AT25EU

Ultra-low Energy Serial NOR Flash with Fast Erase

Lowest energy and best performance

The relentless pursuit of creating smaller, more powerful, battery powered devices challenges circuit designers to achieve longer battery life without sacrificing performance. The AT25EU family offers designers a radically more energy efficient solution for code storage, event logging, and data logging applications.

Benefits

- Fast Read
- Fast Erase
- 256 Byte Page Erase
- Wide Vcc
- 100 nA Deep Power

Batteries store ENERGY

When designing a battery powered system the typical choice is to focus on low-power components. In the case of Flash devices, this can be misleading as operations such as Erase and Program take a long time to complete. Often, low-power Flash devices come at the expense of much longer Erase and Program times as well as slower Read speeds. Ultimately, this means more energy is used to perform a specific task. Since batteries store a finite amount of energy, using more energy results in a shorter battery life. The AT25EU family of serial NOR Flash devices from Dialog focus on achieving the lowest power and the fastest operation in order to achieve the lowest energy.
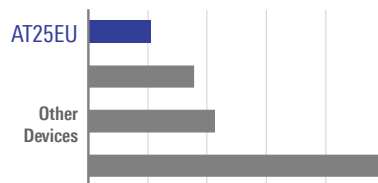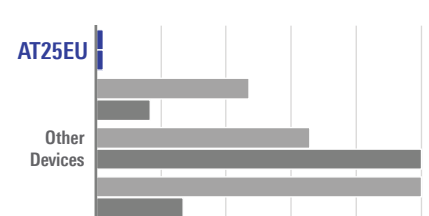
Read Power

Up to 70%
Less Energy

AT25EU
- Energy
- Time

Other Devices
- Energy
- Time
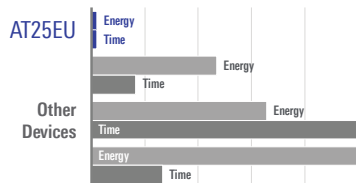
Program (256 Bytes)

Up to 75%
Less Energy

AT25EU

Other Devices

Full Chip Erase

>60x / **>1%**
Faster / Energy

AT25EU

Other Devices

POWER (Watts) = Rate at which **ENERGY** is transferred = Voltage x Current

ENERGY (Joules) = Amount of **POWER** required to complete a task = Voltage x Current **x Time**

AT25EU ULTRA-LOW ENERGY SERIAL NOR FLASH WITH FAST ERASE

Page Erase

Reduced Flash Wear

Reduce Flash wear and improve event and data logging functions that update small amounts of data with the AT25EU 256 Byte Page Erase. This feature can also reduce CPU overhead and system power consumption for update-in-place applications.

100 nA

Deep Power Down

A crucial part of any battery powered system is how much power devices consume during sleep or inactive periods. With its 100 nA Deep Power Down mode the AT25EU eliminates the need for additional power switching in many applications.

Wide Vcc

1.65V to 3.6V Operation

Design easier with the AT25EU. Wide Vcc supports wider range battery configurations and chemistries. It can also eliminate the need for additional voltage regulators.

Technical Specifications

Voltage range: 1.65V to 3.6V

Density: 1 Mbit to 16 Mbit

Operating frequency: 85 MHz

Serial Peripheral Interface:
- (1-1-1) - Single
- (1-1-2) - Dual output
- (1-1-4) - Quad output
- (1-1-4) - Quad I/O with continuous Fast Read

JEDEC Compliant:
- Standard Manufacturer and Device ID
- SFDP v1.8 Serial Flash Discoverable Parameters

Industry standard pin-out and command set

Security and One Time Programmable (OTP) registers

Low power Read: 1.5 mA (typ)

Deep Power Down: 100 nA

Programming:
- Byte / Page (1 to 256 Bytes)
- Sequential program mode capability

256 Byte Page Erase:
- Reduced Flash wear
- Reduced CPU overhead and software complexity
- Reduced time and energy for small update in place operations

Fast Erase times:
- 256 Byte Page: 8 ms (typ)
- 4 Kbyte Erase: 8 ms (typ)
- 32 Kbyte Erase: 8 ms (typ)
- 64 Kbyte Erase: 8 ms (typ)
- Full chip Erase: 8 ms (typ)

Product Details

Density	Product	Vcc	Speed	Interface	SOIC 150 mil	SOIC 208 mil	DFN 2x3	USON 3x4	WLCSP
16Mbit	AT25EU0161A*	1.65V to 3.6V	85 MHz	Single, Dual, Quad	•	•	•	•	•
8Mbit	AT25EU0081A*	1.65V to 3.6V	85 MHz	Single, Dual, Quad	•	•	•		•
4Mbit	AT25EU0041A*	1.65V to 3.6V	85 MHz	Single, Dual, Quad	•	•	•		
2Mbit	AT25EU0021A	1.65V to 3.6V	85 MHz	Single, Dual, Quad	•		•		
1Mbit	AT25EU0011A	1.65V to 3.6V	85 MHz	Single, Dual, Quad	•		•		

*Coming Soon

Visit **renesas.com/at25eu** to request samples, download documentation and learn more.

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