Automotive Certified Flash Memories

As a leading provider of Flash memory solutions, 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. This commitment is particularly crucial for the automotive industry where product innovation and longevity support are paramount for ensuring reliable performance over extended periods. 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.

NAND Flash memories are available in sizes ranging from 512Mb to 8Gb and can operate at ambient temperatures of up to 115°C. The ONFi NAND families are fully industry standard and can be directly used as a drop-in replacement of existing flash. QspiNAND Flash achieves a data throughput rate of up to 80MB/s, while OctalNAND Flash offers a maximum continuous Read throughput of 240MB/s and can perform 100,000 Program/Erase cycles. These NOR and NAND Flash memories can meet various requirements for automotive applications and are excellent choices for those seeking reliable and high-performing solutions.

	Automotive Grade 2	Automotive Grade 1
Temperature Range	-40°C~105°C	-40°C~125°C
Part # Example	W25Q64JVSSAQ	W25Q64JVSSSQ
AEC-Q100 Compliant	Yes	Yes
Change Control (PPAP)	Available	Available

W25Q Quad SpiFlash®
- 3V / 1.8V Operating Voltage
- 2Mb - 256Mb with 104MHz Clock
- SPI
- Uniform 4KB, 32KB & 64KB erase

W25H Built-in ECC SpiFlash®
- 3V / 1.8V Operating Voltage
- 512Mb - 2Gb with 133MHz Clock
- STR and DTR output support
- Data Throughput up to 66MB/s
- Hardware Reset Support

W29N ONFi NAND
- 3V / 1.8V Operating Voltage
- 1Gb - 8Gb
- Industry Standard Compatible Products and Packages
- Ship from the Factory with 100% Good Blocks

W25N QspiNAND
- 3V / 1.8V Operating Voltage
- 512Mb - 2Gb with 104MHz & 166MHz Clock
- SPI, Dual SPI, Quad SPI
- STR and DTR Output Support
- Data Throughput Up to 80MB/s
- Hardware Reset Support (TFBGA24)
- Industry Standard Packages
- Built-in ECC
- Continuous Read and Sequential Read
- Hardware Block Management
- Ship from the Factory with 100% Good Blocks

W35N OctalNAND
- 1.8V Operating Voltage
- 1Gb, 2Gb, 4Gb with SDR 166MHz & DDR 120MHz Clock
- SPI, OSPI, ODDR
- Data Throughput SDR 166MB/s, DDR 240MB/s
- Built-in ECC
- Continuous Read
- Hardware Block Management
- Ship from the Factory with 100% Good Blocks

Winbond Automotive Flash Memory Selection Guide[1,2,3]

Density	Winbond Part #	SPI NOR	QspiNAND	ONFi NAND	Voltage	105˚C	115˚C[8]	125˚C
8G-bit NAND	W29N08GV			•	3V	•	•	
4G-bit NAND	W29N04GV			•	3V	•	•	
	W29N04GZ/W			•	1.8V[5]	•	•	
	W35N04JW		◦[7]		1.8V[5]	•	•	
2G-bit NAND	W29N02GV			•	3V	•	•	
	W29N02GZ/W			•	1.8V[5]	•	•	
	W25N02JW		•		1.8V[5]	•	•	
	W35N02JW		◦[7]		1.8V[5]	•	•	
1G-bit NAND	W29N01HV			•	3V	•	•	
	W25N01GV		•		3V	•	•	
	W29N01HZ			•	1.8V[5]	•	•	
	W25N01JW		•		1.8V[5]	•	•	
	W35N01JW		◦[7]		1.8V	•	•	
512M-bit NAND	W25N512GV		•		3V	•	•	
2G-bit NOR	W25H02JV	•			3V	•		•
	W25H02NW	•			1.8V	•		•
	W35T02NW	◦[7]			1.8V	•		•
1G-bit NOR	W25H01JV	•			3V	•		•
	W25H01NW	•			1.8V	•		•
	W35T01NW	◦[7]			1.8V	•		•
512M-bit NOR	W25H512JV	•			3V	•		•
	W25H512NW	•			1.8V	•		•
	W35T51NW	◦[7]			1.8V	•		•
256M-bit NOR	W25Q256JV	•			3V	•		•
	W25Q256JW	•			1.8V[4]	•		•
128M-bit NOR	W25Q128JV	•			3V	•		•
	W25Q128JW	•			1.8V[4]	•		•
64M-bit NOR	W25Q64JV	•			3V	•		•
	W25Q64JW	•			1.8V[4]	•		•
32M-bit NOR	W25Q32JV	•			3V	•		•
	W25Q32JW	•			1.8V[5]	•		•
16M-bit NOR	W25Q16JV	•			3V	•		•
	W25Q16JW	•			1.8V	•		•
8M-bit NOR	W25Q81DV	•			3V	•		•
	W25Q81EW	•			1.8V[4]	•		•
4M-bit NOR	W25X/Q40CV	•			3V	•		•
	W25Q41EW	•			1.8V[4]	•		•
2M-bit NOR	W25X20CV	•			3V	•		•
	W25Q21EW	•			1.8V[4]	•		•

1. See data sheet for further technical information. Some special features, such as OTP Write Protection, are special order. 2. Subject to change without notice. 3. See data sheet for details on Automotive product specifications. 4. 1.8V=1.65-1.95V. 5. 1.8V=1.7-1.95V. 6. "•" means qualified and available. 7. "◦" means Octal interface. 8. CP/F tested by -40°C and 115°C, reliability report refers to AG2 grade (-40°C to 105°C).

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Winbond Electronics Corporation
No. 8, Keya 1st Rd., Daya Dist.,
Taichung City 428303, Taiwan
Tel: 886-4-25218168
Email: mkt_online@winbond.com

Winbond Electronics Corporation America
2727 North First Street,
San Jose, CA 95134, U.S.A.
Tel: 1-408-943-6666

www.winbond.com

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