



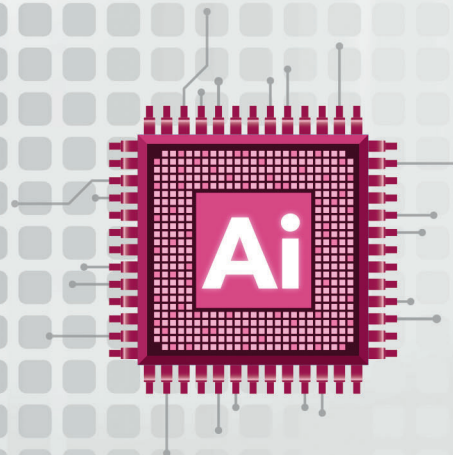
Etron Technology, Inc.

Specialty Buffer DRAM • KGD • RPC DRAM • SPI NAND Flash • e.MMC

MemorAiLink[®]

AI Memory Platform & [AI+] Subsystem Total Solution

Etron Enables a World of Specialty DRAMs with Unique Features (Pioneering KGD-DRAM, Most Compact RPC[®], etc.) for Miniaturizing Smart AI-Edge Systems in MHI (Monolithic & Heterogeneous Integrations)



- ▶ Comprehensive Memory Solutions
- ▶ Streamlined Memory / Package System
- ▶ Seamless Integration

Introduction to Etron

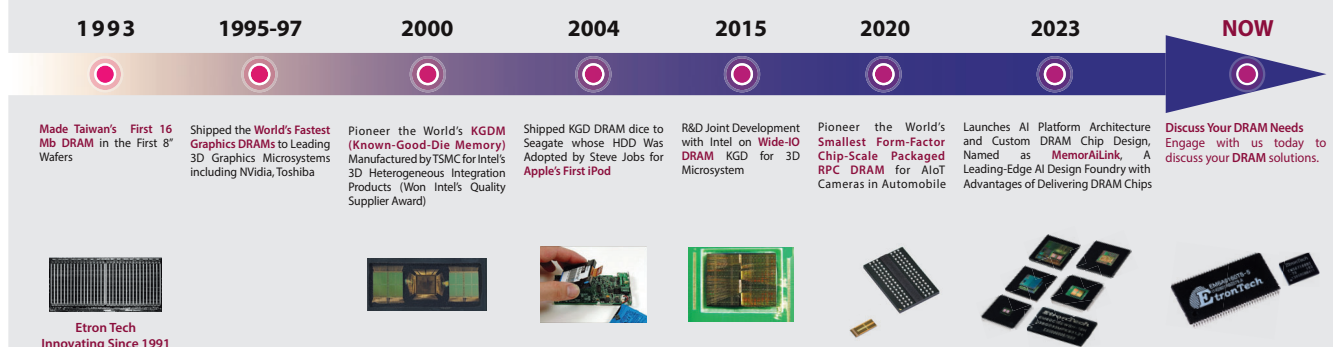
Etron Technology, Inc. (TPEX: 5351.TW) is a world-class fabless and heterogeneous integration IC design company specializing in application-driven buffer memory, known-good die memory (KGDM), innovative RPC DRAM®, and other AI- and ML-driven DRAM products. The company also offers high-speed transfer interface chips for USB Type-C, machine vision sensing cameras, modules, and ICs, as well as a Depthmap Processing Unit. These solutions can be integrated to meet customer requirements for AI applications. Additionally, Etron provides data analysis with personal information protection through private computing, ensuring greater privacy in the era of big data.

To learn more, please visit www.etrone.com

WHO WE ARE

- World-Class Fabless IC design Company with Creativity and Innovative Products
- Pioneering Application-Driven Buffer Memory Business Model and Leader of Known-Good-Die Memory Products World's First DRAM in Fan-In Wafer Level Package - RPC DRAM®
- World's Leader in USB3.1 Type-C Switch Chip (10Gbps), Thunderbolt 3 (40Gbp) and Power Delivery (PD3.0 up to 100W) Controller
- World's Best Cost/Performance 3D Depth-Map Object-Capture Chip and Platform
- Taiwan's First Privacy Computing Company Providing Both Software and Hardware Solutions Based on Differential Privacy

Etron Has Been and Will Continue Specializing in DRAM Design & Full-Chip Solutions for Microsystems, Particularly Tailored for Emerging AI Systems



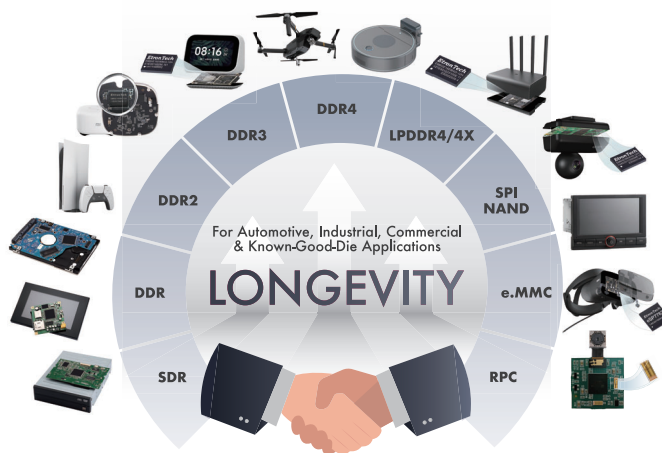
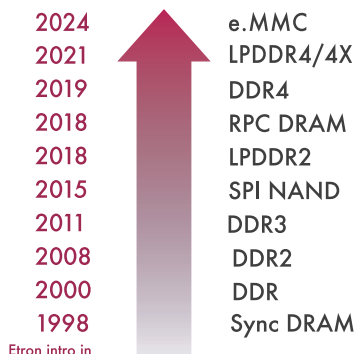
Segments covered

Extended Manufacturing Life

Your manufacturing partner for memory products > 10 Years Support

Broad Product Lineup

ALL STILL GOING STRONG



Etron's Automotive DRAM Product Portfolio

<https://www.etrone.com/zh-hant/automotive>



Application	SDR	DDR	DDR2	DDR3/3L	LPDDR2	RPC
HUD		128Mb/256Mb		1Gb/2Gb/4Gb		
Car DVD	16Mb/128Mb					
Car HDD		64Mb	512Mb/1Gb			
Digital Audio Broadcasting (DAB)	16Mb/64Mb					
Car Digital Dashboard	16Mb/32Mb/64Mb	32Mb/64Mb/128Mb	512Mb/1Gb	1Gb/2Gb/4Gb		
Backward-aided Camera		256Mb	512Mb	1Gb/2Gb/4Gb/8Gb		256Mb
Front-end Camera		256Mb		1Gb/2Gb/4Gb		256Mb
ADAS		128Mb/256Mb		2Gb/4Gb/8Gb		256Mb/512Mb
Infotainment				1Gb/2Gb/4Gb/8Gb		
Dash Cam	16Mb/64Mb	128Mb/256Mb	512Mb	1Gb	256Mb	
GPS Navigator	16Mb/128Mb/256Mb	512Mb	512Mb	1Gb/2Gb/4Gb		
Display		32Mb/64Mb/128Mb/256Mb	512Mb/1Gb	2Gb/4Gb	256Mb	

Etron's Memory Product Portfolio

● Mass Production ● Pilot Production ● Designing

<https://etrone.com/longevity-product-table/>



	SDR		DDR			DDR2			DDR3			DDR4			LPDDR2	LPDDR4/4X	RPC		SPI NAND		e.MMC		
DRAM	63nm	38nm	63nm	45nm	38nm	45nm	38nm	25nm	38nm	25nm	20nm	25nm	20nm	1xnm	1anm	38nm	25nm	1anm	38nm	Flash	1.8V	3.3V	3.3V
16M	TSOP KGD		KGD																	1Gb	LGA8	LGA8	
32M	KGD		KGD																	2Gb	LGA8	LGA8	
64M	BGA TSOP KGD	BGA TSOP KGD	BGA TSOP KGD		BGA TSOP KGD															4Gb	LGA8	LGA8	
128M	BGA TSOP KGD	BGA TSOP KGD	BGA TSOP KGD	TSOP KGD	KGD	BGA KGD	BGA KGD													8Gb	LGA8	LGA8	
256M	BGA TSOP KGD	BGA TSOP KGD	BGA TSOP KGD	KGD	BGA TSOP KGD	BGA KGD										BGA POP KGD			WLCSP KGD				
512M		BGA(DDP) TSOP(DDP)		BGA TSOP KGD	TSOP KGD	BGA KGD	BGA KGD	BGA KGD	BGA KGD											32Gb (4Gb)			153ball FBG
1G				TSOP(DDP)			BGA KGD	BGA KGD	BGA KGD	BGA KGD										64Gb (8Gb)			153ball FBG
2G						BGA(DDP)				BGA KGD	BGA KGD					KGD**	BGA KGD			128Gb (16Gb)			153ball FBG
4G										BGA KGD	KGD	BGA	BGA KGD	BGA**		KGD**	BGA KGD			256Gb (32Gb)			153ball FBG
8G										BGA(DDP)				BGA**	BGA*		BGA(DDP)			512Gb (64Gb)			153ball FBG
16G															BGA*				BGA(DDP)*	1024Gb (128Gb)			153ball FBG
32G																			BGA(DDP)*				153ball FBG

*: Not support industrial/automotive grades

** : Not support automotive grade

Automotive and Industrial DRAMs

Long-term product support is a key consideration for automotive and industrial application, Etron's Automotive and Industrial DRAMs provide benefits of continuity of supply, long-term reliability, wide temperature range operation, low power and small form factors.

Auto-Certified Total Quality Management System (QMS)

- Intel SSQA-Lite Supplier Certified
- ISO 9001 ,ISO 14001, ISO 45001, ISO 27001, ISO 14064-1 Certified
- AEC-Q100 Compliance
- IATF 16949 Compliance

To ensure high quality and reliability in harsh environments, Etron's automotive DRAM are AEC-Q100 compliant. Production Part Approval Process (PPAP) summarized package can be prepared for targeted products upon automotive customer request.

Intel's suppliers are recognized for superior quality levels, Etron has won the Intel SSQA-Lite Supplier Certified Etron's QMS is in compliance with ISO 9001, IATF 16949 requirements and all of our subcontractors in our automotive and industrial production lines are fully IATF 16949 certified. To satisfy the most stringent automotive industry expectations, Etron can meet or exceed the requirements defined in the AEC-Q100 standard.

Product Selection for Automotive and Industrial DRAMsTrack Record in Automotives

	Industrial	Automotive
Application	Industrial, Medical / Outdoor	Car Electronics
TA Temperature	-40~85° C	-40~105° C
PPM	<100ppm	<10ppm
Reliability Standard & Spec	JEDEC	JEDEC • AEC-Q100 • Spec Customization
Product Life	2~5 years	5~8 years

ELM Program Overview Supply Mechanism for Making Long-term Business Partners

Etron has maintained the flexibility, agility and product focus of a fabless IC company by establishing strong partnerships with leading Memory foundries and companies with complementary skills from different specialty segments. With the benefit of worry-free supply, Etron has secured long-term business with our local and overseas car electronics partners since 2004. We have designed both automotive and industrial graded memory parts to provide predictable obsolescence cycles for variety of memory densities and package types. EML (Extended Manufacturing Life) guarantees availability for devices put into EML program. The program boasts with three primary life categories (5,7 and 10 years) and it is designed for long term customer support. Other categories may be available to support unique requests.

Applications

	SDR	DDR1	DDR2	DDR3	DDR4	LP DDR2	LP DDR4	KGDM	SPI NAND
Computer Peripheral									
HDD	•	•	•	•	•			•	•
ODD-IT	•	•						•	•
SSD	•	•	•	•	•	•	•	•	•
Printer	•	•	•	•	•		•	•	•
MFP		•	•	•	•		•	•	•
Communicaiton									
xDSL	•	•	•	•	•			•	•
FTTx/PON		•	•	•	•			•	•
Wirless AP		•	•	•	•			•	•
Cable			•	•	•			•	•
Switches				•	•		•	•	•
STB	•	•	•	•	•		•	•	•
Consumer									
LCD TV				•	•		•	•	
Panel	•	•	•	•		•	•	•	
Smart Speaker	•	•	•	•	•	•	•	•	•
ODD-CE	•	•	•	•	•			•	•
E-Reader		•	•	•		•	•	•	
Smart Watch						•	•	•	
DSC		•	•	•	•		•		•
PND		•	•	•	•	•	•	•	•
Automotive									
ADAS*	•	•	•	•			•	•	•
Instrument Cluster	•	•	•	•		•	•	•	•
Car Infotainment	•	•	•	•		•	•	•	•
Car Navigator	•	•	•	•		•	•	•	•
Dash Cam	•	•	•	•			•	•	•
Industrial									
Surveillance	•	•	•	•	•	•	•	•	•
Point of Sale	•	•	•	•		•	•	•	•
Smart Meters	•	•	•	•	•	•	•	•	•
PLC*	•	•	•	•	•			•	•
HMI*	•	•	•	•	•	•	•	•	•

ADAS* Advanced Driver Assistance Systems (ADAS)

PLC* Programmable Logic Controllers

HMI* Human Machine Interface

Commercial DRAM

If grey-shaded in the table, indicates older generation products, NOT recommended for new designs

Commercial DRAM > SDR SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
16Mb	1Mx16	EM636165TS	Commercial Temp.	200/166/143	3.3V, LVTTTL	50-pin TSOP2
64Mb	4Mx16	EM638165TS	Commercial Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
64Mb	4Mx16	EM638165BM	Commercial Temp.	200/166/143	3.3V, LVTTTL	54-ball FBGA (BM:8x8x1.2mm)
64Mb	2Mx32	EM638325TS	Commercial Temp.	200/166/143	3.3V, LVTTTL	86-pin TSOP2
64Mb	2Mx32	EM638325BK	Commercial Temp.	200/166/143	3.3V, LVTTTL	90-ball FBGA (BK:8x13x1.2mm)
128Mb	8Mx16	EM639165TS	Commercial Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
128Mb	8Mx16	EM639165BM	Commercial Temp.	200/166/143	3.3V, LVTTTL	54-ball FBGA (BM:8x8x1.2mm)
128Mb	4Mx32	EM639325TS	Commercial Temp.	200/166/143	3.3V, LVTTTL	86-pin TSOP2
128Mb	4Mx32	EM639325BK	Commercial Temp.	200/166/143	3.3V, LVTTTL	90-ball FBGA (BK:8x13x1.2mm)
256Mb	16Mx16	EM63A165TS	Commercial Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
256Mb	16Mx16	EM63A165BM	Commercial Temp.	200/166/143	3.3V, LVTTTL	54-ball FBGA (BM:8x8x1.2mm)
256Mb	8Mx32	EM63A325TS	Commercial Temp.	200/166/143	3.3V, LVTTTL	86-pin TSOP2
256Mb	8Mx32	EM63A325BK	Commercial Temp.	200/166/143	3.3V, LVTTTL	90-ball FBGA (BK:8x13x1.2mm)
256Mb	32Mx8	EM63A085TS	Commercial Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
512Mb	32Mx16	EM63B165TS	Commercial Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
512Mb	32Mx16	EM63B165BM	Commercial Temp.	200/166/143	3.3V, LVTTTL	54-ball FBGA (BM:8x8x1.2mm)
512Mb	16Mx32	EM63B325BK	Commercial Temp.	200/166/143	3.3V, LVTTTL	90-ball FBGA (BK:8x13x1.2mm)

Commercial DRAM > DDR SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MTPS)	VDD, INTERFACE	PACKAGE
64Mb	4Mx16	EM6A8160TSC	Commercial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
64Mb	4Mx16	EM6A8160BKC	Commercial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)
64Mb	4Mx16	EM6A8160TSD	Commercial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
64Mb	2Mx32	EM6A8320BIA	Commercial Temp.	500/400	2.5V, SSTL_2	144-ball BGA(BI:12x12x1.4mm)
128Mb	8Mx16	EM6A9160TSC	Commercial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
128Mb	8Mx16	EM6A9160TSD	Commercial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
128Mb	8Mx16	EM6A9160BKC	Commercial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)
128Mb	4Mx32	EM6A9320BIB	Commercial Temp.	500/400	2.5V, SSTL_2	144-ball BGA(BI:12x12x1.4mm)
256Mb	16Mx16	EM6AA160TSC	Commercial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
256Mb	16Mx16	EM6AA160TSE	Commercial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
256Mb	16Mx16	EM6AA160BKE	Commercial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)
512Mb	32Mx16	EM6AB160TSH	Commercial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
512Mb	32Mx16	EM6AB160WKE	Commercial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)
512Mb	64Mx8	EM6AB080TSB	Commercial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
512Mb	64Mx8	EM6AB080WKB	Commercial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (WK:8x13x1.2mm)
1Gb	64Mx16	EM6AC160TSA	Commercial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
1Gb	64Mx16	EM6AC160BKA	Commercial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)

Commercial DRAM > DDR2 SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MTPS)	VDD, INTERFACE	PACKAGE
128Mb	8Mx16	EM68916CBQD	Commercial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (BQ:8x12.5x1.2mm)
128Mb	8Mx16	EM68916CBQE	Commercial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (BQ:8x12.5x1.2mm)
256Mb	16Mx16	EM68A16CBQC	Commercial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (BQ:8x12.5x1.2mm)
512Mb	32Mx16	EM68B16CWQH	Commercial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
512Mb	32Mx16	EM68B16CWQK	Commercial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
512Mb	32Mx16	EM68B16CWQL	Commercial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
512Mb	64Mx8	EM68B08CWAH	Commercial Temp.	1066/800/667	1.8V, SSTL_18	60-ball FBGA (WA:8x10x1.2mm)
1Gb	64Mx16	EM68C16CWQG	Commercial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
1Gb	128Mx8	EM68C08CWAG	Commercial Temp.	1066/800/667	1.8V, SSTL_18	60-ball FBGA (WA:8x10x1.2mm)
2Gb	128Mx16	EM68D16CBQC	Commercial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)

Commercial DRAM > DDR3 SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MTPS)	VDD, INTERFACE	PACKAGE
512Mb	32Mx16	EM6GB16EWKA	Commercial Temp.	1866/1600/1333	1.5V	96-ball FBGA(WK:8x13x1.0mm)
512Mb	32Mx16	EM6HB16EWKA	Commercial Temp.	1866/1600/1333	1.35V	96-ball FBGA(WK:8x13x1.0mm)
512Mb	64Mx8	EM6GB08EWUA	Commercial Temp.	1866/1600/1333	1.5V	78-ball FBGA (WU:8x10.5x1.0mm)
512Mb	64Mx8	EM6HB08EWUA	Commercial Temp.	1600/1333	1.35V	78-ball FBGA (WU:8x10.5x1.0mm)
1Gb	64Mx16	EM6GC16EWKG	Commercial Temp.	1866/1600/1333	1.5V	96-ball FBGA (WK:8x13x1.0mm)
1Gb	64Mx16	EM6GC16EWKG	Commercial Temp.	2133	1.5V	96-ball FBGA (WK:8x13x1.0mm)
1Gb	64Mx16	EM6GC16EWBH	Commercial Temp.	1866/1600/1333	1.5V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	64Mx16	EM6GC16EWBH	Commercial Temp.	2133	1.5V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	64Mx16	EM6GC16EWBJ	Commercial Temp.	1866/1600/1333	1.5V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	64Mx16	EM6HC16EWKG	Commercial Temp.	1866/1600/1333	1.35V	96-ball FBGA (WK:8x13x1.0mm)
1Gb	64Mx16	EM6HC16EWBH	Commercial Temp.	1866/1600/1333	1.35V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	64Mx16	EM6HC16EWBH	Commercial Temp.	2133	1.35V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	64Mx16	EM6HC16EWBJ	Commercial Temp.	1866/1600/1333	1.35V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	128Mx8	EM6GC08EWUG	Commercial Temp.	1866/1600/1333	1.5V	78-ball FBGA (WU:8x10.5x1.0mm)
1Gb	128Mx8	EM6GC08EWAHH	Commercial Temp.	1866/1600/1333	1.5V	78-ball FBGA (WA:7.5x10.5x1.0mm)
1Gb	128Mx8	EM6GC08EWAHH	Commercial Temp.	2133	1.5V	78-ball FBGA (WA:7.5x10.5x1.0mm)
1Gb	128Mx8	EM6HC08EWUG	Commercial Temp.	1866/1600/1333	1.35V	78-ball FBGA (WU:8x10.5x1.0mm)

1Gb	128Mx8	EM6HC08EWAHH	Commercial Temp.	1866/1600/1333	1.35V	78-ball FBGA (WA:7.5x10.5x1.0mm)
1Gb	128Mx8	EM6HC08EWAHH	Commercial Temp.	2133	1.35V	78-ball FBGA (WA:7.5x10.5x1.0mm)
2Gb	128Mx16	EM6GD16EWBH	Commercial Temp.	1866/1600/1333	1.5V	96-ball FBGA (WB:7.5x13x1.0mm)
2Gb	128Mx16	EM6GD16EWBH	Commercial Temp.	2133	1.5V	96-ball FBGA (WB:7.5x13x1.0mm)
2Gb	128Mx16	EM6HD16EWBH	Commercial Temp.	1866/1600/1333	1.35V	96-ball FBGA (WB:7.5x13x1.0mm)
2Gb	128Mx16	EM6HD16EWBH	Commercial Temp.	2133	1.35V	96-ball FBGA (WB:7.5x13x1.0mm)
2Gb	256Mx8	EM6GD08EWAHH	Commercial Temp.	1866/1600/1333	1.5V	78-ball FBGA (WA:7.5x10.5x1.0mm)
2Gb	256Mx8	EM6GD08EWAHH	Commercial Temp.	2133	1.5V	78-ball FBGA (WA:7.5x10.5x1.0mm)
2Gb	256Mx8	EM6HD08EWAHH	Commercial Temp.	1866/1600/1333	1.35V	78-ball FBGA (WA:7.5x10.5x1.0mm)
4Gb	256Mx16	EM6GE16EWAKG	Commercial Temp.	1866/1600	1.5V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6GE16EWAKG	Commercial Temp.	2133	1.5V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6GE16EWBH	Commercial Temp.	1866/1600/1333	1.5V	96-ball FBGA(WB:7.5x13x1.0mm)
4Gb	256Mx16	EM6GE16EWBH	Commercial Temp.	2133	1.5V	96-ball FBGA(WB:7.5x13x1.0mm)
4Gb	256Mx16	EM6HE16EWAKG	Commercial Temp.	1866/1600	1.35V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6HE16EWAKG	Commercial Temp.	2133	1.35V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6HE16EWBH	Commercial Temp.	1866/1600/1333	1.35V	96-ball FBGA(WB:7.5x13x1.0mm)
4Gb	256Mx16	EM6HE16EWBH	Commercial Temp.	2133	1.35V	96-ball FBGA(WB:7.5x13x1.0mm)
4Gb	512Mx8	EM6GE08EW9G	Commercial Temp.	1866/1600	1.5V	78-ball FBGA (W9:7.5x10.6x1.2mm)
4Gb	512Mx8	EM6GE08EW9G	Commercial Temp.	2133	1.5V	78-ball FBGA (W9:7.5x10.6x1.2mm)
4Gb	512Mx8	EM6HE08EW9G	Commercial Temp.	1866/1600	1.35V	78-ball FBGA (W9:7.5x10.6x1.2mm)
4Gb	512Mx8	EM6HE08EW9G	Commercial Temp.	2133	1.35V	78-ball FBGA (W9:7.5x10.6x1.2mm)
4Gb	512Mx8	EM6GE08EWAHH	Commercial Temp.	1866/1600	1.5V	78-ball FBGA (WAH:7.5x10.5x1.0mm)
4Gb	512Mx8	EM6GE08EWAHH	Commercial Temp.	2133	1.5V	78-ball FBGA (WAH:7.5x10.5x1.0mm)
4Gb	512Mx8	EM6HE08EWAHH	Commercial Temp.	1866/1600	1.35V	78-ball FBGA (WAH:7.5x10.5x1.0mm)
4Gb	512Mx8	EM6HE08EWAHH	Commercial Temp.	2133	1.35V	78-ball FBGA (WAH:7.5x10.5x1.0mm)
8Gb	512Mx16	EM6GF16EBXB	Commercial Temp.	1866/1600	1.5V	96-ball FBGA(BX:9x13x1.2mm)
8Gb	512Mx16	EM6HF16EBXB	Commercial Temp.	1866/1600	1.35V	96-ball FBGA(BX:9x13x1.2mm)
8Gb	1024Mx8	EM6GF08EW3A	Commercial Temp.	1866/1600	1.5V	78-ball FBGA (W3:9x10.6x1.2mm)
8Gb	1024Mx8	EM6HF08EW3A	Commercial Temp.	1866/1600	1.35V	78-ball FBGA (W3:9x10.6x1.2mm)
8Gb	1024Mx8	EM6GF08EBAHC	Commercial Temp.	1866/1600/1333	1.5V	78-ball FBGA (BAH:7.5x10.5x1.2mm)
8Gb	1024Mx8	EM6HF08EBAHC	Commercial Temp.	1866/1600/1333	1.35V	78-ball FBGA (BAH:7.5x10.5x1.2mm)

Commercial DRAM > DDR4 SDRAM

DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MTPS)	VDD, INTERFACE	PACKAGE
4Gb	256Mx16	EM6OE16NWAKA	Commercial Temp.	2666/2400	1.2V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6OE16NWB	Commercial Temp.	3200/2666/2400	1.2V	96-ball FBGA(WB:7.5x13x1.2mm)
4Gb	512Mx8	EM6OE08NW9A	Commercial Temp.	2666/2400	1.2V	78-ball FBGA (W9:7.5x10.6x1.2mm)
4Gb	512Mx8	EM6OE08NWALB	Commercial Temp.	2666/2400	1.2V	78-ball FBGA (WAL:7.5x11x1.2mm)
8Gb	512Mx16	EM6OF16NWBD	Commercial Temp.	3200/2666	1.2V	96-ball FBGA(WB:7.5x13x1.2mm)
8Gb	512Mx16	EM6OF16NWB	Commercial Temp.	3200	1.2V	96-ball FBGA(WB:7.5x13x1.2mm)
8Gb	1024Mx8	EM6OF08NWAND	Commercial Temp.	3200/2666	1.2V	78-ball FBGA (WAN:7.5x12x1.2mm)
8Gb	1024Mx8	EM6OF08NWALE	Commercial Temp.	3200	1.2V	78-ball FBGA (WAL:7.5x11x1.2mm)
16Gb	1024Mx16	EM6OG16NWXA	Commercial Temp.	3200	1.2V	96-ball FBGA(WX:9x13x1.2mm)
16Gb	1024Mx16	EM6OG16NWB	Commercial Temp.	3200	1.2V	96-ball FBGA(WB:7.5x13x1.2mm)
16Gb	2048x8	EM6OG08NWALB	Commercial Temp.	3200	1.2V	78-ball FBGA (WAL:7.5x11x1.2mm)

Commercial DRAM > LPDDR2 SDRAM

DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MTPS)	VDD, INTERFACE	PACKAGE
256Mb	8Mx32	EM6KA32HVAFA	Commercial Temp.	1066/800/667	1.8V/1.2V/1.2V, HSUL_12	134-ball (VAF:10x11.5x1.0mm)
256Mb	8Mx32	EM6KA32HVIA	Commercial Temp.	1066/800/667	1.8V/1.2V/1.2V, HSUL_12	168-ball (VI:12x12x0.9mm)

Commercial DRAM > LPDDR4/4X SDRAM

DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MTPS)	VDD, INTERFACE	PACKAGE
2Gb	128Mx16	EM6LD16MVAJA	Commercial Temp.	3200/2400	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
2Gb	128Mx16	EM6PD16MVAJA	Commercial Temp.	3200/2400	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	256Mx16	EM6LE16MBAJB	Commercial Temp.	4266/3733/3200	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	256Mx16	EM6PE16MBAJB	Commercial Temp.	4266/3733/3200	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	128Mx32	EM6LE32MVAJA	Commercial Temp.	3200/2400	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	128Mx32	EM6PE32MVAJA	Commercial Temp.	3200/2400	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
8Gb	256Mx32	EM6LF32MVAJA	Commercial Temp.	3200/2400	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x1.1mm)
8Gb	256Mx32	EM6PF32MVAJA	Commercial Temp.	3200/2400	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x1.1mm)
8Gb	256Mx32	EM6LF32MBAJB	Commercial Temp.	4266/3733/3200	1.8V/1.1V/1.1V, LVSTL	200-ball (BAJ:10x14.5x1.1mm)
8Gb	256Mx32	EM6PF32MBAJB	Commercial Temp.	4266/3733/3200	1.8V/1.1V/0.6V, LVSTL	200-ball (BAJ:10x14.5x1.1mm)
16Gb	1024Mx16	EM6LG16MVAJB	Commercial Temp.	3733	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
16Gb	512Mx32	EM6LG32MVAJB	Commercial Temp.	3733	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
16Gb	512Mx32	EM6PG32MVAJB	Commercial Temp.	4266	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
32Gb	1024Mx32	EM6LH32MVAJA	Commercial Temp.	3733	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
32Gb	1024Mx32	EM6PH32MVAJA	Commercial Temp.	4266	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)

Industrial DRAM

If grey-shaded in the table, indicates older generation products, NOT recommended for new designs

Industrial DRAM > SDR SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
16Mb	1Mx16	EM636165TC	Industrial Temp.	200/166/143	3.3V, LVTTTL	50-pin TSOP2
64Mb	4Mx16	EM638165TS	Industrial Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
64Mb	4Mx16	EM638165BM	Industrial Temp.	200/166/143	3.3V, LVTTTL	54-ball FBGA (BM:8x8x1.2mm)
64Mb	2Mx32	EM638325TS	Industrial Temp.	200/166/143	3.3V, LVTTTL	86-pin TSOP2
64Mb	2Mx32	EM638325BK	Industrial Temp.	200/166/143	3.3V, LVTTTL	90-ball FBGA (BK:8x13x1.2mm)
128Mb	8Mx16	EM639165TS	Industrial Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
128Mb	8Mx16	EM639165BM	Industrial Temp.	200/166/143	3.3V, LVTTTL	54-ball FBGA (BM:8x8x1.2mm)
128Mb	4Mx32	EM639325TS	Industrial Temp.	200/166/143	3.3V, LVTTTL	86-pin TSOP2
128Mb	4Mx32	EM639325BK	Industrial Temp.	200/166/143	3.3V, LVTTTL	90-ball FBGA (BK:8x13x1.2mm)
256Mb	16Mx16	EM63A165TS	Industrial Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
256Mb	16Mx16	EM63A165BM	Industrial Temp.	200/166/143	3.3V, LVTTTL	54-ball FBGA (BM:8x8x1.2mm)
256Mb	8Mx32	EM63A325TS	Industrial Temp.	200/166/143	3.3V, LVTTTL	86-pin TSOP2
256Mb	8Mx32	EM63A325BK	Industrial Temp.	200/166/143	3.3V, LVTTTL	90-ball FBGA (BK:8x13x1.2mm)
256Mb	32Mx8	EM63A085TS	Industrial Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
512Mb	32Mx16	EM63B165TS	Industrial Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
512Mb	32Mx16	EM63B165BM	Industrial Temp.	200/166/143	3.3V, LVTTTL	54-ball FBGA (BM:8x8x1.2mm)
512Mb	16Mx32	EM63B325BK	Industrial Temp.	200/166/143	3.3V, LVTTTL	90-ball FBGA (BK:8x13x1.2mm)

Industrial DRAM > DDR SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
64Mb	4Mx16	EM6A8160TSC	Industrial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
64Mb	4Mx16	EM6A8160BKC	Industrial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)
64Mb	4Mx16	EM6A8160TSD	Industrial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
64Mb	2Mx32	EM6A8320BIA	Industrial Temp.	500/400	2.5V, SSTL_2	144-ball BGA (BI:12x12x1.4mm)
128Mb	8Mx16	EM6A9160TSC	Industrial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
128Mb	8Mx16	EM6A9160TSD	Industrial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
128Mb	8Mx16	EM6A9160BKC	Industrial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)
128Mb	4Mx32	EM6A9320BIB	Industrial Temp.	500/400	2.5V, SSTL_2	144-ball FBGA (BI:12x12x1.4mm)
256Mb	16Mx16	EM6AA160TSE	Industrial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
256Mb	16Mx16	EM6AA160BKE	Industrial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)
512Mb	32Mx16	EM6AB160TSH	Industrial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
512Mb	32Mx16	EM6AB160WKE	Industrial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (WK:8x13x1.2mm)
512Mb	64Mx8	EM6AB080TSB	Industrial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
512Mb	64Mx8	EM6AB080WKB	Industrial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (WK:8x13x1.2mm)
1Gb	64Mx16	EM6AC160TSA	Industrial Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
1Gb	64Mx16	EM6AC160BKA	Industrial Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)

Industrial DRAM > DDR2 SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
128Mb	8Mx16	EM68916CBQD	Industrial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (BQ:8x12.5x1.2mm)
128Mb	8Mx16	EM68916CBQE	Industrial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (BQ:8x12.5x1.2mm)
256Mb	16Mx16	EM68A16CBQC	Industrial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (BQ:8x12.5x1.2mm)
512Mb	32Mx16	EM68B16CWQH	Industrial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
512Mb	32Mx16	EM68B16CWQK	Industrial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
512Mb	32Mx16	EM68B16CWQL	Industrial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
512Mb	64Mx8	EM68B08CWAH	Industrial Temp.	1066/800/667	1.8V, SSTL_18	60-ball FBGA (WA:8x10x1.2mm)
1Gb	64Mx16	EM68C16CWQG	Industrial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
1Gb	128Mx8	EM68C08CWAG	Industrial Temp.	1066/800/667	1.8V, SSTL_18	60-ball FBGA (WA:8x10x1.2mm)
2Gb	128Mx16	EM68D16CBQC	Industrial Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)

Industrial DRAM > DDR3 SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
512Mb	32Mx16	EM6GB16EWKA	Industrial Temp.	1866/1600/1333	1.5V	96-ball FBGA(WK:8x13x1.0mm)
512Mb	32Mx16	EM6HB16EWKA	Industrial Temp.	1866/1600/1333	1.35V	96-ball FBGA(WK:8x13x1.0mm)
512Mb	64Mx8	EM6GB08EWUA	Industrial Temp.	1866/1600/1333	1.5V	78-ball FBGA (WU:8x10.5x1.0mm)
512Mb	64Mx8	EM6HB08EWUA	Industrial Temp.	1600/1333	1.35V	78-ball FBGA (WU:8x10.5x1.0mm)
1Gb	64Mx16	EM6GC16EWKG	Industrial Temp.	1866/1600/1333	1.5V	96-ball FBGA (WK:8x13x1.0mm)
1Gb	64Mx16	EM6GC16EWKG	Industrial Temp.	2133	1.5V	96-ball FBGA (WK:8x13x1.0mm)
1Gb	64Mx16	EM6GC16EWBH	Industrial Temp.	1866/1600/1333	1.5V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	64Mx16	EM6GC16EWBH	Industrial Temp.	2133	1.5V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	64Mx16	EM6HC16EWKG	Industrial Temp.	1866/1600/1333	1.35V	96-ball FBGA (WK:8x13x1.0mm)
1Gb	64Mx16	EM6HC16EWBH	Industrial Temp.	1866/1600/1333	1.35V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	64Mx16	EM6HC16EWBH	Industrial Temp.	2133	1.35V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	128Mx8	EM6GC08EWUG	Industrial Temp.	1866/1600/1333	1.5V	78-ball FBGA (WU:8x10.5x1.0mm)
1Gb	128Mx8	EM6GC08EWAHH	Industrial Temp.	1866/1600/1333	1.5V	78-ball FBGA (WA:7.5x10.5x1.0mm)
1Gb	128Mx8	EM6GC08EWAHH	Industrial Temp.	2133	1.5V	78-ball FBGA (WA:7.5x10.5x1.0mm)
1Gb	128Mx8	EM6HC08EWUG	Industrial Temp.	1866/1600/1333	1.35V	78-ball FBGA (WU:8x10.5x1.0mm)
1Gb	128Mx8	EM6HC08EWAHH	Industrial Temp.	1866/1600/1333	1.35V	78-ball FBGA (WA:7.5x10.5x1.0mm)
1Gb	128Mx8	EM6HC08EWAHH	Industrial Temp.	2133	1.35V	78-ball FBGA (WA:7.5x10.5x1.0mm)
2Gb	128Mx16	EM6GD16EWBH	Industrial Temp.	1866/1600/1333	1.5V	96-ball FBGA (WB:7.5x13x1.0mm)
2Gb	128Mx16	EM6GD16EWBH	Industrial Temp.	2133	1.5V	96-ball FBGA (WB:7.5x13x1.0mm)

2Gb	128Mx16	EM6HD16EWBH	Industrial Temp.	1866/1600/1333	1.35V	96-ball FBGA (WB:7.5x13x1.0mm)
2Gb	256Mx8	EM6GD08EWAHH	Industrial Temp.	1866/1600/1333	1.5V	78-ball FBGA (WA:7.5x10.5x1.0mm)
2Gb	256Mx8	EM6HD08EWAHH	Industrial Temp.	1866/1600/1333	1.35V	78-ball FBGA (WA:7.5x10.5x1.0mm)
4Gb	256Mx16	EM6GE16EWAKG	Industrial Temp.	1866/1600	1.5V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6GE16EWAKG	Industrial Temp.	2133	1.5V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6GE16EWBH	Industrial Temp.	1866/1600/1333	1.5V	96-ball FBGA(WB:7.5x13x1.0mm)
4Gb	256Mx16	EM6GE16EWBH	Industrial Temp.	2133	1.5V	96-ball FBGA(WB:7.5x13x1.0mm)
4Gb	256Mx16	EM6HE16EWAKG	Industrial Temp.	1866/1600	1.35V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6HE16EWAKG	Industrial Temp.	2133	1.35V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6HE16EWBH	Industrial Temp.	1866/1600/1333	1.35V	96-ball FBGA(WB:7.5x13x1.0mm)
4Gb	256Mx16	EM6HE16EWBH	Industrial Temp.	2133	1.35V	96-ball FBGA(WB:7.5x13x1.0mm)
4Gb	512Mx8	EM6GE08EW9G	Industrial Temp.	1866/1600	1.5V	78-ball FBGA (W9:7.5x10.6x1.2mm)
4Gb	512Mx8	EM6HE08EW9G	Industrial Temp.	1866/1600	1.35V	78-ball FBGA (W9:7.5x10.6x1.2mm)
4Gb	512Mx8	EM6GE08EWAHH	Commercial Temp.	1866/1600	1.5V	78-ball FBGA (WAH:7.5x10.5x1.0mm)
4Gb	512Mx8	EM6HE08EWAHH	Commercial Temp.	1866/1600	1.35V	78-ball FBGA (WAH:7.5x10.5x1.0mm)
8Gb	512Mx16	EM6GF16EBXB	Industrial Temp.	1866/1600	1.5V	96-ball FBGA(BX:9x13x1.2mm)
8Gb	512Mx16	EM6HF16EBXB	Industrial Temp.	1866/1600	1.35V	96-ball FBGA(BX:9x13x1.2mm)
8Gb	1024Mx8	EM6GF08EW3A	Industrial Temp.	1866/1600	1.5V	78-ball FBGA (W3:9x10.6x1.2mm)
8Gb	1024Mx8	EM6HF08EW3A	Industrial Temp.	1866/1600	1.5V	78-ball FBGA (W3:9x10.6x1.2mm)
8Gb	1024Mx8	EM6GF08EBAHC	Industrial Temp.	1866/1600/1333	1.5V	78-ball FBGA (BAH:7.5x10.5x1.2mm)
8Gb	1024Mx8	EM6HF08EBAHC	Industrial Temp.	1866/1600/1333	1.35V	78-ball FBGA (BAH:7.5x10.5x1.2mm)

Industrial DRAM > DDR4 SDRAM

DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
4Gb	256Mx16	EM6OE16NWAKA	Industrial Temp.	2666/2400	1.2V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6OE16NWBB	Industrial Temp.	3200/2666	1.2V	96-ball FBGA(WB:7.5x13x1.2mm)
4Gb	512Mx8	EM6OE08NW9A	Industrial Temp.	2666/2400	1.2V	78-ball FBGA (W9:7.5x10.6x1.2mm)
4Gb	512Mx8	EM6OE08NWALB	Industrial Temp.	2666/2400	1.2V	78-ball FBGA (WAL:7.5x11x1.2mm)
8Gb	512Mx16	EM6OF16NWBD	Industrial Temp.	3200/2666	1.2V	96-ball FBGA(WB:7.5x13x1.2mm)
8Gb	1024Mx8	EM6OF08NWAND	Industrial Temp.	3200/2666	1.2V	78-ball FBGA (WAN:7.5x12x1.2mm)

Industrial DRAM > LPDDR2 SDRAM

DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
256Mb	8Mx32	EM6KA32HVAFA	Industrial Temp.	1066/800/667	1.8V/1.2V/1.2V, HSUL_12	134-ball (VAF:10x11.5x1.0mm)
256Mb	8Mx32	EM6KA32HVIA	Industrial Temp.	1066/800/667	1.8V/1.2V/1.2V, HSUL_12	168-ball (VI:12x12x0.9mm)

Industrial DRAM > LPDDR4/4X SDRAM

DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
2Gb	128Mx16	EM6LD16MVAJA	Industrial Temp.	3200/2400	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
2Gb	128Mx16	EM6PD16MVAJA	Industrial Temp.	3200/2400	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	256Mx16	EM6LE16MVAJA	Industrial Temp.	3200/2400	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	256Mx16	EM6PE16MVAJA	Industrial Temp.	3200/2400	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	256Mx16	EM6LE16MBAJB	Industrial Temp.	4266/3733/3200	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	256Mx16	EM6PE16MBAJB	Industrial Temp.	4266/3733/3200	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	128Mx32	EM6LE32MVAJA	Industrial Temp.	3200/2400	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	128Mx32	EM6PE32MVAJA	Industrial Temp.	3200/2400	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
8Gb	256Mx32	EM6LF32MVAJA	Industrial Temp.	3200/2400	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
8Gb	256Mx32	EM6PF32MVAJA	Industrial Temp.	3200/2400	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
8Gb	256Mx32	EM6LF32MBAJB	Industrial Temp.	4266/3733/3200	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
8Gb	256Mx32	EM6PF32MBAJB	Industrial Temp.	4266/3733/3200	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)

Automotive DRAM

If grey-shaded in the table, indicates older generation products, NOT recommended for new designs

Automotive DRAM > SDR SDRAM

DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
16Mb	1Mx16	EM636165TS	Automotive Temp.	200/166/143	3.3V, LVTTTL	50-pin TSOP2
64Mb	4Mx16	EM638165TS	Automotive Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
64Mb	4Mx16	EM638165BM	Automotive Temp.	200/166/143	3.3V, LVTTTL	54-ball TFBGA (BM:8x8x1.2mm)
128Mb	8Mx16	EM639165TS	Automotive Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
128Mb	8Mx16	EM639165BM	Automotive Temp.	200/166/143	3.3V, LVTTTL	54-ball TFBGA (BM:8x8x1.2mm)
256Mb	16Mx16	EM63A165TS	Automotive Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
256Mb	16Mx16	EM63A165BM	Automotive Temp.	200/166/143	3.3V, LVTTTL	54-ball TFBGA (BM:8x8x1.2mm)
256Mb	32Mx8	EM63A085TS	Automotive Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
512Mb	32Mx16	EM63B165TS	Automotive Temp.	200/166/143	3.3V, LVTTTL	54-pin TSOP2
512Mb	32Mx16	EM63B165BM	Automotive Temp.	200/166/143	3.3V, LVTTTL	54-ball FBGA (BM:8x8x1.2mm)

Industrial DRAM > DDR SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
64Mb	4Mx16	EM6A8160TSC	Automotive Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
64Mb	4Mx16	EM6A8160BKC	Automotive Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)
64Mb	2Mx32	EM6A8320BIA	Automotive Temp.	500/400	2.5V, SSTL_2	144-ball BGA(BI:12x12x1.4mm)
128Mb	8Mx16	EM6A9160TSC	Automotive Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
128Mb	8Mx16	EM6A9160TSD	Automotive Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
128Mb	8Mx16	EM6A9160BKC	Automotive Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)
128Mb	4Mx32	EM6A9320BIB	Automotive Temp.	500/400	2.5V, SSTL_2	144-ball FBGA (BI:12x12x1.4mm)
256Mb	16Mx16	EM6AA160TSC	Automotive Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
256Mb	16Mx16	EM6AA160TSE	Automotive Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
256Mb	16Mx16	EM6AA160BKE	Automotive Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)
512Mb	32Mx16	EM6AB160TSH	Automotive Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
512Mb	32Mx16	EM6AB160WKH	Automotive Temp.	500/400	2.5V, SSTL_2	60-ball TFBGA (WK:8x13x1.2mm)
512Mb	64Mx8	EM6AB080TSB	Automotive Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
512Mb	64Mx8	EM6AB080WKB	Automotive Temp.	500/400	2.5V, SSTL_2	60-ball TFBGA (WK:8x13x1.2mm)
1Gb	64Mx16	EM6AC160TSA	Automotive Temp.	500/400	2.5V, SSTL_2	66-pin TSOP2
1Gb	64Mx16	EM6AC160BKA	Automotive Temp.	500/400	2.5V, SSTL_2	60-ball FBGA (BK:8x13x1.2mm)

Automotive DRAM > DDR2 SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
128Mb	8Mx16	EM68916CBQD	Automotive Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (BQ:8x12.5x1.2mm)
256Mb	16Mx16	EM68A16CBQC	Automotive Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (BQ:8x12.5x1.2mm)
512Mb	32Mx16	EM68B16CWQH	Automotive Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
512Mb	32Mx16	EM68B16CWQK	Automotive Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
512Mb	32Mx16	EM68B16CWQL	Automotive Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
512Mb	64Mx8	EM68B08CWAH	Automotive Temp.	1066/800/667	1.8V, SSTL_18	60-ball FBGA (WA:8x10x1.2mm)
1Gb	64Mx16	EM68C16CWQG	Automotive Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)
1Gb	128Mx8	EM68C08CWAG	Automotive Temp.	1066/800/667	1.8V, SSTL_18	60-ball FBGA (WA:8x10x1.2mm)
2Gb	128Mx16	EM68D16CBQC	Automotive Temp.	1066/800/667	1.8V, SSTL_18	84-ball FBGA (WQ:8x12.5x1.2mm)

Automotive DRAM > DDR3 SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
512Mb	32Mx16	EM6GB16EWKA	Automotive Temp.	1866/1600/1333	1.5V	96-ball FBGA(WK:8x13x1.0mm)
512Mb	32Mx16	EM6HB16EWKA	Automotive Temp.	1600/1333	1.35V	96-ball FBGA(WK:8x13x1.0mm)
512Mb	64Mx8	EM6GB08EWUA	Automotive Temp.	1866/1600/1333	1.5V	78-ball FBGA (WU:8x10.5x1.0mm)
512Mb	64Mx8	EM6HB08EWUA	Automotive Temp.	1600/1333	1.35V	78-ball FBGA (WU:8x10.5x1.0mm)
1Gb	64Mx16	EM6GC16EWKG	Automotive Temp.	1866/1600/1333	1.5V	96-ball FBGA (WK:8x13x1.0mm)
1Gb	64Mx16	EM6GC16EWBH	Automotive Temp.	1866/1600/1333	1.5V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	64Mx16	EM6HC16EWKG	Automotive Temp.	1866/1600/1333	1.35V	96-ball FBGA (WK:8x13x1.0mm)
1Gb	64Mx16	EM6HC16EWBH	Automotive Temp.	1866/1600/1333	1.35V	96-ball FBGA (WB:7.5x13x1.0mm)
1Gb	128Mx8	EM6GC08EWUG	Automotive Temp.	1866/1600/1333	1.5V	78-ball FBGA (WU:8x10.5x1.0mm)
1Gb	128Mx8	EM6GC08EWAHH	Automotive Temp.	1866/1600/1333	1.5V	78-ball FBGA (WA:7.5x10.5x1.0mm)
1Gb	128Mx8	EM6HC08EWUG	Automotive Temp.	1866/1600/1333	1.35V	78-ball FBGA (WU:8x10.5x1.0mm)
1Gb	128Mx8	EM6HC08EWAHH	Automotive Temp.	1866/1600/1333	1.35V	78-ball FBGA (WA:7.5x10.5x1.0mm)
2Gb	128Mx16	EM6GD16EWBH	Automotive Temp.	1866/1600/1333	1.5V	96-ball FBGA (WB:7.5x13x1.0mm)
2Gb	128Mx16	EM6HD16EWBH	Automotive Temp.	1866/1600/1333	1.35V	96-ball FBGA (WB:7.5x13x1.0mm)
2Gb	256Mx8	EM6GD08EWAHH	Automotive Temp.	1600/1333	1.5V	78-ball FBGA (WA:7.5x10.5x1.0mm)
2Gb	256Mx8	EM6HD08EWAHH	Automotive Temp.	1600/1333	1.35V	78-ball FBGA (WA:7.5x10.5x1.0mm)
4Gb	256Mx16	EM6GE16EWAKG	Automotive Temp.	1866/1600	1.5V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6GE16EWBH	Automotive Temp.	1866/1600/1333	1.5V	96-ball FBGA(WB:7.5x13x1.0mm)
4Gb	256Mx16	EM6HE16EWAKG	Automotive Temp.	1866/1600	1.35V	96-ball FBGA(WAK:7.5x13.5x1.2mm)
4Gb	256Mx16	EM6HE16EWBH	Automotive Temp.	1866/1600/1333	1.35V	96-ball FBGA(WB:7.5x13x1.0mm)
4Gb	512Mx8	EM6GE08EWAHH	Commercial Temp.	1866/1600	1.5V	78-ball FBGA (WAH:7.5x10.5x1.0mm)
4Gb	512Mx8	EM6HE08EWAHH	Commercial Temp.	1866/1600	1.35V	78-ball FBGA (WAH:7.5x10.5x1.0mm)
8Gb	512Mx16	EM6GF16EBXB	Automotive Temp.	1866/1600	1.5V	96-ball FBGA(BX:9x13x1.2mm)
8Gb	512Mx16	EM6HF16EBXB	Automotive Temp.	1866/1600	1.35V	96-ball FBGA(BX:9x13x1.2mm)
8Gb	1024Mx8	EM6GF08EBAHC	Automotive Temp.	1866/1600/1333	1.5V	78-ball FBGA (BAH:7.5x10.5x1.2mm)
8Gb	1024Mx8	EM6HF08EBAHC	Automotive Temp.	1866/1600/1333	1.35V	78-ball FBGA (BAH:7.5x10.5x1.2mm)

Automotive DRAM > DDR4 SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
4Gb	256Mx16	EM6OE16NWAKA	Automotive Temp.	2666/2400	1.2V	96-ball FBGA(WAK:7.5x13.5x1.2mm)

Automotive DRAM > LPDDR2 SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
256Mb	8Mx32	EM6KA32HVAFA	Automotive Temp.	1066/800/667	1.8V/1.2V/1.2V, HSUL_12	134-ball (VAF:10x11.5x1.0mm)
256Mb	8Mx32	EM6KA32HVIA	Automotive Temp.	1066/800/667	1.8V/1.2V/1.2V, HSUL_12	168-ball (VI:12x12x0.9mm)

Automotive DRAM > LPDDR4/4X SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
2Gb	128Mx16	EM6LD16MVAJA	Automotive Temp.	3200/2400	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
2Gb	128Mx16	EM6PD16MVAJA	Automotive Temp.	3200/2400	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	256Mx16	EM6LE16MVAJA	Automotive Temp.	3200/2400	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	256Mx16	EM6PE16MVAJA	Automotive Temp.	3200/2400	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	256Mx16	EM6LE16MBAJB	Automotive Temp.	4266/3733/3200	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	256Mx16	EM6PE16MBAJB	Automotive Temp.	4266/3733/3200	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	128Mx32	EM6PE32MVAJA	Automotive Temp.	3200/2400	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
4Gb	128Mx32	EM6LE32MVAJA	Automotive Temp.	3200/2400	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
8Gb	256Mx32	EM6LF32MVAJA	Automotive Temp.	3200/2400	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
8Gb	256Mx32	EM6PF32MVAJA	Automotive Temp.	3200/2400	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
8Gb	256Mx32	EM6LF32MBAJB	Automotive Temp.	4266/3733/3200	1.8V/1.1V/1.1V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)
8Gb	256Mx32	EM6PF32MBAJB	Automotive Temp.	4266/3733/3200	1.8V/1.1V/0.6V, LVSTL	200-ball (VAJ:10x14.5x0.8mm)

RPC DRAM

Automotive DRAM > SDR SDRAM						
DENSITY	ORGANIZATION	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
256Mb	16Mx16	EM6GA16LBXA	Extended Low Temp. (-20~95C)	1600	1.5V	96-ball FBGA (BX:9x13x1.2mm), Pb & Halogen free
256Mb	16Mx16	EM6GA16LCAEA	Extended Low Temp. (-20~95C)	1600	1.5V	50-ball WLCSP, Pb and Halogen free
256Mb	16Mx16	EM6GA16LGDA	Extended Low Temp. (-20~95C)	1600	1.5V	KGD
256Mb	16Mx16	EM6GA16LBXA	Commercial Temp. (0~70C)	1600	1.5V	96-ball FBGA (BX:9x13x1.2mm), Pb & Halogen free
256Mb	16Mx16	EM6GA16LCAEA	Commercial Temp. (0~70C)	1600	1.5V	50-ball WLCSP, Pb and Halogen free
256Mb	16Mx16	EM6GA16LGDA	Commercial Temp. (0~70C)	1600	1.5V	KGD
256Mb	16Mx16	EM6GA16LBXA	Industrial Temp. (-40~95C)	1600	1.5V	96-ball FBGA (BX:9x13x1.2mm), Pb & Halogen free
256Mb	16Mx16	EM6GA16LCAEA	Industrial Temp. (-40~95C)	1600	1.5V	50-ball WLCSP, Pb and Halogen free
256Mb	16Mx16	EM6GA16LGDA	Industrial Temp. (-40~95C)	1600	1.5V	KGD
256Mb	16Mx16	EM6GA16LBXA	Automotive Temp. (-40~105C)	1600	1.5V	96-ball FBGA (BX:9x13x1.2mm), Pb & Halogen free
256Mb	16Mx16	EM6GA16LCAEA	Automotive Temp. (-40~105C)	1600	1.5V	50-ball WLCSP, Pb and Halogen free
256Mb	16Mx16	EM6GA16LGDA	Automotive Temp. (-40~105C)	1600	1.5V	KGD

Flash

If grey-shaded in the table, indicates older generation products, NOT recommended for new designs

Flash > SPI NAND Flash					
DENSITY	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
1Gb	EM73C044VCG-H	-40~85C	104MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
1Gb	EM78C044VCF-H	-40~85C	100MHz	1.8V	8-pin LGA-8 (8 x 6 x 0.8mm)
1Gb	EM73C044VCD-H	-40~85C	80MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
1Gb	EM73C044VCF-H	-40~85C	120MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
2Gb	EM73D044VCS-H	-40~85C	104MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
2Gb	EM78D044VCM-H	-40~85C	100MHz	1.8V	8-pin LGA-8 (8 x 6 x 0.8mm)
2Gb	EM73D044VCG-H	-40~85C	80MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
2Gb	EM73D044VCO-H	-40~85C	120MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
2Gb	EM73D044VCR-H	-40~85C	120MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
4Gb	EM73E044VCE-H	-40~85C	120MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
4Gb	EM73E044VCG-KH	-40~85C	120MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
4Gb	EM73E044VCG-H	-40~85C	120MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
4Gb	EM73E044VCJ-H	-40~85C	120MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
4Gb	EM78E044VCA-H	-40~85C	100MHz	1.8V	8-pin LGA-8 (8 x 6 x 0.8mm)
4Gb	EM73E044SND-G	-40~85C	80MHz	3.3V	8-pin WSON-8 (8 x 6 x 0.75mm)
4Gb	EM78E044VCD-H	-40~85C	100MHz	1.8V	8-pin LGA-8 (8 x 6 x 0.8mm)
8Gb	EM73F044VCA-H	-40~85C	120MHz	3.3V	8-pin LGA-8 (8 x 6 x 0.8mm)
8Gb	EM78F044VCA-H	-40~85C	100MHz	1.8V	8-pin LGA-8 (8 x 6 x 0.8mm)

Flash/ e.MMC					
DENSITY	PART NO	GRADE	SPEED (MHz)	VDD, INTERFACE	PACKAGE
4GB(32Gb)	EM74H08HVAGA-H	Standard Temp. (-25~85C)	200MHz	3.3V	JEDEC 153 ball FBGA (11.5x 13.0x0.8mm)
4GB(32Gb)	EM74H08HVAGA-IH	Wide Temp. (-40~85C)	200MHz	3.3V	JEDEC 153 ball FBGA (11.5x 13.0x0.8mm)
8GB(64Gb)	EM74I08HVAGA-H	Standard Temp. (-25~85C)	200MHz	3.3V	JEDEC 153 ball FBGA (11.5x 13.0x0.8mm)
8GB(64Gb)	EM74I08HVAGA-IH	Wide Temp. (-40~85C)	200MHz	3.3V	JEDEC 153 ball FBGA (11.5x 13.0x0.8mm)
16GB(128Gb)	EM74J08HVAGA-H	Standard Temp. (-25~85C)	200MHz	3.3V	JEDEC 153 ball FBGA (11.5x 13.0x0.9mm)
16GB(128Gb)	EM74J08HVAGA-IH	Wide Temp. (-40~85C)	200MHz	3.3V	JEDEC 153 ball FBGA (11.5x 13.0x0.9mm)
32GB(256Gb)	EM74K08LVAGA-H	Standard Temp. (-25~85C)	200MHz	3.3V	JEDEC 153 ball FBGA (11.5x 13.0x0.8mm)
64GB(512Gb)	EM74L08LVAGA-H	Standard Temp. (-25~85C)	200MHz	3.3V	JEDEC 153 ball FBGA (11.5x 13.0x0.8mm)
64GB(512Gb)	EM74L08LVAGA-IH	Wide Temp. (-40~85C)	200MHz	3.3V	JEDEC 153 ball FBGA (11.5x 13.0x0.8mm)
128GB(1024Gb)	EM74M08LVAGA-H	Standard Temp. (-25~85C)	200MHz	3.3V	JEDEC 153 ball FBGA (11.5x 13.0x0.8mm)
128GB(1024Gb)	EM74M08LVAGA-IH	Wide Temp. (-40~85C)	200MHz	3.3V	JEDEC 153 ball FBGA (11.5x 13.0x0.8mm)



**Etron's headquarters is located in Hsinchu, Taiwan,
with service and support locations available worldwide.**

Asia (Taiwan)-Headquarters

Etron Technology, Inc.
No. 6, Technology Road 5, Hsinchu
Science Park, Hsinchu, Taiwan 30078,
R.O.C.
Mail: richardlin@etron.com.tw
Mail: sales_indopacific@etron.com.tw

Asia (China)

Mail: Alex.Chang@etron.com.tw
Mail: LK.Wu@etron.com.tw
Mail: sales_china@etron.com.tw

Asia (South Korea/Indo-Pacific/Japan)

Mail: richardlin@etron.com.tw
Mail: sales_kr@etron.com.tw
Mail: sales_indopacific@etron.com.tw
Mail: rossinikuo@etron.com.tw
Mail: sales_Japan@etron.com.tw

EMEA (Europe / Middle East / Africa)

Mail: Kryszak.Marek@etron.com.tw
Mail: cyswih@etron.com.tw

North America (USA)

Etron Technology America, Inc.
3375 Scott Blvd Santa Clara,
CA 95054 Bill.sharrio
Mail: Bill.sharrio@etron.com
Mail: Sales_america@etron.com

South America

Etron Technology America, Inc.
3375 Scott Blvd Santa Clara, CA 95054
Bill.sharrio
Mail: Bill.sharrio@etron.com
Mail: Sales_america@etron.com



**Etron's headquarters is located in Hsinchu, Taiwan,
with service and support locations available worldwide.**

Asia (Taiwan)-Headquarters

Etron Technology, Inc.
No. 6, Technology Road 5, Hsinchu
Science Park, Hsinchu, Taiwan 30078,
R.O.C.
Mail: richardlin@etron.com.tw
Mail: sales_indopacific@etron.com.tw

Asia (China)

Mail: Alex.Chang@etron.com.tw
Mail: LK.Wu@etron.com.tw
Mail: sales_china@etron.com.tw

Asia (South Korea/Indo-Pacific/Japan)

Mail: richardlin@etron.com.tw
Mail: sales_kr@etron.com.tw
Mail: sales_indopacific@etron.com.tw
Mail: rossinikuo@etron.com.tw
Mail: sales_Japan@etron.com.tw

North America (USA)

Etron Technology America, Inc.
3375 Scott Blvd Santa Clara,
CA 95054 Bill.sharrio
Mail: Bill.sharrio@etron.com
Mail: Sales_america@etron.com

South America

Etron Technology America, Inc.
3375 Scott Blvd Santa Clara, CA 95054
Bill.sharrio
Mail: Bill.sharrio@etron.com
Mail: Sales_america@etron.com

For more information about Etron products, please contact our official European distributor:



FEIN
elektronik
Group

Mail: info@fein-elektronik.de
www.fein-elektronik.de