

# parallel flash



## Parallel Flash Memory - W29GL Family

Winbond's W29GL family of 3-Volt Page-Mode Parallel Flash memories are offered in densities from 32Mb to 256Mb and support industry standard interfaces, architectures and packages. They are drop-in replacements to the popular "x29GL" products available in the industry, with no firmware change. The W29GL family also offers faster program and erase times, which can improve production throughput and enable faster firmware updates. Winbond's Parallel Flash products are offered in industrial and automotive grades and are ideal for a wide variety of applications requiring the higher performance of a parallel bus width and page mode operation.

### W29GL Page Mode Parallel Flash Family

- 32Mb to 256Mb densities
- Compatible with Industry Standard x29GL products
- 2.7V to 3.6V operation; also supports  $V_{IO}$  at 1.8V
- x8/x16 data bus configuration
- 70/90ns read access time, 25ns page mode access time
- Provides many sector protection mechanisms
  - o Offers additional security of code/data

### Package Options

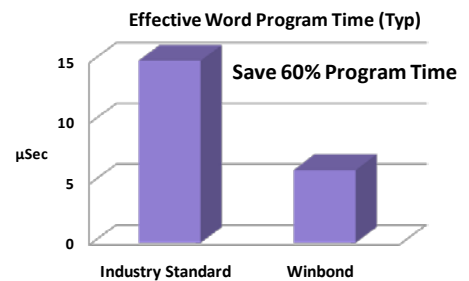
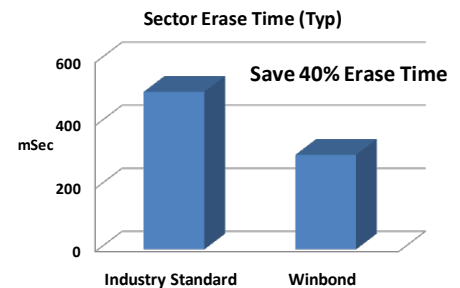
- Industry standard packages for 32Mb & 64Mb densities
  - o 48-pin TSOP (Top/Bottom Boot)
  - o 48-ball TFBGA (Top/Bottom Boot)
  - o 56-pin TSOP (High/Low Sector protect)
  - o 64-ball LFBGA (Top/Bottom Boot, High/Low Sector protect)
- Industry standard packages for 128Mb to 256Mb densities
  - o 56-pin TSOP (High/Low Sector protect)
  - o 56-ball TFBGA (High/Low Sector protect)
  - o 64-ball LFBGA (High/Low Sector protect)

### Special Features

- Drop-in replacement of Industry Standard x29GL
  - o No firmware change needed
- Saves 40% erase time and 60% program time
  - o Improves production throughput
  - o Faster firmware updates

### Wide Range of Applications

- Networking, Set-Top-Box, DSL and Cable modems
- Wireless routers, Digital TV, Industrial, Automotive
- PC peripherals, Printer, Mobile phones, Cameras and more



Winbond also offers a complete family of Serial Flash products ranging from 512Kb through 512Mb in SPI, Dual-SPI, Quad-SPI and QPI versions.

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## Winbond Parallel Flash Memory Selection Guide <sup>1,2,3</sup>

Density	Winbond Part # <sup>4</sup>	Secure Sectors		Speed (ns)	Page Access (ns)	Package <sup>5</sup>	Sample Availability
		Boot/Uniform Sectors	Sector Location				
256M-bit	W29GL256S/PH9T <sup>7</sup>	Uniform Sector	High Sector	90	25	TSOP56	Now
	W29GL256S/PH9B <sup>7</sup>	Uniform Sector	High Sector	90	25	LFPGA64	Now
	W29GL256S/PH9C <sup>7</sup>	Uniform Sector	High Sector	90	25	TFPGA56	Now
	W29GL256S/PL9T <sup>7</sup>	Uniform Sector	Low Sector	90	25	TSOP56 <sup>8</sup>	Now
	W29GL256S/PL9B <sup>7</sup>	Uniform Sector	Low Sector	90	25	LFPGA64	Now
	W29GL256S/PL9C <sup>7</sup>	Uniform Sector	Low Sector	90	25	TFPGA56 <sup>8</sup>	Now
128M-bit	W29GL128CH9T	Uniform Sector	High Sector	90	25	TSOP56	Now
	W29GL128CH9B	Uniform Sector	High Sector	90	25	LFPGA64	Now
	W29GL128CL9T	Uniform Sector	Low Sector	90	25	TSOP56	Now
	W29GL128CL9B	Uniform Sector	Low Sector	90	25	LFPGA64	Now
64M-bit	W29GL064CTxS	Top Boot	Top two sectors	70/90	25	TSOP48	Now
	W29GL064CTxA	Top Boot	Top two sectors	70/90	25	TFPGA48	Now
	W29GL064CTxB	Top Boot	Top two sectors	70/90	25	LFPGA64	Now
	W29GL064CBxS	Bottom Boot	Bottom two sectors	70/90	25	TSOP48	Now
	W29GL064CBxA	Bottom Boot	Bottom two sectors	70/90	25	TFPGA48	Now
	W29GL064CB7B	Bottom Boot	Bottom two sectors	70/90	25	LFPGA64	Now
	W29GL064CHxT	Uniform Sector	High Sector	70/90	25	TSOP56	Now
	W29GL064CHxB	Uniform Sector	High Sector	70/90	25	LFPGA64	Now
	W29GL064CLxT	Uniform Sector	Low Sector	70/90	25	TSOP56	Now
	W29GL064CLxB	Uniform Sector	Low Sector	70/90	25	LFPGA64	Now
32M-bit	W29GL032CTxS	Top Boot	Top two sectors	70/90	25	TSOP48	Now
	W29GL032CTxA	Top Boot	Top two sectors	70/90	25	TFPGA48	Now
	W29GL032CTxB	Top Boot	Top two sectors	70/90	25	LFPGA64 <sup>6</sup>	Now
	W29GL032CBxS	Bottom Boot	Bottom two sectors	70/90	25	TSOP48	Now
	W29GL032CBxA	Bottom Boot	Bottom two sectors	70/90	25	TFPGA48	Now
	W29GL032CBxB	Bottom Boot	Bottom two sectors	70/90	25	LFPGA64 <sup>6</sup>	Now
	W29GL032CHxT	Uniform Sector	High Sector	70/90	25	TSOP56 <sup>6</sup>	Now
	W29GL032CHxB	Uniform Sector	High Sector	70/90	25	LFPGA64 <sup>6</sup>	Now
	W29GL032CLxT	Uniform Sector	Low Sector	70/90	25	TSOP56 <sup>6</sup>	Now
W29GL032CLxB	Uniform Sector	Low Sector	70/90	25	LFPGA64 <sup>6</sup>	Now	

1. All parts operate from 2.7V to 3.6V. 2. See data sheet for additional technical information. 3. Subject to change without notice. 4. In the part number x=7: Industrial (-40C to +85C) 70ns, x=9: Industrial (-40C to +85C) 90ns, x=J: Industrial Plus (-40C to +105C) 90ns, x=S: Automotive Grade1 (-40C to +125C) 90ns, x=A: Automotive Grade2 (-40C to +105C) 90ns, x=B: Automotive Grade3 (-40C to +85C) 90ns. 5. "Green", Halogen-Free and RoHS compliant packaging. KGD Wafer also available. S=TSOP48(12X20mm), T=TSOP56(14x20mm), C=TFPGA56(7x9mm), B=LFPGA64(11x13mm), A=TFPGA48(6x8mm). 6. Contact Winbond for availability of these LFPGA64 & TSOP56 packages. 7. S=Fast Program/Erase, x16 only; P=x8/x16. 8. W29GL256P offers TSOP56 & LFPGA64 packages only.



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