adesto®
TECHNOLOGIES

Code Storage Solutions
for the Connected World

Wide-voltage range, ultra-low energy memory technology enabling next generation solutions for consumer, communication, mobile and industrial applications

As modern electronics evolve, the need for new low density, low energy code storage memory devices has emerged to meet the needs of mobile, wearable, and industrial applications in a connected world.

The Adesto® Fusion AT25XE/XV Series are families of highly optimized ultra-low energy serial interface Flash memory devices designed for use in a wide variety of high-volume low energy consumer and industrial applications.

Targeted to meet the needs of today's connected applications in the Internet of Things, its granular Page Erase and Block Erase architecture allows the memory space to be used much more efficiently supporting data storage and over-the-air updates. The resulting improvement to software efficiency allows reduced CPU / MCU overheads to further reduce system energy usage.

Fusion XE/Fusion XV Serial Flash:
Features and Benefits

- **Wide Vcc operating range extends system battery life without sacrificing performance (Vcc Range: XE 1.65-3.6V or XV 1.65-4.4V)**
- **Ultra deep power down operates at <200nA significantly reducing system standby power**
- **Low energy operation:**
  - 4mA Active Read Current (2/4Mb)
  - 9mA Active Erase Current (2/4Mb)
- **Advanced security functions and embedded serial numbers provide effective anti-tamper and traceability options**
- **Active Polling (2/4Mb)**

For more information on Adesto's ultra-low energy code and data storage solutions, please visit: www.adestotech.com

Fusion XE/Fusion XV Serial Flash

Density	Vcc Range	Speed (MHz)	Ultra-Deep Power Down	Page Erase Capability	Enhanced Security Features
512-Kbit	1.65-3.6V / 1.65-4.4V	104 / 85	✓	✓	✓
1-Mbit	1.65-3.6V / 1.65-4.4V	104 / 85	✓	✓	✓
2-Mbit	1.65-3.6V or 1.65-4.4V	85	✓	✓	✓
4-Mbit	1.65-3.6V or 1.65-4.4V	85	✓	✓	✓

Applications: Program code shadow and storage for wearable, mobile, Bluetooth low energy and other energy conscious designs.

Features

- Single 1.65V-3.6V (XE) or 1.65-4.4V (XV) Supply
- Serial Peripheral Interface (SPI) Compatible
    - Supports SPI Modes 0 and 3
    - Supports Dual Output Read
- 85/104MHz Maximum Operating Frequency
    - Clock-to-Output (tV) of 6 ns
- Flexible, Optimized Erase Architecture for Code and Data Storage Applications
    - Uniform 256-Byte Page Erase
    - Uniform 4-Kbyte Block Erase
    - Uniform 32-Kbyte Block Erase
    - Uniform 64-Kbyte Block Erase
    - Full Chip Erase
- Hardware Controlled Locking of Protected Sectors via WP Pin
- 128-Byte Programmable OTP Security Register
- Flexible Programming
    - Byte/Page Program (1 to 256 Bytes)

- Fast Program and Erase times
    - 2ms Typical Page Program (256 Bytes) Time
    - 45ms Typical 4-Kbyte Block Erase Time
    - 360ms Typical 32-Kbyte Block Erase Time
    - 720ms Typical 64-Kbyte Block Erase Time
- Automatic Checking and Reporting of Erase and Program Failures
- Software Controlled Reset
- JEDEC Standard Manufacturer and Device ID Read
- Low Power Dissipation
    - 200nA Ultra Deep Power Down (Typical)
    - 5µA Deep Power-Down (Typical)
    - 25uA Standby current (Typical)
    - 3.5mA Active Read Current (Typical)
- Endurance: 100,000 Program/Erase Cycles
- Industry Standard Green (Pb/Halide-free/RoHS Compliant) Package Options
    - SOIC, DFN, TSSOP, Die and Wafer Options
    - High Temperature and KGD options

Description

The Adesto® AT25XE/XV series is designed for use in a wide variety of high-volume consumer based applications in which program code is shadowed from Flash memory into embedded or external RAM for execution. The XE/XV families consume ultra-low energy Read and Erase currents enabling highly-energy conscious designs, perfectly suited to the Internet of Things and wearable electronics.

With a wide voltage range of 1.65V to 3.6V or 1.65V to 4.4V the new AT25XE/XV Serial Flash families not only use less power during standard operation but also offer designers the ability to operate over the full Vcc range of the battery -- maximizing on-board energy reserves and eliminating the need for external regulators. The ultra-deep power down mode allows devices to function with a class leading standby current of 200 nanoamps, an order of magnitude improvement over standby modes available today. The devices also include a page erase feature for faster programming and updates.

Adesto Technologies is a leading supplier of value-added semiconductor solutions for code and data storage. Its product portfolio includes DataFlash®, Fusion Serial Flash, Mavriq™ and Moneta™ serial memory products. Adesto is based in Santa Clara, California (USA). For more information, visit http://www.adestotech.com.