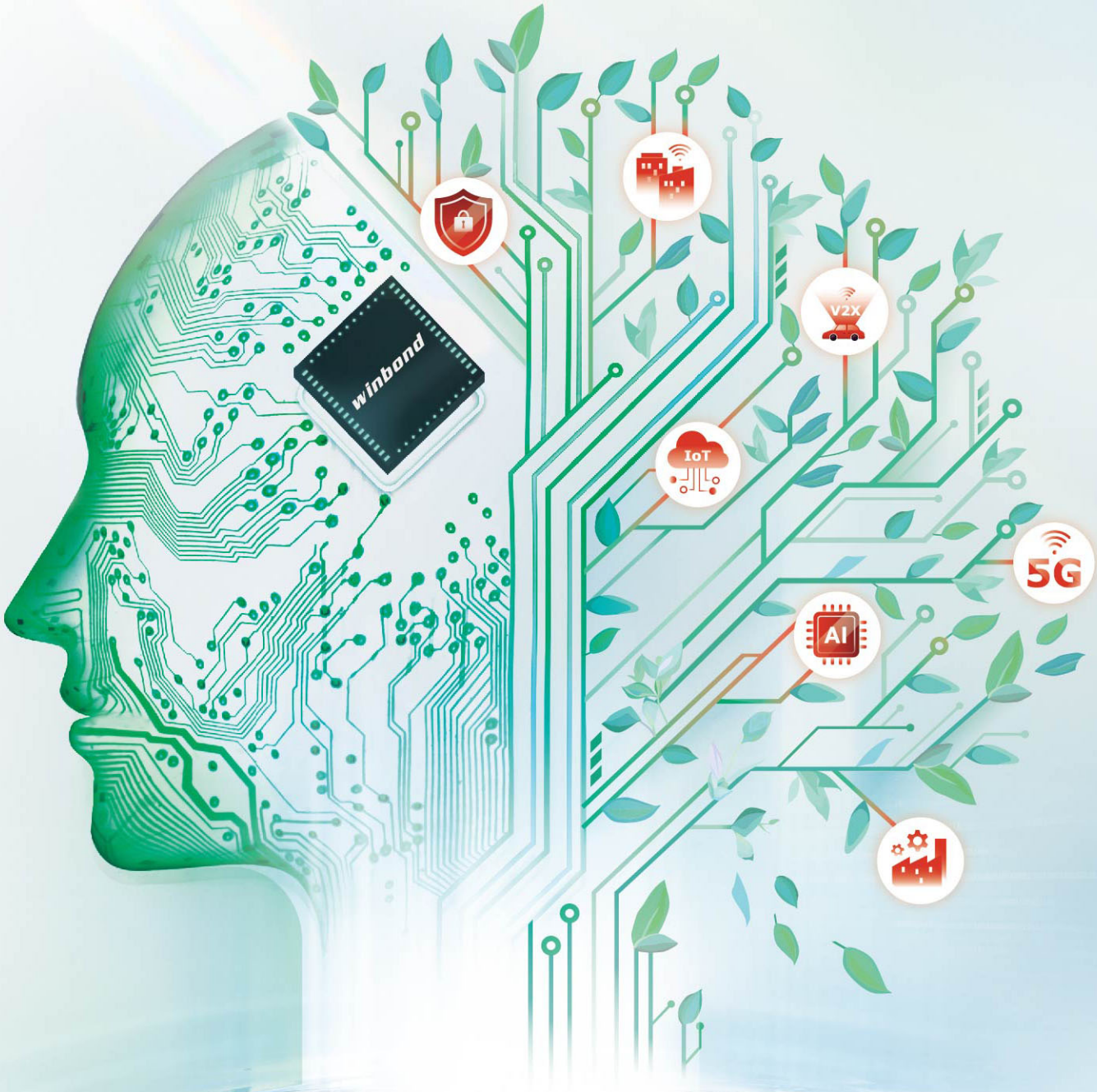
winbond

Customized Memory Solution
Product Selection Guide 2025

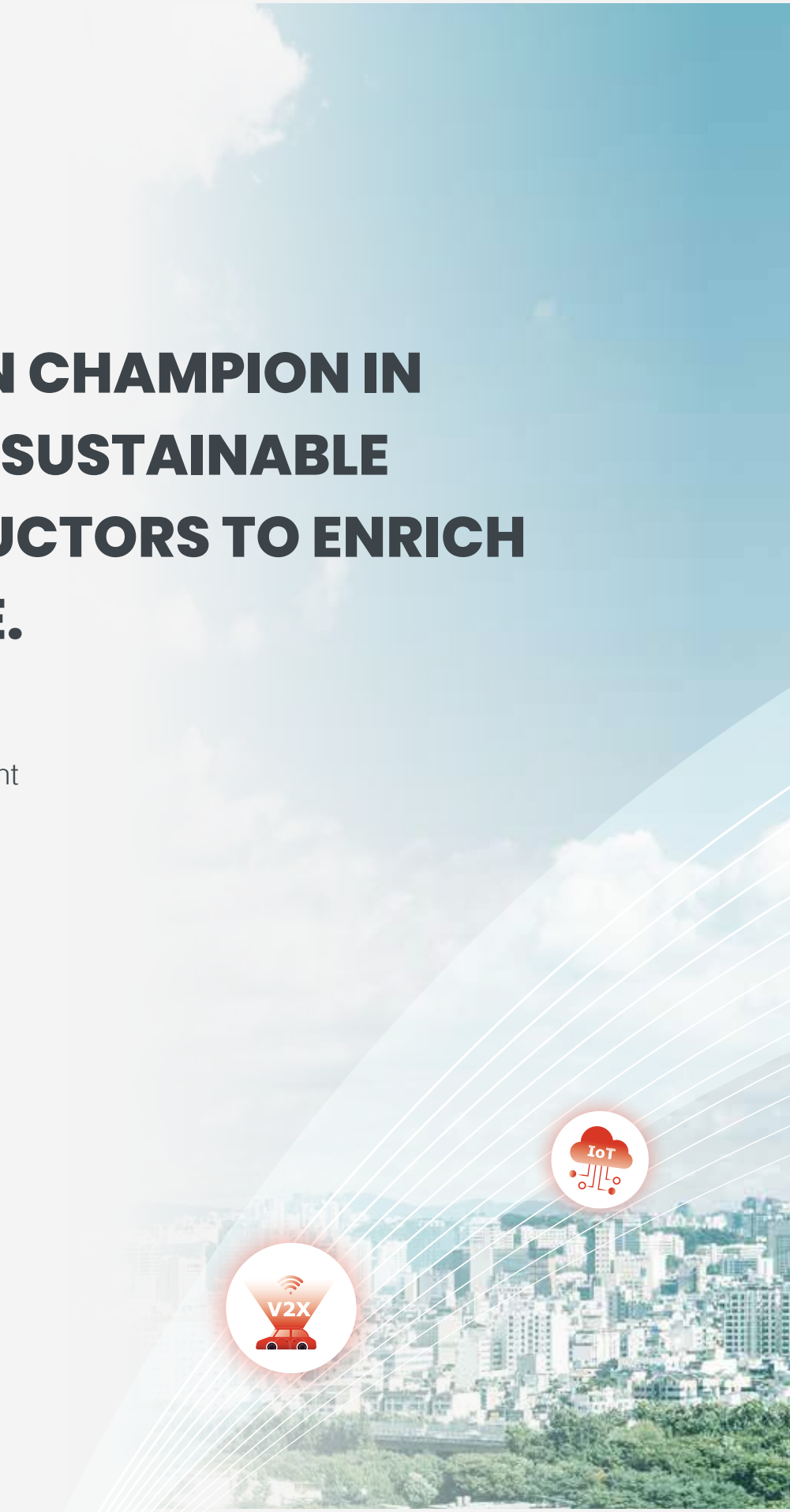


GREEN MEMORY
GREEN FUTURE

winbond

BE A HIDDEN CHAMPION IN PROVIDING SUSTAINABLE SEMICONDUCTORS TO ENRICH HUMAN LIFE.

Winbond Vision Statement




5G
AI
winbond

CONTENTS

POSITIONING & ADVANTAGES

A trusted supplier of advanced memory products

A Trusted Supplier of Advanced Memory Products

From R&D through advanced manufacturing to dedicated customer service, Winbond Electronics Corporation is a total memory solutions provider.

Winbond's customer-driven memory solutions are backed by deep expertise in

- R&D
- Product design
- Wafer fabrication and device packaging, assembly and testing
- Sales and technical support provided directly to the world's largest OEMs

Winbond's product portfolio consists of Customized Memory Solution, Code Storage Flash Memory, and TrustME® Secure Flash Memory. The company serves customers in communications, consumer electronics, automotive, industrial, computer peripherals markets and the IoT, supplying its products directly or via a global network of authorized distributors.

Winbond's headquarter is in the Central Taiwan Science Park. It operates 12-inch wafer fabs in Taichung and Kaohsiung in Taiwan.Subsidiaries in the USA, Japan, Israel, China, Hong Kong, and Germany perform marketing operations and provide direct support to customers.

Winbond's combination of advanced semiconductor technologies developed in-house and close relationships with customers support its position as a trusted supplier of memory products.

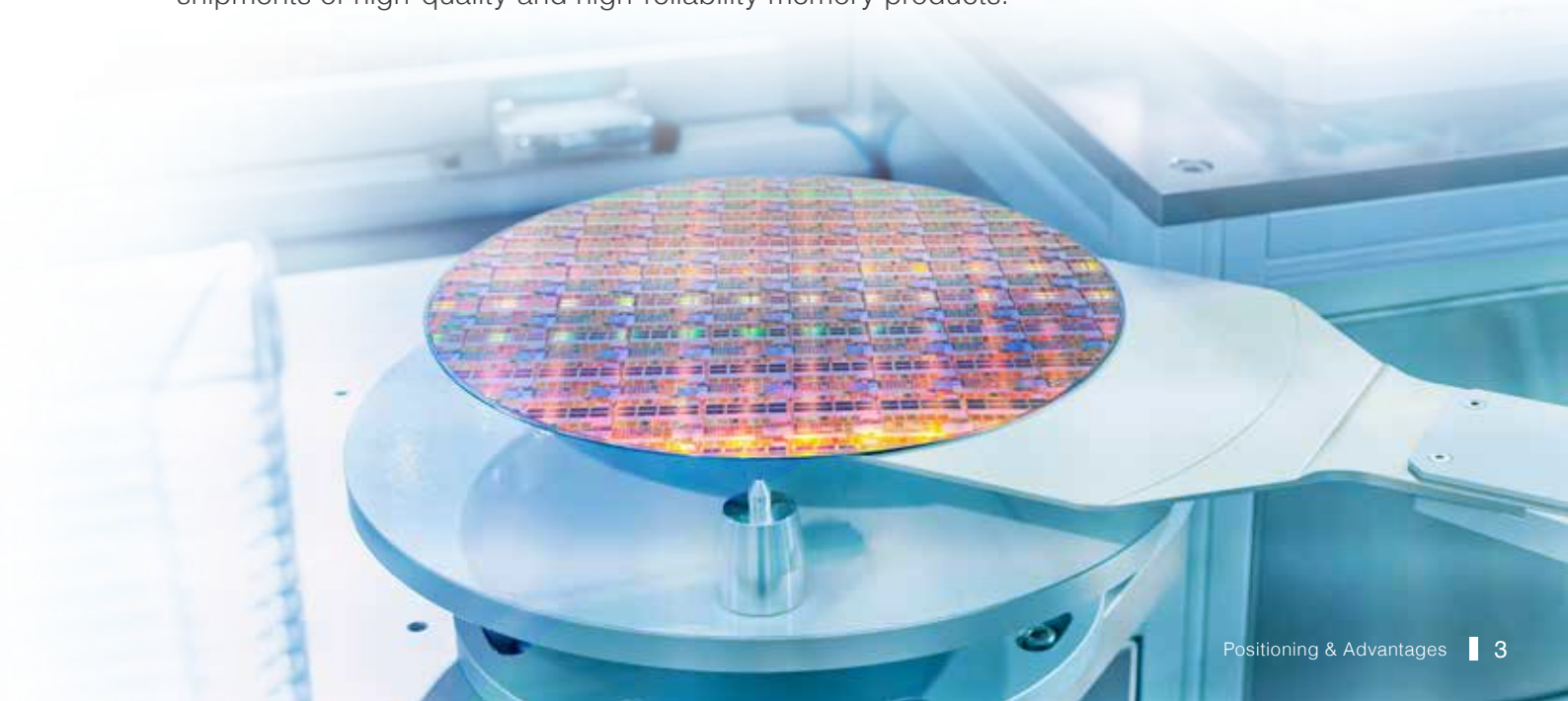
Trusted for Safety and High Quality

In high-technology products, the integrity of the software code and the reliable operation of memory devices are of critical importance. That's why Winbond's Quality Management Program governs every stage of a product's life, from its start in the R&D laboratory to manufacturing and device testing.

The program has three key elements:

Quality Control	Meticulously monitors materials and production processes to check that they satisfy rigorous standards in automotive and industrial.
Reliability Assurance	Performs a comprehensive set of accelerated electrical, thermal, cycling, and other tests to verify the reliability of production units.
Failure Analysis	Investigates the causes of product failures and proposes corrective actions.

This is why Winbond is trusted by the world's largest manufacturers to provide on-time shipments of high-quality and high-reliability memory products.



Independently Verified Quality and Safety Performance

The data which Winbond provides to customers give direct assurance about the quality and reliability of its products. Comprehensive reliability test reports and quarterly average quality data are published on Winbond's website.

Customers can also take assurance from independent verification of the quality and safety of Winbond's products and processes:

Quality

- IATF 16949
- ISO 9001

Safety

- ISO 26262
- ISO 45001

Cyber-Security

- ISO 27001
- ISO 21434

Environment

- ISO 14001
- QC 080000
- ISO 50001
- ISO 14064
- SONY Green Partner
- ISO 46001

Others

- RBA VAP Certificate
- AEC-Q100 Committee Member

IATF 16949 | ISO 9001 | ISO 26262 | ISO 45001 | ISO 27001 | ISO 21434 | RBA VAP

ISO 14001 | QC 080000 | ISO 50001 | ISO 14064 | SONY Green Partner | ISO 46001

Reliability also extends to the supply chain: the Winbond Product Longevity Program guarantees a minimum 10-year lifetime for products supplied to automotive, industrial, consumer, medical, and industrial computing markets. Products supplied under this program are subject to extended product change notification, end-of-life and last-time buy arrangements.

Customized Memory Solution

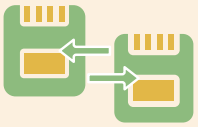
Customized Memory Solution

The Mission of CMS: Driving Energy Efficiency and Carbon Reduction

At CMS (Customized Memory Solution), our mission goes beyond manufacturing with renewable energy. We prioritize understanding customer needs, addressing system-level challenges, and continuously innovating to develop products that minimize energy consumption—making these efforts a core part of who we are.

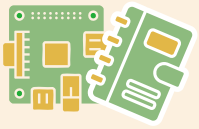
CMS specializes in delivering memory solutions tailored to the unique demands of enterprises. Each solution is carefully designed and optimized for specific applications or environments, ensuring exceptional performance, reliability, and cost-efficiency.

Customized Memory Solution Focus on the Following Key Areas:



Memory Capacity and Speed

Designing memory modules with the appropriate capacity and speed to meet specific application requirements.



Memory Types

Providing a range of memory options, such as DDR4 and LPDDR4, to suit various requirements.

Power Management

Optimizing energy efficiency to extend battery life and reduce overall power consumption.

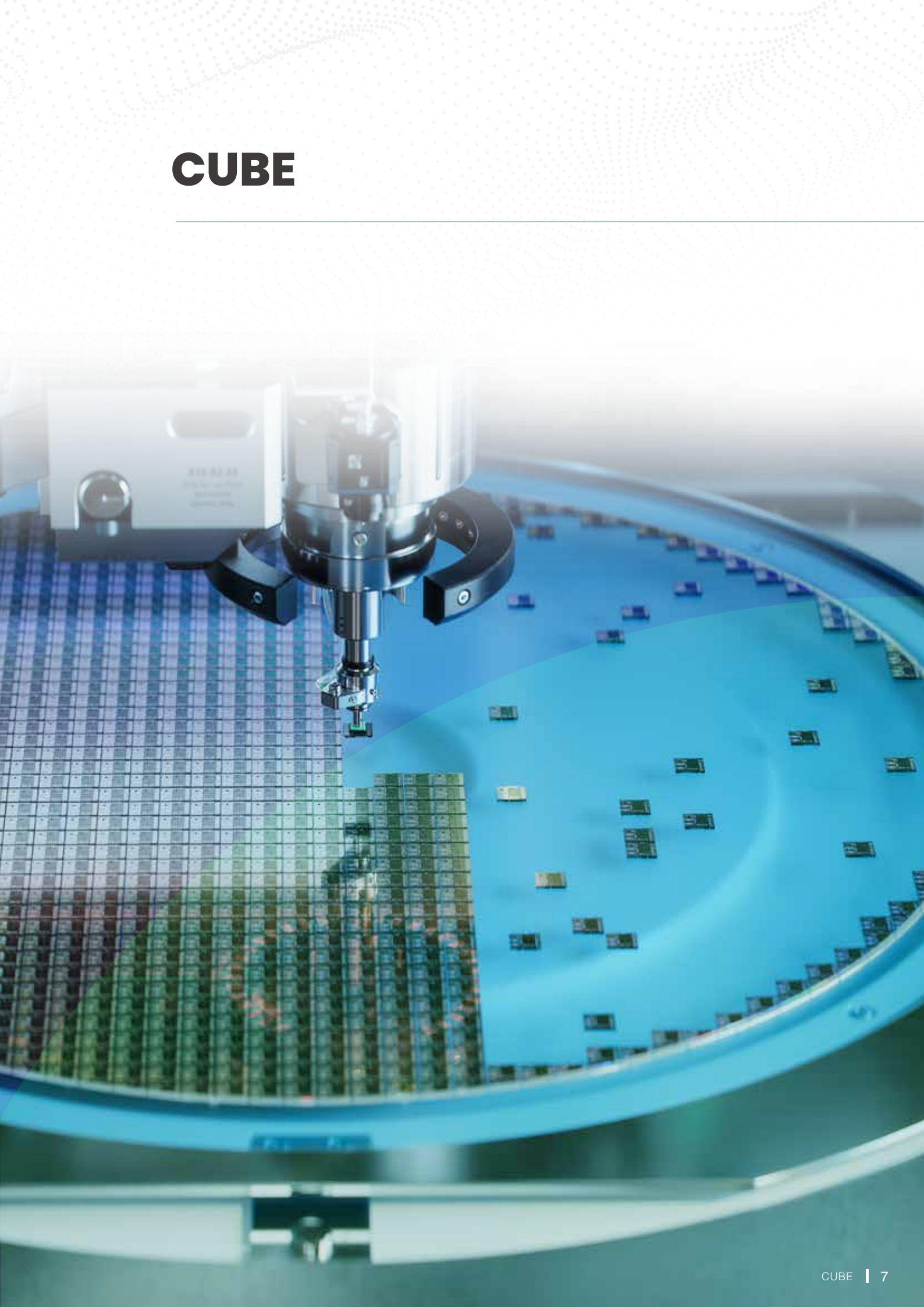
Reliability and Durability

Engineering memory solutions built for tough environments, including industrial, medical, and military applications, ensuring long-term performance and reliability.

These customized solutions are typically developed and delivered by professional memory suppliers or manufacturers, tailored to meet the specific needs of customers. This approach ensures optimal performance and seamless system compatibility.

CMS is committed to enhancing product value as a foundation for achieving stable sales and sustainable profitability. Looking ahead, CMS aims to launch high-value products that not only fulfill customer needs for energy efficiency and carbon reduction but also contribute meaningfully to environmental protection and sustainable development. Together, we strive to create a cleaner and greener future.

CUBE



CUBE

CUBE as the Solution

CUBE addresses the shortcomings of conventional memory IC and module solutions through novel approaches to increasing I/O count and raising data speed, support for Through-Silicon Via (TSV) technology as an option, and its 3D architecture that reduces thermal dissipation issues.

As an innovative and patented high-bandwidth memory interface technology, CUBE enables memory modules to be optimized for seamless performance when running AIs that use large model sizes, whose demands outstrip the bandwidth available with conventional memory modules. While enhancing bandwidth, CUBE also reduces power consumption. CUBE enhances the performance of front-end 3D structures such as chip on wafer (CoW) and wafer on wafer (WoW), as well as back-end 2.5D/3D chip on Si-interposer on substrate and Fan-out solutions. On the other hand, CUBE is easily adopted in new product designs.

While CUBE suitable for use with power-conscious high-bandwidth edge/endpoint AI devices that combine the strengths of cloud and edge engines. These are expected to be the next phase in making advanced AI applications more accessible, overcoming security and cost issues.

Suitable for power-conscious design, CUBE enables seamless and efficient deployment of AI models across different platforms and use cases, including edge devices and surveillance.

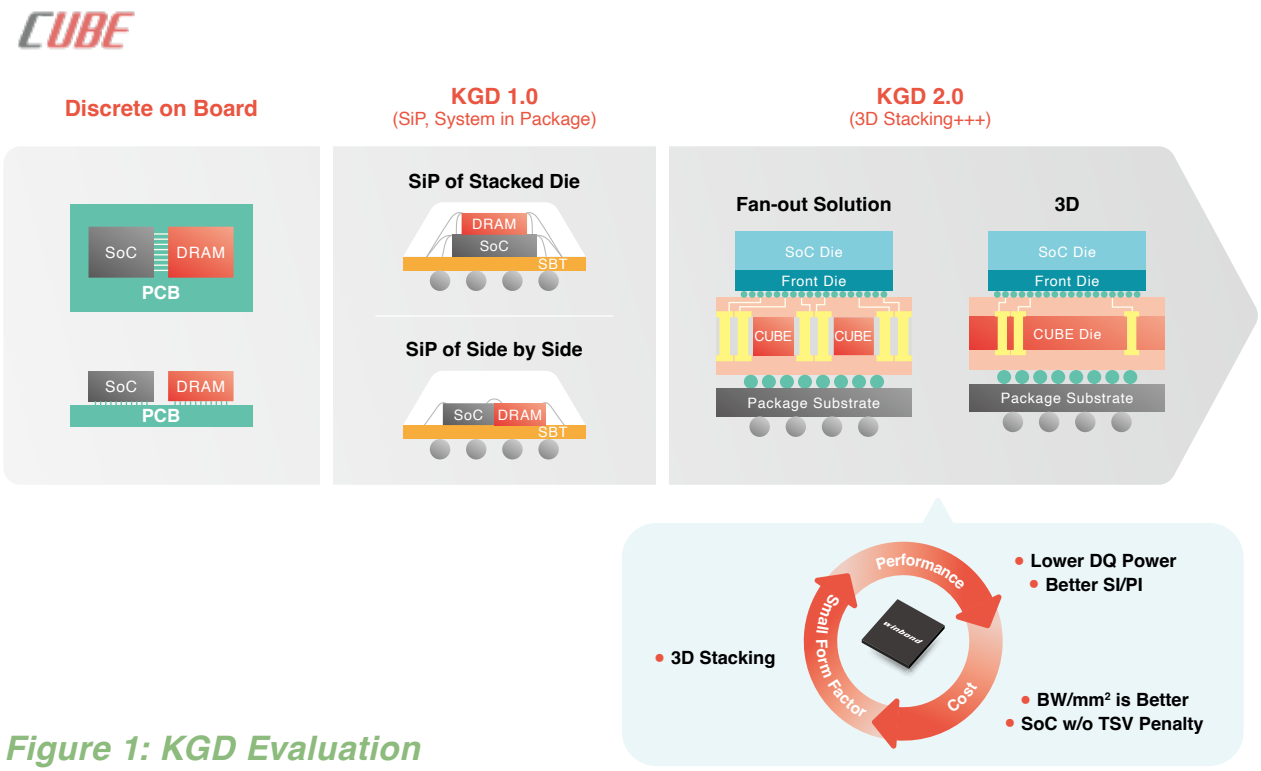


Figure 1: KGD Evaluation

CUBE

CUBE in Detail

CUBE excels by providing high bandwidth memory solutions that address the limitations found in current offerings, thereby enhancing overall system performance.

Also, CUBE benefits from outstanding power efficiency, consuming less than 1pJ/bit. This makes it particularly well-suited for energy-sensitive applications, outperforming less power-efficient alternatives.

Moreover, the compact form factor, achieved through 3D stacking options and a small size, makes CUBE an ideal choice for portable and space-constrained devices. The innovative 3D architecture of CUBE strategically places the System on Chip (SoC) on the top die close to the heatsink, effectively mitigating heat dissipation concerns associated with AI computing.

Another key feature is CUBE's flexibility in design, allowing for customization to meet the specific requirements of various applications and so provide tailored solutions for customers. The integration of Through-Silicon Vias (TSVs) in CUBE contributes to improved power delivery, signal integrity, and overall system efficiency.

CUBE's flexible design allows customization of die area, optimized according to specific customer SoC specifications.

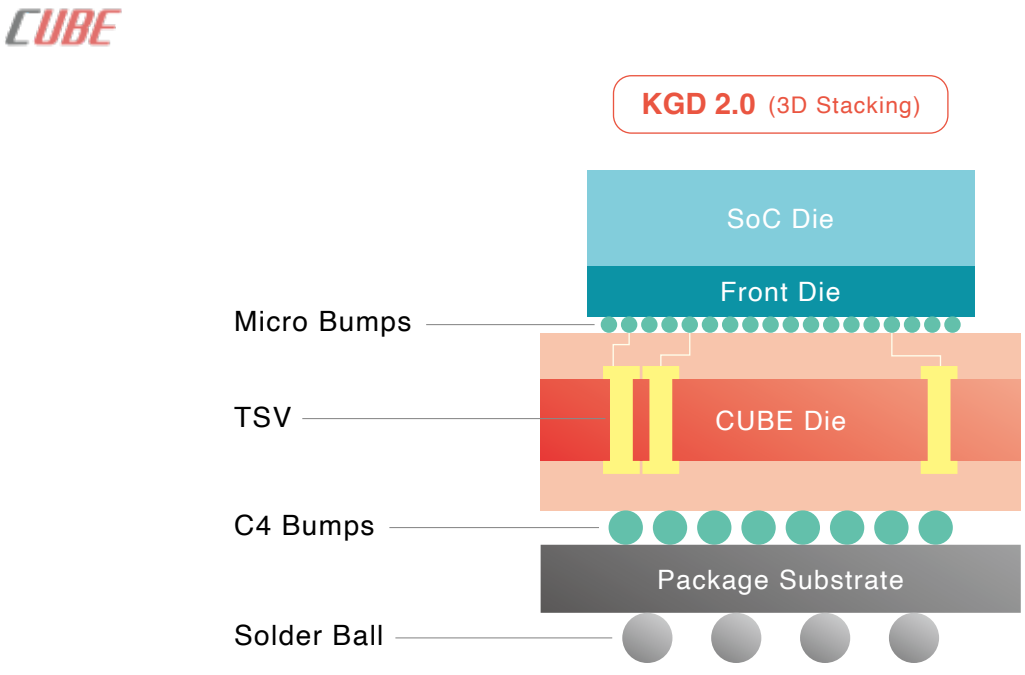


Figure 2: CUBE 3D Stacking

CUBE

Memory Density and Key Features

CUBE can be designed using wafer-on-wafer stacking with hybrid bonding, providing flexibility to optimize memory bandwidth for various applications. For 4 high stacking on D16 process, it can achieve 64Gb/stacked die.

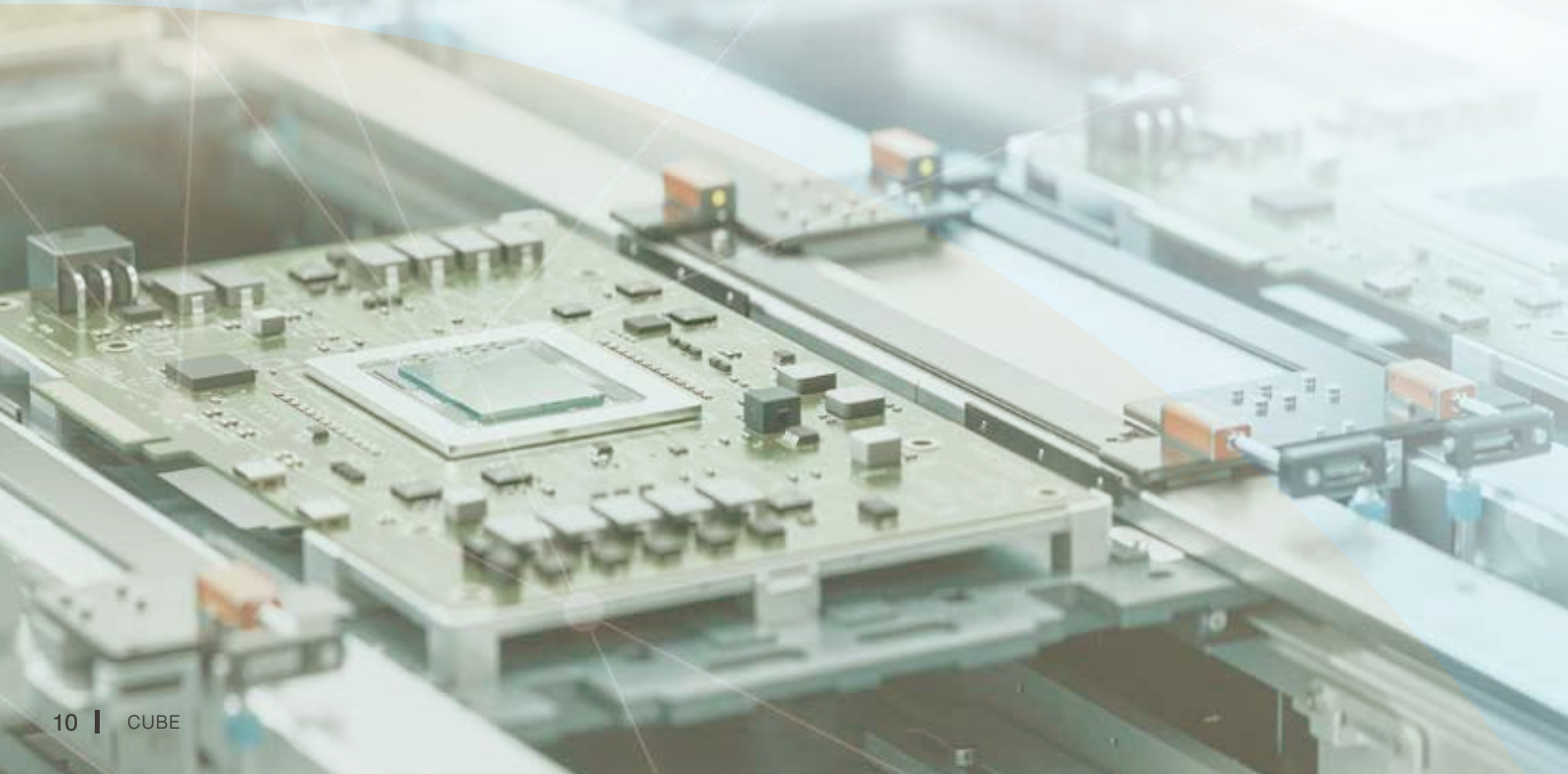
CUBE delivers exceptional power efficiency, consuming less than 1pJ/bit in D20 process, ensuring extended operation and optimized energy usage.

CUBE's I/O interface supports a data rate of 2Gbps with 1K I/O, providing total bandwidth ranging from 16GB/s to 256GB/s per die. In 4 high stacking cases, it can achieve 4K I/O and 1TB/s bandwidth per die. In this way, CUBE ensures accelerated performance that exceeds industry standards and enhances power and signal integrity through uBump or Hybrid bonding.

Offering from 1-8Gb/die based on the D20 specification, and with flexible design and 3D stacking options, CUBE accommodates smaller form factors. The introduction of through-silicon vias (TSVs) further enhances performance, improving signal integrity, power integrity, and heat dissipation.

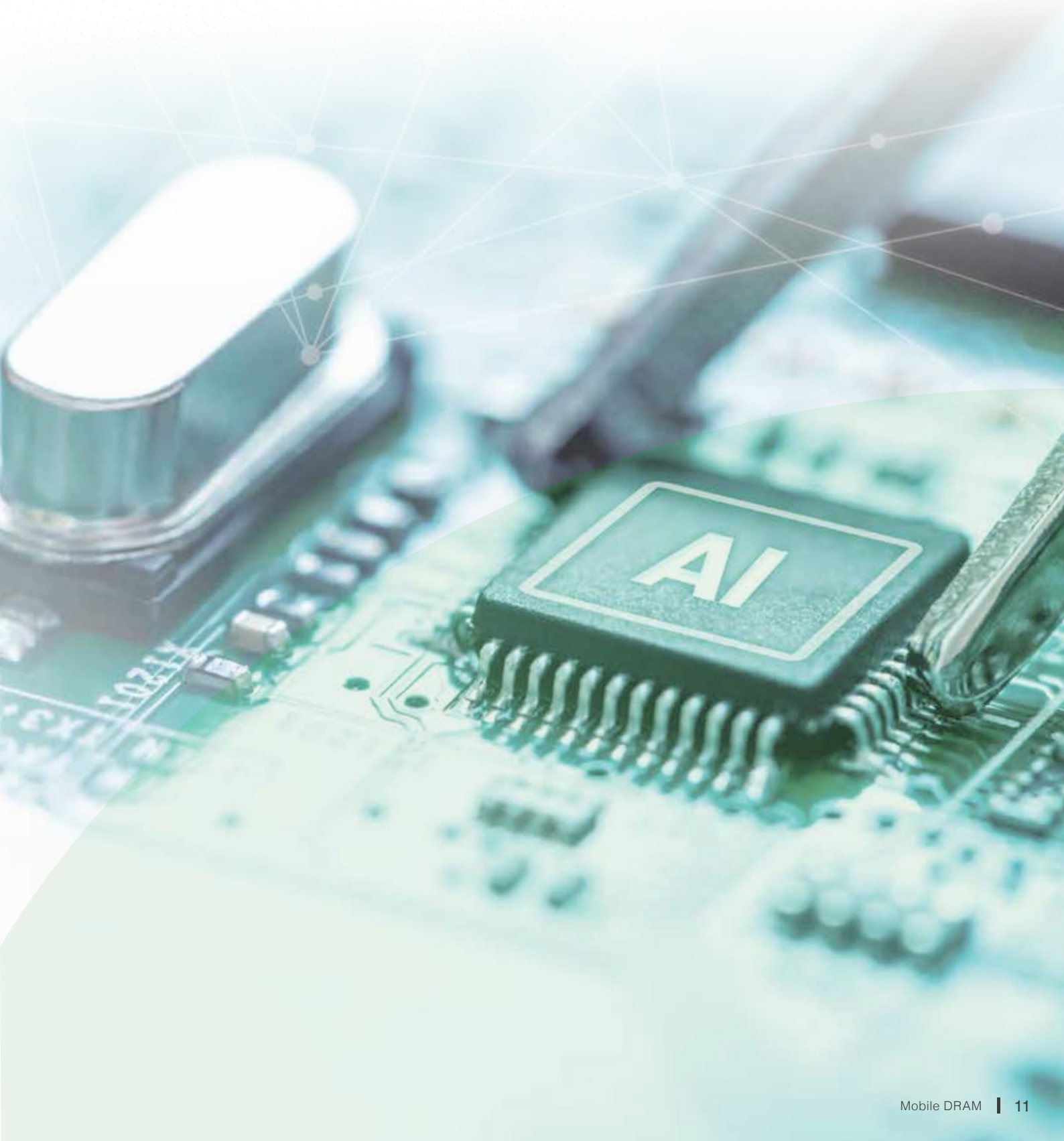
Moreover, TSV technology – as well as uBump/Hybrid bonding - reduces power consumption and save SoC design area, enabling a cost-effective and affordable solution.

Efficient 3D stacking, leveraging TSVs, eases integration with advanced packaging technologies. By enabling reduced die size, CUBE drives device cost reductions, greater energy efficiency through shorter power paths, as well as more compact and lightweight designs.



MOBILE DRAM

DRAM memory is an essential component of new AI systems, IoT device and mobility segment. New Winbond DRAM products save space and cost and reduce power consumption, while providing super-fast performance up to 4.26Gbps.



Mobile DRAM

High Bandwidth | Low Power Consumption | Small Board Footprint

Artificial Intelligence (AI) is revolutionizing the features to create new generation products across the consumer, communications, industrial, and automotive markets. Smart doorbells which recognize a resident's face, industrial machines which can automatically alert an engineer to perform a repair before they break down, and cars which can drive themselves on the highway – all use AI technology. These products need fast memory to support the advanced processors which run AI applications.

Mobility applications required LPWA connectivity chips via WiFi, Bluetooth, Mobile network, and etc. Also, it needs small density and lower power consumption memory to achieve the best end product performance.

Product Line	Density / Combination	Voltage	Data Width
PSRAM	64Mb	1.8V/1.8V	x16
HYPERRAM™	32Mb to 512Mb	1.8V (32Mb to 128Mb also support 3.0V)	x8
	128Mb	1.2V	x8/x16
	256Mb and 512Mb	1.8V	X16
LPSDR SDRAM	512Mb	1.8V/1.8V	x16, x32
LPDDR1 SDRAM	256Mb to 1Gb	1.8V/1.8V	x16 for 256Mb, x32 for 512Mb to 1Gb
LPDDR2 SDRAM	512Mb to 2Gb	1.8V/1.2V	x16, x32
LPDDR3 SDRAM	1Gb	1.8V/1.2V	x16, x32
LPDDR4 SDRAM	1Gb to 4Gb	1.8V/1.1V/1.1V	x16, x32
LPDDR4X SDRAM	1Gb to 4Gb	1.8V/1.1V/0.6V	x16, x32

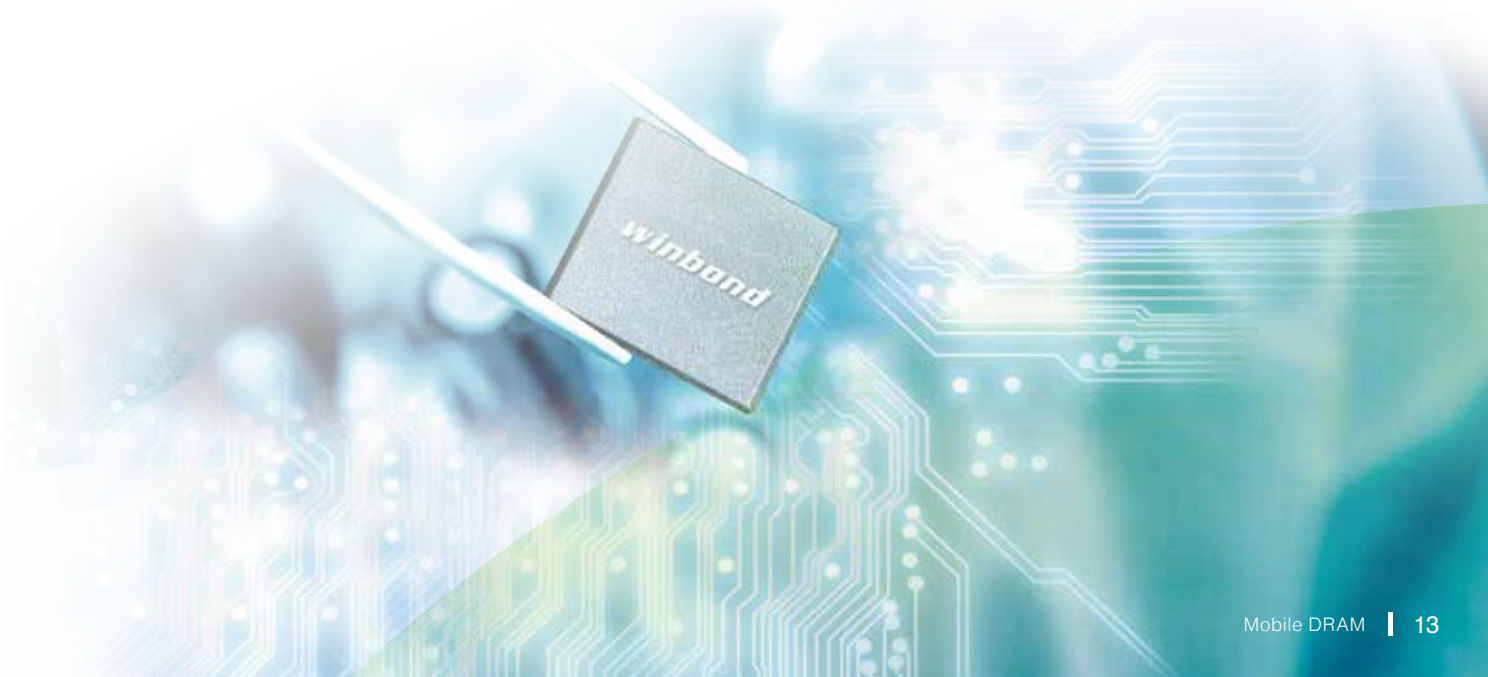
PSRAM

Pseudo-static random-access memory (PSRAM or PSDRAM) chips combine the best features of both SRAM and DRAM computing units. PSRAM is a DRAM device that integrates a refresh feature, negating the need for an externally enabled data rewrite onto its MOS capacitor. These features make PSRAMs excellent for main memory applications in numerous wearable IoT devices and portable smart devices.

Industrial Grade Support

Part No.	Density (Mb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W956D6KBKX7I	64	133	1.8/1.8	-40	85	WFBGA	49	4x4	16	Industrial Grade	√
W958D6DBCX7I	256	133	1.8/1.8	-40	85	VFBGA	54	6x8	16	Industrial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.



HYPERRAM™

Winbond HYPERRAM™ products provide a compact alternative to traditional pseudo-SRAM in IoT and consumer devices, automotive and industrial equipment. An ultra-low power, space saving solution for simple AI applications such as keyword recognition and SD image processing.

Key Features:

Ultra-low Power Consumption
by Hybrid Sleep Mode (HSM)

Winbond's Hybrid Sleep Mode (HSM) gives standby power consumption as low as 35μW, and operating power less than half that of equivalent pSRAM products.

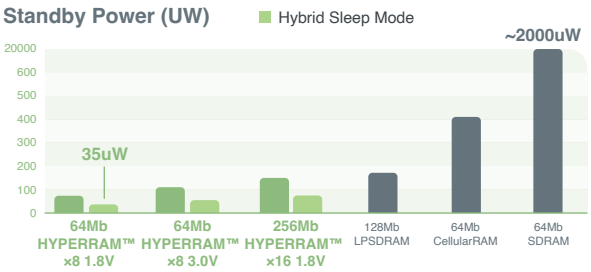
Design Simplicity
with less active pins; without compromising performance

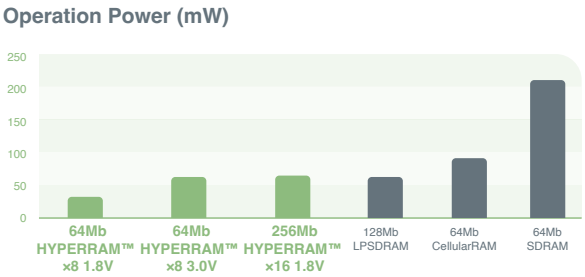
HYPERRAM™ devices use just 13 signal pins, compared to 31 signal pins in pSRAM. This makes the board layout much simpler to design and manufacture.

Space-saving
by low pin count

Low pin-count packages and the lower number of connections to the host controller reduce the memory system's board footprint and save space in consumer devices. WLCSP (Wafer Level Chip Scale Package) is to support small device, such as IoT module and wearable devices.

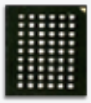
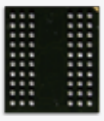
Ultra Low Power





Small Form Factor & Design Simplicity

HYPERRAM™		
		
WLCSP	WEBGA	TFBGA
Device size	4×4 mm²	6x8 mm²
By product	49 ball	24 ball

Cellular RAM	LPDDR	SDRAM
		
VERGA	VEBGA	TSOP
6x8 mm²	8×9 mm²	22x11 mm²
54 ball	60 ball	54 ball

The introduction in 2023 of HYPERRAM™ devices produced on Winbond's 25nm process extends densities up to 128Mb and 512Mb.

Industrial Grade Support

Part No.	Density (Mb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W955K8MBYA5I	32	400	1.8/1.8	-40	85	TFBGA	24	6x8	8	Industrial Grade	√
W956D8MWSX5I	64	400	1.8/1.8	-40	85	WLCSP	15	-	8	Industrial Grade	√
W956D8MBYA5I	64	400	1.8/1.8	-40	85	TFBGA	24	6x8	8	Industrial Grade	√
W957D8MFYA5I	128	400	1.8/1.8	-40	85	TFBGA	24	6x8	8	Industrial Grade	√
W957D8NWSX5I	128	400	1.2~1.8	-40	85	WLCSP	16	-	8	Industrial Grade	√
W957D8NWSX4I	128	500	1.2~1.8	-40	85	WLCSP	16	-	8	Industrial Grade	√
W957D6NBGX5I	128	400	1.35~1.8	-40	85	WFBGA	49	4X4	16	Industrial Grade	√
W957D6NBGX4I	128	500	1.35~1.8	-40	85	WFBGA	49	4X4	16	Industrial Grade	√
W958D8NBYA5I	256	400	1.8/1.8	-40	85	TFBGA	24	6x8	8	Industrial Grade	√
W958D8NBYA4I	256	500	1.8/1.8	-40	85	TFBGA	24	6x8	8	Industrial Grade	√
W958D8NWSX5I	256	400	1.8/1.8	-40	85	WLCSP	30	-	8	Industrial Grade	√
W958D8NWSX4I	256	500	1.8/1.8	-40	85	WLCSP	30	-	8	Industrial Grade	√
W958D6NWSX5I	256	400	1.8/1.8	-40	85	WLCSP	30	-	16	Industrial Grade	√
W958D6NWSX4I	256	500	1.8/1.8	-40	85	WLCSP	30	-	16	Industrial Grade	√
W958D6NBKX5I	256	400	1.8/1.8	-40	85	WFBGA	49	4X4	16	Industrial Grade	√
W958D6NBKX4I	256	500	1.8/1.8	-40	85	WFBGA	49	4X4	16	Industrial Grade	√
W959D8NFYA5I	512	400	1.8/1.8	-40	85	TFBGA	24	6x8	8	Industrial Grade	√
W959D8NFYA4I	512	500	1.8/1.8	-40	85	TFBGA	24	6x8	8	Industrial Grade	√
W959D6NFKX5I	512	400	1.8/1.8	-40	85	WFBGA	49	4X4	16	Industrial Grade	√
W959D6NFKX4I	512	500	1.8/1.8	-40	85	WFBGA	49	4X4	16	Industrial Grade	√

Automotive Grade Support

Part No.	Density (Mb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W955K8MBYA5S	32	400	1.8/1.8	-40	125	TFBGA	24	6x8	8	Automotive AG1 grade	√
W955K8MBYA5K	32	400	1.8/1.8	-40	105	TFBGA	24	6x8	8	Automotive AG2 grade	√
W955K8MBYA5A	32	400	1.8/1.8	-40	85	TFBGA	24	6x8	8	Automotive AG3 grade	√
W956D8MBYA5S	64	400	1.8/1.8	-40	125	TFBGA	24	6x8	8	Automotive AG1 grade	√
W956D8MBYA5K	64	400	1.8/1.8	-40	105	TFBGA	24	6x8	8	Automotive AG2 grade	√
W956D8MBYA5A	64	400	1.8/1.8	-40	85	TFBGA	24	6x8	8	Automotive AG3 grade	√
W957A8MFYA5S	128	400	3.0/3.0	-40	125	TFBGA	24	6x8	8	Automotive AG1 grade	√
W957D8MFYA5K	128	400	1.8/1.8	-40	85	TFBGA	24	6x8	8	Automotive AG2 grade	√
W957A8MFYA5K	128	400	3.0/3.0	-40	85	TFBGA	24	6x8	8	Automotive AG2 grade	√
W957D8MFYA5A	128	400	1.8/1.8	-40	105	TFBGA	24	6x8	8	Automotive AG3 grade	√
W958D8NBYA5S	256	400	1.8/1.8	-40	125	TFBGA	24	6x8	8	Automotive AG1 grade	√
W958D8NBYA5K	256	400	1.8/1.8	-40	105	TFBGA	24	6x8	8	Automotive AG2 grade	√
W958D8NBYA5A	256	400	1.8/1.8	-40	85	TFBGA	24	6x8	8	Automotive AG3 grade	√
W959D8NFYA5S	512	400	1.8/1.8	-40	125	TFBGA	24	6x8	8	Automotive AG1 grade	√
W959D8NFYA5K	512	400	1.8/1.8	-40	105	TFBGA	24	6x8	8	Automotive AG2 grade	√
W959D8NFYA5A	512	400	1.8/1.8	-40	85	TFBGA	24	6x8	8	Automotive AG3 grade	√

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LPSDR SDRAM

Winbond's Low power SDR SDRAM product family is designed with specific features to reduce power consumption, including Partial Array Self Refresh (PASR), Auto Temperature Compensated Self Refresh (ATCSR), power-down mode, deep power-down mode, and programmable output buffer driving strength.

Industrial Grade Support

Part No.	Density (Mb)	Frequency (Mbps)	Voltage	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W989D6DBGX6E	512	166	1.8/1.8	-25	85	VFBGA	54	8x9	16	Commercial Grade	√
W989D2DBJX6E	512	166	1.8/1.8	-25	85	VFBGA	90	8x13	32	Commercial Grade	√
W989D6DBGX6I	512	166	1.8/1.8	-40	85	VFBGA	54	8x9	16	Industrial Grade	√
W989D2DBJX6I	512	166	1.8/1.8	-40	85	VFBGA	90	8x13	32	Industrial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

LPDDR SDRAM

Low power DDR is the extension of LPSDR by double data rate. Variable mobile devices have become part of our daily lives by providing kinds of services for work and play. Low power DDR SDRAM is a synchronous DRAM for numerous IoT applications, working with legacy chipset.

Industrial Grade Support

Part No.	Density	Frequency (Mbps)	Voltage	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W948D6KBHX5E	256 Mb	400	1.8/1.8	-25	85	VFBGA	60	8x9	16	Commercial Grade	√
W948D6KBHX6E	256 Mb	333	1.8/1.8	-25	85	VFBGA	60	8x9	16	Commercial Grade	√
W948V6KBHX5E	256 Mb	400	1.8/1.8	-25	85	VFBGA	60	8x9	16	Commercial Grade	√
W948V6KBHX6E	256 Mb	333	1.8/1.8	-25	85	VFBGA	60	8x9	16	Commercial Grade	√
W948D6KBHX5I	256 Mb	400	1.8/1.8	-40	85	VFBGA	60	8x9	16	Industrial Grade	√
W948D6KBHX6I	256 Mb	333	1.8/1.8	-40	85	VFBGA	60	8x9	16	Industrial Grade	√
W948V6KBHX5I	256 Mb	400	1.8/1.8	-40	85	VFBGA	60	8x9	16	Industrial Grade	√
W948V6KBHX6I	256 Mb	333	1.8/1.8	-40	85	VFBGA	60	8x9	16	Industrial Grade	√
W949D6DBHX5E	512 Mb	400	1.8/1.8	-25	85	VFBGA	60	8x9	16	Commercial Grade	√
W949D6DBHX6E	512 Mb	333	1.8/1.8	-25	85	VFBGA	60	8x9	16	Commercial Grade	√
W949D2DBJX5E	512 Mb	400	1.8/1.8	-25	85	VFBGA	90	8x13	32	Commercial Grade	√
W949D2DBJX6E	512 Mb	333	1.8/1.8	-25	85	VFBGA	90	8x13	32	Commercial Grade	√
W949D6DBHX5I	512 Mb	400	1.8/1.8	-40	85	VFBGA	60	8x9	16	Industrial Grade	√
W949D2DBJX5I	512 Mb	400	1.8/1.8	-40	85	VFBGA	90	8x13	32	Industrial Grade	√
W94AD6KBHX5E	1 Gb	400	1.8/1.8	-25	85	VFBGA	60	8x9	16	Commercial Grade	√
W94AD2KBJX5E	1 Gb	400	1.8/1.8	-25	85	VFBGA	90	8x13	32	Commercial Grade	√
W94AD6KBHX6E	1 Gb	333	1.8/1.8	-25	85	VFBGA	60	8x9	16	Commercial Grade	√
W94AD2KBJX6E	1 Gb	333	1.8/1.8	-25	85	VFBGA	90	8x13	32	Commercial Grade	√
W94AD6KBHX5I	1 Gb	400	1.8/1.8	-40	85	VFBGA	60	8x9	16	Industrial Grade	√
W94AD2KBJX5I	1 Gb	400	1.8/1.8	-40	85	VFBGA	90	8x13	32	Industrial Grade	√
W94AD6KBHX6I	1 Gb	333	1.8/1.8	-40	85	VFBGA	60	8x9	16	Industrial Grade	√
W94AD2KBJX6I	1 Gb	333	1.8/1.8	-40	85	VFBGA	90	8x13	32	Industrial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

LPDDR2 SDRAM

A low power DDR2 is essentially an optimized double data rate SDRAM and operates similarly. Data transfer is done on both the rising and falling edges of the clock signal (double pumping). As with conventional DDR memories, low-power DDR2 SDRAM achieves greater bandwidths without any change in clock frequency. At Winbond, we manufacture the best low-power double data rate dynamic RAM necessary to optimize your memory processes. We offer various memory densities and configurations suited to different mobile applications.

Industrial Grade Support

Part No.	Density	Frequency (Mbps)	Voltage(V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W979H6KBVX2E	512 Mb	800	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	16	Commercial Grade	√
W979H2KBVX2E	512 Mb	800	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	32	Commercial Grade	√
W979H6KBVX1E	512 Mb	1066	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	16	Commercial Grade	√
W979H2KBVX1E	512 Mb	1066	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	32	Commercial Grade	√
W979H6KBVX2I	512 Mb	800	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	16	Industrial Grade	√
W979H2KBVX2I	512 Mb	800	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	32	Industrial Grade	√
W979H6KBVX1I	512 Mb	1066	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	16	Industrial Grade	√
W979H2KBVX1I	512 Mb	1066	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	32	Industrial Grade	√
W97AH6NBVA1E	1 Gb	1066	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	16	Commercial Grade	√
W97AH6NBVA2E	1 Gb	800	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	16	Commercial Grade	√
W97AH2NBVA1E	1 Gb	1066	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	32	Commercial Grade	√
W97AH2NBVA2E	1 Gb	800	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	32	Commercial Grade	√
W97AH6NBVA1I	1 Gb	1066	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	16	Industrial Grade	√
W97AH6NBVA2I	1 Gb	800	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	16	Industrial Grade	√
W97AH2NBVA1I	1 Gb	1066	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	32	Industrial Grade	√
W97AH2NBVA2I	1 Gb	800	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	32	Industrial Grade	√
W97BH2MBVA1E	2 Gb	1066	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	32	Commercial Grade	√
W97BH6MBVA1E	2 Gb	1066	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	16	Commercial Grade	√
W97BH2MBVA2E	2 Gb	800	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	32	Commercial Grade	√
W97BH6MBVA2E	2 Gb	800	1.8/1.2/1.2	-25	85	VFBGA	134	10x11.5	16	Commercial Grade	√
W97BH2MBVA1I	2 Gb	1066	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	32	Industrial Grade	√
W97BH6MBVA1I	2 Gb	1066	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	16	Industrial Grade	√
W97BH2MBVA2I	2 Gb	800	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	32	Industrial Grade	√
W97BH6MBVA2I	2 Gb	800	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	16	Industrial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

Automotive Grade Support

Part No.	Density	Frequency (Mbps)	Voltage(V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W979H6KBVA2K	512 Mb	800	1.8/1.2/1.2	-40	105	VFBGA	134	10x11.5	16	Automotive AG2 Grade	√
W979H2KBVA2K	512 Mb	800	1.8/1.2/1.2	-40	105	VFBGA	134	10x11.5	32	Automotive AG2 Grade	√
W979H6KBVA1K	512 Mb	1066	1.8/1.2/1.2	-40	105	VFBGA	134	10x11.5	16	Automotive AG2 Grade	√
W979H2KBVA1K	512 Mb	1066	1.8/1.2/1.2	-40	105	VFBGA	134	10x11.5	32	Automotive AG2 Grade	√
W979H6KBVA2W	512 Mb	800	1.8/1.2/1.2	-40	115	VFBGA	134	10x11.5	16	Automotive AG2 Plus Grade	√
W979H2KBVA2W	512 Mb	800	1.8/1.2/1.2	-40	115	VFBGA	134	10x11.5	32	Automotive AG2 Plus Grade	√
W979H6KBVA1W	512 Mb	1066	1.8/1.2/1.2	-40	115	VFBGA	134	10x11.5	16	Automotive AG2 Plus Grade	√
W979H2KBVA1W	512 Mb	1066	1.8/1.2/1.2	-40	115	VFBGA	134	10x11.5	32	Automotive AG2 Plus Grade	√
W979H6KBVA2A	512 Mb	800	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	16	Automotive AG3 Grade	√
W979H2KBVA2A	512 Mb	800	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	32	Automotive AG3 Grade	√
W979H6KBVA1A	512 Mb	1066	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	16	Automotive AG3 Grade	√
W979H2KBVA1A	512 Mb	1066	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	32	Automotive AG3 Grade	√
W97AH6NBVA1K	1 Gb	1066	1.8/1.2/1.2	-40	105	VFBGA	134	10x11.5	16	Automotive AG2 Grade	√
W97AH6NBVA2K	1 Gb	800	1.8/1.2/1.2	-40	105	VFBGA	134	10x11.5	16	Automotive AG2 Grade	√
W97AH2NBVA1K	1 Gb	1066	1.8/1.2/1.2	-40	105	VFBGA	134	10x11.5	32	Automotive AG2 Grade	√
W97AH2NBVA2K	1 Gb	800	1.8/1.2/1.2	-40	105	VFBGA	134	10x11.5	32	Automotive AG2 Grade	√
W97AH6NBVA1W	1 Gb	1066	1.8/1.2/1.2	-40	115	VFBGA	134	10x11.5	16	Automotive AG2 Plus Grade	√
W97AH6NBVA2W	1 Gb	800	1.8/1.2/1.2	-40	115	VFBGA	134	10x11.5	16	Automotive AG2 Plus Grade	√
W97AH2NBVA1W	1 Gb	1066	1.8/1.2/1.2	-40	115	VFBGA	134	10x11.5	32	Automotive AG2 Plus Grade	√
W97AH2NBVA2W	1 Gb	800	1.8/1.2/1.2	-40	115	VFBGA	134	10x11.5	32	Automotive AG2 Plus Grade	√
W97AH6NBVA1A	1 Gb	1066	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	16	Automotive AG3 Grade	√
W97AH6NBVA2A	1 Gb	800	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	16	Automotive AG3 Grade	√
W97AH2NBVA1A	1 Gb	1066	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	32	Automotive AG3 Grade	√
W97AH2NBVA2A	1 Gb	800	1.8/1.2/1.2	-40	85	VFBGA	134	10x11.5	32	Automotive AG3 Grade	√

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LPDDR3 SDRAM

Some key benefits of Winbond low power DDR3 SDRAMs are outlined below.

High Bandwidth and Cost Advantages

For 1Gb x32 LPDDR3, it is the alternative solution for developing high B/W (8.52GB/s) around 0.3W. This move will help Winbond further expand its product portfolio to respond to the diverse AIoT and ultra-high-resolution display application needs.

Industrial Grade Support

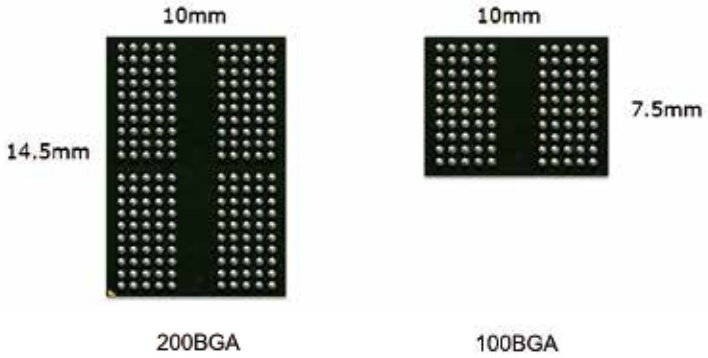
Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W63AH6NBVABE	1	1600	1.8/1.2/1.2	-25	85	VFBGA	178	11x11.5	16	Commercial Grade	√
W63AH6NBVACE	1	1866	1.8/1.2/1.2	-25	85	VFBGA	178	11x11.5	16	Commercial Grade	√
W63AH6NBVADE	1	2133	1.8/1.2/1.2	-25	85	VFBGA	178	11x11.5	16	Commercial Grade	√
W63AH2NBVABE	1	1600	1.8/1.2/1.2	-25	85	VFBGA	178	11x11.5	32	Commercial Grade	√
W63AH2NBVACE	1	1866	1.8/1.2/1.2	-25	85	VFBGA	178	11x11.5	32	Commercial Grade	√
W63AH2NBVADE	1	2133	1.8/1.2/1.2	-25	85	VFBGA	178	11x11.5	32	Commercial Grade	√
W63AH6NBVABI	1	1600	1.8/1.2/1.2	-40	85	VFBGA	178	11x11.5	16	Industrial Grade	√
W63AH6NBVACI	1	1866	1.8/1.2/1.2	-40	85	VFBGA	178	11x11.5	16	Industrial Grade	√
W63AH6NBVADI	1	2133	1.8/1.2/1.2	-40	85	VFBGA	178	11x11.5	16	Industrial Grade	√
W63AH2NBVABI	1	1600	1.8/1.2/1.2	-40	85	VFBGA	178	11x11.5	32	Industrial Grade	√
W63AH2NBVACI	1	1866	1.8/1.2/1.2	-40	85	VFBGA	178	11x11.5	32	Industrial Grade	√
W63AH2NBVADI	1	2133	1.8/1.2/1.2	-40	85	VFBGA	178	11x11.5	32	Industrial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

LPDDR4/4X SDRAM

With newer AI-powered technologies constantly emerging in ever more compact devices, it is critical for onboard memory systems to be able to deliver high-speed data processing at low power. The LPDDR4X SDRAM is a low variant of LPDDR4 DRAM optimized for next-generation applications.

LPDDR4 includes two series: the JEDEC defined LPDDR4X (VDDQ voltage 0.6V) and LPDDR4 (VDDQ voltage 1.1V). As for data transmission rate, the product series covers 3200MT/s, 3733MT/s, or even reaches 4266MT/s. In addition, KGD (Known Good Die) and 200-ball BGA packages are available. Winbond also can support new 100-ball BGA package which complies JEDEC, JED209-4 standard to ensure energy conservation and carbon reduction.



Winbond manufactures the best LPDDR4 chips from 1Gb to 4Gb for newer applications across various industries. Some examples of newer applications Winbond systems are compatible with include:

- Smart speakers
- Smart 8K TVs
- 5G connectivity
- Surveillance systems
- Automotive, including ADAS, cluster and others.
- AI edge interference.

Industrial Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W66AP6NBHAFI	1	3200	1.8/1.1/1.1	-40	95	VFBGA	100	10x7.5	16	Industrial Grade	√
W66AP6NBHAGI	1	3733	1.8/1.1/1.1	-40	95	VFBGA	100	10x7.5	16	Industrial Grade	√
W66AP6NBHAHI	1	4267	1.8/1.1/1.1	-40	95	VFBGA	100	10x7.5	16	Industrial Grade	√
W66AP6NBQAFI	1	3200	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	16	Industrial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

LPDDR4/4X SDRAM

Industrial Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W66AP6NBQAGI	1	3733	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	16	Industrial Grade	√
W66AP6NBQAHI	1	4267	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	16	Industrial Grade	√
W66AP6NBUAFI	1	3200	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	16	Industrial Grade	√
W66AP6NBUAGI	1	3733	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	16	Industrial Grade	√
W66AP6NBUAHI	1	4267	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	16	Industrial Grade	√
W66AQ6NBHAFI	1	3200	1.8/1.1/0.6	-40	95	VFBGA	100	10x7.5	16	Industrial Grade	√
W66AQ6NBHAGI	1	3733	1.8/1.1/0.6	-40	95	VFBGA	100	10x7.5	16	Industrial Grade	√
W66AQ6NBHAHI	1	4267	1.8/1.1/0.6	-40	95	VFBGA	100	10x7.5	16	Industrial Grade	√
W66AQ6NBQAFI	1	3200	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	16	Industrial Grade	√
W66AQ6NBQAGI	1	3733	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	16	Industrial Grade	√
W66AQ6NBQAHI	1	4267	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	16	Industrial Grade	√
W66AQ6NBUAFI	1	3200	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	16	Industrial Grade	√
W66AQ6NBUAGI	1	3733	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	16	Industrial Grade	√
W66AQ6NBUAHI	1	4267	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	16	Industrial Grade	√
W66AP6NBHAFJ	1	3200	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Industrial Plus Grade	√
W66AP6NBHAGJ	1	3733	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Industrial Plus Grade	√
W66AP6NBHAHJ	1	4267	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Industrial Plus Grade	√
W66AP6NBQAFJ	1	3200	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66AP6NBQAGJ	1	3733	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66AP6NBQAHJ	1	4267	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66AP6NBUAFJ	1	3200	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66AP6NBUAGJ	1	3733	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66AP6NBUAHJ	1	4267	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66AQ6NBHAFJ	1	3200	1.8/1.1/0.6	-40	105	VFBGA	100	10x7.5	16	Industrial Plus Grade	√
W66AQ6NBHAGJ	1	3733	1.8/1.1/0.6	-40	105	VFBGA	100	10x7.5	16	Industrial Plus Grade	√
W66AQ6NBHAHJ	1	4267	1.8/1.1/0.6	-40	105	VFBGA	100	10x7.5	16	Industrial Plus Grade	√
W66AQ6NBQAFJ	1	3200	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66AQ6NBQAGJ	1	3733	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66AQ6NBQAHJ	1	4267	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66AQ6NBUAFJ	1	3200	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66AQ6NBUAGJ	1	3733	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66AQ6NBUAHJ	1	4267	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BP2NQQAFI	2	3200	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	32	Industrial Grade	√
W66BP2NQQAGI	2	3733	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	32	Industrial Grade	√
W66BP2NQQAHI	2	4267	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	32	Industrial Grade	√
W66BP2NQUAFI	2	3200	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	32	Industrial Grade	√
W66BP2NQUAGI	2	3733	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	32	Industrial Grade	√
W66BP2NQUAHI	2	4267	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	32	Industrial Grade	√
W66BQ2NQQAFI	2	3200	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	32	Industrial Grade	√
W66BQ2NQQAGI	2	3733	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	32	Industrial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W66BQ2NQQAHI	2	4267	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	32	Industrial Grade	√
W66BQ2NQUAFI	2	3200	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	32	Industrial Grade	√
W66BQ2NQUAGI	2	3733	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	32	Industrial Grade	√
W66BQ2NQUAHI	2	4267	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	32	Industrial Grade	√
W66BP2NQQAFJ	2	3200	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BP2NQQAGJ	2	3733	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BP2NQQAHJ	2	4267	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BP2NQUAFJ	2	3200	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BP2NQUAGJ	2	3733	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BP2NQUAHJ	2	4267	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BP6NBHAFJ	2	3200	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Industrial Plus Grade	√
W66BP6NBHAGJ	2	3733	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Industrial Plus Grade	√
W66BP6NBHAHJ	2	4267	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Industrial Plus Grade	√
W66BP6NBQAFJ	2	3200	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BP6NBQAGJ	2	3733	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BP6NBQAHJ	2	4267	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BP6NBUAFJ	2	3200	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BP6NBUAGJ	2	3733	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BP6NBUAHJ	2	4267	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BQ2NQQAFJ	2	3200	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BQ2NQQAGJ	2	3733	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BQ2NQQAHJ	2	4267	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BQ2NQUAFJ	2	3200	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BQ2NQUAGJ	2	3733	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BQ2NQUAHJ	2	4267	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66BQ6NBHAFJ	2	3200	1.8/1.1/0.6	-40	105	VFBGA	100	10x14.5	16	Industrial Plus Grade	√
W66BQ6NBHAGJ	2	3733	1.8/1.1/0.6	-40	105	VFBGA	100	10x14.5	16	Industrial Plus Grade	√
W66BQ6NBHAHJ	2	4267	1.8/1.1/0.6	-40	105	VFBGA	100	10x14.5	16	Industrial Plus Grade	√
W66BQ6NBQAFJ	2	3200	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BQ6NBQAGJ	2	3733	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BQ6NBQAHJ	2	4267	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BQ6NBUAFJ	2	3200	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BQ6NBUAGJ	2	3733	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66BQ6NBUAHJ	2	4267	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Industrial Plus Grade	√
W66CP2NQQAFJ	4	3200	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66CP2NQQAGJ	4	3733	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66CP2NQQAHJ	4	4267	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66CP2NQUAFJ	4	3200	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66CP2NQUAGJ	4	3733	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66CP2NQUAHJ	4	4267	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√

LPDDR4/4X SDRAM

Industrial Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W66CQ2NQQAFJ	4	3200	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66CQ2NQQAGJ	4	3733	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66CQ2NQQAHJ	4	4267	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66CQ2NQUAFJ	4	3200	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66CQ2NQUAGJ	4	3733	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√
W66CQ2NQUAHJ	4	4267	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Industrial Plus Grade	√

Automotive Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W66AP6NBHAFS	1	3200	1.8/1.1/1.1	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66AP6NBHAGS	1	3733	1.8/1.1/1.1	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66AP6NBHAHS	1	4267	1.8/1.1/1.1	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66AP6NBQAFS	1	3200	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AP6NBQAGS	1	3733	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AP6NBQAHS	1	4267	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AP6NBUAFS	1	3200	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AP6NBUAGS	1	3733	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AP6NBUAHS	1	4267	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AQ6NBHAFS	1	3200	1.8/1.1/0.6	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66AQ6NBHAGS	1	3733	1.8/1.1/0.6	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66AQ6NBHAHS	1	4267	1.8/1.1/0.6	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66AQ6NBQAFS	1	3200	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AQ6NBQAGS	1	3733	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AQ6NBQAHS	1	4267	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AQ6NBUAFS	1	3200	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AQ6NBUAGS	1	3733	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AQ6NBUAHS	1	4267	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66AP6NBHAFK	1	3200	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025
W66AP6NBHAGK	1	3733	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025
W66AP6NBHAHK	1	4267	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025
W66AP6NBQAFK	1	3200	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66AP6NBQAGK	1	3733	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66AP6NBQAHK	1	4267	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66AP6NBUAFK	1	3200	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	2025

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W66AP6NBUAGK	1	3733	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66AP6NBUAHK	1	4267	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66AQ6NBHAFK	1	3200	1.8/1.1/0.6	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025
W66AQ6NBHAGK	1	3733	1.8/1.1/0.6	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025
W66AQ6NBHAHK	1	4267	1.8/1.1/0.6	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025
W66AQ6NBQAFK	1	3200	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66AQ6NBQAGK	1	3733	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66AQ6NBQAHK	1	4267	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66AQ6NBUAFK	1	3200	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66AQ6NBUAGK	1	3733	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66AQ6NBUAHK	1	4267	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66AP6NBHAFA	1	3200	1.8/1.1/1.1	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66AP6NBHAGA	1	3733	1.8/1.1/1.1	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66AP6NBHAHA	1	4267	1.8/1.1/1.1	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66AP6NBQAFA	1	3200	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66AP6NBQAGA	1	3733	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66AP6NBQAHA	1	4267	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66AP6NBUAFA	1	3200	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66AP6NBUAGA	1	3733	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66AP6NBUAHA	1	4267	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66AQ6NBHAFA	1	3200	1.8/1.1/0.6	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66AQ6NBHAGA	1	3733	1.8/1.1/0.6	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66AQ6NBHAHA	1	4267	1.8/1.1/0.6	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66AQ6NBQAFA	1	3200	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66AQ6NBQAGA	1	3733	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66AQ6NBQAHA	1	4267	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66AQ6NBUAFA	1	3200	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66AQ6NBUAGA	1	3733	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66AQ6NBUAHA	1	4267	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66BP2NQQAFS	2	3200	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BP2NQQAGS	2	3733	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BP2NQQAHS	2	4267	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BP2NQUAFS	2	3200	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BP2NQUAGS	2	3733	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BP2NQUAHS	2	4267	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BP6NBHAFS	2	3200	1.8/1.1/1.1	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66BP6NBHAGS	2	3733	1.8/1.1/1.1	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66BP6NBHAHS	2	4267	1.8/1.1/1.1	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66BP6NBQAFS	2	3200	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66BP6NBQAGS	2	3733	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025

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LPDDR4/4X SDRAM

Automotive Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W66BP6NBQAHS	2	4267	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66BP6NBUAFS	2	3200	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66BP6NBUAGS	2	3733	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66BP6NBUAHS	2	4267	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66BQ2NQQAFS	2	3200	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BQ2NQQAGS	2	3733	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BQ2NQQAHS	2	4267	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BQ2NQUAFS	2	3200	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BQ2NQUAGS	2	3733	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BQ2NQUAHS	2	4267	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	2025
W66BQ6NBHAFS	2	3200	1.8/1.1/0.6	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66BQ6NBHAGS	2	3733	1.8/1.1/0.6	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66BQ6NBHAHS	2	4267	1.8/1.1/0.6	-40	125	VFBGA	100	10x7.5	16	Automotive AG1 Grade	2025
W66BQ6NBQAFS	2	3200	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66BQ6NBQAGS	2	3733	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66BQ6NBQAHS	2	4267	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	16	Automotive AG1 Grade	2025
W66BQ6NBUAFS	2	3200	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	√
W66BQ6NBUAGS	2	3733	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	√
W66BQ6NBUAHS	2	4267	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	16	Automotive AG1 Grade	√
W66BP2NQQAGK	2	3733	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	2025
W66BP2NQQAHK	2	4267	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	2025
W66BP2NQUAFK	2	3200	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	2025
W66BP2NQUAGK	2	3733	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	2025
W66BP2NQUAHK	2	4267	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	2025
W66BP6NBHAFK	2	3200	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025
W66BP6NBHAGK	2	3733	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025
W66BP6NBHAHK	2	4267	1.8/1.1/1.1	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025
W66BP6NBQAFK	2	3200	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66BP6NBQAGK	2	3733	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66BP6NBQAHK	2	4267	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66BP6NBUAFK	2	3200	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	√
W66BP6NBUAGK	2	3733	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	√
W66BP6NBUAHK	2	4267	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	√
W66BQ2NQQAFK	2	3200	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66BQ2NQQAGK	2	3733	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66BQ2NQQAHK	2	4267	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66BQ2NQUAFK	2	3200	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66BQ2NQUAGK	2	3733	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66BQ2NQUAHK	2	4267	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66BQ6NBHAFK	2	3200	1.8/1.1/0.6	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W66BQ6NBHAGK	2	3733	1.8/1.1/0.6	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025
W66BQ6NBHAHK	2	4267	1.8/1.1/0.6	-40	105	VFBGA	100	10x7.5	16	Automotive AG2 Grade	2025
W66BQ6NBQAFK	2	3200	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66BQ6NBQAGK	2	3733	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66BQ6NBQAHK	2	4267	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	16	Automotive AG2 Grade	2025
W66BQ6NBUAFK	2	3200	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	√
W66BQ6NBUAGK	2	3733	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	√
W66BQ6NBUAHK	2	4267	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	16	Automotive AG2 Grade	√
W66BP2NQQAFK	2	3200	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	2025
W66BP2NQQAFA	2	3200	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	2025
W66BP2NQQAGA	2	3733	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	2025
W66BP2NQQAHA	2	4267	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	2025
W66BP2NQUAFA	2	3200	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	2025
W66BP2NQUAGA	2	3733	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	2025
W66BP2NQUAHA	2	4267	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	2025
W66BP6NBHAFA	2	3200	1.8/1.1/1.1	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66BP6NBHAGA	2	3733	1.8/1.1/1.1	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66BP6NBHAHA	2	4267	1.8/1.1/1.1	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66BP6NBQAFA	2	3200	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66BP6NBQAGA	2	3733	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66BP6NBQAHA	2	4267	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66BP6NBUAFA	2	3200	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	√
W66BP6NBUAGA	2	3733	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	√
W66BP6NBUAHA	2	4267	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	√
W66BQ2NQQAFA	2	3200	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66BQ2NQQAGA	2	3733	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66BQ2NQQAHA	2	4267	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66BQ2NQUAFA	2	3200	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66BQ2NQUAGA	2	3733	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66BQ2NQUAHA	2	4267	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66BQ6NBHAFA	2	3200	1.8/1.1/0.6	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66BQ6NBHAGA	2	3733	1.8/1.1/0.6	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66BQ6NBHAHA	2	4267	1.8/1.1/0.6	-40	95	VFBGA	100	10x7.5	16	Automotive AG3 Grade	2025
W66BQ6NBQAFA	2	3200	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66BQ6NBQAGA	2	3733	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66BQ6NBQAHA	2	4267	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	16	Automotive AG3 Grade	2025
W66BQ6NBUAFA	2	3200	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	√
W66BQ6NBUAGA	2	3733	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	√
W66BQ6NBUAHA	2	4267	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	16	Automotive AG3 Grade	√
W66CP2NQQAFS	4	3200	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

LPDDR4/4X SDRAM

Automotive Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W66CP2NQQAGS	4	3733	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	√
W66CP2NQQAHS	4	4267	1.8/1.1/1.1	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	√
W66CP2NQUAFS	4	3200	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	√
W66CP2NQUAGS	4	3733	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	√
W66CP2NQUAHS	4	4267	1.8/1.1/1.1	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	√
W66CQ2NQQAFS	4	3200	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	√
W66CQ2NQQAGS	4	3733	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	√
W66CQ2NQQAHS	4	4267	1.8/1.1/0.6	-40	125	TFBGA	200	10x14.5	32	Automotive AG1 Grade	√
W66CQ2NQUAFS	4	3200	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	√
W66CQ2NQUAGS	4	3733	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	√
W66CQ2NQUAHS	4	4267	1.8/1.1/0.6	-40	125	WFBGA	200	10x14.5	32	Automotive AG1 Grade	√
W66CP2NQQAFK	4	3200	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CP2NQQAGK	4	3733	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CP2NQQAHK	4	4267	1.8/1.1/1.1	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CP2NQUAFK	4	3200	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CP2NQUAGK	4	3733	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CP2NQUAHK	4	4267	1.8/1.1/1.1	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CQ2NQQAFK	4	3200	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CQ2NQQAGK	4	3733	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CQ2NQQAHK	4	4267	1.8/1.1/0.6	-40	105	TFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CQ2NQUAFK	4	3200	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CQ2NQUAGK	4	3733	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CQ2NQUAHK	4	4267	1.8/1.1/0.6	-40	105	WFBGA	200	10x14.5	32	Automotive AG2 Grade	√
W66CP2NQQAFA	4	3200	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66CP2NQQAGA	4	3733	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66CP2NQQAHA	4	4267	1.8/1.1/1.1	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66CP2NQUAFA	4	3200	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66CP2NQUAGA	4	3733	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66CP2NQUAHA	4	4267	1.8/1.1/1.1	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66CQ2NQQAFA	4	3200	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66CQ2NQQAGA	4	3733	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66CQ2NQQAHA	4	4267	1.8/1.1/0.6	-40	95	TFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66CQ2NQUAFA	4	3200	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66CQ2NQUAGA	4	3733	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	√
W66CQ2NQUAHA	4	4267	1.8/1.1/0.6	-40	95	WFBGA	200	10x14.5	32	Automotive AG3 Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

SPECIALTY DRAM

Winbond's Specialty DRAM, focusing on low and middle density, features characteristics of high performance and high speed. Also, completed solution can be provided to variety customers. SDR, DDR, DDR2, and DDR3 support for industrial and automotive applications.

Specialty DRAM

Specialty DRAM, focusing on low and middle density, features characteristics of high performance and high speed and is widely used by leaders in the consumer, communication, computer peripheral, industrial, and automobile markets. Completed solution can be provided to variety customers. SDR, DDR, DDR2, and DDR3 support for industrial and automotive applications with AEC-Q100, TS16949, ISO9001/14001, OHSAS18001 certificates. Winbond provides professional solutions to KGD customers, including SiP package bonding & power/thermal, DRAM simulation, wafer level on speed test, and etc.

Product Line	Density / Combination	Voltage	Data Width
SDRAM	16Mb to 256Mb	2.5V/3.3V	x16, x32
DDR SDRAM	64Mb to 256Mb	2.5V	x8, x16
DDR2 SDRAM	128Mb to 2Gb	1.8V	x8, x16
DDR3 SDRAM	1Gb to 8Gb	1.5V, 1.35V	x8, x16

SDRAM

Synchronous DRAM is designed to process data at the same clock speed as the CPU. Therefore, Synchronous DRAM is regarded as the core component that is used in the high-speed processing of large volumes of data. Its usage was expanding to various electronics such as automotive, industrial, networking, DTV, DSC, and STB.

Industrial Grade Support

Part No.	Density (Mb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension	I/O	Description	Mass Production
W9864G6KH-5	64	200	3.3	0	70	TSOP	54	8x8 mm²	16	Commercial Grade	√
W9864G6KH-6	64	166	3.3	0	70	TSOP	54	8x8 mm²	16	Commercial Grade	√
W9864G6KH-7	64	143	3.3	0	70	TSOP	54	8x8 mm²	16	Commercial Grade	√
W9864G6KT-6	64	166	3.3	0	70	TFBGA	54	8x8 mm²	16	Commercial Grade	√
W9864G6KH-5I	64	200	3.3	-40	85	TSOP	54	8x8 mm²	16	Industrial Grade	√
W9864G6KH-6I	64	166	3.3	-40	85	TSOP	54	8x8 mm²	16	Industrial Grade	√
W9864G6KT-6I	64	166	3.3	-40	85	TFBGA	54	8x8 mm²	16	Industrial Grade	√
W9864G6KH-6J	64	166	3.3	-40	105	TSOP	54	8x8 mm²	16	Industrial Plus Grade	√
W9864G6KT-6J	64	166	3.3	-40	105	TFBGA	54	8x8 mm²	16	Industrial Plus Grade	√
W9812G2KB-6	128	166	3.3	0	70	TFBGA	90	8x13 mm²	32	Commercial Grade	√
W9812G6KB-6	128	166	3.3	0	70	TFBGA	54	8x8 mm²	16	Commercial Grade	√
W9812G6KH-5	128	200	3.3	0	70	TSOP	54	400 mil	16	Commercial Grade	√
W9812G6KH-6	128	166	3.3	0	70	TSOP	54	400 mil	16	Commercial Grade	√
W9812G6KH-75	128	133	3.3	0	70	TSOP	54	400 mil	16	Commercial Grade	√
W9812G2KB-6I	128	166	3.3	-40	85	TFBGA	90	8x13 mm²	32	Industrial Grade	√
W9812G6KB-6I	128	166	3.3	-40	85	TFBGA	54	8x8 mm²	16	Industrial Grade	√
W9812G6KH-5I	128	200	3.3	-40	85	TSOP	54	400 mil	16	Industrial Grade	√
W9812G6KH-6I	128	166	3.3	-40	85	TSOP	54	400 mil	16	Industrial Grade	√
W9812G6KB-6J	128	166	3.3	-40	105	TFBGA	54	8x8 mm²	16	Industrial Plus Grade	√
W9812G6KH-5J	128	200	3.3	-40	105	TSOP	54	400 mil	16	Industrial Plus Grade	√
W9812G6KH-6J	128	166	3.3	-40	105	TSOP	54	400 mil	16	Industrial Plus Grade	√
W9825G6KH-5	256	200	3.3	0	70	TSOP	54	400 mil	16	Commercial Grade	√
W9825G6KH-6	256	166	3.3	0	70	TSOP	54	400 mil	16	Commercial Grade	√
W9825G6KH-6L	256	166	3.3	0	70	TSOP	54	400 mil	16	Commercial Grade	√
W9825G6KH-75	256	133	3.3	0	70	TSOP	54	400 mil	16	Commercial Grade	√
W9825G6KH75L	256	133	3.3	0	70	TSOP	54	400 mil	16	Commercial Grade	√
W9825G6KB-6	256	166	3.3	0	70	TFBGA	54	8x8 mm²	16	Commercial Grade	√
W9825G6KH-5I	256	200	3.3	-40	85	TSOP	54	400 mil	16	Industrial Grade	√
W9825G6KH-6I	256	166	3.3	-40	85	TSOP	54	400 mil	16	Industrial Grade	√
W9825G6KB-6I	256	166	3.3	-40	85	TFBGA	54	8x8 mm²	16	Industrial Grade	√
W9825G6KH-5J	256	200	3.3	-40	105	TSOP	54	400 mil	16	Industrial Plus Grade	√
W9825G6KH-6J	256	166	3.3	-40	105	TSOP	54	400 mil	16	Industrial Plus Grade	√
W9825G6KH75J	256	133	3.3	-40	105	TSOP	54	400 mil	16	Industrial Plus Grade	√
W9825G6KB-6J	256	166	3.3	-40	105	TFBGA	54	8x8 mm²	16	Industrial Plus Grade	√

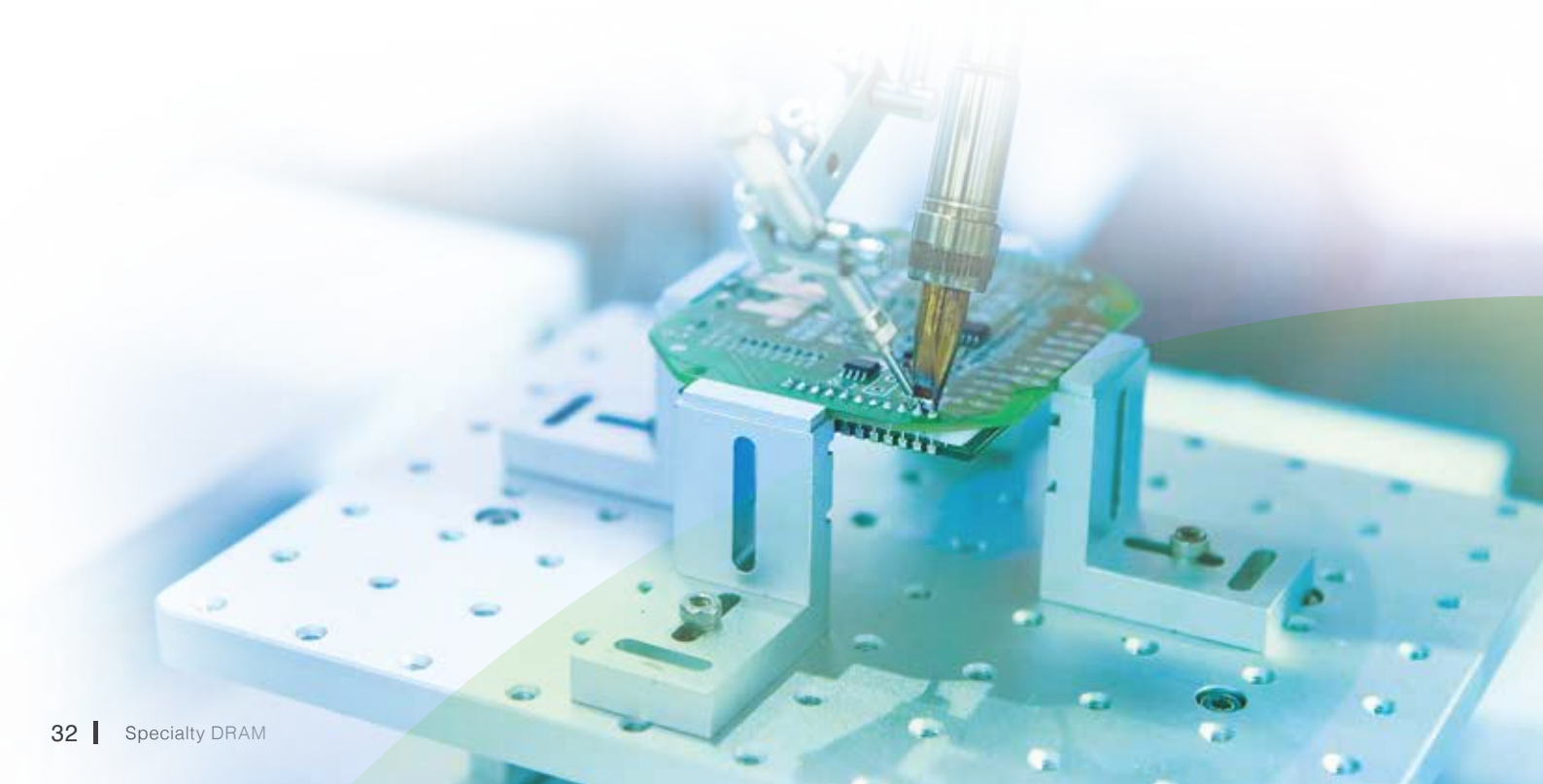
Winbond shall have the right to modify the status and schedule of this product at any time without notice.

SDRAM

Automotive Grade Support

Part No.	Density (Mb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension	I/O	Description	Mass Production
W9864G6KH-5K	64	200	3.3	-40	105	TSOP	54	400 mil	16	Automotive AG2 Grade	√
W9864G6KH-6K	64	166	3.3	-40	105	TSOP	54	400 mil	16	Automotive AG2 Grade	√
W9812G6KH-6K	128	166	3.3	-40	105	TSOP	54	400 mil	16	Automotive AG2 Grade	√
W9825G6KH-6K	256	166	3.3	-40	105	TSOP	54	400 mil	16	Automotive AG2 Grade	√
W9825G6KH75K	256	133	3.3	-40	105	TSOP	54	400 mil	16	Automotive AG2 Grade	√
W9825G6KB-5K	256	200	3.3	-40	105	TFBGA	54	8x8 mm^2	16	Automotive AG2 Grade	√
W9825G6KB-6K	256	166	3.3	-40	105	TFBGA	54	8x8 mm^2	16	Automotive AG2 Grade	√
W9864G6KH-6W	64	166	3.3	-40	115	TSOP	54	400 mil	16	Automotive AG2 Plus Grade	√
W9864G6KH-5A	64	200	3.3	-40	85	TSOP	54	400 mil	16	Automotive AG3 Grade	√
W9864G6KH-6A	64	166	3.3	-40	85	TSOP	54	400 mil	16	Automotive AG3 Grade	√
W9812G6KH-6A	128	166	3.3	-40	85	TSOP	54	400 mil	16	Automotive AG3 Grade	√
W9825G6KH-6A	256	166	3.3	-40	85	TSOP	54	400 mil	16	Automotive AG3 Grade	√
W9825G6KH75A	256	133	3.3	-40	85	TSOP	54	400 mil	16	Automotive AG3 Grade	√
W9825G6KB-5A	256	200	3.3	-40	85	TFBGA	54	8x8 mm^2	16	Automotive AG3 Grade	√
W9825G6KB-6A	256	166	3.3	-40	85	TFBGA	54	8x8 mm^2	16	Automotive AG3 Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.



DDR SDRAM

DDR SDRAM or double-data-rate synchronous dynamic random access memory is a type of memory used in industrial, networking, computers and consumer electronics. It achieves greater bandwidth than the preceding single-data-rate SDRAM by transferring data on both the rising and falling edges of the clock signal.

Industrial Grade Support

Part No.	Density (Mb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mil)	I/O	Description	Mass Production
W9464G6KH-5	64	400	2.5	0	70	TSOP	66	400	16	Commercial Grade	√
W9464G6KH-5I	64	400	2.5	-40	85	TSOP	66	400	16	Industrial Grade	√
W9412G6KH-5	128	400	2.5	0	70	TSOP	66	400	16	Commercial Grade	√
W9412G6KH-5I	128	400	2.5	-40	85	TSOP	66	400	16	Industrial Grade	√
W9412G6KH-6I	128	333	2.5	-40	85	TSOP	66	400	16	Industrial Grade	√
W9425G6KH-5	256	400	2.5	0	70	TSOP	66	400	16	Commercial Grade	√
W9425G6KH-5I	256	400	2.5	-40	85	TSOP	66	400	16	Industrial Grade	√

Automotive Grade Support

Part No.	Density (Mb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mil)	I/O	Description	Mass Production
W9412G6KH-5K	128	400	2.5	-40	105	TSOP	66	400	16	Automotive AG2 Grade	√
W9425G6KH-5K	256	400	2.5	-40	105	TSOP	66	400	16	Automotive AG2 Grade	√
W9412G6KH-5A	128	400	2.5	-40	85	TSOP	66	400	16	Automotive AG3 Grade	√
W9425G6KH-5A	256	400	2.5	-40	85	TSOP	66	400	16	Automotive AG3 Grade	√
W9425G6KH-5I	256	400	2.5	-40	85	TSOP	66	400	16	Industrial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

DDR2 SDRAM

DDR2 SDRAM (double-data-rate synchronous dynamic random access memory generation 2) is a type of memory used in automotive, industrial, computer and consumer electronics. It achieves greater bandwidth than the preceding DDR SDRAM by higher clock rate. After completing a migration from 46nm and 38nm to the Winbond 25nm process, DDR2 and DDR3 products are now available. 25nm DDR2 is available for 512Mb and 1Gb.

Industrial Grade Support

Part No.	Density	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W9712G6KB-25	128 Mb	800	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W9712G6KB-3	128 Mb	667	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W9712G6KB25I	128 Mb	800	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W9725G6KB-18	256 Mb	1066	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W9725G6KB-25	256 Mb	800	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W9725G6KB-3	256 Mb	667	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W9725G8KB-18	256 Mb	1066	1.8	0	85	TFBGA	60	8x12.5	8	Commercial Grade	√
W9725G8KB-25	256 Mb	800	1.8	0	85	TFBGA	60	8x12.5	8	Commercial Grade	√
W9725G8KB-3	256 Mb	667	1.8	0	85	TFBGA	60	8x12.5	8	Commercial Grade	√
W9725G6KB18I	256 Mb	1066	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W9725G6KB25I	256 Mb	800	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W9725G6KB-3I	256 Mb	667	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W9725G8KB18I	256 Mb	1066	1.8	-40	95	TFBGA	60	8x12.5	8	Industrial Grade	√
W9725G8KB25I	256 Mb	800	1.8	-40	95	TFBGA	60	8x12.5	8	Industrial Grade	√
W9751G6NB-18	512 Mb	1066	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W9751G6NB-25	512 Mb	800	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W9751G6NB-3	512 Mb	667	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W9751G6NB-15	512 Mb	1333	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W9751G8NB-18	512 Mb	1066	1.8	0	85	TFBGA	60	8x12.5	8	Commercial Grade	√
W9751G8NB-25	512 Mb	800	1.8	0	85	TFBGA	60	8x12.5	8	Commercial Grade	√
W9751G8NB-3	512 Mb	667	1.8	0	85	TFBGA	60	8x12.5	8	Commercial Grade	√
W9751G6NB18I	512 Mb	1066	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W9751G6NB25I	512 Mb	800	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W9751G6NB-3I	512 Mb	667	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W9751G6NB15I	512 Mb	1333	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W9751G8NB18I	512 Mb	1066	1.8	-40	95	TFBGA	60	8x12.5	8	Industrial Grade	√
W9751G8NB25I	512 Mb	800	1.8	-40	95	TFBGA	60	8x12.5	8	Industrial Grade	√
W9751G8NB-3I	512 Mb	667	1.8	-40	95	TFBGA	60	8x12.5	8	Industrial Grade	√
W9751G6NB18J	512 Mb	1066	1.8	-40	105	TFBGA	84	8x12.5	16	Industrial Plus Grade	√
W9751G6NB25J	512 Mb	800	1.8	-40	105	TFBGA	84	8x12.5	16	Industrial Plus Grade	√
W9751G6NB-3J	512 Mb	667	1.8	-40	105	TFBGA	84	8x12.5	16	Industrial Plus Grade	√
W9751G8NB18J	512 Mb	1066	1.8	-40	105	TFBGA	60	8x12.5	8	Industrial Plus Grade	√
W9751G8NB25J	512 Mb	800	1.8	-40	105	TFBGA	60	8x12.5	8	Industrial Plus Grade	√
W9751G8NB-3J	512 Mb	667	1.8	-40	105	TFBGA	60	8x12.5	8	Industrial Plus Grade	√
W971GG6NB-18	1 Gb	1066	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W971GG6NB-25	1 Gb	800	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W971GG8NB-18	1 Gb	1066	1.8	0	85	TFBGA	60	8x12.5	8	Commercial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

DDR2 SDRAM

Industrial Grade Support

Part No.	Density	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W971GG8NB-25	1 Gb	800	1.8	0	85	TFBGA	60	8x12.5	8	Commercial Grade	√
W971GG6NB25I	1 Gb	800	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W971GG8NB18I	1 Gb	1066	1.8	-40	95	TFBGA	60	8x12.5	8	Industrial Grade	√
W971GG6NB18I	1 Gb	1066	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W971GG8NB25I	1 Gb	800	1.8	-40	95	TFBGA	60	8x12.5	8	Industrial Grade	√
W971GG6NB18J	1 Gb	1066	1.8	-40	105	TFBGA	84	8x12.5	16	Industrial Plus Grade	√
W971GG6NB25J	1 Gb	800	1.8	-40	105	TFBGA	84	8x12.5	16	Industrial Plus Grade	√
W971GG8NB18J	1 Gb	1066	1.8	-40	105	TFBGA	60	8x12.5	8	Industrial Plus Grade	√
W971GG8NB25J	1 Gb	800	1.8	-40	105	TFBGA	60	8x12.5	8	Industrial Plus Grade	√
W972GG6KB-18	2 Gb	1066	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W972GG6KB-25	2 Gb	800	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W972GG6KB-3	2 Gb	667	1.8	0	85	TFBGA	84	8x12.5	16	Commercial Grade	√
W972GG8KS-18	2 Gb	1066	1.8	0	85	TFBGA	60	8x12.5	8	Commercial Grade	√
W972GG8KS-25	2 Gb	800	1.8	0	85	TFBGA	60	8x12.5	8	Commercial Grade	√
W972GG8KS-3	2 Gb	667	1.8	0	85	TFBGA	60	8x12.5	8	Commercial Grade	√
W972GG6KB25I	2 Gb	800	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W972GG6KB-3I	2 Gb	667	1.8	-40	95	TFBGA	84	8x12.5	16	Industrial Grade	√
W972GG8KS25I	2 Gb	800	1.8	-40	95	TFBGA	60	8x12.5	8	Industrial Grade	√
W972GG6KB18J	2 Gb	1066	1.8	-40	105	TFBGA	84	8x12.5	16	Industrial Plus Grade	√
W972GG6KB25J	2 Gb	800	1.8	-40	105	TFBGA	84	8x12.5	16	Industrial Plus Grade	√

Automotive Grade Support

Part No.	Density	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W9712G6KB25K	128 Mb	800	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W9712G6KB25A	128 Mb	800	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√
W9725G6KB18K	256 Mb	1066	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W9725G6KB25K	256 Mb	800	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W9725G6KB-3K	256 Mb	667	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W9725G8KB18K	256 Mb	1066	1.8	-40	105	TFBGA	60	8x12.5	8	Automotive AG2 Grade	√
W9725G8KB25K	256 Mb	800	1.8	-40	105	TFBGA	60	8x12.5	8	Automotive AG2 Grade	√
W9725G8KB-3K	256 Mb	667	1.8	-40	105	TFBGA	60	8x12.5	8	Automotive AG2 Grade	√
W9725G6KB18W	256 Mb	1066	1.8	-40	115	TFBGA	84	8x12.5	16	Automotive AG2 Plus Grade	√
W9725G6KB25W	256 Mb	800	1.8	-40	115	TFBGA	84	8x12.5	16	Automotive AG2 Plus Grade	√
W9725G6KB-3W	256 Mb	667	1.8	-40	115	TFBGA	84	8x12.5	16	Automotive AG2 Plus Grade	√
W9725G8KB18W	256 Mb	1066	1.8	-40	115	TFBGA	60	8x12.5	8	Automotive AG2 Plus Grade	√
W9725G8KB25W	256 Mb	800	1.8	-40	115	TFBGA	60	8x12.5	8	Automotive AG2 Plus Grade	√
W9725G8KB-3W	256 Mb	667	1.8	-40	115	TFBGA	60	8x12.5	8	Automotive AG2 Plus Grade	√
W9725G6KB18A	256 Mb	1066	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√
W9725G6KB25A	256 Mb	800	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√
W9725G6KB-3A	256 Mb	667	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√
W9725G8KB18A	256 Mb	1066	1.8	-40	95	TFBGA	60	8x12.5	8	Automotive AG3 Grade	√
W9725G8KB25A	256 Mb	800	1.8	-40	95	TFBGA	60	8x12.5	8	Automotive AG3 Grade	√
W9725G8KB-3A	256 Mb	667	1.8	-40	95	TFBGA	60	8x12.5	8	Automotive AG3 Grade	√

DDR2 SDRAM

Automotive Grade Support

Part No.	Density	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W9751G6NB18K	512 Mb	1066	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W9751G6NB25K	512 Mb	800	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W9751G6NB-3K	512 Mb	667	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W9751G6NB18W	512 Mb	1066	1.8	-40	115	TFBGA	84	8x12.5	16	Automotive AG2 Plus Grade	√
W9751G6NB25W	512 Mb	800	1.8	-40	115	TFBGA	84	8x12.5	16	Automotive AG2 Plus Grade	√
W9751G6NB-3W	512 Mb	667	1.8	-40	115	TFBGA	84	8x12.5	16	Automotive AG2 Plus Grade	√
W9751G6NB18A	512 Mb	1066	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√
W9751G6NB25A	512 Mb	800	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√
W9751G6NB-3A	512 Mb	667	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√
W971GG6NB18K	1 Gb	1066	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W971GG6NB25K	1 Gb	800	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W971GG6NB18W	1 Gb	1066	1.8	-40	115	TFBGA	84	8x12.5	16	Automotive AG2 Plus Grade	√
W971GG6NB25W	1 Gb	800	1.8	-40	115	TFBGA	84	8x12.5	16	Automotive AG2 Plus Grade	√
W971GG6NB18A	1 Gb	1066	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√
W971GG6NB25A	1 Gb	800	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√
W972GG6KB18K	2 Gb	1066	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W972GG6KB25K	2 Gb	800	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W972GG6KB-3K	2 Gb	667	1.8	-40	105	TFBGA	84	8x12.5	16	Automotive AG2 Grade	√
W972GG6KB18W	2 Gb	1066	1.8	-40	115	TFBGA	84	8x12.5	16	Automotive AG2 Plus Grade	√
W972GG6KB25W	2 Gb	800	1.8	-40	115	TFBGA	84	8x12.5	16	Automotive AG2 Plus Grade	√
W972GG6KB-3W	2 Gb	667	1.8	-40	115	TFBGA	84	8x12.5	16	Automotive AG2 Plus Grade	√
W972GG6KB18A	2 Gb	1066	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√
W972GG6KB25A	2 Gb	800	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√
W972GG6KB-3A	2 Gb	667	1.8	-40	95	TFBGA	84	8x12.5	16	Automotive AG3 Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

DDR3 SDRAM

DDR3 SDRAM (double-data-rate synchronous dynamic random access memory generation 3) is a type of memory used in electronics. Such as automotive, industrial, TV, STB, network, BD-Player, and so on. DDR3 SDRAM achieves greater bandwidth than the preceding DDR2 SDRAM by a higher clock rate.

After completing a migration from 46nm and 38nm to the Winbond 25nm process, DDR2 and DDR3 products are now available. 25nm DDR2 is available for 512Mb and 1Gb, 25nm DDR3 is available in densities of 1Gb, 2Gb, 4Gb and 8Gb. Winbond also supplies DDR3 products in Known Good Die (KGD) format. In 2023, DDR3 has migrated to 20 nm and support density up to 8Gb.

Winbond has been delivering competitive DDR3 products for 10 years and will keep delivering DDR3 in coming 10+ years with superior customer support and product quality to ensure we can meet customer longevity demand.

Industrial Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W631GG6NB-09	1	2133	1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W631GG6NB-11	1	1866	1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W631GG6NB-12	1	1600	1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W631GG6NB-15	1	1333	1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W631GG8NB-09	1	2133	1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W631GG8NB-11	1	1866	1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W631GG8NB-12	1	1600	1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W631GG8NB-15	1	1333	1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W631GU6NB-09	1	2133	1.35	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W631GU6NB-11	1	1866	1.35	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W631GU6NB-12	1	1600	1.35	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W631GU6NB-15	1	1333	1.35	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W631GU8NB-09	1	2133	1.35	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W631GU8NB-11	1	1866	1.35	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W631GU8NB-12	1	1600	1.35	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W631GU8NB-15	1	1333	1.35	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W631GG6NB09I	1	2133	1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W631GG6NB11I	1	1866	1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W631GG6NB12I	1	1600	1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W631GG6NB15I	1	1333	1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W631GG8NB09I	1	2133	1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W631GG8NB11I	1	1866	1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W631GG8NB12I	1	1600	1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W631GG8NB15I	1	1333	1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W631GU6NB09I	1	2133	1.35	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

DDR3 SDRAM

Industrial Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W631GU6NB11I	1	1866	1.35	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W631GU6NB12I	1	1600	1.35	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W631GU6NB15I	1	1333	1.35	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W631GU8NB09I	1	2133	1.35	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W631GU8NB11I	1	1866	1.35	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W631GU8NB12I	1	1600	1.35	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W631GU8NB15I	1	1333	1.35	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W631GG6NB09J	1	2133	1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W631GG6NB11J	1	1866	1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W631GG6NB12J	1	1600	1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W631GG6NB15J	1	1333	1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W631GG8NB09J	1	2133	1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W631GG8NB11J	1	1866	1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W631GG8NB12J	1	1600	1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W631GG8NB15J	1	1333	1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W631GU6NB09J	1	2133	1.35	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W631GU6NB11J	1	1866	1.35	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W631GU6NB12J	1	1600	1.35	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W631GU6NB15J	1	1333	1.35	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W631GU8NB09J	1	2133	1.35	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W631GU8NB11J	1	1866	1.35	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W631GU8NB12J	1	1600	1.35	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W631GU8NB15J	1	1333	1.35	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W632GU6NB-09	2	2133	1.35	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GU6NB-11	2	1866	1.35	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GU6NB-12	2	1600	1.35	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GU6NB-15	2	1333	1.35	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GU8NB-09	2	2133	1.35	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GU8NB-11	2	1866	1.35	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GU8NB-12	2	1600	1.35	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GU8NB-15	2	1333	1.35	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GG6NB-09	2	2133	1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GG6NB-11	2	1866	1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GG6NB-12	2	1600	1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GG6NB-15	2	1333	1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GG8NB-09	2	2133	1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GG8NB-11	2	1866	1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GG8NB-12	2	1600	1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GG8NB-15	2	1333	1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GU6QB-09	2	2133	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GU6QB-11	2	1866	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GU6QB-12	2	1600	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GU8QB-09	2	2133	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GU8QB-11	2	1866	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GU8QB-12	2	1600	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W632GU6NB09I	2	2133	1.35	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GU6NB11I	2	1866	1.35	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GU6NB12I	2	1600	1.35	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GU6NB15I	2	1333	1.35	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GU8NB09I	2	2133	1.35	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GU8NB11I	2	1866	1.35	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GU8NB12I	2	1600	1.35	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GU8NB15I	2	1333	1.35	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GG6NB09I	2	2133	1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GG6NB11I	2	1866	1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GG6NB12I	2	1600	1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GG6NB15I	2	1333	1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GG8NB09I	2	2133	1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GG8NB11I	2	1866	1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GG8NB12I	2	1600	1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GG8NB15I	2	1333	1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GU6QB09I	2	2133	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GU6QB11I	2	1866	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GU6QB12I	2	1600	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GU8QB09I	2	2133	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GU8QB11I	2	1866	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GU8QB12I	2	1600	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GU6NB09J	2	2133	1.35	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W632GU6NB11J	2	1866	1.35	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W632GU6NB12J	2	1600	1.35	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W632GU6NB15J	2	1333	1.35	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W632GU8NB09J	2	2133	1.35	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W632GU8NB11J	2	1866	1.35	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W632GU8NB12J	2	1600	1.35	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W632GU8NB15J	2	1333	1.35	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W632GG6NB09J	2	2133	1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W632GG6NB11J	2	1866	1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W632GG6NB12J	2	1600	1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W632GG6NB15J	2	1333	1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W632GG8NB09J	2	2133	1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W632GG8NB11J	2	1866	1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W632GG8NB12J	2	1600	1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W632GG8NB15J	2	1333	1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W634GU6RB-09	4	2133	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W634GU6RB-11	4	1866	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W634GU6RB-12	4	1600	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W634GU8RB-09	4	2133	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W634GU8RB-11	4	1866	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W634GU8RB-12	4	1600	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W634GU6RB-09	4	2133	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

DDR3 SDRAM

Industrial Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W634GU6RB-11	4	1866	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W634GU6RB-12	4	1600	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W634GU8RB-09	4	2133	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W634GU8RB-11	4	1866	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W634GU8RB-12	4	1600	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W634GU6RB09I	4	2133	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W634GU6RB11I	4	1866	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W634GU6RB12I	4	1600	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W634GU8RB09I	4	2133	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W634GU8RB11I	4	1866	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W634GU8RB12I	4	1600	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W634GU6RB09I	4	2133	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W634GU6RB11I	4	1866	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W634GU6RB12I	4	1600	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W634GU8RB09I	4	2133	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W634GU8RB11I	4	1866	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W634GU8RB12I	4	1600	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W634GU6RB09J	4	2133	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W634GU6RB11J	4	1866	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W634GU6RB12J	4	1600	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W634GU8RB09J	4	2133	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W634GU8RB11J	4	1866	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W634GU8RB12J	4	1600	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W634GU6RB09J	4	2133	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W634GU6RB11J	4	1866	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W634GU6RB12J	4	1600	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W634GU8RB09J	4	2133	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W634GU8RB11J	4	1866	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W634GU8RB12J	4	1600	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W638GU6QB-09	8	2133	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W638GU6QB-11	8	1866	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W638GU6QB-12	8	1600	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W638GU6QB09I	8	2133	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W638GU6QB11I	8	1866	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W638GU6QB12I	8	1600	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GU6RB-09	2	2133	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GU6RB-11	2	1866	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GU6RB-12	2	1600	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W632GU6RB09I	2	2133	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GU6RB11I	2	1866	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GU6RB12I	2	1600	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W632GU6RB09J	2	2133	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W632GU6RB11J	2	1866	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W632GU6RB12J	2	1600	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W632GU8RB-09	2	2133	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W632GU8RB-11	2	1866	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GU8RB-12	2	1600	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W632GU8RB09I	2	2133	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GU8RB11I	2	1866	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GU8RB12I	2	1600	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W632GU8RB09J	2	2133	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W632GU8RB11J	2	1866	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W632GU8RB12J	2	1600	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W631GU6RB-09	1	2133	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W631GU6RB-11	1	1866	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W631GU6RB-12	1	1600	1.35, 1.5	0	95	VFBGA	96	7.5x13	16	Commercial Grade	√
W631GU6RB09I	1	2133	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W631GU6RB11I	1	1866	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W631GU6RB12I	1	1600	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Industrial Grade	√
W631GU6RB09J	1	2133	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W631GU6RB11J	1	1866	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W631GU6RB12J	1	1600	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Industrial Plus Grade	√
W631GU8RB-09	1	2133	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W631GU8RB-11	1	1866	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W631GU8RB-12	1	1600	1.35, 1.5	0	95	VFBGA	78	8x10.5	8	Commercial Grade	√
W631GU8RB09I	1	2133	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W631GU8RB11I	1	1866	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W631GU8RB12I	1	1600	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Industrial Grade	√
W631GU8RB09J	1	2133	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W631GU8RB11J	1	1866	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√
W631GU8RB12J	1	1600	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Industrial Plus Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

DDR3 SDRAM

Automotive Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W631GG8NB09S	1	2133	1.5	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W631GG8NB11S	1	1866	1.5	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W631GG8NB12S	1	1600	1.5	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W631GG8NB15S	1	1333	1.5	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W631GG6NB09S	1	2133	1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W631GG6NB11S	1	1866	1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W631GG6NB12S	1	1600	1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W631GG6NB15S	1	1333	1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W631GU6NB09S	1	2133	1.35	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W631GU6NB11S	1	1866	1.35	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W631GU6NB12S	1	1600	1.35	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W631GU6NB15S	1	1333	1.35	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W631GU8NB09S	1	2133	1.35	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W631GU8NB11S	1	1866	1.35	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W631GU8NB12S	1	1600	1.35	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W631GU8NB15S	1	1333	1.35	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W631GG8NB09K	1	2133	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W631GG8NB11K	1	1866	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W631GG8NB12K	1	1600	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W631GG8NB15K	1	1333	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W631GG6NB09K	1	2133	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W631GG6NB11K	1	1866	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W631GG6NB12K	1	1600	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W631GG6NB15K	1	1333	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W631GU6NB09K	1	2133	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W631GU6NB11K	1	1866	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W631GU6NB12K	1	1600	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W631GU6NB15K	1	1333	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W631GU8NB09K	1	2133	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W631GU8NB11K	1	1866	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W631GU8NB12K	1	1600	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W631GU8NB15K	1	1333	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W631GG8NB09A	1	2133	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W631GG8NB11A	1	1866	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W631GG8NB12A	1	1600	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W631GG8NB15A	1	1333	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W631GG6NB09A	1	2133	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W631GG6NB11A	1	1866	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W631GG6NB12A	1	1600	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W631GG6NB15A	1	1333	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W631GU6NB09A	1	2133	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W631GU6NB11A	1	1866	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W631GU6NB12A	1	1600	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W631GU6NB15A	1	1333	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W631GU8NB09A	1	2133	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W631GU8NB11A	1	1866	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W631GU8NB12A	1	1600	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W631GU8NB15A	1	1333	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W632GG8NB09S	2	2133	1.5	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W632GG8NB11S	2	1866	1.5	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W632GG8NB12S	2	1600	1.5	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W632GG8NB15S	2	1333	1.5	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W632GG6NB09S	2	2133	1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W632GG6NB11S	2	1866	1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W632GG6NB12S	2	1600	1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W632GG6NB15S	2	1333	1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W632GU6NB09S	2	2133	1.35	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W632GU6NB11S	2	1866	1.35	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W632GU6NB12S	2	1600	1.35	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W632GU6NB15S	2	1333	1.35	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W632GU8NB09S	2	2133	1.35	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W632GU8NB11S	2	1866	1.35	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W632GU8NB12S	2	1600	1.35	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W632GU8NB15S	2	1333	1.35	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W632GG8NB09K	2	2133	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W632GG8NB11K	2	1866	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W632GG8NB12K	2	1600	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W632GG8NB15K	2	1333	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W632GG6NB09K	2	2133	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W632GG6NB11K	2	1866	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W632GG6NB12K	2	1600	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W632GG6NB15K	2	1333	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W632GU6NB09K	2	2133	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W632GU6NB11K	2	1866	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W632GU6NB12K	2	1600	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W632GU6NB15K	2	1333	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W632GU8NB09K	2	2133	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W632GU8NB11K	2	1866	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W632GU8NB12K	2	1600	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W632GU8NB15K	2	1333	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W632GG8NB09W	2	2133	1.5	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W632GG8NB11W	2	1866	1.5	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W632GG8NB12W	2	1600	1.5	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W632GG8NB15W	2	1333	1.5	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W632GG6NB09W	2	2133	1.5	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W632GG6NB11W	2	1866	1.5	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W632GG6NB12W	2	1600	1.5	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W632GG6NB15W	2	1333	1.5	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W632GU6NB09W	2	2133	1.35	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W632GU6NB11W	2	1866	1.35	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√

DDR3 SDRAM

Automotive Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W632GU6NB12W	2	1600	1.35	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W632GU6NB15W	2	1333	1.35	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W632GU8NB09W	2	2133	1.35	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W632GU8NB11W	2	1866	1.35	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W632GU8NB12W	2	1600	1.35	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W632GU8NB15W	2	1333	1.35	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W632GG8NB09A	2	2133	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W632GG8NB11A	2	1866	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W632GG8NB12A	2	1600	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W632GG8NB15A	2	1333	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W632GG6NB09A	2	2133	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GG6NB11A	2	1866	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GG6NB12A	2	1600	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GG6NB15A	2	1333	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GU6NB09A	2	2133	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GU6NB11A	2	1866	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GU6NB12A	2	1600	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GU6NB15A	2	1333	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GU8NB09A	2	2133	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W632GU8NB11A	2	1866	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W632GU8NB12A	2	1600	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W632GU8NB15A	2	1333	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GU8RB09S	4	2133	1.35, 1.5	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W634GU8RB11S	4	1866	1.35, 1.5	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W634GU8RB12S	4	1600	1.35, 1.5	-40	125	VFBGA	78	8x10.5	8	Automotive AG1 Grade	√
W634GU6RB09S	4	2133	1.35, 1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W634GU6RB11S	4	1866	1.35, 1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W634GU6RB12S	4	1600	1.35, 1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W634GG8NB09K	4	2133	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W634GG8NB11K	4	1866	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W634GG8NB12K	4	1600	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W634GG8NB15K	4	1333	1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W634GG6NB09K	4	2133	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W634GG6NB11K	4	1866	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W634GG6NB12K	4	1600	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W634GG6NB15K	4	1333	1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W634GU6NB09K	4	2133	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W634GU6NB11K	4	1866	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W634GU6NB12K	4	1600	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W634GU6NB15K	4	1333	1.35	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W634GU8NB09K	4	2133	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W634GU8NB11K	4	1866	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W634GU8NB12K	4	1600	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W634GU8NB15K	4	1333	1.35	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W634GU8RB09K	4	2133	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W634GU8RB11K	4	1866	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W634GU8RB12K	4	1600	1.35, 1.5	-40	105	VFBGA	78	8x10.5	8	Automotive AG2 Grade	√
W634GU6RB09K	4	2133	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W634GU6RB11K	4	1866	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W634GU6RB12K	4	1600	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W634GG8NB09W	4	2133	1.5	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W634GG8NB11W	4	1866	1.5	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W634GG8NB12W	4	1600	1.5	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W634GG8NB15W	4	1333	1.5	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W634GG6NB09W	4	2133	1.5	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W634GG6NB11W	4	1866	1.5	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W634GG6NB12W	4	1600	1.5	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W634GG6NB15W	4	1333	1.5	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W634GU6NB09W	4	2133	1.35	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W634GU6NB11W	4	1866	1.35	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W634GU6NB12W	4	1600	1.35	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W634GU6NB15W	4	1333	1.35	-40	115	VFBGA	96	7.5x13	16	Automotive AG2 Plus Grade	√
W634GU8NB09W	4	2133	1.35	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W634GU8NB11W	4	1866	1.35	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W634GU8NB12W	4	1600	1.35	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W634GU8NB15W	4	1333	1.35	-40	115	VFBGA	78	8x10.5	8	Automotive AG2 Plus Grade	√
W634GG8NB09A	4	2133	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GG8NB11A	4	1866	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GG8NB12A	4	1600	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GG8NB15A	4	1333	1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GG6NB09A	4	2133	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W634GG6NB11A	4	1866	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W634GG6NB12A	4	1600	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W634GG6NB15A	4	1333	1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W634GU6NB09A	4	2133	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W634GU6NB11A	4	1866	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W634GU6NB12A	4	1600	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W634GU6NB15A	4	1333	1.35	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

DDR3 SDRAM

Automotive Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W634GU8NB09A	4	2133	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GU8NB11A	4	1866	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GU8NB12A	4	1600	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GU8NB15A	4	1333	1.35	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GU8RB09A	4	2133	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GU8RB11A	4	1866	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GU8RB12A	4	1600	1.35, 1.5	-40	95	VFBGA	78	8x10.5	8	Automotive AG3 Grade	√
W634GU6RB09A	4	2133	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W634GU6RB11A	4	1866	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W634GU6RB12A	4	1600	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GU6RB09A	2	2133	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GU6RB09K	2	2133	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W632GU6RB09S	2	2133	1.35, 1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W632GU6RB11A	2	1866	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GU6RB11K	2	1866	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W632GU6RB11S	2	1866	1.35, 1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W632GU6RB12A	2	1600	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W632GU6RB12K	2	1600	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W632GU6RB12S	2	1600	1.35, 1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W631GU6RB09A	1	2133	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W631GU6RB09K	1	2133	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W631GU6RB09S	1	2133	1.35, 1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W631GU6RB11A	1	1866	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W631GU6RB11K	1	1866	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W631GU6RB11S	1	1866	1.35, 1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√
W631GU6RB12A	1	1600	1.35, 1.5	-40	95	VFBGA	96	7.5x13	16	Automotive AG3 Grade	√
W631GU6RB12K	1	1600	1.35, 1.5	-40	105	VFBGA	96	7.5x13	16	Automotive AG2 Grade	√
W631GU6RB12S	1	1600	1.35, 1.5	-40	125	VFBGA	96	7.5x13	16	Automotive AG1 Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

DDR4 SDRAM

DDR4 has lower operation voltage (1.2V), with a typical transfer rate of up to 3200Mbps. DDR4 offers double throughput of data with less power consumption than DDR3. Higher bandwidth is needed in the application of WiFi6/6E/7, Premium TV model, xGPON and STB, and storage with better performance device.

Industrial Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W664GG6RB-08	4	2400	1.2	0	95	VFBGA	96	7.5X13	16	Commercial Grade	√
W664GG6RB-07	4	2666	1.2	0	95	VFBGA	96	7.5X13	16	Commercial Grade	√
W664GG6RB-06	4	3200	1.2	0	95	VFBGA	96	7.5X13	16	Commercial Grade	√
W664GG8RB-08	4	2400	1.2	0	95	VFBGA	78	7.5X11	8	Commercial Grade	√
W664GG8RB-07	4	2666	1.2	0	95	VFBGA	78	7.5X11	8	Commercial Grade	√
W664GG8RB-06	4	3200	1.2	0	95	VFBGA	78	7.5X11	8	Commercial Grade	√
W664GG6RB08I	4	2400	1.2	-40	95	VFBGA	96	7.5X13	16	Industrial Grade	√
W664GG6RB07I	4	2666	1.2	-40	95	VFBGA	96	7.5X13	16	Industrial Grade	√
W664GG6RB06I	4	3200	1.2	-40	95	VFBGA	96	7.5X13	16	Industrial Grade	√
W664GG8RB08I	4	2400	1.2	-40	95	VFBGA	78	7.5X11	8	Industrial Grade	√
W664GG8RB07I	4	2666	1.2	-40	95	VFBGA	78	7.5X11	8	Industrial Grade	√
W664GG8RB06I	4	3200	1.2	-40	95	VFBGA	78	7.5X11	8	Industrial Grade	√
W664GG6RB08J	4	2400	1.2	-40	105	VFBGA	96	7.5X13	16	Industrial Plus Grade	√
W664GG6RB07J	4	2666	1.2	-40	105	VFBGA	96	7.5X13	16	Industrial Plus Grade	√
W664GG6RB06J	4	3200	1.2	-40	105	VFBGA	96	7.5X13	16	Industrial Plus Grade	√
W664GG8RB08J	4	2400	1.2	-40	105	VFBGA	78	7.5X11	8	Industrial Plus Grade	√
W664GG8RB07J	4	2666	1.2	-40	105	VFBGA	78	7.5X11	8	Industrial Plus Grade	√
W664GG8RB06J	4	3200	1.2	-40	105	VFBGA	78	7.5X11	8	Industrial Plus Grade	√

Winbond shall have the right to modify the status and schedule of this product at any time without notice.

DDR4 SDRAM

Automotive Grade Support

Part No.	Density (Gb)	Frequency (Mbps)	Voltage (V)	Temp. (min) (°C)	Temp. (max) (°C)	Package Type	PIN	Dimension (mm^2)	I/O	Description	Mass Production
W664GG6RB07S	4	2666	1.2	-40	125	VFBGA	96	7.5X13	16	Automotive AG1 Grade	√
W664GG6RB06S	4	3200	1.2	-40	125	VFBGA	96	7.5X13	16	Automotive AG1 Grade	√
W664GG8RB08S	4	2400	1.2	-40	125	VFBGA	96	7.5X13	16	Automotive AG1 Grade	√
W664GG8RB07S	4	2666	1.2	-40	125	VFBGA	96	7.5X13	16	Automotive AG1 Grade	√
W664GG8RB06S	4	3200	1.2	-40	125	VFBGA	96	7.5X13	16	Automotive AG1 Grade	√
W664GG6RB08K	4	2400	1.2	-40	105	VFBGA	96	7.5X13	16	Automotive AG2 Grade	√
W664GG6RB07K	4	2666	1.2	-40	105	VFBGA	96	7.5X13	16	Automotive AG2 Grade	√
W664GG6RB06K	4	3200	1.2	-40	105	VFBGA	96	7.5X13	16	Automotive AG2 Grade	√
W664GG8RB08K	4	2400	1.2	-40	105	VFBGA	96	7.5X13	16	Automotive AG2 Grade	√
W664GG8RB07K	4	2666	1.2	-40	105	VFBGA	96	7.5X13	16	Automotive AG2 Grade	√
W664GG8RB06K	4	3200	1.2	-40	105	VFBGA	96	7.5X13	16	Automotive AG2 Grade	√
W664GG6RB08A	4	2400	1.2	-40	95	VFBGA	96	7.5X13	16	Automotive AG3 Grade	√
W664GG6RB07A	4	2666	1.2	-40	95	VFBGA	96	7.5X13	16	Automotive AG3 Grade	√
W664GG6RB06A	4	3200	1.2	-40	95	VFBGA	96	7.5X13	16	Automotive AG3 Grade	√
W664GG8RB08A	4	2400	1.2	-40	95	VFBGA	96	7.5X13	16	Automotive AG3 Grade	√
W664GG8RB07A	4	2666	1.2	-40	95	VFBGA	96	7.5X13	16	Automotive AG3 Grade	√
W664GG8RB06A	4	3200	1.2	-40	95	VFBGA	96	7.5X13	16	Automotive AG3 Grade	√

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About Winbond

Winbond Electronics Corporation is one of the few companies worldwide with proprietary products and technology in both memory and logic integrated circuits. The Company provides customer-driven solutions backed by the expert capabilities of product design, R&D, manufacturing, and promoting brand name products globally. Winbond's product portfolio, consisting of Code Storage Flash, TrustME® Secure Flash, Customized Memory Solution (CMS), is widely used by tier 1 customers in communication, consumer electronics, automotive and industrial, and computer peripheral markets. Winbond is headquartered in Central Taiwan Science Park (CTSP), and it has subsidiaries in the USA, China, Japan, Germany, India, Korea, Hong Kong, Singapore, and Israel. With its 12-inch fabs located in CTSP and South Taiwan Science Park (STSP)'s Kaohsiung Science Park, Winbond keeps pace to develop in-house technologies to provide high-quality integrated circuit products and services.

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