W25Q16 / W25Q32
Memory Board

Overview

The W25Q16 (16M-bit), and W25Q32 (32M-bit) Serial Flash memories provide a storage solution for systems with limited space, pins and power. The 25Q series offers flexibility and performance well beyond ordinary Serial Flash devices. They are ideal for code shadowing to RAM, executing code directly from Dual/Quad SPI (XIP) and storing voice, text and data. The devices operate on a single 2.7V to 3.6V power supply with current consumption as low as 5mA active and 1µA for power-down. All devices are offered in space-saving packages

Key Features

- High-speed SPI interface – supports Standard, Dual, and Quad SPI for faster data transfer.
- Low power consumption – only ~5 mA during active operation and ~1 µA in power-down mode.
- Wide voltage range – operates on a single 2.7V to 3.6V supply, suitable for battery-powered systems.
- Flexible architecture – ideal for code shadowing, execute-in-place (XIP), and data/voice/text storage.
- Compact packaging – available in small, space-saving package options for embedded applications.

Technical Specifications

- High-speed SPI – Standard, Dual, Quad I/O up to 104 MHz.
- Execute-In-Place (XIP) – direct code execution from flash.
- Flexible memory – 256-byte pages, multiple erase sizes (4 KB, 32 KB, 64 KB, full chip).
- Low power – 2.7–3.6 V supply, ~5 mA active, <1 µA standby.
- Fast program/erase – ~1.5 ms page program, ~120 ms sector erase.
- Suspend/Resume – supports interruptible erase/program operations.
- High endurance – 100,000+ erase/program cycles.
- Long retention – >20 years data storage.
- Security features – OTP area, block protection, unique 64-bit ID.
- Compact & compatible – space-saving packages, backward-compatible with 25X family

Applications

- Embedded systems – storing firmware and configuration data.
- Consumer electronics – TVs, set-top boxes, cameras, and gaming consoles.
- IoT devices – code and data storage in low-power connected devices.
- Mobile devices – smartphones, tablets, and wearables for app storage.
- Networking equipment – routers, modems, and switches for firmware.
- Industrial control – PLCs, meters, and monitoring systems.
- Automotive electronics – dashboards, infotainment, and ADAS modules.
- Medical devices – portable diagnostic tools and health monitors.
- Audio products – voice, sound, and music data storage.
- PC peripherals – printers, scanners, SSD controllers, and BIOS storage.