

# DRAM Memories Products

## Specialty DRAM & Mobile DRAM

Winbond specializes in the design of high performance and low power memory. With a 12-inch fab, we offer a whole series of Specialty DRAM and Mobile DRAM products that target a top-tier clientele and quality-oriented applications.

Winbond's products are used extensively in handheld devices, consumer electronics and computer peripherals. Winbond also focus on high-barrier, high-quality applications, such as KGD, automobile and industrial electronics.

### Specialty DRAM

- ✓ Support customized KGD solutions including RDL & wide range power domains
- ✓ Special BGA package support on SDR and DDR for portable devices

### Mobile DRAM

- ✓ Ultra-Low power by DSR (Deep Self-Refresh) and HSM (Hybrid Sleep Mode)
- ✓ Support x8, x16 and x32 data widths from different product line

Density / Interface	Specialty DRAM						Mobile DRAM							
	SDR /DDR	DDR2		DDR3		DDR4	pSRAM	HyperRAM™	LP DDR LP SDR	LP DDR2		LP DDR3		LP DDR4/4X
		46/38	25nm	46/38	25nm	25nm				46nm	38/25	38nm	25nm	25nm
16Mb	SDR													
32Mb	MP						MP	MP						
64Mb	MP						MP	MP						
128Mb	MP	MP					MP	S	MP					
256Mb	MP	MP					MP	UD	MP	MP				
512Mb		MP	S	MP				UD	MP	MP				
1Gb		MP		MP	UD				MP	MP	MP		MP	
2Gb		MP		MP	MP					MP	MP			X16 MP
4Gb				MP	MP	S						MP		x32 S x16 S
8Gb														x32 UD

\*MP = Mass production, S= Sample, UD= Under Development

## Winbond DRAM Selection Guide<sup>1,2</sup>

Product	Density Range	I/O Width	Voltage	Temperature <sup>3</sup>	Speed (Mbps)	Package type <sup>4</sup>
<b>Specialty DRAM</b>						
SDRAM	16Mb to 256Mb	x16, x32	2.5V, 3.3V	C-Temp, I-Temp	133/166/200	VFBGA 60 TFBGA 54 TSOP II 54 TFBGA 90 TSOP II 86
DDR	64Mb to 256Mb	x16	2.5V	C-Temp, I-Temp	333/400/500	TSOP II 66 TFBGA 60
DDR2	128Mb to 2Gb	x8, x16	1.8V	C-Temp, I-Temp	667/800/1066	wBGA 84 wBGA 60
DDR3	512Mb to 4Gb	x8, x16	1.5V, 1.35V	C-Temp, I-Temp	1600/1866/2133	wBGA 96 wBGA 78
DDR4	4Gb	x8, x16	1.2V	C-Temp, I-Temp	2133/2400	wBGA 78 wBGA 96
<b>Mobile DRAM</b>						
pSRAM	32Mb to 256Mb	x16	1.8V/1.8V	C-Temp, I-Temp	133/166 (SDR) 200/266/333 (DDR)	VFBGA 54 WFBGA 49
HyperRAM™	32Mb to 128Mb	x8	1.8V/1.8V, 3V/3V	C-Temp, I-Temp	333/400	TFBGA 24 VFBGA 49 WLCSP
LP SDR	128Mb to 512Mb	x16, x32	1.8V/1.8V	C-Temp, I-Temp	133/166	VFBGA 54 VFBGA 90
LP DDR	128Mb to 1Gb	x16, x32	1.8V/1.8V	C-Temp, I-Temp	333/400	VFBGA 60 VFBGA 90
LP DDR2	256Mb to 2Gb	x16, x32	1.8V/1.2V	C-Temp, I-Temp	667/800/1066	VFBGA 134
LP DDR3	1Gb and 4Gb	x16, x32	1.8V/1.2V	C-Temp, I-Temp	1600/1866/2133	VFBGA 178
LP DDR4	2Gb to 8Gb	x16, x32	1.8V/1.1V/1.1V	C-Temp, I-Temp	3200/3733/4266	VFBGA 200
LP DDR4X	2Gb to 8Gb	x16, x32	1.8V/1.1V/0.6V	C-Temp, I-Temp	3200/3733/4266	VFBGA 200

1. See data sheet for further technical information. This is subject to change without notice.

2. The availability and product development status, please check [www.winbond.com](http://www.winbond.com).

3. For Specialty DRAM, C-temp is 0°C~85°C, -40°C~85°C for industrial temp., -40°C~105°C for industrial plus temp. For Mobile DRAM, C-temp is -25°C~85°C, -40°C~85°C for industrial temp..

4. All Winbond products are "Green", Halogen-Free and RoHS compliant packaging.

5. Please visit [www.winbond.com](http://www.winbond.com) for additional information or questions about our products.



**winbond**  
*We Deliver*

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