | | |
| DataFlash™ | AT25 AT45 | PE DB | Standard 8-pin socket Proprietary 8-pin socket | Flexible SRAM R/W, flexible page structure, dual SRAM buffers | High-efficiency, robust data logging systems | | | | |

Ordering Information

| 5 | | Fachage | | | | | |
|---------|------------|--------------|------|------------|-------------|------------|-------|
| Density | Product | SOIC Wide | SOIC | DFN 5x6 | USON 3x4 | DFN 2x3 | WLCSP |
| 32Mbit | AT25FF321A | • | • | • | • | | • |
| 16Mbit | AT25FF161A | • | • | | | • | • |
| 8Mbit | AT25FF081A | • | • | | | • | • |
| 4Mbit | AT25FF041A | • | • | | | • | • |

Dacka

Applications

- Access Control / Security
- Smart Assistants
- Smart White Goods
- High-performance Wearables
- Smart Thermostats
- Medical Devices
- Industrial Automation
- Audio Subsytems
- Personal Mobile Radio



