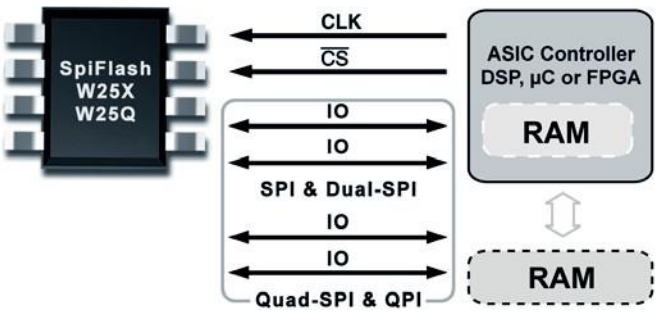
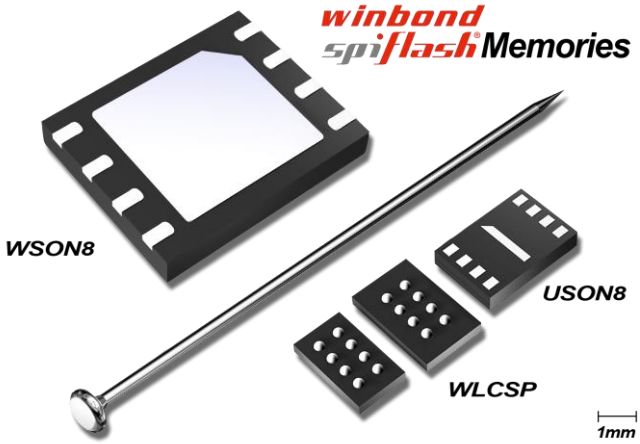
Winbond's W25Q SpiFlash® Multi-I/O Memories feature the popular Serial Peripheral Interface (SPI), densities from 512K-bit to 2G-bit, small erasable sectors and the industry's highest performance. The W25Q family with Dual-I/O and Quad-I/O SPI offers even higher performance. Clock rates up to 133MHz achieve an equivalent of 532MHz (66M-Byte/s transfer rate) when using Quad-SPI. Faster transfer rates mean controllers can execute code (XIP) directly from the SPI interface or further improve boot time when shadowing code to RAM. Some SpiFlash® devices offer the new Quad Peripheral Interface (QPI) supporting true Quad Commands for improved XIP performance and simpler controller circuitry. Additionally, new ultra-small form-factor packages are ideal for space constrained mobile and handheld applications.





W25X SpiFlash® Family

- 512K-bit to 4M-bit
- Serial Peripheral Interface (SPI), Dual Output SPI
- Uniform 4KB, 32KB & 64KB erase

W25Q SpiFlash® Family

- 2M-bit to 2G-bit, superset compatible with 25X
- SPI, Dual-SPI, Quad-SPI and QPI (for many devices)
- Uniform 4KB, 32KB & 64KB erase
- Erase and Program Suspend/Resume
- Quad Page Program
- Security: Lock-down, ID#, OTP Registers
- Serial Flash Discoverable Parameters (SFDP)

High Performance

- 133MHz Clock Rate, Quad-SPI (66MB/s)
- Fast-boot or execute code (XIP) from SPI

Voltage & Package Options

- 3V (2.7~3.6V), 2.5V (2.3~3.6V) and 1.8V (1.65~1.95V)
- Space saving packages: 8-pin SOIC, WSON, VSOP, USON, WLCSP, 16-pin SOIC, 24-ball TFBGA
- Known Good Die (KGD) Wafers

Wide Range of Applications

- PCs, DVD, BluRay, WLAN, DSL/Cable Modem, Printers,
- Hard Drives, Set Top Box, LCD-TV, Mobile Phones,
- Bluetooth, GPS, MP3, Meters, DSP, FPGAs and more

Refer to Winbond Automotive SpiFlash® Memory Selection Guide for details of Automotive products.

Winbond also offers the W29N family of industry standard SLC NAND products from 1Gb through 8Gb, and QspiNAND from 512Mb through 4Gb densities.

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Winbond Industrial SpiFlash® Memory Selection Guide [1]

Density	Winbond Part # [2]	Quad SPI	Clock MHz	Features [3]	Voltage	Package [4]
2G-bit	W25Q02JVxxIM	•	104	QPI, Enhanced, DTR	3V	xx=(TB[6])
	W25Q02NWxxIM	•	133	QPI, Enhanced, DTR	1.8V	xx=(TB[6])
1G-bit	W25Q01JVxxIM/Q	•	104	QPI, Enhanced, DTR	3V	xx=(SF,ZE,TB[6])
	W25Q01NWxxIM/Q	•	133	QPI, Enhanced, DTR	1.8V	xx=(SF,ZE,TB[6])
512M-bit	W25Q512JVxIM/Q	•	133	QPI, Enhanced, DTR	3V	x=(F,E,B)
	W25Q512NWxIM/Q	•	133/166	QPI, Enhanced, DTR	1.8V	x=(F,E,B)
256M-bit	W25Q256JVxIM/Q	•	133	QPI, Enhanced, DTR	3V	x=(F,E,C[6],B[6])
	W25Q256JWxIM/Q	•	133	QPI, Enhanced, DTR	1.8V	x=(F,E,C[6],B[6])
128M-bit	W25Q128JVxIM/Q	•	133	QPI, Enhanced, DTR	3V	x=(S,T[6],F,P,E,C[6],B[6])
	W25Q128JWxIM/Q	•	133	QPI, Enhanced, DTR	1.8V	x=(S, F[6],P[6])
64M-bit	W25Q64JVxxIM/Q	•	133	QPI, Enhanced, DTR	3V	xx=(SS,ST[6],SF,ZP,ZE, XG[6],TC,TB[6])
	W25Q64JWxxIM/Q	•	133	QPI, Enhanced, DTR	1.8V	xx=(SS,ST[6],SF[6],ZP,BY)
32M-bit	W25Q32JVxxIM/Q	•	133	QPI, Enhanced, DTR	3V	xx=(SS,ST[6],SF,ZP, XG[6],TC[6],TB[6])
	W25Q32JWxxIM/Q	•	133	QPI, Enhanced, DTR	1.8V	xx=(SS,ST[6],SF[6],ZP,ZE[6],XG,BY[6])
16M-bit	W25Q16JVxxIM/Q	•	133	QPI, Enhanced, DTR	3V	xx=(SN,SV[6],SS,ST[6],ZP,UU[6],XG[6],UX,BY)
	W25Q16JLxxIG	•	80/104	Enhanced	2.5V/3V	xx=(SN,SV[6],SS,ZP)
	W25Q16JWxxIM/Q	•	133	QPI, Enhanced, DTR	1.8V	xx=(SS,ST[6],ZP,UX,UU,XG[6],BY[6])
8M-bit	W25Q80DVxxIG/E[7]	•	104	Fast Write, Enhanced	3V	xx=(SN,SV,SS,ZP,UX,BY[6])
	W25Q80DLxxIG/E[7]	•	80/104	Fast Write, Enhanced	2.3V-3.6V	xx=(SN,SV,SS,ZP,UX,BY[6])
	W25Q80EWxxIG/E[7]	•	104	QPI, Fast Write, Enhanced	1.8V	xx=(SN,SV,ZP,UX,BY[6])
4M-bit	W25X40CLxxIG		80/104	Fast Write	2.3V-3.6V	xx=(SN,SV,SS,ZP,UX)
	W25Q40CLxxIG	•	80/104	Fast Write, Enhanced	2.3V-3.6V	xx=(SN,SS,UX[6])
	W25Q40EWxxIG/E[7]	•	104	QPI, Fast Write, Enhanced	1.8V	xx=(SN,SV,UX,BY[6])
2M-bit	W25X20CLxxIG		80/104	Fast Write	2.3V-3.6V	xx=(SN,SV,ZP,UX)
	W25Q20CLxxIG	•	80/104	Fast Write	2.3V-3.6V	xx=(SN,SV,ZP,UX)
	W25Q20EWxxIG/E[7]	•	104	Fast Write, Enhanced	1.8V	xx=(SN,SV,UX,BY[6])
1M-bit	W25X10CLxxIG		80/104	Fast Write	2.3V-3.6V	xx=(SN,UX)
	W25Q10EWxxIG/E[7]	•	104	Fast Write, Enhanced	1.8V	xx=(SN,SV[6],UX,BY[6])
512K-bit	W25X05CLxxIG		80/104	Fast Write	2.3V-3.6V	xx=(SN,UX)

1. See data sheet for further technical information. This is subject to change without notice. 2. At the end of the part number, letter “G” represents "Green", Halogen Free and RoHS compliant packaging; letter “Q” represents Green packaging and Quad Enabled as shipping default & fast sector erase time (tSE); letter “F” represents Fast Sector Erase time (tSE); letter “I” represents Industrial Temperature (-40°C to +85°C). 3. Enhanced=SFDP[1], Security Registers, Program/Erase Suspend/Resume, Burst Read with Wrap, Non-Volatile & Volatile Status Registers, Complement Array Protection. 4. SN=SO8 150mil, SV=VSOP8 150mil, SS or S=SO8 208mil, ST or T=VSOP8 208mil, SF or F=SO16 300mil, ZP or P=WSON8 6x5mm, ZE or E=WSON8 8x6mm, TC or C=TFBGA24 8x6mm (4x6 Matrix), TB or B=TFBGA24 8X6mm (5X5 Matrix), UX=USON8 2x3mm, UU=USON8 4x3mm, XG=XSON8 4x4mm, BY=WLCSP. KGD Wafer available. 5. Default 4-byte addressing for W25W257FV/JV. 6. Special Order. 7. “E” at the end of the part number is for USON8 package only.

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