Automotive Certified SpiFlash Memories

Leading the Serial Flash Market in unit sales and revenue, Winbond TS16949 certified AEC-Q100 qualified memories support automotive applications. The automobile has transformed into the most sophisticated electronic device in the market. Digital displays in automotive dashboards provide more information about the car, and improve safety. Instant-on and real time 2D/3D image rendering is achieved with fast processors and SpiFlash® memories. ADAS (Advanced Driver Assist Systems), comfort, entertainment, and navigation are now available in the center console and this is addressed with SpiFlash memories using small packages for space constrained systems, and high density for advanced applications.

Winbond's Automotive W25Q Quad SpiFlash® Multi-I/O Memories feature the popular Serial Peripheral Interface (SPI), densities from 2M to 1G-bit serial NOR flash, small erasable sectors and the industry's highest performance. Clock rates up to 104MHz achieve an equivalent of 416MHz (52M-Byte/s transfer rate) when using Quad-SPI and even surpasses asynchronous Parallel Flash memories while using fewer pins and less space. Faster transfer rates mean controllers can execute code (XIP) directly from the SPI interface or further improve boot time when shadowing code to RAM. Automotive NAND Flash memories are also offered in densities of 1Gb and 2Gb QspiNAND, and 1Gb through 8Gb of ONFi NAND.

	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)	Optional	Optional

W25Q Quad SpiFlash®
- Serial Peripheral Interface (SPI)
- Uniform 4KB, 32KB & 64KB erase

W25N QspiNAND
- 3V / 1.8V completely product family
- 1G / 2G / 4G with 104MHz & 166MHz Clock with SPI, Dual SPI, Quad SPI, Octal SPI
- Support STR and DTR Output
- Support Hardware Reset
- Industry standard compatible packages

W29N ONFi NAND
- 3V / 1.8V Operation Voltage
- 1G, 2G, 4G and 8G-bit completely product family
- Industry standard compatible products and packages

Wide Range of Applications
- Digital Cluster, Rear/Front Camera, ADAS ECU, Radio / Infotainment, Navigation, Bluetooth, GPS, Telematic / Gateway, Data Recorder, DSP, FPGAs and more

Winbond Automotive SpiFlash® Memory Selection Guide [1,2,3]

Density	Winbond Part #	SPI NOR	QspiNAND	ONFi NAND	Voltage	85℃	105℃	125℃
8G-bit NAND	W29N08GV			•[6]	3V		•	
	W29N08GZ/W			•	$1.8V^5$		•	
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		○		$1.8V^5$		•	
1G-bit NAND	W29N01HV			•	3V		•	
	W25N01GV		•		3V		•	
	W29N01HZ			•	$1.8V^5$		•	
	W25N01JW		•		$1.8V^5$		•	
	W35N01JW		○		$1.8V^5$		•	
512M-bit NAND	W25N512GV		•		3V		•	
	W25N512GW		•		$1.8V^5$		•	
512M-bit	W25H512JV	•			3V	•	•	•
256M-bit	W25Q256JV	•			3V	•	•	•
	W25Q256JW	•			$1.8V^5$	•	•	•
128M-bit	W25Q128JV	•			3V	•	•	•
	W25Q128JW	•			$1.8V^4$	•	•	•
64M-bit	W25Q64JV	•			3V	•	•	•
	W25Q64JW	•			$1.8V^4$	•	•	•
32M-bit	W25Q32JV	•			3V	•	•	•
	W25Q32JW	•			$1.8V^5$	•	•	•
16M-bit	W25Q16JV	•			3V	•	•	•
8M-bit	W25Q81DV	•			3V	•	•	•
	W25Q81EW	•			$1.8V^4$	•	•	•
4M-bit	W25X/Q40CV	•			3V	•	•	•
	W25Q41EW	•			$1.8V^4$	•	•	•
2M-bit	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.