



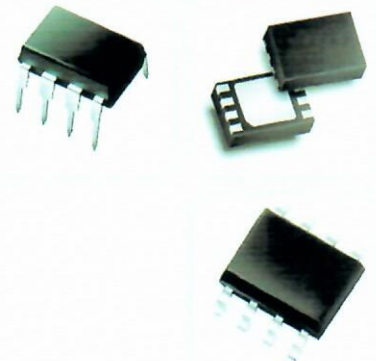
SERIAL NON-VOLATILE MEMORY

As the leading supplier of serial non-volatile memory, Fudan Microelectronics offers high-performance serial EEPROM, SPI NOR Flash, SPI NAND Flash with wide portfolio in terms of densities, interface and packages

FM's serial NVM is one of the best cost-effective solutions for all kinds of designs.

Key features:

- Density
 - EEPROM: 1K bit to 1024K bit
 - NOR Flash: 512K bit to 256M bit
 - NAND Flash: 512 Mbit to 4G bit
- Interface
 - EEPROM: IIC, Microwire, SPI, IIC+NFC
 - NOR/NAND Flash: SPI
- High Reliability
 - EEPROM:
1,000k write cycles per device and 40 years data retention
 - NOR Flash:
100k write cycles per device and 20 years data retention
 - NAND Flash:
100k write cycles per device and 20 years data retention
- Wide Voltage Range
 - EEPROM: 1.7V to 5.5V
 - NOR Flash: 1.65V to 3.6V
 - NAND Flash: 1.7V to 3.6V
- Small Packages
 - SOP8: 1Kbit to 256Mbit
 - TSSOP8: 1Kbit to 4Mbit
 - DFN8: EEPROM: 1Kbit to 512Kbit, NOR Flash: 0.5Mbit to 2Gbit
 - WLCSP: 0.46mm² with wafer level chip scale package for FM24C32A
- Security
 - Additional write-lockable sector and UID for 'D'-series EEPROM, NOR Flash and NNVM™.



Serial EEPROM

Part No.	Density	Serial Interface	Max Frequency	Vcc Range	Packages	Status
FM24C02A	2Kbit	IIC	1MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-5L, MSOP8	N
FM24C02B		IIC	1MHz	1.7V-3.6V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-5L, MSOP8	M
FM24C02C		IIC	400KHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-5L, MSOP8	M
FM24C04D	4Kbit	IIC	1MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-5L, MSOP8	M
FM24C08D	8Kbit	IIC	1MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-5L, MSOP8	M
FM24C16B	16Kbit	IIC	1MHz	1.7V-3.6V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-5L, MSOP8	M
FM24C16D		IIC	1MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-5L, MSOP8	M
FM24C32A	32Kbit	IIC	1MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-5L, MSOP8, CSP	M
FM24C64D	64Kbit	IIC	1MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-5L, MSOP8, CSP	M
FM24C128A	128Kbit	IIC	1MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-5L, MSOP8, CSP	M
FM24C256A	256Kbit	IIC	1MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-5L, MSOP8, CSP	M
FM24C512D	512Kbit	IIC	1MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), CSP	M
FM24C1024A	1024Kbit	IIC	1MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, CSP	M
FM93C46A	1Kbit	Microwire	2MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-6L, MSOP8	M
FM93C56A	2Kbit	Microwire	2MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-6L, MSOP8	M
FM93C66A	4Kbit	Microwire	2MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3), TSOT23-6L, MSOP8	M
FM25640	64KBIT	SPI	20MHZ	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3)	S
FM25128	128Kbit	SPI	20MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3)	S
FM25256	256Kbit	SPI	20MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3)	S
FM25512	512Kbit	SPI	20MHz	1.7V-5.5V	PDIP8, SOP8, TSSOP8, DFN8(2X3)	S

SPI NOR Flash

Part No.	Density	Serial Interface	Max Frequency	Vcc Range	Packages	Status
FM25F005	0.5Mbit	SPI, Dual SPI	100MHz	2.3V-3.6V	SOP8, TSSOP8, DFN8(2X3)	M
FM25F01	1Mbit	SPI, Dual SPI	100MHz	2.3V-3.6V	SOP8, TSSOP8, DFN8(2X3)	M
FM25F02A	2Mbit	SPI, Dual SPI	100MHz	2.3V-3.6V	SOP8, SOP8(208mil), TSSOP8, DFN8(2X3)	M
FM25Q02	2Mbit	SPI, Dual SPI, Quad SPI, QPI	100MHz	2.3V-3.6V	SO, SOB, TS, DN	M
FM25F04A	4Mbit	SPI, Dual SPI	100MHz	2.3V-3.6V	SOP8, SOP8(208mil), TSSOP8, DFN8(2X3)	M
FM25Q04	4Mbit	SPI, Dual SPI, Quad SPI, QPI	100MHz	2.3V-3.6V	SO, SOB, TS, DN	M
FM25L004	4Mbit	SPI, Dual SPI, Quad SPI, QPI	104MHz	1.65V-1.95V	SOP8, SOP8(208mil), TSSOP8, DFN8(2X3)	S
FM25Q08A	8Mbit	SPI, Dual SPI, Quad SPI, QPI	104MHz	2.7V-3.6V	SOP8, SOP8(208mil), TSSOP8, DFN8(5X6)	M
FM25Q16A	16Mbit	SPI, Dual SPI, Quad SPI, QPI	104MHz	2.7V-3.6V	SOP8, SOP8(208mil), DFN8(5X6)	M
FM25Q32	32Mbit	SPI, Dual SPI, Quad SPI, QPI	104MHz	2.7V-3.6V	SOP8, SOP8(208mil), DFN8(5X6)	M
FM25Q64	64Mbit	SPI, Dual SPI, Quad SPI, QPI	104MHz	2.7V-3.6V	SOP8(208mil), DFN8(5X6)	UD
FM25Q128	128Mbit	SPI, Dual SPI, Quad SPI, QPI	104MHz	2.7V-3.6V	SOP8(208mil), DFN8(5X6)	S

SPI NAND Flash

Part No.	Density	Serial Interface	Max Frequency	Vcc Range	Packages	Status
FM25G005	512Mbit	SPI, Dual SPI, Quad SPI, QPI	104MHz	2.7V-3.6V	DFN8(5X6)	UD
FM25G01A	1Gbit	SPI, Dual SPI, Quad SPI, QPI	104MHz	2.7V-3.6V	DFN8(5X6)	M
FM25G02A	2Gbit	SPI, Dual SPI, Quad SPI, QPI	104MHz	2.7V-3.6V	DFN8(5X6)	M
FM25LG01A	1Gbit	SPI, Dual SPI, Quad SPI, QPI	104MHz	1.7V-1.95V	DFN8(5X6)	M
FM25LG02A	2Gbit	SPI, Dual SPI, Quad SPI, QPI	104MHz	1.7V-1.95V	DFN8(5X6)	M

- Status: M= Mass Production, S=Samples, UD=Under Development, N=Not recommended for new designs.
- All packages are Halogen-Free and RoHS compliant.
- Refer to the datasheet for details and specifications.



Better Chips, Better Future

NNVM™



What is NNVM™

Dual Interface NVM with NFC Tag Function

Key features:

NNVM™ Applications

■ Tap to Pair

Simplify Bluetooth pairing
Initialize WiFi Protected Setup
Connect WiFi device to router by smart phone handover

■ Tap to Launch

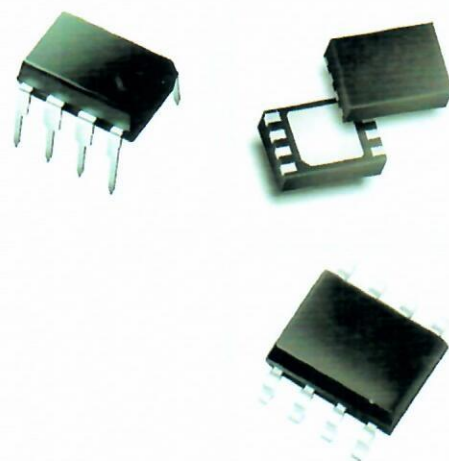
Trigger / switch Bluetooth connection
Launch / install App on smart phone
Launch web site visit

■ Tap to Share

Application data sharing with smart phone
New feature, patch update after sales, OTA
Manufacturing process trace

■ Application

Bluetooth Earph one, Bluetooth Speaker, Smart Router, Smart Portable
Medical Devices, Wearable Devices, Smart Remote Controller, Smart
Home Appliance etc.



NNVM™ Product Features

- Dual Interfaces
 - Standard serial NVM interface
 - ISO/IEC 14443A RF interface
 - CT/RF arbitration
- Memories
 - Data memory (8k to 64Mbits)
 - Tag memory (144, 504, 888 bytes)
 - Security memory
 - System memory
- Field Detection and Energy Harvesting
- Configurable output voltage
- Configurable current limit
- RF WIP/Busy Output
- RF Data Rate up to 848kbps
- Security
 - Write protection
 - Read protection in RF I/F

NNVM™

NNVM™							
Part No.	Density		CT I/F	RF I/F	Vcc Range	Packages	Status
	Data	Tag					
FM24NC08T1/2/3	8kbit	144/504/888bytes	IIC	ISO14443 Type A	1.6V–5.5V	SO, TS, DN	S
FM24NC32T1/2/3	32kbit	144/504/888bytes	IIC	ISO14443 Type A	1.6V–5.5V	SOP8, TSSOP8, DFN8(2X3)	M
FM24NC128T1/2/3	128kbit	144/504/888bytes	IIC	ISO14443 Type A	1.6V–5.5V	SOP8, TSSOP8, DFN8(2X3)	M
FM24NC512T1/2/3	512kbit	144/504/888bytes	IIC	ISO14443 Type A	1.6V–5.5V	SOP8, TSSOP8, DFN8(2X3)	S
FM25NT1/2/3	0Mbit	144/504/888/1904bytes	SPI	ISO14443 Type A	2.3V–3.6V	SO, TS, QND	S
FM25NQ04T1/2/3	4Mbit	144/504/888bytes	SPI	ISO14443 Type A	2.3V–3.6V	QFN	S
FM25NQ08T1/2/3	8Mbit	144/504/888bytes	SPI	ISO14443 Type A	2.3V–3.6V	QFN	S
FM25NLQ04T1/2/3	4Mbit	144/504/888bytes	SPI	ISO14443 Type A	2.3V–1.95V	QFN	S

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SPI NAND FLASH

What is SPI NAND Flash
FM SPI NAND Flash is the innovative SLC NAND
product with SPI interface and small size package

Key features:

SPI NAND Flash Advantages and Applications

■ SPI Interface

Compatible hardware design with SPI NOR flash
Less communication pins than parallel interface
Make the interface design easy and flexible

■ Small Package

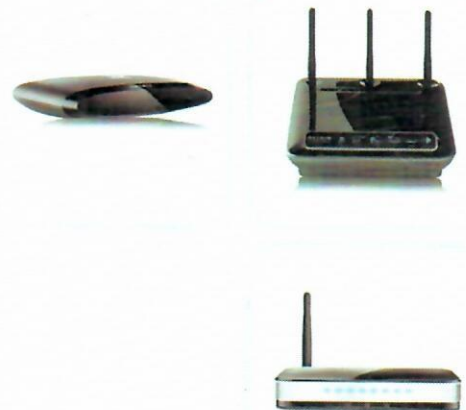
DFN (8x6mm) and BGA (8x6mm) package
Smaller footprint
Lower PCB area and cost
Simplify the hardware design

■ Single-level cell (SLC) technology

Higher reliability than MLC technology
Minimum 100,000 Program/Erase cycles

■ Application:

SET BOX, Smart TV, Smart Watch, PON, Smart Router, xDSL, IP Camera,
Toys, Medical devices, Industrial Control etc.



FM SPI NAND Flash Product Features

- Single-level cell (SLC) technology
- Device size: 1Gb~4Gb
- Serial Interface
 - Standard SPI, Dual SPI, Quad SPI
- High Performance
 - 108MHz for fast read
 - Quad I/O data transfer up to 480Mbits/s
 - 2K-Byte cache for fast random read
- Advanced Security Features
 - Write protect all/portion of memory via software
 - Individual Block array protection
 - Lockable 16K-Byte OTP region
 - 64-Bit Unique ID for each device
- Program/Erase/Read Speed
 - Page Program time: 300us typical (without ECC)
 - Block Erase time: 3ms typical
 - Page Read time: 120us maximum (without ECC)
- Supply Voltage:
 - FM25GXXX: 2.7V~3.6V
 - FM25LGXXX: 1.7V~1.95V
- Advanced Features for NAND
 - Internal ECC option, per 512 bytes
 - Internal data move by page with ECC
 - Promised good block0
- Package
 - TDFN8 (8X6mm), BGA (8X6mm)
- Date Endurance: Minimum 100,000 Program/Erase cycles
- Data Retention: 10 years

SPI NAND Flash							
Part No.	Density	Serial Interface	ECC	Max Frequency	Vcc Range	Packages	Status
FM25G01A	1Gbit	SPI, Dual SPI, Quad SPI, QPI	8bit	108MHz	2.7V~3.6V	DFN8(6*8), BGA(6*8)	M
FM25LG01A	1Gbit	SPI, Dual SPI, Quad SPI, QPI	8bit	88MHz	1.7V~1.95V	DFN8(6*8), BGA(6*8)	M
FM25G02A	2Gbit	SPI, Dual SPI, Quad SPI, QPI	8bit	108MHz	2.7V~3.6V	DFN8(6*8), BGA(6*8)	M
FM25LG02A	2Gbit	SPI, Dual SPI, Quad SPI, QPI	8bit	88MHz	1.7V~1.95V	DFN8(6*8), BGA(6*8)	M
FM25G04A	4Gbit	SPI, Dual SPI, Quad SPI, QPI	8bit	108MHz	2.7V~3.6V	DFN8(6*8), BGA(6*8)	S
FM25LG04A	4Gbit	SPI, Dual SPI, Quad SPI, QPI	8bit	88MHz	1.7V~1.95V	DFN8(6*8), BGA(6*8)	S

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