

winbond

Smart Memory, Smarter Life



Code Storage Flash Memory
Product Selection Guide **2026**



winbond

**BE A HIDDEN CHAMPION IN
PROVIDING SUSTAINABLE
SEMICONDUCTORS TO ENRICH
HUMAN LIFE.**

Winbond Vision Statement



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A trusted supplier of advanced memory products.

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Winbond Code Storage Flash Memory provides high performance, low power consumption, and space-efficient packaging options, making it ideal for 5G, high-performance computing, automotive, IoT, and more.

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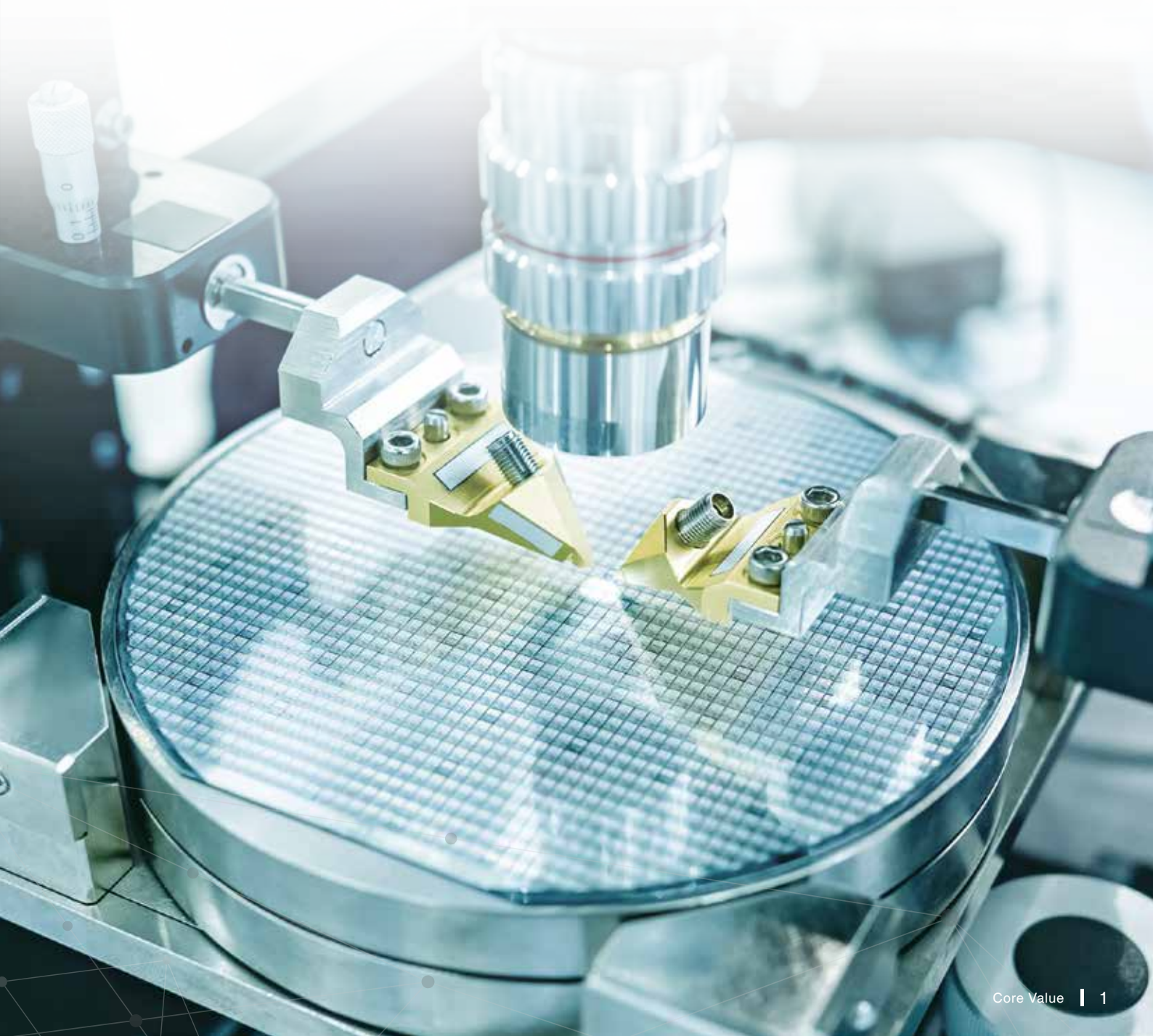
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Core Value

- A Trusted Supplier of Advanced Memory Products
- Winbond's Quality Management System
- Independently Verified Quality and Safety Performance
- Commitment to Longevity Support
- Hidden Champion in Providing Sustainable Semiconductors Products to Enrich Human Life





A Trusted Supplier of Advanced Memory Products

From research and development through advanced manufacturing to dedicated customer service, Winbond Electronics Corporation is a total memory solutions provider.

Winbond's customer-focused memory solutions are supported by extensive expertise in:

- Research and development
- Product design
- Wafer fabrication and device packaging, assembly and testing
- Sales and technical support provided directly to the world's largest OEMs

Winbond's product portfolio consists of Customized Memory Solutions, Code Storage Flash, and TrustME® Secure Flash. The company serves customers in communications, consumer electronics, automotive, industrial, computer peripherals, and the IoT, supplying its products directly or via a global network of authorized distributors.

Winbond's headquarters is located in the Central Taiwan Science Park. It operates wafer fabrication plants in Taichung and the new Kaohsiung 12-inch fab in Taiwan. Subsidiaries in the USA, Japan, Israel, China, Hong Kong, and Germany perform marketing operations and provide direct support to customers.

Winbond's combination of advanced semiconductor technologies developed in-house and close relationships with customers support its position as a trusted supplier of advanced memory products.

Winbond's Quality Management System

In high-technology products, the integrity of the software code and the reliable operation of memory are critical. Therefore, Winbond's Quality Management Program governs every stage of a product's life, from its start in the research and development laboratory to manufacturing and testing.

The program has three key elements:



Quality Control

Meticulously monitors materials and production processes to ensure they satisfy rigorous automotive and industrial standards.



Reliability Assurance

Performs a comprehensive set of accelerated electrical, thermal, cycling, and other tests to verify the reliability of production units.



Failure Analysis

Investigate the causes of product failures and propose corrective actions.

This is why Winbond is relied upon by the world's largest manufacturers to deliver high-quality and highly reliable memory products on schedule.



Independently Verified Quality and Safety Performance

Winbond provides customers with transparent and reliable data to ensure product quality and reliability. Comprehensive reliability test reports and quarterly quality metrics are available on Winbond's website.

Customers can also take assurance from independent verification of the quality and safety of Winbond's products and processes:

Quality

- IATF 16949
- ISO 9001

Safety

- ISO 26262
- ISO 45001
- CNS 45001

Cyber-Security

- ISO/IEC 27001
- ISO 21434

Environment

- ISO 14001
- QC 080000
- ISO 50001
- ISO 14064
- SONY Green Partner
- ISO 46001

Others

- RBA VAP Certificate
- AEC-Q100 Committee Member



IATF 16949

ISO 9001

ISO 26262

ISO 45001

CNS 45001

ISO/IEC 27001

ISO 21434

RBA VAP



ISO 14001

QC 080000

ISO 50001

ISO 14064

SONY Green Partner

ISO 46001

Commitment to Longevity Support

Winbond owns its own 12-inch fabs - factories equipped with advanced technology and automation – located in Taichung and Kaohsiung Science Park. We offer a whole series of code storage NOR and NAND Flash memory as well as Customized Memory Solutions. Our technological autonomy and prudent capacity strategies allow us to establish a highly adaptable production system and create synergy among product lines. This enables us to fully commit to stable delivery and provide long-term product support to our customers.

Winbond Product Longevity Program

Winbond offers the Winbond Product Longevity Program (WPLP) to provide long-term support for customers who require stable lifecycle support for their applications. This program is designed to help customers select the most suitable parts for their applications, ensuring that they have access to products with extended availability and visibility. The WPLP offers a minimum 10-year availability for a variety of devices, along with extended timelines for part number changes or discontinuance. Customers can also benefit from roadmap visibility for up to 7 years, allowing them to plan their product lifecycles effectively. Winbond's commitment to form, fit, and function compatibility ensures that customers can seamlessly transition to lower geometry process nodes or alternate manufacturing facilities if required. With the WPLP, Winbond aims to provide uninterrupted support and reliable product availability, enabling customers to manage their applications with confidence.

Winbond Product Longevity Program

Winbond's longevity support benefits various applications and industries that require stable and available memory products over extended periods. Industries such as industrial automation, automotive, aerospace and defense, medical devices, telecommunications, energy and utilities, and transportation rely on memory ICs with long-term support. These applications have long lifecycles and require reliable memory solutions for uninterrupted operation. Winbond's longevity support ensures consistent performance, availability, and compatibility, enabling these industries to effectively manage their systems and meet their specific requirements.

The WPLP product lists can be found at the link below and will be updated quarterly on the [Winbond website](#).



Hidden Champion in Providing Sustainable Semiconductors Products to Enrich Human Life

Winbond owns its own 12-inch fabs - factories equipped with advanced technology and automation – located in Taichung and Kaohsiung Science Park. We offer a whole series of code storage NOR and NAND Flash memory as well as Customized Memory Solutions. Our technological autonomy and prudent capacity strategies allow us to establish a highly adaptable production system and create synergy among product lines. This enables us to fully commit to stable delivery and provide long-term product support to our customers.

Commitment to Sustainability and High-quality Product Delivery

Winbond has integrated our core innovative technology competencies with sustainable energy conservation and carbon reduction goals. Through green product design, digitalizing information systems, and improving production efficiency, Winbond can develop and optimize our products in various areas, strictly controlling each step of our product process. Winbond promises to deliver the highest-quality products to customers, minimizing the carbon emissions from product delivery.

Winbond's Renewable Energy Products

Winbond's renewable energy product means the direct electricity used in the manufacturing process of this device comes from renewable energy, including Winbond foundry manufacturing and all the stages at OSAT (Outsourced Semiconductor Assembly and Test). To indicate the part manufactured by renewable energy, the 13th code in the part No. is marked as "G". The part numbers are shown on all labels, including FOSB/AI Bag/box (for KGD wafer), AI Bag/Inner box (for Tray/Tube), Reel/AI Bag/Pizza box (for Tape-and-Reel), and Carton. The Renewable Energy icon is added to all labels, packing list, and invoice.

Renewable Energy Device Naming Rule

Take Winbond Serial NOR Flash W25Q12PWBYYIHG for example, the 13th code in the part No. is marked as "G". icon is added to all labels, packing list, and invoice.

1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th	11 th	12 th	13 th
W	2	5	Q	1	2	P	W	B	Y	I	H	G

Take Winbond Serial NOR Flash W25Q12PWBYYIHG for example, the 13th code in the part No. is marked as "G".

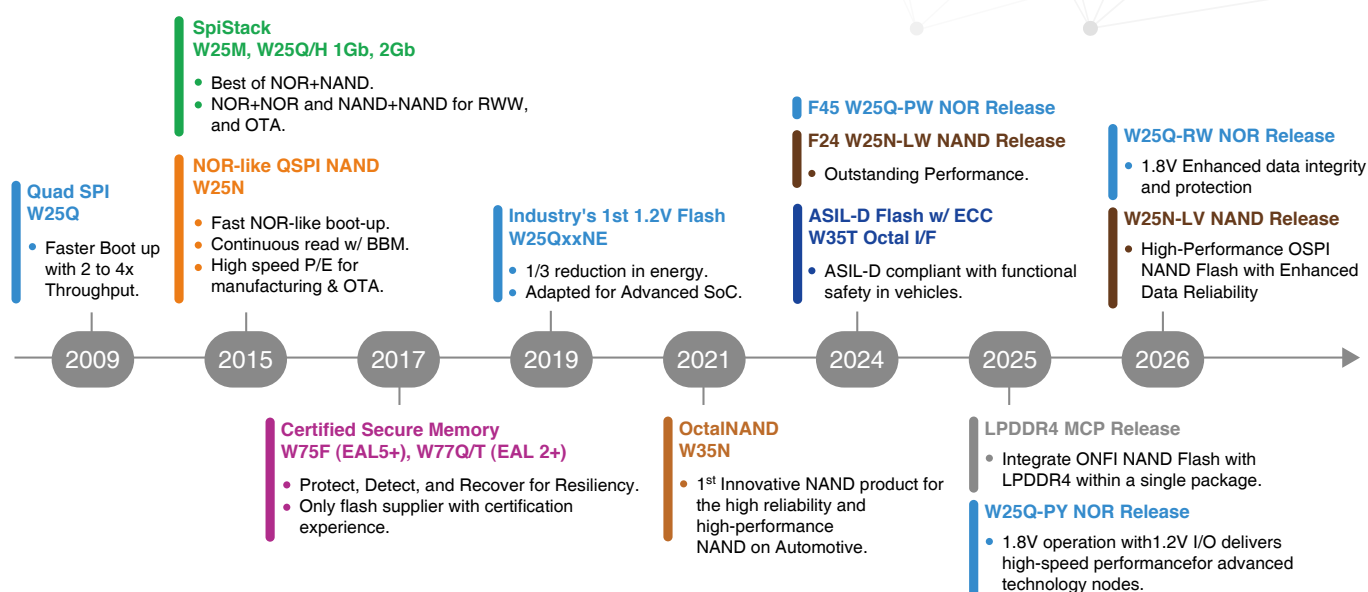
CODE STORAGE FLASH MEMORY

In today's rapidly advancing technology landscape, the demand for efficient, reliable, and compact memory solutions is ever-increasing. Winbond offers a wide range of Flash memories for various applications. Whether it's high-performance computing systems, consumer devices, mobile communications, automotive electronics, and emerging markets such as industrial control, AI server, and IoT, Winbond's Flash memories are designed to deliver the best-suit solutions.

Advanced Flash Memories Play a Pivotal Role across Industries

Winbond's comprehensive Flash memories allow customers to choose the product that best meets their needs and preferences for their applications. Our portfolio of Flash memories, including QSPI NOR, Octal NOR, Octal NAND, QSPI NAND, and ONFI NAND, offers features such as high-speed access, low power consumption, and small form factors which enable designers and engineers to have precise tools they require to optimize their projects.

Winbond's innovations, which focus on high performance, energy efficiency, and flexible design solutions, make it a leader in the flash memory industry.



Quad SPI Flash:

- QSPI NOR Flash with Quad SPI: Provides high eXecute-in-Place (XiP) performance, command, address and data all operate using Quad IO at clock rates up to 133MHz achieving a transfer rate of 66MB/s.
- QSPI NAND Flash: Offers smaller package sizes and provides faster program and erase times, making it a highly competitive and cost-effective choice for reliable memory solutions.

High-speed Octal Flash:

- Octal NOR Flash: Achieves speeds of up to 400 MB/s, making it suitable for quick data retrieval.
- Octal NAND Flash: Delivers continuous read speeds of up to 240 MB/s making it ideal for applications requiring rapid data access and substantial storage.

Low-voltage 1.2V QSPI NOR Flash:

- Winbond was the first manufacturer to introduce a comprehensive range of 1.2V QSPI NOR Flash solutions, the industry's lowest-voltage standard. This low-voltage technology is perfect for enhancing power efficiency for mobile devices, wearables, IoT, and battery-powered applications.
- Features like deep power-down mode and signal indicators further optimize power consumption and battery life.

SpiStack® Technology:

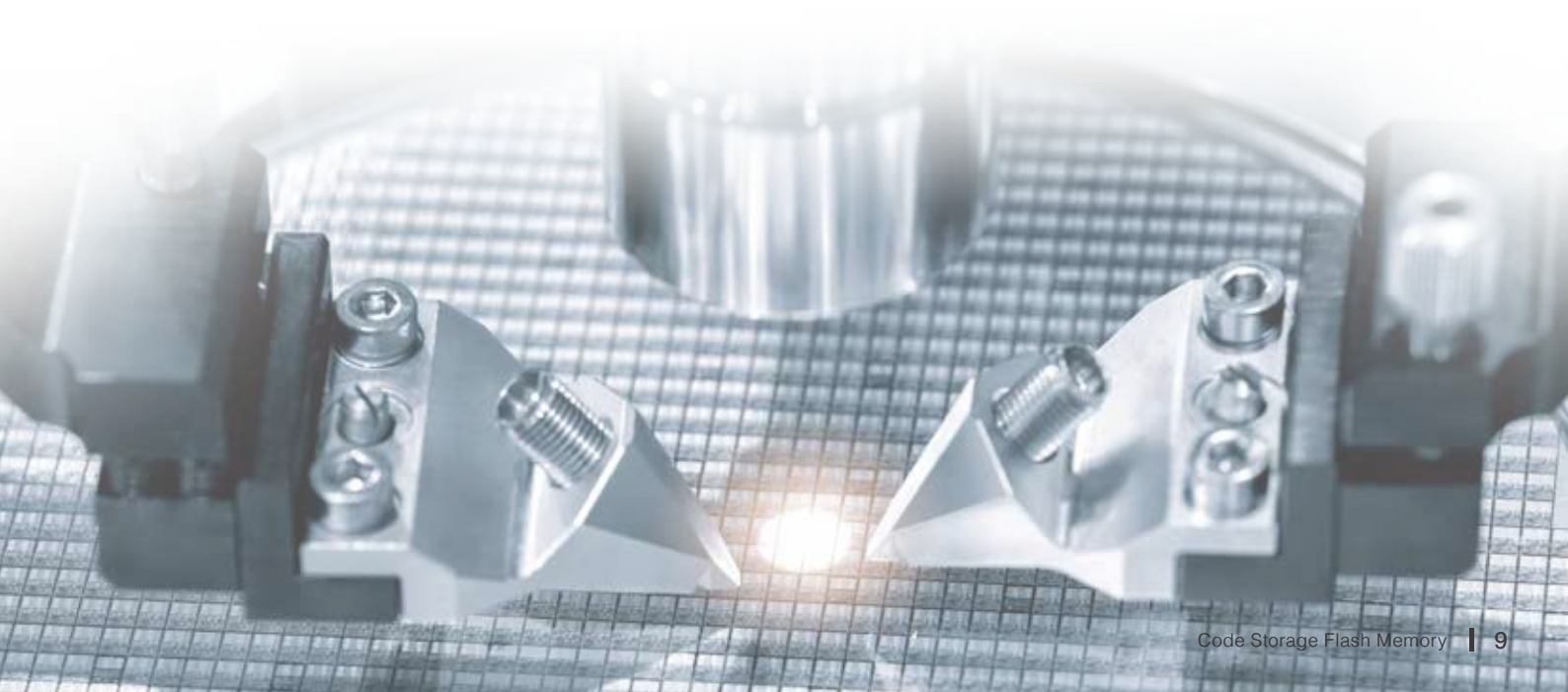
- Winbond's SpiStack® technology enables the integration of both NOR and NAND Flash within a single, compact package. This approach offers flexibility and space savings without compromising performance, accommodating a variety of design needs.

Advanced Packaging and Customization:

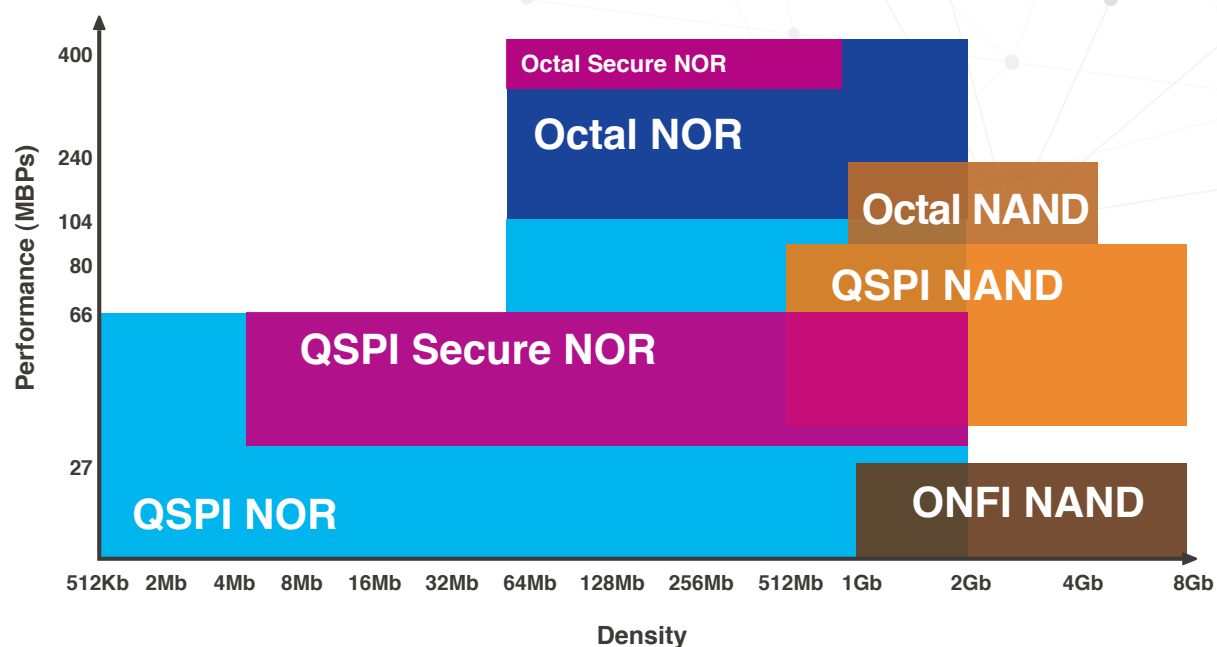
- Winbond provides diverse packaging options, such as WLCSP (Wafer-Level Chip Scale Package), KGD (Known Good Die), and tailored products. These options allow designers to choose the best fit for their specific applications.
- Winbond offers the industry's first 12-pin 5x6mm WQFN package which adds four additional pins while maintaining the same 5x6mm SON package used for standard 8 pin devices. This provides a cost-effective alternative for high-performance applications, including Over-the-Air (OTA) firmware updates.
- Utilizing an advanced 45nm process technology, Winbond offers the industry's first 256Mb density in an ultra-compact 4x4mm XSON package. This breakthrough overcomes that limitation, maximizing storage density for space-constrained applications such as True Wireless Stereo (TWS) and wearables.

Guaranteed Quality and Performance:

- Backed by Winbond's Quality Management Program, our Flash memory portfolio includes products qualified by the AEC-Q100 automotive standard for Grade 1 operation at temperatures up to 125°C. Built-in ECC protects the integrity of data stored.



Broad Portfolio of Code Storage Products



Winbond Flash memories, enabling the storage of code and data in the rapidly evolving markets, serve as the backbone for the technology that powers the world's fastest-growing industries, facilitating seamless connectivity, advanced computing capabilities, automotive innovation, and the expansion of IoT ecosystems.

The table below provides a comprehensive overview of Winbond's extensive Flash memory series, highlighting key specifications and features. This detailed comparison will assist in selecting the most suitable memory solution for various applications, ensuring optimal performance and reliability. Explore the range of offerings available to find the ideal match for your specific needs and technological requirements.

Broad Portfolio of Code Storage Products

Type	Category	Series	Voltage	Features	Applications
Industrial	OSPI NOR Flash	W25Q-RV	3V	• Volatile Individual block protection • FlexProtect with individual block protect and range protect • On-chip Checksum Calculation • Data Strobe signal output pin • BUSY output pin • Factory and Buffer mode	Industrial IoT, Image Processor, and PC Peripheral
		W25Q-RL		• Low power-down current	IoT, Camera, Printer, and Consumer device, Smart city and Smart energy
		W25Q-RW	1.8V	• Non-volatile individual block protection • FlexProtect with individual block protect and range protect • On-chip Checksum Calculation • Data Strobe signal output pin • BUSY output pin • Factory mode and Buffer modes	IoT, Camera, Printer, and Consumer device, Smart city and Smart energy
		W25Q-PW		• BUSY output pin (64Mb and above) • Built in ECC (64Mb and above) • Low power-down current • 4x4 XSON for W25Q25PW*	Wearable, True Wireless Stereo (TWS), Networking, AMOLED, and Gaming controller
		W25Q-PY		• Built-in ECC (64Mb and above) • Low power-down current • WQFN-12 for W25Q25PY	Wearable, True Wireless Stereo (TWS), Networking, AMOLED, and Gaming Controller
		W25Q-JW		• One Time Programmable (OTP) • Deep power-down mode • Operating temperature up to 105°C	True Wireless Stereo (TWS) and Machine-to-Machine (M2M) modules
		W25Q-EW		• One Time Programmable (OTP) • Software and hardware Write-Protect • Low power-down current	Personal computer, Notebook, and Server, AI, Smart city, and Smart home, Wearable
		W25Q-NE	1.2V	• BUSY output pin (512Mb and above) • Built-in ECC (512Mb and above) • Non-volatile individual block protect (512Mb and above) • Read Command Bypass mode • Deep power-down mode	AI Server, Notebook, Desktop Computer, OLED, GPU Accelerator, and Smartphone
	Authentication	W25R	1.2 / 1.8/ 3V	• Support RPMC	PC, Emerging IoT Demanding Multi-layered Authenticity, and Home Automation
	Octal NOR Flash	W35T-NW	1.8V	• BUSY output pin • Individual block protect (256Mb and below) • AEC-Q100 automotive grade • CRC-in-Transit • CRC-in-Rest • Low power-down current	Data Center & Cloud Service, AI Accelerator, AI Server, Field Programmable Gate Array (FPGA), Wearable, Human Machine Interface (HMI), Instant Boot Camera Applications, IoT, Smart Lock, and Robot
	OSPI NAND Flash	W25N-LV	3V	• Bad Block Management Lookup Table (BBM LUT) • Small form factor • Front 1,024 good blocks • Factory Program Mode (FPM) • Advanced Continuous Read • Buffer and Sequential Read mode • Read level setting for Read Retry	GPON, xDSL, IP CAM, Smart Home, Industrial
		W25N-KV		• Up to 105°C operating temperature • Buffer and Sequential Read mode • Deep power-down mode	Gigabit Passive Optical Network (GPON), IP Camera, xDSL, and Surveillance
		W25N-GV		• Bad Block Management Lookup Table (BBM LUT) • Up to 105°C operating temperature • Buffer and Continuous Read mode • Deep power-down mode (512Mb)	Video Event Data Recorder (VEDR), Surveillance, Networking, xDSL, Gigabit Passive Optical Network (GPON), Set Top Box (STB), Smart Home, Wearable, and Home Entertainment Applications

Broad Portfolio of Code Storage Products

Type	Category	Series	Voltage	Features	Applications
Industrial	QSPI NAND Flash	W25N-MW	1.8V	• Bad Block Management Lookup Table (BBM LUT) • Range and individual block protect • Advanced Continuous Read mode • Buffer and Sequential Read mode • First 1,024 good blocks • Auto Read Retry	Automation, Surveillance, IPCAM, Smart doorbell and Smart home.
		W25N-LW		• Bad Block Management Lookup Table (BBM LUT) • Small form factor • Buffer, Continuous and Sequential Read mode • Front 1,024 good blocks	Machine-to-Machine (M2M), Automation, Surveillance, Gigabit Passive Optical Network (GPON), xDSL, and Smart Home
		W25N-JW		• Bad Block Management Lookup Table (BBM LUT) • Up to 105°C operating temperature • Buffer and Continuous Read mode	Fast booting, OTA, Smart Doorbell, and Wearable
		W25N-KW		• Bad Block Management Lookup Table (BBM LUT) (1Gb) • Up to 105°C operating temperature • Buffer and Sequential Read mode • Continuous Read mode (1Gb) • Deep power-down mode	Gigabit Passive Optical Network (GPON), IP camera, xDSL, and Surveillance
		W25N-GW		• Bad Block Management Lookup Table (BBM LUT) • Up to 105°C operating temperature • Buffer and Continuous Read mode	Video Event Data Recorder (VEDR), Car Camera, Car Gateway, Surveillance and Automation, xDSL, GPON and Set top box (STB), Smart Home, Wearable, and Home Entertainment Applications
	Octal NAND Flash	W35N-JW	1.8V	• Built-in ECC • Octal SPI with STR 166MHz & DTR 120MHz • A maximum Continuous read throughput of 240MB/s • Bad Block Management Lookup Table (BBM LUT)	Fast booting and OTA, Smart Doorbell
	ONFI NAND Flash	W29N-KV	3V	• Fully ONFI 1.0 Compliant	Optical Network (GPON), XDSL, Multi-Function Printer, Surveillance, Instrument, Smart Energy, and Smart Home
		W29N-HV		• Fully ONFI 1.0 Compliant	Automation, Point of Sale (POS), Switch, Consumer and Networking Applications, Gigabit Passive Optical Network (GPON), xDSL, Smart Home, Set Top Box (STB) and Surveillance
		W29N-GV		• Fully ONFI 1.0 Compliant	V2X, car camera, infotainment, surveillance, point of sale (POS), switch, gigabit passive optical network (GPON), xDSL, smart home, and set top box (STB)
		W29N-LZ	1.8V	• ONFI 1.0 compliant • Block Lock (Please contact Winbond for availability)	Smart Speaker, MCP (ONFI NAND + LPDDR4x by 4+4/8+8 configurations) targets on M2M, 5G CPE, and FWA
		W29N-KZ		• Fully ONFI 1.0 Compliant	IoT, Point of Sale (POS), Wearable, Gigabit Passive Optical Network (GPON)
		W29N-HZ		• Fully ONFI 1.0 Compliant	Infotainment, Cluster, Video Event Data Recorder (VEDR), Vehicle to Everything (V2X), Automation, Point of Sale (POS), Wearable, Gigabit Passive Optical Network (GPON), xDSL, Smart-Home, Set Top Box (STB) and Surveillance
		W29N-GZ		• Fully ONFI 1.0 Compliant	Point of Sale (POS), Wearable, Gigabit Passive Optical Network (GPON), xDSL, Set Top Box (STB), and Surveillance
	MCP	W71N	1.8V	• ONFI NAND + LPDDR4x • Space-efficient packaging	Machine-to-Machine (M2M), Customer Premise Equipment (CPE), and Fixed Wireless Access (FWA)
	SpiStack® Combo Flash	W25M-AV	3V	• SPI NOR + SPI NAND • Software type chip select • Continuous read mode in QspiNAND • Bad Block Management Lookup Table(BBM LUT) • NAND Page size 2048+64 byte	Smart Home, Musical Instruments, Game, Human Machine Interface (HMI), Server, 5G, WiFi, Surveillance Camera, Switch, FPGA, ADAS, V2X, Gateway, Infotainment, and Cluster
		W25M-AW	1.8V	• Operate with 1.8V range with all W25M-AV series features	Smart Home, Musical instruments, Game, HMI, Server, 5G, WiFi, Surveillance Camera, Switch, FPGA, ADAS, V2X, Gateway, Infotainment, and Cluster
		W71P		• Boot NOR with buffered pSRAM in an 8-pin package	Image Recognition Systems, Drone, Smart Home, AIoT

Broad Portfolio of Code Storage Products

Type	Category	Series	Voltage	Features	Applications
Industrial	TruSiME® Secure Flash	W77Q-JW	1.8V	• CC EAL 2+	Industrial, Networking, Servers
		W77Q-NW		• PQC capability with CC EAL 2+	High performance IoT, Industrial, Infrastructure, Advanced server
		W77T-NW		• Secure Octal NOR with high speed and PQC capability	Advanced IoT
		W75F	3V	• Bolt-on solution with CC EAL 5+	Mobile payment, Electronic wallet, High security infrastructure
		W77Q-JV		• CC EAL 2+	IoT, Networking, Servers
Automotive	NOR	W25H-RV	3V	• 125°C operating temperature • AEC-Q100 • Offer 133MHz STR and 84MHz DTR	Automotive
		W25Q-RV		• Automotive Grade 1 and 2 • One Time Programmable (OTP) • Range protect • High speed with strong data integrity • Small package: XSON8 2x3	Automotive
		W25H-JV		• 125°C operating temperature • AEC-Q100	Domain, Zonal, Cluster, and Automotive
		W25Q-JV		• 125°C operating temperature • AEC-Q100	Domain, Zonal, Cluster, and Automotive
		W25Q-JW	1.8V	• 66MHz DTR and QPI mode for XIP • Operate with 1.8V range with all JV series features	Domain, Zonal, Cluster, and Automotive
		W25Q-EW		• 125°C operating temperature • AEC-Q100 • QPI mode in low density for XIP	Domain, Zonal, Cluster, and Automotive
		W25H-NW		• 125°C operating temperature • AEC-Q100 • 166MHz STR for instant boot	Domain, Zonal, Cluster, and Automotive
		W35T-NW		• BUSY output pin • Individual block protect (256Mb and below) • AEG-Q100 automotive grade • CRC-in-Transit • CRC-in-Rest • Low power-down current	Instrument Cluster, Advanced Driver Assistance Systems (ADAS) & Driver Monitoring Systems (DMS), Gateway & Domain Controller, eCockpit, Infotainment, and Car Camera
	NAND	W29N-HV	3V	• ONFI 1.0 compliant • Automotive grade AG2 and AG2+	Infotainment, Instrument cluster, Video Event Data Recorder (VEDR), and Vehicle-to-Everything (V2X)
		W25N-GV		• Bad Block Management Lookup Table (BBM LUT) • Up to 105°C operating temperature • Buffer and Continuous Read mode • Deep power-down mode (512Mb)	Video Event Data Recorder (VEDR), Car Camera, Car gateway, Surveillance, and Automation
		W29N-GV		• ONFI 1.0 compliant	Infotainment, Instrument cluster, Video Event Data Recorder (VEDR), and Vehicle-to-Everything (V2X)
		W25N-JW	1.8V	• Bad Block Management Lookup Table (BBM LUT) • Up to 105°C operating temperature • Buffer and Continuous Read mode • Automotive grade 2 and 2+	Advanced Driver Assistance Systems (ADAS), Instrument Cluster Applications, Center Information Display (CID), Vehicle-to-Everything (V2X), and Fast booting
		W29N-LZ		• ONFI 1.0 compliant • Automotive grade AG2 and AG2+	Automotive
		W29N-HZ		• ONFI 1.0 compliant	Infotainment, Instrument cluster, Video Event Data Recorder (VEDR), and Vehicle-to-Everything (V2X)
		W29N-GZ		• ONFI 1.0 compliant	Infotainment, Instrument cluster, Video Event Data Recorder (VEDR), and Vehicle-to-Everything (V2X)
		W35N-JW		• Built-in ECC • Bad Block Management Lookup Table (BBM LUT) • Buffer and Continuous Read mode • Operating temperature up to 115°C • Automotive grade 2 and 2+	Instrument Cluster Applications, Fast Firmware Update Over the Air (OTA), and Advanced Driver Assistance Systems (ADAS)
	TruSiME® Secure Flash	W77Q-JW	1.8V	• CC EAL 2+	Automotive
		W77T-NW		• Octal NOR with high speed and PQC capability	Automotive
		W75F		• CC EAL 5+	Automotive
		W77Q-JV	3V	• CC EAL 2+	Automotive

5G and Wi-Fi

Advanced wireless communication technologies, such as 5G and Wi-Fi 7 applications, require both high-quality and high-density Flash memories. Winbond provides high-reliability Serial NOR Flash in densities up to 2Gb, supporting Execute-in-Place (XiP) mode to boot directly to a SoC or FPGA. QspiNAND Flash memories offer a cost-effective alternative to SPI NOR Flash in densities ranging from 512 Mb to 8Gb. A maximum Continuous Read speed of 83MB/s supports the high bandwidth/low latency requirements of 5G networking and Wi-Fi 7 applications.

Type	Series	Key Features	Special Highlights	Density
NOR	W25Q-RV	• 105°C • OTP • Quad SPI • 133MHz • QPI • DTR	• 3V • Built-in ECC (64Mb-2Gb) • RL series available (2.3V, 1Mb-32Mb)	2Mb-2Gb
	W25Q-RW	• Quad SPI • STR 166MHz • DTR 104MHz	• 1.8V • Buffer Mode • Factory Mode • FlexProtect with individual block protect and range protect	32Mb-2Gb
	W25Q-JW	• OTP • Quad SPI • 133MHz • QPI • DTR	• 1.8V	16Mb-256Mb
NAND	W25N-LW	• OTP page • 104MHz Dual/Quad SPI • 85°C /105°C • Bad Block Management Lookup Table (BBM LUT)	• 1.8V • Built-in 8-bit ECC • Continuous/Sequential Read (50MB/s)	2Gb-8Gb
	W25N-KW	• OTP page • 104MHz Quad SPI • 85°C /105°C • 100K P/E Cycle	• 1.8V • Built-in 8bit ECC(2Gb, 4Gb) • Built-in 4bit ECC (1Gb) • Continuous Read (1Gb, 50MB/s) • Sequential Read (50MB/s) • Small packing form (1Gb)	1Gb-4Gb
	W25N-KV	• OTP page • 104MHz Quad SPI • 85°C /105°C • 100K P/E Cycle	• 3V • Built-in 8bit ECC(2Gb, 4Gb) • Built-in 4bit ECC (1Gb) • Sequential Read (50MB/s) • Small packing form (1Gb)	1Gb-4Gb
	W25N-GV	• OTP page • 104MHz Quad SPI • 85°C /105°C • 100K P/E Cycle	• 3V • Built-in 1bit ECC • Continuous Read (50MB/s) • Concurrent operation (W25M02GV) • Bad Block Management Lookup Table (BBM LUT)	512Mb, 2Gb
MCP	W71N	• Mainstream package type • 85°C • ECC required for ONFI	• Save PCB area. • Data bus ONFI x8, LPDDR2 x32 • Data bus ONFI x8, LPDDR4x x16	ONFI+LPDDR2 1Gb+512Mb 1Gb+1Gb ONFI+LPDDR4x 4Gb+4Gb 8Gb+8Gb
TrusIME® Secure Flash	W77Q-NW W77Q-JV	• STR/DTR 166MHz • Secure Storage • Platform Firmware Resiliency • PQC • SESIP L2 • RED EN18031 compliance	• EU RED and CRA conformance package • PQC for Software update signatures • PQC for Supply chain protection	64Mb-1Gb

High-performance Computing

In high-performance computing (HPC) applications, the System on Chip (SoC) has been upgraded to a more advanced technology node, and the upgrade requires high-quality and high-reliability Flash to facilitate fast data access in a high-temperature environment. Winbond's QSPI NOR Flash and NAND Flash memories are well-suited for HPC applications that require large datasets and also have space constraints.

Type	Series	Key Features	Special Highlights	Density
NOR	W25Q-RV	• 105°C • OTP • Quad SPI • 133MHz • QPI • DTR	• 3V • Built-in ECC (64Mb-2GB) • RL series available (2.3V, 1Mb-32Mb)	2Mb-2Gb
	W25Q-PW	• Quad SPI • 166MHz • QPI • DTR	• USY output pin (64Mb and above) • Built in ECC (64Mb and above) • Low power-down current • 4x4 XSON for W25Q25PW	8Mb - 256Mb
	W25Q-NE	• 1.2V • Quad SPI • 133MHz • QPI • DTR	• eXecute-in-place (XiP) • BUSY output pin (512Mb and above) • Built-in ECC (512Mb and above) • Non-volatile individual block protect (512Mb and above) • Read Command Bypass mode • Deep power-down mode	8Mb-2Gb
	W25R-NW	• 105°C • OTP • 133MHz • RPMC	• Security • Different resistance	512Mb-1Gb
	W25R-JW		• Security • Different resistance	64Mb-256Mb
	W25R-JV		• Security • Different resistance	64Mb-1Gb
	W35T-NW	• Octal SPI • DTR • 200MHz	• Security • Different resistance • Built-in ECC • 1.2V I/O/BUSY(64Mb-256Mb)	64Mb-2Gb
NAND	W25N-MW	• 104MHz Dual/Quad SPI • DTR • Bad Block Management Lookup Table (BBM LUT)	• Range and individual block protect • Advanced Continuous Read mode • Buffer and Sequential Read mode • First 1,024 good blocks • Auto Read Retry	2Gb-8Gb
	W25N-LW	• OTP page • 104MHz Dual/Quad SPI • Built-in 8-bit ECC • 85°C /105°C • Bad Block Management Lookup Table (BBM LUT)	• 1.8V • Continuous/Sequential Read (52MB/s)	2Gb-8Gb
	W25N-JW	• OTP page • 166MHz STR • Built-in 1bit ECC • 85°C /105°C /115°C • 100K P/E Cycle • Continuous Read • Bad Block Management Lookup Table (BBM LUT)	• 1.8V • 80MHz DTR (80MB/s) • Quad SPI • Package type TFBGA24 and WSON8	1Gb
	W35N-JW		• 1.8V • 120MHz DDR (240MB/s) • Octal 8 data I/O • Package type TFBGA24	1Gb-4Gb
TrustME® Secure Flash	W77Q-NW	• Fast boot, DTR 166/200MHz • Secure Storage • Platform Firmware Resiliency • PQC • SESIP L2 • RED EN18031 compliance	• High performance • PFR (NIST 800-193) • PQC Supply chain protection • PQC for Software update signatures	64Mb-2Gb

Automotive

Winbond offers outstanding Flash memories specifically designed for the automotive industry. The automotive-grade QSPI NOR and QSPI NAND Flash with built-in ECC deliver ultra-high reliability. Octal NOR and Octal NAND Flash offer high read speeds that deliver fast boot time in applications such as driver assistance, instrument cluster, and infotainment systems. Octal NOR Flash provides XiP capabilities and Octal NAND Flash offers fast write capability to support reliable over-the-air software updating.

Type	Series	Key Features	Special Highlights	Density
NOR	W25Q-RV	• 105°C • OTP • Quad SPI • 133MHz • QPI • DTR	• 3V • Support /Busy • AG1/AG2	2Mb-32Mb
	W25H-RV	• 125°C • Quad SPI • 166MHz • QPI • DTR	• 3V • AG1/AG2	32Mb – 2Gb
	W25Q-EW	• Quad SPI • 104MHz	• 1.8V • AG1/AG2	2Mb-8Mb
	W25Q-JW	• OTP • Quad SPI • 133MHz • QPI • DTR	• 1.8V • AG1/AG2	16Mb-256Mb
	W35T-NW	• Octal SPI • DTR • 200MHz	• 1.8V • Built-in ECC • /BUSY (64Mb - 256Mb) • AG1/AG2	64Mb-2Gb
NAND	W25N-GV	• OTP page • 104MHz Quad SPI • 105°C /115°C • AG2 10K P/E Cycle	• 3V • Built-in 1bit ECC • Continuous Read (52MB/s) • Bad Block Management Lookup Table (BBM LUT) Concurrent operation (W25M02GV)	512Mb-2Gb
	W29N-GV	• 105°C /115°C • AG2 10K P/E cycles	• 3V • 4bit ECC required • Copy back • Random cache read	2Gb-8Gb
	W29N-HV	• 105°C /115°C • AG2 10K P/E cycles	• 3V • 4bit ECC required • Copy back • Small packing form VFBGA48	1Gb
	W25N-JW	• OTP page • 166MHz STR • Built-in 1bit ECC • 105°C /115°C • AG2 10K P/E Cycle • Continuous Read • Bad Block Management Lookup Table (BBM LUT)	• 1.8V • 80MHz DTR (80MB/s) • Quad SPI • Package type • TFBGA24 and WSON8	1Gb
	W35N-JW	• Continuous Read • Bad Block Management Lookup Table (BBM LUT)	• 1.8V • 120MHz DDR (240MB/s) • Octal 8 data I/O • Package type TFBGA24	1Gb-4Gb
TrustME® Secure Flash	W77Q-JW	• STR 133MHz, DTR 66MHz • 105°C • AG2	• CC EAL 2+ • ASIL-C ready	16Mb-128Mb
	W77T-NW	• STR 200MHz, DTR 200MHz • AG2	• CC EAL 2+ • ASIL-D ready • Octal NOR with high speed and PQC capability	64Mb – 1Gb
	W75F	• STR 50MHz • AG2	• CC EAL 2+ • ASIL-D ready	4Mb-32Mb
	W77Q-JV	• STR 133MHz, DTR 66MHz • AG2	• CC EAL 2+ • ASIL-C ready	64Mb-128Mb

AIoT and Industrial IoT End Points

Winbond provides low-power QSPI NOR Flash with rich new functions such as 1.2V I/O and a BUSY output. This uses Winbond's latest 45 nm process to achieve a small form factor, which is a benefit to space-constrained and battery-based IoT applications. Winbond's NAND Flash memories can operate at -40°C to 105°C and provide built-in ECC and bad block management lookup table, making it suitable for deployment in industrial-grade IoT applications.

Type	Series	Key Features	Special Highlights	Density
NOR	W25Q-RW	- Quad SPI - STR 166MHz - DTR 104MHz	1.8V - Buffer Mode - Factory Mode - FlexProtect with individual block protect and range protect	32Mb-2Gb
	W25Q-JW	- OTP - Quad SPI 133MHz - QPI - DTR	1.8V	16Mb-256Mb
	W35T-NW	- Octal SPI - DTR 200MHz	- Built-in ECC 1.2V I/O/BUSY (64Mb-256Mb)	64Mb-2Gb
NAND	W25N-KV	- OTP page 104MHz Quad SPI 100K P/E Cycle	3V - Built-in 8bit ECC (2Gb, 4Gb) - Built-in 4bit ECC (1Gb) - Sequential Read (50MB/s) - Small packing form (1Gb)	1Gb-4Gb
	W25N-GV	- OTP 104MHz Quad SPI 85°C /105°C 100K P/E Cycle	3V - Built-in 1bit ECC - Continuous Read (50MB/s) - Bad Block Management Lookup Table (BBM LUT) Concurrent operation (W25M02GV)	512Mb-2Gb
	W25N-LW	- OTP page 104MHz Dual/Quad SPI 85°C /105°C	1.8V - Built-in 8bit ECC - Bad Block Management Lookup Table (BBM LUT) Continuous/Sequential Read	2Gb-8Gb
	W25N-KW	- OTP page 104MHz Quad SPI 100K P/E Cycle	1.8V - Built-in 8bit ECC (2Gb, 4Gb) - Built-in 4bit ECC (1Gb) - Continuous Read (1Gb, (50MB/s)) - Sequential Read (50MB/s) - Small packing form (1Gb)	1Gb-4Gb
	W25N-GW	- OTP page 104MHz Quad SPI 85°C /105°C 100K P/E Cycle	1.8V - Built-in 1bit ECC - Continuous Read (52MB/s) - Bad Block Management Lookup Table (BBM LUT) Concurrent operation (W25M02GV)	512Mb-1Gb
	W35N-JW	- OTP page 166MHz STR - Built-in 1bit ECC 105°C /115°C - Continuous Read - Bad Block Management Lookup Table (BBM LUT)	1.8V 120MHz DDR (240MB/s) - Octal 8 data I/O - Package type TFBGA24	1Gb-4Gb
	W77Q-NW W77Q-JV	- STR/DTR 166MHz - Secure Storage - Platform Firmware Resiliency - PQC - SESIP L2 - RED EN18031 compliance	- EU RED and CRA conformance package - PQC for Software update signatures - PQC for Supply chain protection	32Mb-1Gb
TrustiME [®] Secure Flash				

Consumer Electronics

Consumer applications demand responsive performance, compact design, and cost efficiency. QSPI NOR, Octal NOR, and QSPI NAND solutions enable fast boot, high-throughput data access, and scalable storage, making them ideal for smart home devices, wearables, and personal electronics.

Type	Series	Key Features	Special Highlights	Density
NOR	W25Q-PW	- Quad SPI 166MHz - QPI - DTR	- BUSY output pin (64Mb and above) - Built in ECC (64Mb and above) - Low power-down current 4x4 XSON for W25Q25PW	8Mb - 256Mb
	W25Q-RV	105°C - OTP - Quad SPI 133MHz - QPI - DTR	3V - Built-in ECC (64Mb-2GB)	2Mb-2Gb
	W25Q-RL	105°C - OTP - Quad SPI 133MHz - QPI - DTR	2.3 V - Low power-down current	1Mb – 32Mb
	W35T-NW	- Octal SPI - DTR 200MHz	- Built-in ECC 1.2V I/O/BUSY (64Mb-256Mb)	64Mb-2Gb
NAND	W25N-LW	- OTP page 104MHz Dual/Quad SPI 85°C /105°C - Bad Block Management Lookup Table (BBM LUT)	1.8V - Built-in 8-bit ECC - Continuous/Sequential Read (50MB/s)	2Gb-8Gb
	W25N-LV	133MHz - DTR - Bad Block Management Lookup Table (BBM LUT)	- Small form factor - Front 1,024 good blocks - Factory Program Mode (FPM) - Advanced Continuous Read - Buffer and Sequential Read mode - Read level setting for Read Retry	2Gb-4Gb
	W25N-MW	104MHz Dual/Quad SPI - DTR - Bad Block Management Lookup Table (BBM LUT)	- Range and individual block protect - Advanced Continuous Read mode - Buffer and Sequential Read mode - First 1,024 good blocks - Auto Read Retry	2Gb-8Gb

Code Storage Flash Memory Product Brief

Product		QSPI NOR	Octal NOR	QSPI NAND	Octal NAND	ONFI NAND	Authentication	TrustME® Secure Flash
Density	1Mb	√						
	2Mb	√						
	4Mb	√						√
	8Mb	√						
	16Mb	√						√
	32Mb	√						√
	64Mb	√	√				√	√
	128Mb	√	√				√	√
	256Mb	√	√				√	√
	512Mb	√	√	√			√	√
	1Gb	√	√	√	√	√	√	√
	2Gb	√	√	√	√	√		√
	4Gb			√	√	√		
	8Gb			√		√		
Voltage	1.2V	√					√	
	1.8V	√	√	√	√	√	√	√
	3V	√		√		√	√	√
Data Width	X1	√	√	√	√		√	√
	X2	√		√			√	√
	X4	√		√			√	√
	X8		√		√	√		√
	X16					√		

QSPI NOR Flash

High-Performance and Low-Power Serial Memory Solutions

The W25Q QSPI NOR offer robust non-volatile memory solutions designed to meet the rigorous demands of modern embedded systems. Supporting Single, Dual, and Quad I/O modes, the architecture delivers high bandwidth performance in small form factors. This combination of efficiency and compact design makes the family ideal for code shadowing and direct code execution in space-constrained applications ranging from mobile devices to industrial automation.



[QSPI NOR Latest Updates](#)

Wide range of voltages support

To accommodate diverse power profiles and advanced system designs, the product line offers a comprehensive spectrum of voltage options tailored to specific application needs.

- **3V and 1.8V:** standard designs
- **1.2V:** Best for advanced-node SoCs (AI/edge compute, high-end networking, wearables)
- **1.8V with 1.2V I/O Support:** Direct 1.2V I/O interface without level shifters, while keeping 1.8V VCC for faster program/erase than pure 1.2V devices

Packaging choices

- Standard SOP, compact WSON/USON
- Ultra-thin: WLCSP and KGD for SiP integration
- Winbond's innovations: WQFN-12 ideal for OTA updates and 4x4 XSON for True Wireless and wearables.

Reliability & performance

- **OTA-friendly protection:** FlexProtect, password-based block protection, plus Blank Check by Read and Advanced Chip Erase for manufacturing efficiency and secure erase.
- **System reliability and data protection:** Integrated RESET control, BUSY status indication, and Write Protection features help safeguard critical code and ensure stable operation in demanding applications.
- **Optimized performance for fast boot and efficient updates:** High speed data access with Data Strobe support and Buffer operation improves system responsiveness and reduces firmware update time.

The W25Q QSPI NOR delivers a comprehensive memory solution that balances high-performance data transfer with superior power efficiency. From the versatile voltage options and ultra-compact packaging, our portfolio is engineered to meet the diverse needs of modern electronics. Whether for IoT endpoints or industrial automation, Winbond provides the reliability, scalability, and long-term support required to drive innovation forward.

Voltage	Series	Density	Highlights	Applications
1.2V	W25Q-NE	8Mb ~ 2Gb	Low power	AI accelerator, AI server, GPU accelerator
1.8V	W25Q-RW	32Mb ~ 2Gb	High speed with strong data integrity	IoT, Camera and Printer, PC, Notebook, and Server
	W25Q-PW	8Mb ~ 256Mb	Small form factor with high performance	AMOLED, TWS, Wearable
	W25Q-PY	8Mb ~ 512Mb	1.2V I/O support	AI accelerator, Advanced application processor
	W25Q-JW	16Mb ~ 256Mb	Longevity support	PC, Notebook, Server, Consumer
	W25Q-EW	1Mb ~ 8Mb	QPI mode in low density for XiP	PC, Notebook, Wearable
2.5V	W25Q-RL	1Mb ~ 32Mb	Low power-down current	IoT, Camera, Printer, and Consumer device, Smart city and Smart energy
3V	W25Q-RV	4Mb ~ 2Gb	High speed with strong data integrity	IoT, Camera, Smart city

W25Q-NE Series

Characteristics

- Voltage: 1.2V
- Density: 8Mb ~ 2Gb
- Interface: SPI, Quad
- Speed: STR 133MHz, DTR 104MHz
- Features:
 - o BUSY output pin (512Mb and above)
 - o Built-in ECC (512Mb and above)
 - o Non-volatile individual block protect (512Mb and above)
 - o Read command bypass mode
 - o Deep power-down mode

Target Applications

- AI server and AI accelerator, Personal computer, and Notebook, OLED, GPU accelerator, Smartphone



[W25Q-NE Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 150mil	SOP8 208mil	SOP16 300mil	WSON8 6x5mm	WSON8 8x6mm	USON8 2x3mm	USON8 4x3mm	XSON8 2x3mm	XSON8 4x4mm	TFBGA24 (5x5)	WL CSP	Status
W25Q02NE	2Gb	1.14 - 1.26	104	-40 ~ 85	SPI / Quad / DTR			o		o					o		UD
W25Q01NE	1Gb	1.14 - 1.26	104	-40 ~ 85	SPI / Quad / DTR			o		o					o		UD
W25Q51NE	512Mb	1.14 - 1.26	104	-40 ~ 85	SPI / Quad / DTR			o		o					o		UD
W25Q25NE	256Mb	1.14 - 1.26	104	-40 ~ 85	SPI / Quad / DTR			o	o	o						o	P
W25Q12NE	128Mb	1.14 - 1.26	104	-40 ~ 85	SPI / Quad		o		o					o		o	P
W25Q65NE	64Mb	1.14 - 1.26	133	-40 ~ 85	SPI / Quad / DTR		o							o		o	P
W25Q32NE	32Mb	1.14 - 1.26	133	-40 ~ 85	SPI / Quad / DTR	o	o					o				o	P
W25Q16NE	16Mb	1.14 - 1.26	133	-40 ~ 85	SPI / Quad / DTR	o	o				o		o			o	P
W25Q81NE	8Mb	1.14 - 1.26	133	-40 ~ 85	SPI / Quad / DTR	o							o			o	P

W25Q-RW Series

Characteristics

- Voltage: 1.8V
- Density: 32Mb ~ 2Gb
- Interface: SPI, Quad
- Speed: STR 166MHz, DTR104 MHz
- Features:
 - o Non-volatile individual block protection
 - o FlexProtect with individual block protect and range protect
 - o On-chip checksum calculation
 - o Data strobe signal output pin
 - o BUSY output pin
 - o Factory mode and buffer modes

Target Applications

- IoT, Camera and Printer, Smart city and Smart energy, Personal Computer, Notebook, and Server



[W25Q-RW Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 150mil	SOP8 208mil	SOP16 300mil	WSON8 6x5mm	WSON8 8x6mm	VSON8 8x6mm	USON8 4x3mm	XSON8 4x4mm	TFBGA24 (5x5)	Status
W25Q02RW	2Gb	1.65 - 2.00	166	-40 ~ 105	SPI / Dual / Quad / DTR			o			o			o	UD
W25Q01RW	1Gb	1.65 - 2.00	166	-40 ~ 105	SPI / Dual / Quad / DTR			o		o				o	S
W25Q51RW	512Mb	1.65 - 2.00	166	-40 ~ 105	SPI / Dual / Quad / DTR			o		o				o	S
W25Q25RW	256Mb	1.65 - 2.00	166	-40 ~ 105	SPI / Dual / Quad / DTR			o	o	o				o	UD
W25Q12RW	128Mb	1.65 - 2.00	166	-40 ~ 105	SPI / Dual / Quad / DTR		o	o	o					o	UD
W25Q64RW	64Mb	1.65 - 2.00	166	-40 ~ 105	SPI / Dual / Quad / DTR	o	o		o				o		UD
W25Q32RW	32Mb	1.65 - 2.00	166	-40 ~ 105	SPI / Dual / Quad / DTR	o	o		o			o	o		UD

W25Q-RW series is the advanced version of the W25Q-NW series, offering enhanced features and improved performance. For availability of the W25Q-NW series (W25Q51NW, W25Q01NW, W25Q02NW), please contact Winbond.

W25Q-PW Series

Characteristics

- Voltage: 1.8V
- Density: 8Mb ~ 256Mb
- Interface: SPI, Quad
- Speed: STR 166MHz, DTR 104MHz
- Features:
 - BUSY output pin (64Mb and above)
 - Built in ECC (64Mb and above)
 - Low power-down current
 - 4x4 XSON for W25Q25PW



[W25Q-RW Latest Updates](#)

Target Applications

- AMOLED, Gaming controller, True wireless stereo and Wearable

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 150mil	SOP8 208mil	SOP16 300mil	WSON8 6x5mm	WSON8 8x6mm	USON8 4x3mm	XSON8 2x3mm	XSON8 4x4mm	TFBGA24 (5x5)	WLCSP	Status
W25Q25PW	256Mb	1.65 - 1.95	104	-40 ~ 85	SPI / Dual / Quad / DTR		o	o	o	o			o	o	o	P
W25Q12PW	128Mb	1.65 - 1.95	104	-40 ~ 85	SPI / Dual / Quad / DTR		o	o		o	o		o	o	o	P
W25Q64PW	64Mb	1.65 - 1.95	104	-40 ~ 85	SPI / Dual / Quad / DTR	o	o		o		o	o	o	o	o	P
W25Q33PW	32Mb	1.65 - 1.95	104	-40 ~ 85	SPI / Dual / Quad / DTR	o					o	o				P
W25Q16PW	16Mb	1.65 - 1.95	104	-40 ~ 85	SPI / Dual / Quad / DTR	o	o				o	o				P
W25Q80PW	8Mb	1.65 - 1.95	104	-40 ~ 85	SPI / Dual / Quad / DTR	o	o				o	o				P

W25Q-PY Series

Characteristics

- Voltage: 1.8V with 1.2V I/O
- Density: 8Mb ~ 512Mb
- Interface: SPI, Quad
- Speed: STR 133 MHz, DTR 84 MHz
- Features:
 - Built-in ECC (64Mb and above)
 - Low power-down current
 - WQFN-12 for W25Q25PY



[W25Q-PY Latest Updates](#)

Target Applications

- AI accelerator, Advanced application processor, Wearable

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP16 300mil	TFBGA24 (5x5)	WQFN-12 5x6mm	WLCSP	Status
W25Q52PY	512Mb	1.65 - 1.95	133	-40 ~ 85	SPI / Dual / Quad / DTR	o	o			P
W25Q25PY	256Mb	1.65 - 1.95	133	-40 ~ 85	SPI / Dual / Quad / DTR		o	o		UD
W25Q13PY	128Mb	1.65 - 1.95	133	-40 ~ 85	SPI / Dual / Quad / DTR					P
W25Q64PY	64Mb	1.65 - 1.95	133	-40 ~ 85	SPI / Dual / Quad / DTR		o		o	P
W25Q33PY	32Mb	1.65 - 1.95	133	-40 ~ 85	SPI / Dual / Quad / DTR		o	o		P
W25Q16PY	16Mb	1.65 - 1.95	133	-40 ~ 85	SPI / Dual / Quad / DTR			o		P
W25Q80PY	8Mb	1.65 - 1.95	104	-40 ~ 85	SPI / Dual / Quad / DTR		o	o		P

W25Q-JW Series

Characteristics

- Voltage: 1.8V
- Density: 16Mb ~ 256Mb
- Interface: SPI, Quad
- Speed: STR 133MHz, DTR 66MHz
- Features:
 - One Time Programmable (OTP)
 - Deep power-down mode
 - Operating temperature up to 105°C

Target Applications

- Personal computer, Notebook, and Server, AI, Smart city, and Smart home, Wearable



[W25Q-JW Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface / Mode	SOP8 150mil	SOP8 208mil	SOP16 300mil	WSON8 6x5mm	WSON8 8x6mm	USON8 4x3mm	XSON8 2x3mm	XSON8 4x4mm	TFBG424 (5x5)	TFBG424 (4x6)	WL CSP	Status
W25Q256JW	256Mb	1.65 - 1.95	104 / 133	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR			o	o	o				o	o	o	P
W25Q128JW	128Mb	1.7 - 1.95	104 / 133	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR		o	o	o	o				o		o	P
W25Q64JW	64Mb	1.7 - 1.95	104 / 133	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR		o		o	o	o		o	o		o	P
W25Q32JW	32Mb	1.7 - 1.95	104 / 133	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR	o	o		o		o		o	o	o	o	P
W25Q16JW	16Mb	1.65 - 1.95 / 1.7 - 1.95	104 / 133	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR	o			o		o	o				o	P

W25Q-EW Series

Characteristics

- Voltage: 1.8V
- Density: 1Mb ~ 8Mb
- Interface: SPI, Quad
- Speed: STR 104 MHz
- Features:
 - o One Time Programmable (OTP)
 - o Software and hardware Write-Protect
 - o Low power-down current

Target Applications

- Personal computer, Notebook, and Server, AI, Smart city, and Smart home, Wearable



[W25Q-EW Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	XSON8 2x3mm	Status
W25Q80EW	8Mb	1.65 - 1.95	104	-40 ~ 85	SPI / Dual / Quad	o	P
W25Q40EW	4Mb	1.65 - 1.95	104	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad	o	P
W25Q20EW	2Mb	1.65 - 1.95	104	-40 ~ 85	SPI / Dual / Quad	o	P
W25Q10EW	1Mb	1.65 - 1.95	104	-40 ~ 85	SPI / Dual / Quad	o	P

W25Q-RL Series

Characteristics

- Voltage: 3V
- Density: 1Mb ~ 16Mb
- Interface: SPI, Quad
- Speed: STR 133MHz, DTR 84MHz
- Features:
 - o Low power-down current

Target Applications

- IoT, Camera, Printer, and Consumer device, Smart city and Smart energy



[W25Q-RL Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 150mil	SOP8 208mil	WSON8 6x5mm	XSON8 2x3mm	Status
W25Q16RL	16Mb	2.3 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR	o	o	o	o	P
W25Q80RL	8Mb	2.3 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR	o	o	o	o	P
W25Q40RL	4Mb	2.3 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR	o	o	o	o	P
W25Q20RL	2Mb	2.3 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR	o			o	P
W25Q10RL	1Mb	2.3 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR	o			o	P

W25Q-RV Series

Characteristics

- Voltage: 3V
- Density: 4Mb ~ 2Gb
- Interface: SPI, Quad
- Speed:
 - o 32Mb ~ 2Gb: STR 166MHz, DTR 104MHz (W25Q33RV)
 - o 4Mb ~ 32Mb: STR 133Mhz, DTR 84MHz (W25Q32RV)
- Features:
 - o Volatile individual block protection
 - o FlexProtect with individual block protect and range protect
 - o On-chip checksum calculation
 - o Data strobe signal output pin
 - o BUSY output pin
 - o Factory and buffer mode



[W25Q-RV Latest Updates](#)

Target Applications

- IoT, Digital camera, Printer, and Consumer device, Smart city and Smart energy

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 150mil	SOP8 208mil	SOP16 300mil	WSON8 6x5mm	WSON8 8x6mm	USON8 4x3mm	XSON8 4x4mm	XSON8 2x3mm	TFBGA24 (5x5)	Status
W25Q02RV	2Gb	2.7 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR			o		o				o	P
W25Q01RV	1Gb	2.7 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR			o		o				o	P
W25Q51RV	512Mb	2.7 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR			o		o				o	P
W25Q25RV	256Mb	2.7 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR			o	o	o				o	UD
W25Q12RV	128Mb	2.7 - 3.6	166	-40 ~ 105	SPI / Dual / Quad / DTR		o	o	o	o				o	P
W25Q64RV	64Mb	2.7 - 3.6	166	-40 ~ 105	SPI / Dual / Quad / DTR	o	o		o			o			P
W25Q33RV	32Mb	2.7 - 3.6	166	-40 ~ 105	SPI / Dual / Quad / DTR	o	o		o		o	o			P
W25Q32RV	32Mb	2.7 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR	o	o		o		o		o		P
W25Q16RV	16Mb	2.7 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR	o	o		o				o		P
W25Q80RV	8Mb	2.7 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR	o	o		o				o		P
W25Q40RV	4Mb	2.7 - 3.6	133	-40 ~ 105	SPI / Dual / Quad / DTR	o	o		o				o		P

Status: P= Mass Production, S= Samples, UD= Under Development

Winbond shall have the right to modify the status and schedule of this product at any time without notice. For the complete part number list of this series, and for any updates or changes, please refer to the official website.

W25Q-RV series is an advanced version of the W25Q-JV series, offering enhanced features and improved performance, with up to 1.6x faster read speed. For availability of the W25Q-JV series (W25Q16JV, W25Q32JV, W25Q64JV, W25Q128JV, W25Q256JV, W25Q512JV, W25Q01JV, W25Q02JV), please contact Winbond.

Octal NOR

W35T Octal NOR Flash Achieves 400MB/s with JEDEC xSPI Interface

Built on Winbond’s advanced 58nm process, the W35T Octal NOR utilizes the JEDEC xSPI interface to achieve a continuous read throughput of 400MB/s, five times faster than standard W25Q QSPI NOR. This exceptional speed, powered by Octal DDR transfer rates up to 200MHz, delivers the industry’s highest synchronous 8-bit bandwidth, making it the ideal choice for instant-on and eExecute-in-Place (XiP) operations in next-generation automotive, industrial, and IoT applications.



[Octal NOR Latest Updates](#)

To ensure robust signal integrity during demanding high-speed operations (>133MHz), the W35T Octal NOR integrates a dedicated Data Strobe (/DS) pin for precise output validation and synchronization. Despite its advanced capabilities, the series maintains a low signal count and backward compatibility with legacy x1 SPI systems, offering a seamless and efficient migration path for system upgrades without compromising on endurance or reliability.

Ultra-low power consumption

Engineered for superior efficiency, the W35T Octal NOR delivers up to 25% lower current in Standby and Deep Power-Down modes compared to leading competitors. Additionally, it features a dedicated /BUSY output pin that replaces inefficient software polling, allowing direct status monitoring. By minimizing both memory power draw and SoC workload, the W35T significantly extends battery life and optimizes overall system performance.

Enhanced data integrity

The W35T Octal NOR ensures total data fidelity by integrating Built-in ECC for automatic error correction, CRC-at-Rest for storage integrity, and CRC-in-Transit for secure transmission. This triple protection guarantees data accuracy both within the memory array and during high-speed communication with the SoC.

The W35T Octal NOR unites 400MB/s high-speed performance, comprehensive functional safety, and ultra-low power efficiency. This all-in-one solution empowers developers to meet the evolving demands of automotive and smart industrial applications, ensuring both superior performance and long-term reliability.

Voltage	Series	Density	Highlights	Applications
1.8V	W35T-NW	64Mb ~ 2Gb	High read throughput with low power	Data center, AI, HMI, FPGA

W35T-NW Series

Characteristics

- Voltage: 1.8V
- Density: 64Mb ~ 2Gb
- Interface: SPI, Octal SPI
- Speed: STR 166MHz, DTR 200MHz
- Features:
 - BUSY output pin
 - Individual block protect (256Mb and below)
 - AEC-Q100 automotive grade
 - CRC-in-Transit
 - CRC-in-Rest
 - Low power-down current



[W35T-NW Latest Updates](#)

Target Applications

- Data center and Cloud service, AI server and AI accelerator, Wearable, IoT, Robot, Human Machine Interface (HMI), Instant boot camera application, Field Programmable Gate Array (FPGA)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP16 300mil	TFBGA24 (5x5)	Status
W35T02NW	2Gb	1.65 ~ 2	166	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Octal / DTR		o	P
W35T01NW	1Gb	1.65 ~ 2	166	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Octal / DTR		o	P
W35T51NW	512Mb	1.65 ~ 2	166	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Octal / DTR		o	P
W35T25NW	256Mb	1.65 ~ 2	166	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Octal / DTR	o	o	P
W35T12NW	128Mb	1.65 ~ 2	166	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Octal / DTR	o	o	P
W35T64NW	64Mb	1.65 ~ 2	166	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Octal / DTR	o	o	P

Status: P= Mass Production, S= Samples, UD= Under Development

Winbond shall have the right to modify the status and schedule of this product at any time without notice. For the complete part number list of this series, and for any updates or changes, please refer to the official website.

Authentication

Add Multi-layer Authentication to Existing Designs with W25R

The W25R authentication flash integrates Replay Protection Monotonic Counter (RPMC) technology directly into standard QSPI NOR Flash, creating the simplest path for system designers to upgrade security. By retaining the standard SPI interface, it ensures full compatibility with existing controllers while serving as a pin-compatible enhancement. This allows for a true "drop-in" replacement of standard flash, enabling immediate security upgrades for IoT, mobile, and industrial applications without the need for hardware redesign.



[Authentication Latest Updates](#)

Replay Protection Monotonic Counter (RPMC)

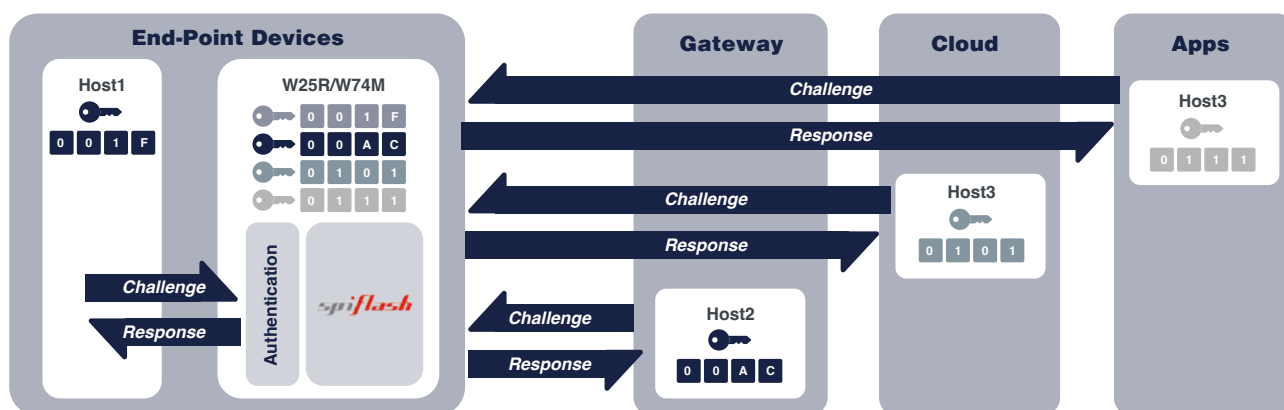
RPMC verifies integrity and authenticity using secure timestamps. This creates a highly secure link between the flash and controller, significantly reducing the risk of hardware attacks.

HMAC-SHA-256

Hardware accelerator for robust, industry-standard cryptographic authentication.

Multi-layered security management

Features four independent 32-bit monotonic counters, each authenticated by its own unique 256-bit Root Key. This architecture empowers multiple entities, such as chipset vendors, OEMs, and software providers, to independently manage their own distinct security layers on a single device.



Voltage	Series	Density	Highlights	Applications
1.2V	W25R-NE	256Mb ~ 512Mb	RPMC	AI server, PC, Notebook
1.8V	W25R-NW	512Mb, 1Gb	RPMC	FOTA, AI server, PC, Notebook
	W25R-JW	64Mb ~ 256Mb	RPMC	FOTA, AI server, PC, Notebook
3V	W25R-JV	64Mb ~ 1Gb	RPMC	FOTA, AI server, PC, Notebook

W25R-NE Series

Characteristics

- Voltage: 1.2V
- Density: 256Mb, 512Mb
- Interface: SPI, Quad
- Speed: STR 133MHz, DTR 104MHz
- Features:
 - BUSY output pin (512Mb)
 - Built-in ECC (512Mb)
 - Non-volatile individual block protect (512Mb)
 - Read command bypass mode
 - Deep power-down mode

Target Applications

- AI server and AI accelerator, Personal computer, and Notebook



[W25R-NE Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	WSON8 8x6mm	WSON8 5x6mm	Status
W25R51NE	512Mb	1.2	133	-40~85	SPI with Single, Dual, Quad I/O, RPMC fixed	o	o	UD
W25R25NE	256Mb	1.2	133	-40~85	SPI with Single, Dual, Quad I/O, RPMC fixed	o	o	S



W25R-NW Series

Characteristics

- Voltage: 1.8V
- Density: 512Mb and 1Gb
- Interface: SPI, Quad
- Speed: STR 104MHz
- Features:
 - One Time Programmable (OTP)

Target Applications

- Firmware Over-The-Air (FOTA), AI server, Personal computer and Notebook



[W25R-NW Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	VSON8 8x6mm	SOP16 300mil	WSON8 8x6mm	Status
W25R01NW	1Gb	1.7 ~1.95	133	-40 ~ 85	SPI with Single, Dual, Quad I/O, RPMC fixed	o			P
W25R512NW	512Mb	1.7 ~1.95	133	-40 ~ 85	SPI with Single, Dual, Quad I/O, RPMC fixed		o	o	P

W25R-JW Series

Characteristics

- Voltage: 1.8V
- Density: 64Mb ~ 256Mb
- Interface: SPI, Quad
- Speed: STR 104MHz
- Features:
 - One Time Programmable (OTP)

Target Applications

- Firmware Over-The-Air (FOTA), AI server, Personal computer and Notebook



[W25R-JW Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 208mil	SOP16 300mil	WSON8 6x5mm	WSON8 8x6mm	Status
W25R256JW	256Mb	1.7 ~ 1.95	104	-40 ~ 85	SPI with Single, Dual, Quad I/O, RPMC fixed		o	o	o	P
W25R128JW	128Mb	1.7 ~ 1.95	104	-40 ~ 85 / -40 ~ 105	SPI with Single, Dual, Quad I/O, RPMC fixed	o		o	o	P
W25R64JW	64Mb	1.7 ~ 1.95	104	-40 ~ 85	SPI with Single, Dual, Quad I/O, RPMC fixed	o		o		P

W25R-JV Series

Characteristics

- Voltage: 3V
- Density: 64Mb ~ 1Gb
- Interface: SPI, Quad
- Speed: STR 104MHz
- Features:
 - One Time Programmable (OTP)

Target Applications

- Firmware Over-The-Air (FOTA), AI server, Personal computer and Notebook



[W25R-JV Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 208mil	SOP16 300mil	VSON8 8x6mm	WSON8 6x5mm	WSON8 8x6mm	Status
W25R01JV	1Gb	2.7 ~ 3.6	133	-40 ~ 85	SPI with Single, Dual, Quad I/O, RPMC fixed			o			P
W25R512JV	512Mb	2.7 ~ 3.6	133	-40 ~ 85	SPI with Single, Dual, Quad I/O, RPMC fixed		o			o	P
W25R256JV	256Mb	2.7 ~ 3.6	133	-40 ~ 85	SPI with Single, Dual, Quad I/O, RPMC fixed		o			o	P
W25R128JV	128Mb	2.7 ~ 3.6	133	-40 ~ 85	SPI with Single, Dual, Quad I/O, RPMC fixed	o			o	o	P
W25R64JV	64Mb	2.7 ~ 3.6	133	-40 ~ 85	SPI with Single, Dual, Quad I/O, RPMC fixed	o			o		P

Status: P= Mass Production, S= Samples, UD= Under Development

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QSPI NAND

High-Throughput Continuous Read with Robust Reliability for Embedded Systems

The W25N QSPI NAND is designed for embedded applications that require fast, sustained read performance and dependable data integrity. With a Quad SPI interface and optimized continuous-read capabilities, it supports efficient code and data access—helping reduce boot time and enabling smooth code shadowing from NAND to DRAM.



[QSPI NAND Latest Updates](#)

High-speed Quad SPI interface

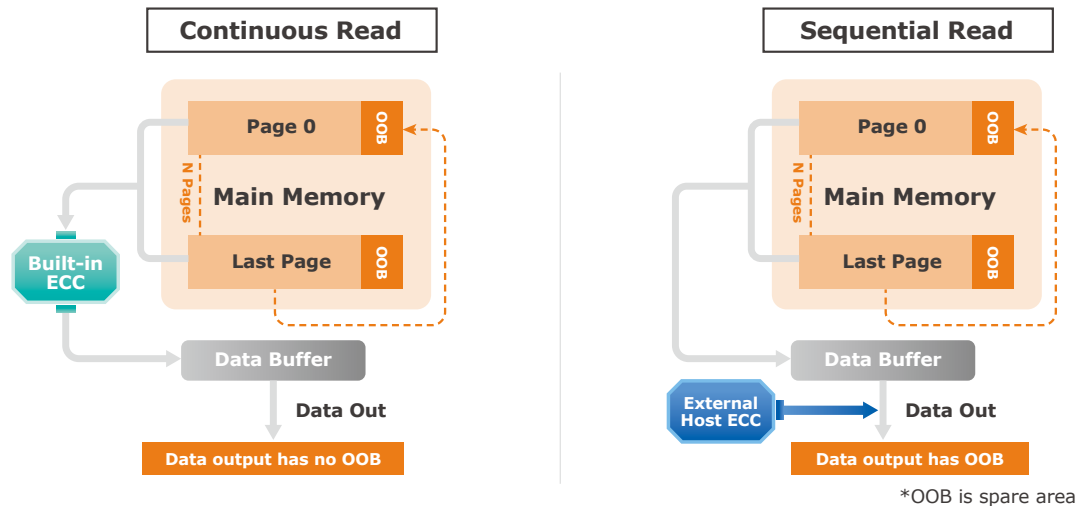
- Up to 83 MB/s via Continuous Read
- Supports fast code shadowing to DRAM for improved system responsiveness

Continuous & Sequential Read for sustained throughput

- Streamlined read flow across the memory array
- Minimizes inter-page latency and maintains continuous output across page/block boundaries

Advanced Continuous Read

- Pause & Resume: handles interrupts without restarting the read sequence
- Flexible Start Address: SoC can begin at a selected offset rather than being limited to Byte 0



Reliability enhancements

- Read Retry (read level setting): adaptive read tuning to improve readability under threshold variations
- BBM LUT: hardware-based bad block mapping/swapping to maintain continuous access

Cost and space efficiency

- Compact package options such as WSON and BGA
- Helps reduce PCB footprint and manufacturing complexity versus traditional NAND approaches

W25N QSPI NAND combines high read throughput, flexible continuous-read features, and robust reliability mechanisms, making it a strong choice for code storage and read-intensive embedded designs—especially in industrial, networking, and related applications.

Voltage	Series	Density	Highlights	Applications
1.8V	W25N-MW	2Gb ~ 8Gb	High density with high performance	Automotive, M2M, Automation, GPON
	W25N-LW	2Gb ~ 8Gb	High density with low power consumption	Automotive, M2M, Automation, GPON
	W25N-JW	1Gb	Automotive Grade 2+	Automotive, HDD, Smart doorbell, Wearable
	W25N-KW	1Gb ~ 4Gb	Low power consumption	xDSL, GPON, IP Camera, Surveillance
	W25N-GW	512Mb, 1Gb	High performance	HDD, Smart doorbell, Wearable
3V	W25N-LV	2Gb ~ 8Gb	High density with high performance	Automotive, xDSL, GPON, IP Camera, Surveillance
	W25N-KV	1Gb ~ 4Gb	Low power consumption	GPON, IP Camera, Surveillance
	W25N-GV	512Mb, 1Gb	High performance	xDSL, GPON, VEDR

W25N-LV Series

Characteristics

- Voltage: 3V
- Density: 2Gb, 4Gb, 8Gb
- Interface: SPI, Dual, Quad
- Page size:
 - o 2Gb: 2048 + 128 byte
 - o 4Gb, 8Gb: 4096 + 256 byte
- Speed: STR 133MHz, DTR 66MHz
- Features:
 - o Bad Block Management Lookup Table (BBM LUT)
 - o Small form factor
 - o Front 1,024 good blocks
 - o Factory Program Mode (FPM)
 - o Advanced Continuous Read
 - o Buffer and Sequential Read mode
 - o Read level setting for Read Retry



[W25N-LV Latest Updates](#)

Target Applications

- Machine-to-Machine (M2M), Automation, Surveillance, xDSL and Gigabit Passive Optical Network (GPON), Smart home

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	WSON8 8x6mm	TFBGA24 (5x5)	Status
W25N08LV	8Gb	2.7 ~ 3.6	133	-40 ~ 85	SPI / Dual / Quad / DTR	o	o	UD
W25N04LV	4Gb	2.7 ~ 3.6	133	-40 ~ 85	SPI / Dual / Quad / DTR	o	o	P
W25N02LV	2Gb	2.7 ~ 3.6	133	-40 ~ 85	SPI / Dual / Quad / DTR	o	o	P

W25N-KV Series

Characteristics

- Voltage: 3V
- Density: 1Gb, 2Gb, 4Gb
- Interface: SPI, Dual, Quad
- Page size:
 - o 1Gb: 2048 + 64 byte
 - o 2Gb, 4Gb: 2048 + 128 byte
- Speed: STR 104MHz
- Features:
 - o Up to 105°C operating temperature
 - o Buffer and Sequential Read mode
 - o Deep power-down mode

Target Applications

- xDSL and Gigabit Passive Optical Network (GPON), IP camera and Surveillance



[W25N-KV Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	WS0N8 6x5mm	WS0N8 8x6mm	TFBGA24 (5x5)	Status
W25N04KV	4Gb	2.7 ~ 3.6	104	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad		o	o	P
W25N02KV	2Gb	2.7 ~ 3.6	104	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad		o	o	P
W25N01KV	1Gb	2.7 ~ 3.6	104	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad	o	o		P

W25N-GV Series

Characteristics

- Voltage: 3V
- Density: 512Mb, 1Gb
- Interface: SPI, Dual, Quad
- Page size: 2048 + 64 byte
- Speed:
 - o 512Mb: STR 166MHz
 - o 1Gb: STR 104MHz
- Features:
 - o Bad Block Management Lookup Table (BBM LUT)
 - o Up to 105°C operating temperature
 - o Buffer and Continuous Read mode
 - o Deep power-down mode (512Mb)

Target Applications

- Video Event Data Recorder (VEDR), Networking and Surveillance, xDSL and Gigabit Passive Optical Network (GPON), Set Top Box (STB), Smart home and Home entertainment application, Wearable



[W25N-GV Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	WS0N8 6x5mm	WS0N8 8x6mm	TFBGA24 (5x5)	Status
W25N01GV	1Gb	2.7 ~ 3.6	104	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Dual / Quad	o	o	o	P
W25N512GV	512Mb	2.7 ~ 3.6	166	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Dual / Quad		o	o	P

W25N-MW Series

Characteristics

- Voltage: 1.8V
- Density: 2Gb, 4Gb, 8Gb
- Interface: SPI, Dual, Quad
- Page size:
 - o 2Gb: 2048 + 128 byte
 - o 4Gb, 8Gb: 2048 + 256 byte
- Speed: STR 166MHz, DTR 83MHz
- Features:
 - o Bad Block Management Lookup Table (BBM LUT)
 - o Range and individual block protect
 - o Advanced Continuous Read mode
 - o Buffer and Sequential Read mode
 - o First 1,024 good blocks
 - o Auto Read Retry



[W25N-MW Latest Updates](#)

Target Applications

- Machine to Machine (M2M), Automation, Surveillance, xDSL and Gigabit Passive Optical Network (GPON), Smart home

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	WSON8 8x6mm	TFBGA24 (5x5)	Status
W25N08MW	8Gb	1.7 ~ 1.95	104	-40 ~ 85	SPI / Dual / Quad / DTR	o	o	UD
W25N04MW	4Gb	1.7 ~ 1.95	104	-40 ~ 85	SPI / Dual / Quad / DTR	o	o	S
W25N02MW	2Gb	1.7 ~ 1.95	104	-40 ~ 85	SPI / Dual / Quad / DTR	o	o	S

W25N-LW Series

Characteristics

- Voltage: 1.8V
- Density: 2Gb, 4Gb, 8Gb
- Interface: SPI, Dual, Quad
- Page size:
 - o 2Gb: 2048 + 128 byte
 - o 4Gb, 8Gb: 2048 + 256 byte
- Speed: STR 104MHz
- Features:
 - o Bad Block Management Lookup Table (BBM LUT)
 - o Small form factor
 - o Buffer, Continuous and Sequential Read mode
 - o Front 1,024 good blocks



[W25N-LW Latest Updates](#)

Target Applications

- Machine-to-Machine (M2M), Automation, Surveillance, xDSL and Gigabit Passive Optical Network (GPON), Smart home

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	WSON8 8x6mm	TFBGA24 (5x5)	Status
W25N08LW	8Gb	1.7 ~ 1.95	104	-40 ~ 85	SPI / Dual / Quad	o	o	P
W25N04LW	4Gb	1.7 ~ 1.95	104	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad	o	o	P
W25N02LW	2Gb	1.7 ~ 1.95	104	-40 ~ 85	SPI / Dual / Quad	o	o	P

W25N-JW Series

Characteristics

- Voltage: 1.8V
- Density: 1G
- Interface: SPI, Dual, Quad
- Page size: 2048 + 64 byte
- Speed: STR 166MHz, DTR 80MHz
- Features:
 - o Bad Block Management Lookup Table (BBM LUT)
 - o Up to 105°C operating temperature
 - o Buffer and Continuous Read mode



[W25N-JW Latest Updates](#)

Target Applications

- HDD, Smart doorbell, Wearable

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	WSON8 8x6mm	TFBGA24 (5x5)	Status
W25N01JW	1Gb	1.7 ~ 1.95	166	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR	o	o	P

W25N-KW Series

Characteristics

- Voltage: 1.8V
- Density: 1Gb, 2Gb, 4Gb
- Interface: SPI, Dual, Quad
- Page size:
 - o 1Gb: 2048 + 64 byte
 - o 2Gb, 4Gb: 2048 + 128 byte
- Speed: STR 104MHz
- Features:
 - o Bad Block Management Lookup Table (BBM LUT) (1Gb)
 - o Up to 105°C operating temperature
 - o Buffer and Sequential Read mode
 - o Continuous Read mode (1Gb)
 - o Deep power-down mode



[W25N-KW Latest Updates](#)

Target Applications

- xDSL and Gigabit Passive Optical Network (GPON), IP camera and Surveillance

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	WSON8 8x6mm	TFBGA24 (5x5)	Status
W25N04KW	4Gb	1.7 ~ 1.95	104	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad	o	o	P
W25N02KW	2Gb	1.7 ~ 1.95	104	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad	o	o	P
W25N01KW	1Gb	1.7 ~ 1.95	104	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad	o		P

W25N-GW Series

Characteristics

- Voltage: 1.8V
- Density: 512Mb
- Interface: SPI, Dual, Quad
- Page size: 2048 + 64 byte
- Speed: STR 104MHz
- Features:
 - o Bad Block Management Lookup Table (BBM LUT)
 - o Up to 105°C operating temperature
 - o Buffer and Continuous Read mode



[W25N-GW Latest Updates](#)

Target Applications

- HDD, Smart doorbell, Wearable

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	TFBGA24 (5x5)	Status
W25N512GW	512Mb	1.7 ~ 1.95	104	-40 ~ 85	SPI / Dual / Quad / DTR	o	P

Status: P= Mass Production, S= Samples, UD= Under Development

Winbond shall have the right to modify the status and schedule of this product at any time without notice. For the complete part number list of this series, and for any updates or changes, please refer to the official website.

Octal NAND

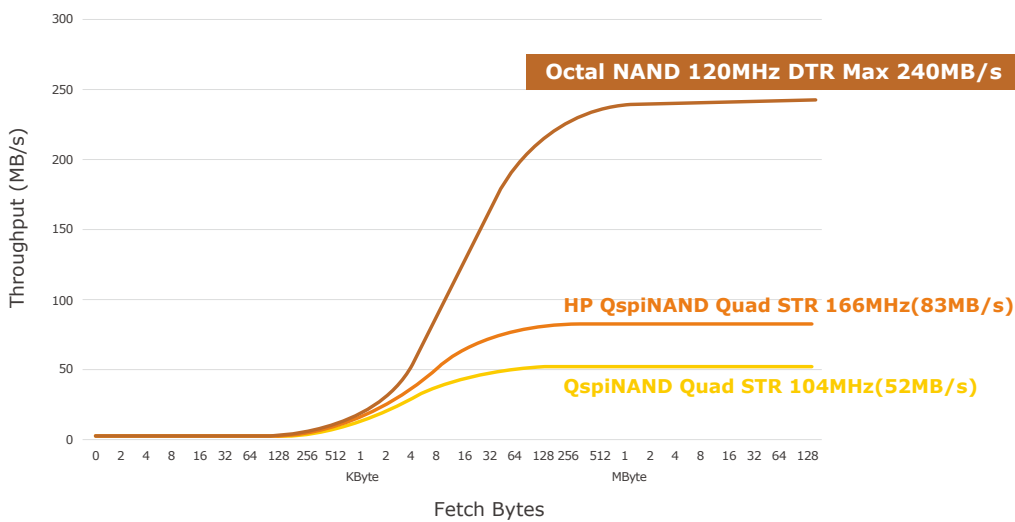
W35N Octal NAND Industry First 8 I/O High Speed Flash with 240MB/s Throughput

The W35N Octal NAND is the industry's first 8 I/O product. By leveraging this innovative interface, it achieves a remarkable read data throughput of up to 240MB/s, making it the highest speed serial interface NAND Flash in the market, a capability which is critical for fast code shadowing while enabling fast Over-The-Air (OTA) firmware updates with minimum down time. It supports STR 166MHz and DTR 120MHz operating modes. To ensure robust system stability, it includes built-in ECC for enhanced data reliability and a Bad Block Management Lookup Table (BBM LUT) to simplify and accelerate block management. Additionally, it utilizes Buffer Read and Continuous Read modes to maximize data transfer efficiency, offering a superior solution for high-performance applications.



[Octal Flash Latest Updates](#)

The W35N Octal NAND is an ideal alternative to NOR flash, offering hardware compatibility that eliminates the need for PCB re-layout. It is well-suited for a wide range of advanced industrial and automotive applications.



Voltage	Series	Density	Highlights	Applications
1.8V	W35N-JW	1Gb ~ 4Gb	8 I/O	DMS

W35N-JW Series

Characteristics

- Voltage: 1.8V
- Density: 1Gb, 2Gb, 4Gb
- Interface: SPI, Octal
- Page size: 4096 + 128 byte
- Speed: STR 166MHz, DTR 120MHz
- Features:
 - Built-in ECC
 - Bad Block Management Lookup Table (BBM LUT)
 - Buffer and Continuous Read mode
 - Operating temperature up to 115°C

Target Applications

- Smart Doorbell



[W35N-JW Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	TFBGA24 (5x5)	Status
W35N04JW	4Gb	1.7 - 1.95	166	-40 ~ 105 / -40 ~ 115	Octal	o	P
W35N02JW	2Gb	1.7 - 1.95	166	-40 ~ 105 / -40 ~ 115	Octal	o	P
W35N01JW	1Gb	1.7 - 1.95	166	-40 ~ 105 / -40 ~ 115	Octal	o	P

Status: P= Mass Production, S= Samples, UD= Under Development

Winbond shall have the right to modify the status and schedule of this product at any time without notice. For the complete part number list of this series, and for any updates or changes, please refer to the official website.

ONFI NAND

ONFI 1.0 Compliant W29N ONFI NAND for High Density Applications

The W29N ONFI NAND Flash is a high-density code storage solution with capacities ranging from 1Gb to 8Gb. It is fully compliant with the ONFI 1.0 standard, allowing it to function as a direct drop-in replacement for compatible products from other suppliers, enabling system upgrades without major redesign.



[ONFI NAND Latest Updates](#)

Highlights

- Supports both 3V and 1.8V voltage options
- Multiple ECC configurations available: 1-bit/4-bit or 4-bit/8-bit error correction
- Designed for embedded applications with strict reliability requirements
- Supports operating temperatures up to 105°C

Voltage	Series	Density	Highlights	Applications
1.8V	W29N-LZ	4Gb, 8Gb	ONFI 1.0 compliant High density with Block Lock	Automotive, IoT, M2M, Wearable, GPON
	W29N-KZ	2Gb, 4Gb	ONFI 1.0 compliant	IoT, POS, Wearable, GOPN
	W29N-HZ	1Gb	ONFI 1.0 compliant	Automotive, GPON, POS, STB
	W29N-GZ	2Gb ~ 8Gb	ONFI 1.0 compliant	IoT, POS, GOPN
3V	W29N-KV	2G, 4Gb	ONFI 1.0 compliant	IoT, POS, Wearable, GOPN
	W29N-HV	1Gb	ONFI 1.0 compliant	Automotive, GPON, POS, STB
	W29N-GV	2Gb ~ 8Gb	ONFI 1.0 compliant	Automotive, GPON, POS, STB

W29N-KV Series

Characteristics

- Voltage: 3V
- Density: 2Gb
- Bus width: IO x 8
- Page size: 2048 + 128 byte
- Features:
 - ONFI 1.0 compliant

Target Applications

- IoT and Automation, Point of Sale (POS)



[W29N-KV Latest Updates](#)

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	TSOP48 12x20mm	VFBGA63 9x11mm	Status
W29N02KV	2Gb	2.7 ~ 3.6	-40 ~ 85	ONFI	o	o	P

W29N-HV Series

Characteristics

- Voltage: 3V
- Density: 1Gb
- Bus width: IO x 8
- Page size: 2048 + 64 byte
- Features:
 - ONFI 1.0 compliant

Target Applications

- Automation, Point of Sale (POS), Switch, xDSL, and Gigabit Passive Optical Network (GPON), Smart home, Set Top Box (STB), Surveillance



[W29N-HV Latest Updates](#)

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	TSOP48 12x20mm	TSOP48 1	VFBGA63 9x11mm	Status
W29N01HV	1Gb	2.7 ~ 3.6	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	ONFI	o	o	o	P

W29N-GV Series

Characteristics

- Voltage: 3V
- Density: 2Gb ~ 8Gb
- Bus width: IO x 8
- Page size: 2048 + 64 byte
- Features:
 - ONFI 1.0 compliant

Target Applications

- Automation, Point of Sale (POS), Smart home, Set Top Box (STB)



[W29N-GV Latest Updates](#)

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	TSOP48 12x20mm	VFBGA63 9x11mm	Status
W29N08GV	8Gb	2.7 ~ 3.6	-40 ~ 85 / -40 ~ 105	ONFI	o	o	P
W29N04GV	4Gb	2.7 ~ 3.6	-40 ~ 85 / -40 ~ 105	ONFI	o	o	P
W29N02GV	2Gb	2.7 ~ 3.6	-40 ~ 85 / -40 ~ 105	ONFI	o	o	P

W29N-LZ Series

Characteristics

- Voltage: 1.8V
- Density: 4Gb, 8Gb
- Bus width: IO x 8, x 16 (Please contact Winbond for availability)
- Page size: 4096 + 256 byte
- Features:
 - o ONFI 1.0 compliant
 - o Block Lock (Please contact Winbond for availability)

Target Applications

- IoT and Automation, Point of Sale (POS), Wearable, xDSL and Gigabit Passive Optical Network (GPON), Smart home, Set Top Box (STB), Surveillance



[W29N-LZ Latest Updates](#)

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	VFBGA63 9x11mm	Status	
W29N08GV	W29N08LZ	8Gb	1.79 ~ 1.95	-40 ~ 85 / -40 ~ 105	ONFI	o	P
W29N02GV	W29N04LZ	4Gb	1.79 ~ 1.95	-40 ~ 85 / -40 ~ 105	ONFI	o	P

W29N-KZ Series

Characteristics

- Voltage: 1.8V
- Density: 2Gb, 4Gb
- Bus width: IO x 8, x 16 (Please contact Winbond for availability)
- Page size: 2048 + 128 byte/ 4096 + 256 byte
- Features:
 - o ONFI 1.0 compliant

Target Applications

- IoT and Automation, Point of Sale (POS), Wearable, xDSL and Gigabit Passive Optical Network (GPON), Smart home, Set Top Box (STB), Surveillance



[W29N-KZ Latest Updates](#)

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	VFBGA48 12x20mm	VFBGA63 9x11mm	TSOP48 12x20mm	Status
W29N04KZ	4Gb	1.79 ~ 1.95	-40 ~ 85	ONFI		o		P
W29N02KZ	2Gb	1.79 ~ 1.95	-40 ~ 85 / -40 ~ 105	ONFI	o	o	o	P

W29N-HZ Series

Characteristics

- Voltage: 1.8V
- Density: 1Gb
- Bus width: IO x 8, x 16 (Please contact Winbond for availability)
- Page size: 2048 + 64 byte
- Features:
 - ONFI 1.0 compliant

Target Applications

- Automation, Point of Sale (POS), Wearable, xDSL and Gigabit Passive Optical Network (GPON), Smart home, Set Top Box (STB), Surveillance



[W29N-HZ Latest Updates](#)

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	TSOP48 12x20mm	VFBGA48 12x20mm	VFBGA63 9x11mm	WL CSP	Status
W29N01HZ	1Gb	1.79 ~ 1.95	-40 ~ 85 / -40 ~ 105	ONFI	o	o	o	o	P

W29N-GZ Series

Characteristics

- Voltage: 1.8V
- Density: 2Gb ~ 8Gb
- Bus width: IO x 8, x 16 (Please contact Winbond for availability)
- Page size: 2048 + 64 byte
- Features:
 - ONFI 1.0 compliant

Target Applications

- Automation, Point of Sale (POS), Smart home, Set Top Box (STB)



[W29N-GZ Latest Updates](#)

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	VFBGA48 12x20mm	VFBGA63 9x11mm	Status
W29N08GZ	8Gb	1.79 ~ 1.95	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	ONFI	o	o	P
W29N04GZ	4Gb	1.79 ~ 1.95	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	ONFI	o	o	P
W29N02GZ	2Gb	1.79 ~ 1.95	-40 ~ 85 / -40 ~ 105 / -40 ~ 125	ONFI	o	o	P

Status: P= Mass Production, S= Samples, UD= Under Development

Winbond shall have the right to modify the status and schedule of this product at any time without notice. For the complete part number list of this series, and for any updates or changes, please refer to the official website.

Multi-Chip Package (MCP)

W71N Space Efficient Integrated Memory Solution

The W71N MCP combines 1.8V ONFI NAND with LPDDR2 or LPDDR4x in a single, compact package to simplify PCB design. By integrating these memories, the solution delivers a highly efficient memory footprint that saves board space and streamlines system design, enabling more compact and efficient devices. In addition, the close integration reduces data transfer latency between chips, enhancing overall performance and making W71N MCP an ideal choice for high-integration applications, especially in compact, mobile, and space-constrained systems.



[MCP Latest Updates](#)

Winbond is a leading memory IC company specializing in DRAM and Flash. With fully in-house capabilities covering design, research and development, and 12-inch wafer fabrication, Winbond offers flexible delivery and strong supply continuity. This vertically integrated manufacturing model ensures stable sourcing for W71N MCP NAND + DRAM, eliminating shared sourcing risks. Backed by its Product Longevity Program (WPLP), Winbond provides long-term support for 5 to 10 years or more, making it an ideal partner for long-life and embedded applications.



HIGH QUALITY



**SPACE EFFECTIVE
SOLUTION**



**LONGEVITY
SUPPORT**



**WAFER
FABRICATION**

Voltage	Series	Stack	Highlights	Applications
1.8V	W71N	ONFI NAND + LPDDR2 ONFI NAND + LPDDR4x	Alternative solution for PCB space saving	M2M, CPE, FWA

W71N Series

Characteristics

- Voltage: 1.8V
- Density:
 - W71NW:
 - o 1Gb ONFI NAND + 512Mb LPDDR2
 - o 1Gb ONFI NAND + 1Gb LPDDR2
 - W71N:
 - o 4Gb ONFI NAND+4Gb LPDDR4x
 - o 8Gb ONFI NAND+8Gb LPDDR4x
- Bus/ Data width:
 - o W71NW: IO Flash x 8 DRAM x 32
 - o W71N: IO Flash x 8 DRAM x 16
- Page size:
 - o 1Gb: 2048 + 64 byte
 - o 4Gb, 8Gb: 4096 + 256 byte
- Features:
 - o LPDDR4x 4266Mbps

Target Applications

- Machine-to-Machine (M2M), Customer Premise Equipment (CPE), Fixed Wireless Access (FWA)



[W71N Latest Updates](#)

Part No.	Density	Temp. (°C)	Built-in ECC (bit)	Interface Mode	WFBGA149 8x9.5mm	VFBGA162 8x10.5mm	VFBGA149 8x9.5mm	Status
W71N88AALRNI	8Gb Flash + 8Gb DRAM	-40 ~ 85	8	ONFI & LPDDR4x			o	P
W71N44AALRKI	4Gb Flash + 4Gb DRAM	-40 ~ 85	8	ONFI & LPDDR4x	o			P
W71N44AALRNI	4Gb Flash + 4Gb DRAM	-40 ~ 85	8	ONFI & LPDDR4x			o	P
W71NW10HE3FW	1Gb Flash + 512Mb DRAM	-40 ~ 85	1	ONFI & LPDDR2		o		P
W71NW10HM3FW	1Gb Flash + 1Gb DRAM	-40 ~ 85	1	ONFI & LPDDR2		o		P

Status: P= Mass Production, S= Samples, UD= Under Development

Winbond shall have the right to modify the status and schedule of this product at any time without notice. For the complete part number list of this series, and for any updates or changes, please refer to the official website.

SpiStack® Combo Flash

W25M/ W71P SpiStack® Single Package Solution using the C2h Command to Control Concurrent Operation

The W25M / W71P SpiStack® Combo Flash integrates multiple memory dies into a single standard SPI package to reduce board space and simplify system design. By using the C2h command for die selection, it eliminates the need for additional Chip Select (CS) pins. Each die operates independently and is individually addressable, enabling efficient read, erase, and program operations without interrupting code execution. Simultaneous erase and program across all dies further improves manufacturing efficiency and supports Firmware Over-The-Air (FOTA) updates.



[SpiStack Combo Latest Updates](#)

Architectures:

- Multiple memory dies integrated into a single standard SPI package
- Die selection through C2h command, eliminating additional CS pins
- Each die operates independently and is individually addressable
- Supports reading from one die while erasing or programming another
- Allows simultaneous erase and program of all dies

Stacking Type	Memory Combination	Description
Heterogeneous	NOR + NAND	Combines NOR Flash boot capability with NAND Flash storage capacity
	NOR + pSRAM	Combines NOR Flash code storage with pSRAM working memory expansion

Voltage	Series	Stack	Highlights	Applications
1.8V	W71P	QSPI NOR 128Mb + pSRAM 64Mb	C2h command for die selection	Image Recognition Systems, Drone, Smart Home, AIoT
	W25M-AW	NOR 32Mb + QSPI NAND 1Gb	C2h command for die selection	HMI, 5G, FPGA, Surveillance
3V	W25M-AV	NOR 32Mb + QSPI NAND 1Gb	C2h command for die selection	HMI, 5G, FPGA, Smart home

W25M-AV Series

Characteristics

- Voltage: 3V
- Density: NOR 32Mb + QSPI NAND 1Gb
- Interface: SPI, Dual, Quad
- Page size: 2048 + 64 byte
- Speed:
 - o NOR: STR 133MHz
 - o NAND: STR 104MHz
- Features:
 - o Bad Block Management Lookup Table (BBM LUT)
 - o Buffer and Continuous Read mode
 - o C2h command for die selection



[W25M-AV Latest Updates](#)

Target Applications

- Human Machine Interface (HMI), Server, 5G, and WiFi, Switch, Surveillance, Field Programmable Gate Array (FPGA), Smart home, Musical instruments

Part No.	Configuration	Voltage (V)	Temp. (°C)	Interface Mode	WSON8 8x6mm	Status
W25M321AVEIT	32Mb NOR+1Gb NAND	2.7 ~ 3.6	-40 ~ 85	SPI/Dual /Quad	o	P

W71P Series

Characteristics

- Voltage: 1.8V
- Density: QSPI NOR 128Mb + pSRAM 64Mb
- Interface: I/O NOR x1x2x4, pSRAM x1x4
- Speed: NOR STR 166MHz, pSRAM STR/DTR 144MHz
- Features:
 - o Built-in 1-Bit ECC
 - o Low power-down current
 - o eXecute-in-place (XiP)
 - o Power Supply Lock-Down and OTP protection
 - o Discoverable Parameters (SFDP) Register
 - o Small Form Factory Package of 4x4 WSON and 5x6 WSON8



[W71P Latest Updates](#)

Target Applications

- Image Recognition Systems, Drone, Smart Fleet Management Systems, Smart Home & AIoT

Part No.	Configuration	Voltage (V)	Temp. (°C)	Interface Mode	WSON8 5x6mm	WSON8 4x4mm	Status
W71P76PW	128Mb NOR+64Mb pSRAM	1.65 ~ 1.95	-40 ~ 85	SPI/Dual /Quad	o	o	S

W25M-AW Series

Characteristics

- Voltage: 1.8V
- Density: NOR 32Mb + QSPI NAND 1Gb
- Interface: SPI, Dual, Quad
- Speed:
 - o NOR: STR 133 MHz
 - o NAND: STR 104MHz
- Features:
 - o Bad Block Management Lookup Table (BBM LUT)
 - o Buffer and Continuous Read mode
 - o C2h command for die selection



[W25M-AW Latest Updates](#)

Target Applications

- Human Machine Interface (HMI), Server, 5G, and WiFi, Switch, Surveillance, Field Programmable Gate Array (FPGA), Smart home, Musical instruments

Part No.	Configuration	Voltage (V)	Temp. (°C)	Interface Mode	WSON8 8x6mm	Status
W25M321AWEIT	32Mb NOR+1Gb NAND	1.7 ~ 1.95	-40 ~ 85	SPI/Dual /Quad	o	P

Status: P= Mass Production, S= Samples, UD= Under Development

Winbond shall have the right to modify the status and schedule of this product at any time without notice. For the complete part number list of this series, and for any updates or changes, please refer to the official website.

TrustME® Secure Flash

Robust Security Solution for Trusted Boot and Firmware Resilience

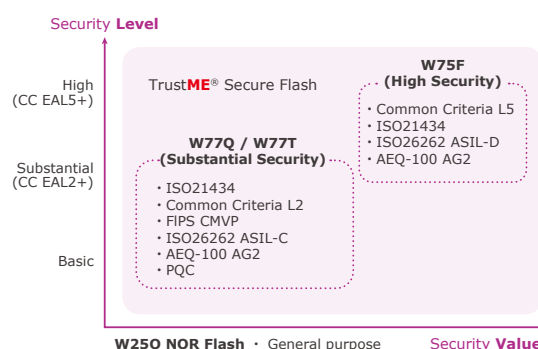
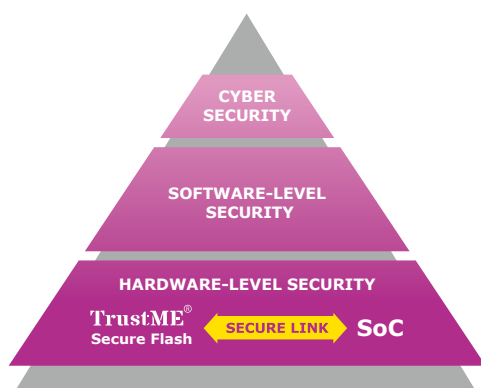
The TrustME® Secure Flash offers robust code and data storage protection through external Secure Flash technology, serving as a fundamental solution for enhancing trusted boot and firmware update reliability in the IoT era. Beyond achieving Common Criteria certification, the TrustME® Secure Flash ensures end-to-end security by integrating secure chip production, software design, and key provisioning services right from the manufacturing stage.



[TrustME® Secure Flash Latest Updates](#)

Key features and architecture

- **Advanced secure architecture:** hardware-rooted protection for secure storage and access
- **Post-Quantum Cryptography (PQC):** future-proof cryptography against emerging threats
- **Multi-layer Access Control:** independent partitions, dedicated keys, and encryption policies for granular access
- **Safety compliance:** aligned with ISO 21434 and ISO 26262 for safety, secure boot and updates



Voltage	Series	Density	Highlights	Applications
1.8V	W77Q-JW	16Mb ~ 128Mb	CC EAL 2+	OTA, Industrial, Server
	W77Q-NW	64Mb ~ 1Gb	PQC capability with CC EAL 2+	High performance IoT, Industrial, Infrastructure, Advanced server
	W77T-NW	64Mb ~ 1Gb	Octal NOR with high speed and PQC capability	Automotive, Advanced IoT
	W75F	4Mb ~ 32Mb	CC EAL 5	Electronic wallet, High security infrastructure
3V	W77Q-JV	64Mb ~ 128Mb	CC EAL 2+	OTA, Industrial, Server

W77Q-JW Series

Characteristics

- Voltage: 1.8V
- Density: 16Mb ~ 128Mb
- Interface: SPI, Dual, Quad, QPI
- Speed: STR 133MHz, DTR 66MHz
- Features:
 - o Secure Root of Trust (RoT) for IoT devices
 - o Secure Over-The-Air (OTA) firmware update with rollback protection
 - o Platform firmware resiliency assurance
 - o Local and remote secure-channel, encrypted, authenticated, replay-protected
 - o Common Criteria EAL 2+, SESIP Level 2 (with IEC 62443, NIST 8259A, WP.29 ready), ISO 21434, FIPS PUB 180-4 (CMVP, CAVP) and safety qualification: ISO 26262 ASIL-C ready

Target Applications

- Industrial, Networking, Servers



[W77Q-JW Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 208mil	SOP16 300mil	WSON8 6x5mm	XSON8 4x4mm	TFBGA24 (5x5)	Status
W77Q128JW	128Mb	1.7 - 1.95	133	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad / DTR	o		o		o	P
W77Q64JW	64Mb	1.7 - 1.95	133	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad / DTR	o		o		o	P
W77Q32JW	32Mb	1.7 - 1.95	133	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad / DTR	o	o	o	o		P
W77Q16JW	16Mb	1.7 - 1.95	133	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad / DTR	o		o			P

W77Q-NW Series

Characteristics

- Voltage: 1.8V
- Density: 64Mb ~ 1Gb
- Interface: SPI, Dual, Quad
- Speed: STR 166MHz, DTR 166MHz
- Features:
 - o Secure Root of Trust (RoT) for IoT devices
 - o Secure code and data storage
 - o Secure Over-The-Air (OTA) firmware update with rollback protection
 - o Post-Quantum Cryptography (PQC) complaint with CNSA 2.0 guidelines for software and firmware signing
 - o Leighton-Micali Signature (LMS) for secure OTA signatures and authentication (NIST SP 800-208)
 - o Support Secure Supply chain via remote attestation based on LMS-OTS (NIST SP 800-208)
 - o Platform firmware resiliency assurance (NIST SP 800-193)
 - o Local and remote secure-channel, encrypted, authenticated, replay-protected
 - o Common Criteria EAL 2+, SESIP Level 2 (with IEC 62443, NIST 8259A), FIPS 140-3 CMVP

Target Applications

- High performance IoT, Industrial, Infrastructure, Advanced server



[W77Q-NW Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP16 300mil	WSON8 6x5mm	WSON8 8x6mm	TFBGA24 (5x5)	Status
W77Q01NW	1Gb	1.7 - 1.95	166	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad / DTR				o	P
W77Q51NW	512Mb	1.7 - 1.95	166	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad / DTR	o	o		o	P
W77Q25NW	256Mb	1.7 - 1.95	166	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad / DTR	o	o		o	P
W77Q12NW	128Mb	1.7 - 1.95	166	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad / DTR		o		o	P
W77Q64NW	64Mb	1.7 - 1.95	166	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad / DTR		o	o		P

W77T-NW Series

Characteristics

- Voltage: 1.8V
- Density: 64Mb ~ 1Gb
- Interface: SPI, Quad, Octal
- Speed: STR 200MHz, DTR 200MHz
- Features:
 - o Secure Root of Trust (RoT) for IoT devices
 - o Secure code and data storage
 - o Secure Over-The-Air (OTA) firmware update with rollback protection
 - o Post-Quantum Cryptography (PQC) compliant with CNSA 2.0 guidelines
 - o Leighton-Micali Signature (LMS) for secure OTA signatures and authentication
 - o Support secure supply chain via remote attestation based on LMS-OTS
 - o Platform firmware resiliency assurance (NIST SP 800-193)
 - o Local and remote secure-channel, encrypted, authenticated, replay-protected
 - o Common Criteria EAL 2+, SESIP Level 2 (with IEC 62443, NIST 8259A), FIPS 140-3 CMVP



[W77T-NW Latest Updates](#)

Target Applications

- Advanced IoT

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	WSON8 8x6mm	TFBG24 (5x5)	Status
W77T01NW	1Gb	1.7 – 1.95	200	-40 ~ 105	SPI / Dual / Quad / Octal / DTR	o	o	P
W77T51NW	512Mb	1.7 – 1.95	200	-40 ~ 105	SPI / Dual / Quad / Octal / DTR	o	o	P
W77T25NW	256Mb	1.7 – 1.95	200	-40 ~ 105	SPI / Dual / Quad / Octal / DTR	o	o	P
W77T12NW	128Mb	1.7 – 1.95	200	-40 ~ 105	SPI / Dual / Quad / Octal / DTR	o		P
W77T64NW	64Mb	1.7 – 1.95	200	-40 ~ 105	SPI / Dual / Quad / Octal / DTR	o		P

W75F Series

Characteristics

- Voltage: 1.8V
- Density: 4Mb, 32Mb
- Interface: SPI, Quad, Octal
- Speed: STR 50MHz
- Features:
 - o Secure eXecute-in-Place (XiP)
 - o Tamper and SCA/DPA resistant



[W75F Latest Updates](#)

Target Applications

- Mobile payment, Electronic wallet, High security infrastructure

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	WL CSP	Status
W75F32WB	32Mb	1.65 - 1.95	50	-25 ~ 85 / -40 ~ 85 / -40 ~ 105	SPI/Quad/Octal	o	P
W75F40WB	4Mb	1.62 - 1.98	50	-25 ~ 85 / -40 ~ 85 / -40 ~ 105	SPI/Quad/Octal	o	P

W77Q-JV Series

Characteristics

- Voltage: 3V
- Density: 64Mb ~ 128Mb
- Interface: SPI, Dual, Quad, QPI
- Speed: STR 133MHz, DTR 66MHz
- Features:
 - o Secure Root of Trust (RoT) for IoT devices
 - o Secure Over-The-Air (OTA) firmware update with rollback protection
 - o Platform firmware resiliency assurance
 - o Local and remote secure-channel, encrypted, authenticated, replay-protected
 - o Common Criteria EAL 2+, SESIP Level 2 (with IEC 62443, NIST 8259A, WP.29 ready), ISO 21434, FIPS PUB 180-4 (CMVP, CAVP) and safety qualification: ISO 26262 ASIL-C ready



[W77Q-JV Latest Updates](#)

Target Applications

- IoT, Networking, Servers

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 208mil	WSON8 6x5mm	TFBGA24 (5x5)	Status
W77Q128JV	128Mb	2.7 - 3.6	133	-40 ~ 85 / -40 ~ 105	SPI/Dual/Quad/DTR	o	o	o	P
W77Q64JV	64Mb	2.7 - 3.6	133	-40 ~ 85 / -40 ~ 105	SPI/Dual/Quad/DTR	o	o	o	P

Status: P= Mass Production, S= Samples, UD= Under Development

Winbond shall have the right to modify the status and schedule of this product at any time without notice. For the complete part number list of this series, and for any updates or changes, please refer to the official website.

NOR Flash

AEC Q-100 Qualified NOR Flash Tailored for Automotive Applications

Winbond provides AEC-Q100 qualified memories tailored to automotive applications, including Advanced Driver Assist Systems (ADAS), Driver Monitoring Systems (DMS), infotainment, and integrated smart cockpit systems. With its own ISO 16949 certified fab, Winbond demonstrated its dedication to upholding high-quality standards for its products.

Winbond offers outstanding Flash memories specifically designed for the automotive industry. NOR Flash memories feature multi-I/O and the standard Serial Peripheral Interface (SPI) capabilities. Ranging from 2Mb to 2Gb, these memories enable fast transfer rates at a frequency up to 133MHz. They enable controllers to execute code directly from the SPI interface or speed up boot times by shadowing code to RAM.

Category	Voltage	Series	Density	Highlights	Applications
QSPI NOR	1.8V	W25Q-JW	16Mb ~ 256Mb	• Longevity support	Domain, Zonal, Cluster, and Automotive
		W25H-NW	512Mb ~ 2Gb	• Built-in ECC • 166MHz STR for instant boot	Domain, Zonal, Cluster, and Automotive
		W25Q-EW	512Mb ~ 2Gb	• Low power	Domain, Zonal, Cluster, and Automotive
	3V	W25H-RV	32Mb ~ 2Gb	• Built-in ECC • High speed with strong data integrity	eCockpit, ADAS, DMS
		W25Q-RV	2Mb ~ 32Mb	• Small package • High speed with strong data integrity	Domain, Zonal, Cluster, and Automotive
		W25H-JV	256Mb ~ 2Gb	• Built-in ECC	eCockpit, ADAS, DMS
Octal NOR	1.8V	W35T-NW	64Mb ~ 2Gb	• ISO26262 ASIL-D compliant • STR 166MHz, DTR 200MHz	Automotive ADAS, Clusters, and Domain control system

W25Q-JW Series – QSPI NOR

Characteristics

- Voltage: 1.8V
- Density: 16Mb ~ 256Mb
- Interface: SPI, Quad
- Speed: STR 133MHz, DTR 66MHz
- Features:
 - o One Time Programmable (OTP)
 - o Deep power-down mode
 - o Operating temperature up to 105°C

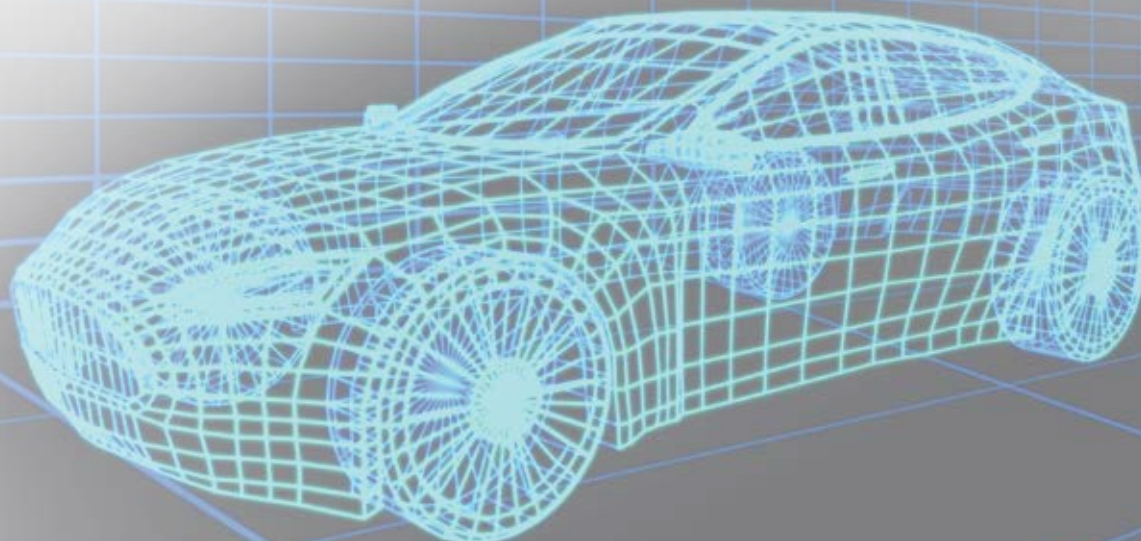
Target Applications

- Domain, Zonal, Cluster, and Automotive



[W25Q-JW Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 150mil	SOP8 208mil	SOP16 300mil	WSON8 6x5mm	WSON8 8x6mm	USON8 4x3mm	XSON8 2x3mm	XSON8 4x4mm	TFBGA24 (5x5)	Status
W25Q256JW	256Mb	1.7 - 1.95	104	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR			o	o	o				o	P
W25Q128JW	128Mb	1.7 - 1.95	104	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR		o	o	o					o	P
W25Q64JW	64Mb	1.7 - 1.95	104	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR		o		o		o		o	o	P
W25Q32JW	32Mb	1.7 - 1.95	104	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR	o	o				o		o	o	P
W25Q16JW	16Mb	1.65 - 1.95 / 1.7 - 1.95	104	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR	o	o		o		o	o			P



W25H-NW Series – QSPI NOR

Characteristics

- Voltage: 1.8V
- Density: 512Mb ~ 2Gb
- Interface: SPI, Dual, Quad
- Speed:
 - o 1Gb, 2Gb: STR 133MHz, DTR 66MHz
 - o 512Mb: STR 133MHz, DTR 104MHz
- Features:
 - o ASIL-B
 - o Built-in ECC
 - o One-Time Programmable (OTP)
 - o Individual block/sector write protection
 - o Low power-down current



[W25H-NW Latest Updates](#)

Target Applications

- eCockpit, Advanced Driver Assistance System (ADAS), Driver Monitoring System (DMS), Connectivity

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP16 300mil	WSON8 8x6mm	TFBGA24 (5x5)	Status
W25H02NW	2Gb	1.7 - 1.95	133	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR			o	P
W25H01NW	1Gb	1.7 - 1.95	133	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad / DTR	o	o	o	P
W25H512NW	512Mb	1.65 - 1.95	133	-40 ~ 85 / -40 ~ 105	SPI / Dual / Quad / DTR	o	o	o	P

W25Q-EW Series – QSPI NOR

Characteristics

- Voltage: 1.8V
- Density: 2Mb ~ 8Mb
- Interface: SPI, Quad
- Speed: STR 104 MHz
- Features:
 - o One Time Programmable (OTP)
 - o Software and hardware Write-Protect
 - o Low power-down current



[W25Q-EW Latest Updates](#)

Target Applications

- Domain, Zonal, Cluster, and Automotive

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP16 300mil	WSON8 8x6mm	8x6m	8x6m	TFBGA24 (5x5)	Status
W25Q81EW	8Mb	1.8	104	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad	o	o	o	o		P
W25Q41EW	4Mb	1.8	104	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad	o			o	o	P
W25Q21EW	2Mb	1.8	104	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad	o			o		P

W25H-RV Series – QSPI NOR

Characteristics

- Voltage: 3V
- Density: 32Mb ~ 2Gb
- Interface: SPI, Quad
- Speed: STR 166MHz, DTR 104MHz
- Features:
 - o Built-in ECC
 - o Volatile Individual block protection
 - o FlexProtect with individual block protect and range protect
 - o On-chip Checksum Calculation
 - o Data Strobe signal output pin
 - o BUSY output pin
 - o Factory and Buffer mode

Target Applications

- eCockpit, ADAS, DMS



[W25H-RV Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 208mil	SOP16 300mil	WSON8 6x5mm	WSON8 8x6mm	XSON8 4x4mm	TFBGA24 (5x5)	TFBGA24 (4x6)	WLCSP	Status
W25H02RV	2Gb	2.7 - 3.6	133	-40 ~ 125	SPI / Dual / Quad / DTR		o		o			o		UD
W25H01RV	1Gb	2.7 - 3.6	133	-40 ~ 125	SPI / Dual / Quad / DTR		o		o			o		UD
W25H51RV	512Mb	2.7 - 3.6	133	-40 ~ 125	SPI / Dual / Quad / DTR		o		o			o		UD
W25H25RV	256Mb	2.7 - 3.6	133	-40 ~ 125	SPI / Dual / Quad / DTR		o	o	o			o		UD
W25H12RV	128Mb	2.7 - 3.6	166	-40 ~ 125	SPI / Dual / Quad / DTR	o	o	o	o			o	o	UD
W25H64RV	64Mb	2.7 - 3.6	166	-40 ~ 125	SPI / Dual / Quad / DTR	o		o			o		o	UD
W25H33RV	32Mb	2.7 - 3.6	166	-40 ~ 125	SPI / Dual / Quad / DTR	o		o		o	o		o	UD

W25Q-RV Series – QSPI NOR

Characteristics

- Voltage: 3V
- Density: 2Mb ~ 32Mb
- Interface: SPI, Quad
- Speed: STR 133MHz, DTR 84MHz
- Features:
 - o Automotive Grade 1 and 2
 - o One Time Programmable (OTP)
 - o Range protect
 - o High speed with strong data integrity
 - o Small package: XSON8 2x3

Target Applications

- Domain, Zonal, Cluster, and Automotive



[W25Q-RV Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 150mil	SOP8 208mil	WSON8 6x5mm	USON8 4x3mm	XSON8 2x3mm	Status
W25Q32RV	32Mb	2.7 - 3.6	133	-40 ~ 125	SPI / Dual / Quad / DTR	o	o	o	o	o	S
W25Q16RV	16Mb	2.7 - 3.6	133	-40 ~ 125	SPI / Dual / Quad / DTR	o	o	o		o	S
W25Q80RV	8Mb	2.7 - 3.6	133	-40 ~ 125	SPI / Dual / Quad / DTR	o	o	o		o	S
W25Q40RV	4Mb	2.7 - 3.6	133	-40 ~ 125	SPI / Dual / Quad / DTR	o	o	o		o	S
W25Q20RV	2Mb	2.7 - 3.6	133	-40 ~ 125	SPI / Dual / Quad / DTR		o			o	S

W25H-JV Series – QSPI NOR

Characteristics

- Voltage: 3V
- Density: 256Mb ~ 2Gb
- Interface: SPI, Dual, Quad
- Speed: STR 133MHz, DTR 80MHz
- Features:
 - o Automotive Grade 1 and 2
 - o ASIL-B ready (512Mb and above)
 - o Built-in ECC
 - o One Time Programmable (OTP)
 - o Individual block/ Sector write protect

Target Application

- eCockpit, Advanced Driver Assistance System (ADAS), Driver Monitoring System (DMS), Connectivity



[W25H-JV Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP16 300mil	WSON8 8x6mm	TFBGA24 (5x5)	Status
W25H02JV	2Gb	2.7 - 3.6	133	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR			o	P
W25H01JV	1Gb	2.7 - 3.6	133	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR	o	o	o	P
W25H512JV	512Mb	2.7 - 3.6	133	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR	o	o	o	P
W25H256JV	256Mb	2.7 - 3.6	133	-40 ~ 105 / -40 ~ 125	SPI / Dual / Quad / DTR	o	o	o	P

W35T-NW Series - Octal NOR

Characteristics

- Voltage: 1.8V
- Density: 64Mb ~ 2Gb
- Interface: SPI, Octal SPI
- Speed: STR 166MHz, DTR 200MHz
- Features:
 - BUSY output pin
 - Individual block protect (256Mb and below)
 - AEG-Q100 automotive grade
 - CRC-in-Transit
 - CRC-in-Rest
 - Low power-down current



[W35T-NW Latest Updates](#)

Target Applications

- Automotive ADAS, Clusters, and Domain control system

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP16 300mil	TFBGA24 (5x5)	Status
W35T02NW	2Gb	1.65 ~ 2	166	-40 ~ 105 / -40 ~ 125	SPI / Octal / DTR		o	P
W35T01NW	1Gb	1.65 ~ 2	166	-40 ~ 105 / -40 ~ 125	SPI / Octal / DTR		o	P
W35T51NW	512Mb	1.65 ~ 2	166	-40 ~ 105 / -40 ~ 125	SPI / Octal / DTR		o	P
W35T25NW	256Mb	1.65 ~ 2	166	-40 ~ 105 / -40 ~ 125	SPI / Octal / DTR	o	o	P
W35T12NW	128Mb	1.65 ~ 2	166	-40 ~ 105 / -40 ~ 125	SPI / Octal / DTR	o	o	P
W35T64NW	64Mb	1.65 ~ 2	166	-40 ~ 105 / -40 ~ 125	SPI / Octal / DTR	o	o	P

Status: P= Mass Production, S= Samples, UD= Under Development

Winbond shall have the right to modify the status and schedule of this product at any time without notice. For the complete part number list of this series, and for any updates or changes, please refer to the official website.

NAND Flash

AEC Q-100 Qualified NAND Flash Tailored for Automotive Applications

Winbond automotive-grade NAND Flash solutions are AEC-Q100 qualified and engineered for reliable operation in harsh automotive environments with wide temperature support. The portfolio includes QSPI NAND, high-performance Octal NAND, and ONFI-compliant NAND, offering scalable densities, fast sequential read performance, and cost-efficient storage for large code and data. Built-in ECC and hardware block management simplify system design while ensuring data integrity and long-term reliability. With high throughput, fast program capability, and compatibility with automotive MCUs and SoCs, Winbond NAND Flash is well suited for ADAS, digital cockpit, infotainment, gateway, and OTA update applications requiring high capacity and automotive-grade robustness.

Category	Voltage	Series	Density	Highlights	Applications
QSPI NAND	1.8V	W25N-JW	1Gb	• DTR • Continuous Read	Automotive
	3V	W25N-GV	512Mb – 1Gb	• Continuous Read	Automotive
ONFI NAND	1.8V	W29N-LZ	4Gb – 8Gb	• ONFI 1.0 compliant with Automotive Grade 2+	Automotive
		W29N-HV	1Gb	• ONFI 1.0 compliant with Automotive Grade 2+	Automotive
		W29N-GV	2Gb – 8Gb	• ONFI 1.0 compliant with Automotive Grade 2+	Automotive
	3V	W29N-HZ	1Gb	• ONFI 1.0 compliant with Automotive Grade 2+	Automotive
		W29N-GZ	2Gb	• ONFI 1.0 compliant with Automotive Grade 2+	Automotive
Octal NAND	1.8V	W35N-JW	1Gb – 4Gb	• 8 I/O • DTR • Continuous Read	ADAS, eCockpit, DMS, Cluster

W25N-JW Series – QSPI NAND

Characteristics

- Voltage: 1.8V
- Density: 1Gb
- Interface: SPI, Dual, Quad
- Page size: 2048 + 64 byte
- Speed: STR 166MHz, DTR 80MHz
- Features:
 - Bad Block Management Lookup Table (BBM LUT)
 - Up to 105°C operating temperature
 - Buffer and Continuous Read mode
 - Automotive grade 2 and 2+

[W25N-JW Latest Updates](#)



Target Applications

- Automotive

Part No.	Density	Voltage (V)	STR Speed (MHz)	DTR Speed (MHz)	Temp. (°C)	Interface Mode	WSON8 8x6mm	TFBGA24 (5x5)	Status
W25N01JW	1Gb	1.7 - 1.95	166	80	-40 ~ 105 / -40 ~ 115	SPI/Dual/Quad	o	o	P

W25N-GV Series – QSPI NAND

Characteristics

- Voltage: 3V
- Density: 512Mb, 1Gb
- Interface: SPI, Dual, Quad
- Page size: 2048 + 64 byte
- Speed:
 - 512Mb: STR 166MHz
 - 1Gb: STR 104MHz
- Features:
 - Bad Block Management Lookup Table (BBM LUT)
 - Up to 105°C operating temperature
 - Buffer and Continuous Read mode
 - Deep power-down mode (512Mb)

[W25N-GV Latest Updates](#)



Target Applications

- Video Event Data Recorder (VEDR)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP16 300mil	WSON8 8x6mm	TFBGA24 (5x5)	Status
W25N01GV	1Gb	2.7 - 3.6	104	-40 ~ 105 / -40 ~ 115	SPI/Dual/Quad	o	o	o	P
W25N512GV	512Mb	2.7 - 3.6	166	-40 ~ 105 / -40 ~ 115	SPI/Dual/Quad		o	o	P

W29N-LZ –ONFI NAND

Characteristics

- Voltage: 1.8V
- Density: 4Gb, 8Gb
- Bus width: IO x 8, x 16 (Please contact Winbond for availability)
- Page size: 4096 + 256 byte
- Features:
 - o ONFI 1.0 compliant
 - o Block Lock (Please contact Winbond for availability)
 - o Automotive Grade 2



[W29N-LZ Latest Updates](#)

Target Applications

- Automotive

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	VFBGA63 9x11mm	Status
W29N08LZ	8Gb	1.8	-40 ~ 105 / -40 ~ 115	ONFI	o	UD
W29N04LZ	4Gb	1.8	-40 ~ 105 / -40 ~ 115	ONFI	o	UD

W29N-HV Series – ONFI NAND

Characteristics

- Voltage: 3V
- Density: 1Gb
- Bus width: IO x 8
- Page size: 2048 + 64 byte
- Features:
 - o ONFI 1.0 compliant
 - o Automotive grade AG2 and AG2+



[W29N-HV Latest Updates](#)

Target Applications

- Automotive

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	TSOP48 12x20mm	VFBGA48 8x6.5mm	VFBGA63 9x11mm	Status
W29N01HV	1Gb	2.7 - 3.6	-40 ~ 105 / -40 ~ 115	ONFI	o	o	o	S

W29N-GV Series – ONFI NAND

Characteristics

- Voltage: 3V
- Density: 2Gb ~ 8Gb
- Bus width: IO x 8, x 16 (Please contact Winbond for availability)
- Page size: 2048 + 64 byte
- Features:
 - o ONFI 1.0 compliant



[W29N-GV Latest Updates](#)

Target Applications

- Automotive

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	TSOP48 12x20mm	VFBGA63 9x11mm	Status
W29N08GV	8Gb	2.7 - 3.6	-40 ~ 105 / -40 ~ 115	ONFI	o	o	S
W29N04GV	4Gb	2.7 - 3.6	-40 ~ 105 / -40 ~ 115	ONFI	o	o	S
W29N02GV	2Gb	2.7 - 3.6	-40 ~ 105 / -40 ~ 115	ONFI	o	o	S

W29N-HZ Series – ONFI NAND

Characteristics

- Voltage: 1.8V
- Density: 1Gb
- Bus width: IO x 8, x 16 (Please contact Winbond for availability)
- Page size: 2048 + 64 byte
- Features:
 - ONFI 1.0 compliant

Target Applications

- Automotive



[W29N-HZ Latest Updates](#)

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	TSOP48 12x20mm	VFBGA48 8x6.5mm	VFBGA63 9x11mm	WLCSP	Status
W29N01HZ	1Gb	1.7 - 1.95	-40 ~ 105	ONFI	o	o	o	o	S

W29N-GZ Series – ONFI NAND

Characteristics

- Voltage: 1.8V
- Density: 2Gb
- Bus width: IO x 8, x 16 (Please contact Winbond for availability)
- Page size: 2048 + 64 byte
- Features:
 - ONFI 1.0 compliant

Target Applications

- Automotive



[W29N-GZ Latest Updates](#)

Part No.	Density	Voltage (V)	Temp. (°C)	Interface Mode	VFBGA63 9x11mm	Status
W29N02GZ	2Gb	1.7 - 1.95	-40 ~ 105	ONFI	o	P

W35N-JW Series – Octal NAND

Characteristics

- Voltage: 1.8V
- Density: 1Gb, 2Gb, 4Gb
- Interface: SPI, Octal
- Page size: 4096 + 128 byte
- Speed: SDR 166MHz, DDR 120MHz
- Features:
 - Built-in ECC
 - Bad Block Management Lookup Table (BBM LUT)
 - Buffer and Continuous Read mode
 - Operating temperature up to 115°C
 - Automotive grade 2 and 2+

Target Applications

- Automotive



[W35N-JW Latest Updates](#)

Part No.	Density	Voltage (V)	SDR Speed (MHz)	DDR Speed (MHz)	Temp. (°C)	Interface Mode	TFBGA24 (5x5)	Status
W35N04JW	4Gb	1.7 - 1.95	166	120	-40 ~ 105 / -40 ~ 115	Octal	o	P
W35N02JW	2Gb	1.7 - 1.95	166	120	-40 ~ 105 / -40 ~ 115	Octal	o	P
W35N01JW	1Gb	1.7 - 1.95	166	120	-40 ~ 105 / -40 ~ 115	Octal	o	P

Status: P= Mass Production, S= Samples, UD= Under Development

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TrustME® Secure Flash

AEC Q-100 Qualified Secure Flash Tailored for Automotive Applications

Winbond automotive-grade TrustME® Secure Flash delivers advanced hardware-based protection to enable a secure Root of Trust in modern vehicles. These devices support secure boot, firmware authentication, and secure OTA updates with rollback protection, helping defend against cyber threats throughout the vehicle lifecycle. AEC-Q100 qualified and designed to support ISO 26262 functional safety and ISO 21434 automotive cybersecurity requirements, TrustME® Secure Flash integrates robust cryptographic engines, secure key management, and data integrity mechanisms. With scalable densities and compatibility with standard SPI and xSPI interfaces, it is ideal for ADAS, gateways, digital cockpits, and other security- and safety-critical automotive applications.

Voltage	Series	Density	Highlights	Applications
1.8V	W77Q-JW	16Mb ~ 128Mb	CC EAL 2+	OTA, Industrial, Server
	W77T-NW	64Mb ~ 1Gb	Octal NOR with high speed and PQC capability	Automotive, Advanced IoT
	W75F	4Mb ~ 32Mb	CC EAL 5+	Electronic wallet, High security infrastructure
3V	W77Q-JV	64Mb ~ 128Mb	CC EAL 2+	OTA, Industrial, Server

W77Q-JW Series

Characteristics

- Voltage: 1.8V
- Density: 16Mb ~ 128Mb
- Interface: SPI, Dual, Quad
- Speed: STR 133MHz, DTR 66MHz
- Features:
 - o Secure Root of Trust (RoT) for IoT devices
 - o Secure Over-The-Air (OTA) firmware update with rollback protection
 - o Platform firmware resiliency assurance
 - o Local and remote secure-channel, encrypted, authenticated, replay-protected
 - o Common Criteria EAL 2+, SESIP Level 2 (with IEC 62443, NIST 8259A, WP.29 ready), ISO 21434, FIPS PUB 180-4 (CMVP, CAVP) and safety qualification: ISO 26262 ASIL-C ready



[W77Q-JW Latest Updates](#)

Target Applications

- Automotive

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SO P8 208mil	WSON8 6x5mm	XSON8 4x4mm	TFBGA24 (5x5)	Status
W77Q128JW	128Mb	1.7 - 1.95	133	-40 ~ 105	SPI / Dual / Quad / DTR	o	o		o	P
W77Q64JW	64Mb	1.7 - 1.95	133	-40 ~ 105	SPI / Dual / Quad / DTR	o	o		o	P
W77Q32JW	32MB	1.7 - 1.95	133	-40 ~ 105	SPI / Dual / Quad / DTR	o	o	o		P
W77Q16JW	16MB	1.7 - 1.95	133	-40 ~ 105	SPI / Dual / Quad / DTR	o	o			P

W77T-NW Series

Characteristics

- Characteristics
- Voltage: 1.8V
- Density: 64Mb ~ 1Gb
- Interface: SPI, Quad, Octal
- Speed: STR 200MHz, DTR 200MHz
- Features:
 - o Secure Root of Trust (RoT) for IoT devices
 - o Secure code and data storage
 - o Secure Over-The-Air (OTA) firmware update with rollback protection
 - o Post-Quantum Cryptography (PQC) compliant with CNSA 2.0 guidelines
 - o Leighton-Micali Signature (LMS) for secure OTA signatures and authentication
 - o Support secure supply chain via remote attestation based on LMS-OTS
 - o Platform firmware resiliency assurance (NIST SP 800-193)
 - o Local and remote secure-channel, encrypted, authenticated, replay-protected
 - o Common Criteria EAL 2+, SESIP Level 2 (with IEC 62443, NIST 8259A), FIPS 140-3 CMVP



[W77T-NW Latest Updates](#)

Target Applications

- Automotive

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	TFBGA24 (5x5)	Status
W77T01NW	1Gb	1.7 - 1.95	200	-40 ~ 105	SPI / Dual / Quad / DTR	o	P
W77T51NW	512Mb	1.7 - 1.95	200	-40 ~ 105	SPI / Dual / Quad / DTR	o	P
W77T25NW	256Mb	1.7 - 1.95	200	-40 ~ 105	SPI / Dual / Quad / DTR	o	P
W77T12NW	128Mb	1.7 - 1.95	200	-40 ~ 105	SPI / Dual / Quad / DTR	o	P
W77T64NW	64Mb	1.7 - 1.95	200	-40 ~ 105	SPI / Dual / Quad / DTR	o	P

W75F Series

Characteristics

- Voltage: 1.8V
- Density: 4Mb, 32Mb
- Interface: SPI, Quad, Octal
- Speed: STR 50MHz
- Features:
 - o Secure eXecute-in-Place (XiP)
 - o Tamper and SCA/DPA resistant

Target Applications

- Automotive



[W75F Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	WLCSP	Status
W75F32WB	32Mb	1.65 - 1.95	50	-25 ~ 85 / -40 ~ 85 / -40 ~ 105	SPI/Quad/Octal	o	P
W75F40WB	4Mb	1.62 - 1.98	50	-25 ~ 85 / -40 ~ 85 / -40 ~ 105	SPI/Quad/Octal	o	P

W77Q-JV Series

Characteristics

- Voltage: 3V
- Density: 64Mb ~ 128Mb
- Interface: SPI, Dual, Quad, QPI
- Speed: STR 133MHz, DTR 66MHz
- Features:
 - o Secure Root of Trust (RoT) for IoT devices
 - o Secure Over-The-Air (OTA) firmware update with rollback protection
 - o Platform firmware resiliency assurance
 - o Local and remote secure-channel, encrypted, authenticated, replay-protected
 - o Common Criteria EAL 2+, SESIP Level 2 (with IEC 62443, NIST 8259A, WP.29 ready), ISO 21434, FIPS PUB 180-4 (CMVP, CAVP) and safety qualification: ISO 26262 ASIL-C ready

Target Applications

- Automotive



[W77Q-JV Latest Updates](#)

Part No.	Density	Voltage (V)	Speed (MHz)	Temp. (°C)	Interface Mode	SOP8 208mil	WSON8 6x5mm	TFBGA24 (5x5)	Status
W77Q128JV	128Mb	2.7 - 3.6	133	-40 ~ 85 / -40 ~ 105	SPI/Dual/Quad/DTR	o	o	o	P
W77Q64JV	64Mb	2.7 - 3.6	133	-40 ~ 85 / -40 ~ 105	SPI/Dual/Quad/DTR	o	o	o	P

Status: P= Mass Production, S= Samples, UD= Under Development

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About Winbond

Winbond Electronics Corporation is one of the few companies worldwide with proprietary products and technology in both memory and logic integrated circuits. The Company provides customer-driven solutions backed by the expert capabilities of product design, R&D, manufacturing, and promoting brand name products globally. Winbond's product portfolio, consisting of Code Storage Flash, TrustME[®] Secure Flash, Customized Memory Solution (CMS), is widely used by tier 1 customers in communication, consumer electronics, automotive and industrial, and computer peripheral markets. Winbond is headquartered in Central Taiwan Science Park (CTSP), and it has subsidiaries in the USA, China, Japan, Germany, India, Korea, Hong Kong, Singapore, and Israel. With its 12-inch fabs located in CTSP and South Taiwan Science Park (STSP)'s Kaohsiung Science Park, Winbond keeps pace to develop in-house technologies to provide high-quality integrated circuit products and services.





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