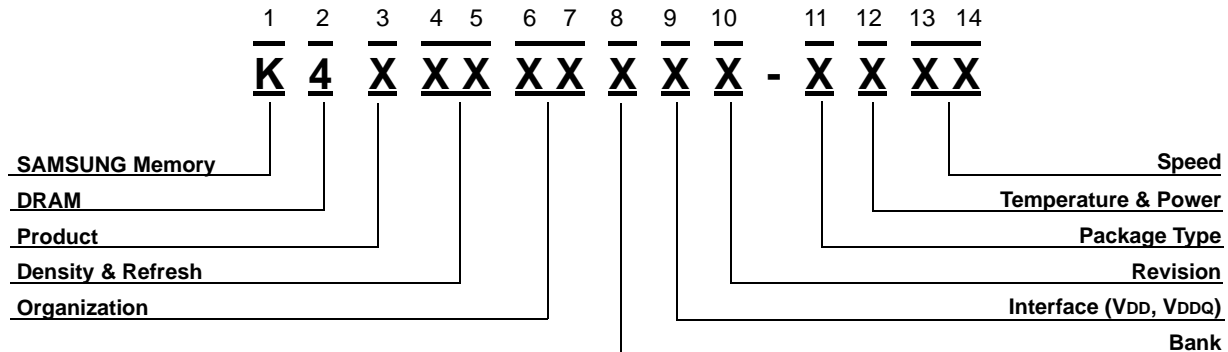


# Graphic Memory Product Guide

January, 2007

Memory Division

A. GRAPHIC MEMORY ORDERING INFORMATION



1. SAMSUNG Memory

2. DRAM

3. Product

- D : GDDR SDRAM
- N : GDDR2 SDRAM
- J : GDDR3 SDRAM
- U : GDDR4 SDRAM

4-5. Density & Refresh

- 62 : 64M, 2K/16ms
- 64 : 64M, 4K/64ms
- 26 : 128M, 4L/32ms
- 28 : 128M, 4K/64ms
- 55 : 256M, 4K/32ms
- 56 : 256M, 8K/64ms
- 51 : 512M, 8K/64ms
- 52 : 512M, 8K/32ms

6-7. Organization

- 16 : x16
- 32 : x32

8. Bank

- 2 : 2 Banks
- 3 : 4Banks
- 4 : 8Banks

9. Interface ( V<sub>DD</sub>, V<sub>DDQ</sub>)

- 2 : LVTTTL (3.3V, 3.3V)
- 4 : LVTTTL (2.5V, 2.5V)
- H : SSTL\_2 (3.3V, 2.5V)
- 8 : SSTL\_2 (2.5V, 2.5V)
- R : SSTL\_2 (2.8V, 2.8V)
- A : SSTL\_2 (2.5V, 1.8V)
- Q : SSTL\_2 (1.8V, 1.8V)
- 5 : SSTL\_2 (1.8V, 1.8V, LP)
- 6 : POD\_15 (1.5V, 1.5V)

10. Revision

- M : 1st Gen.
- B : 3rd Gen.
- D : 5th Gen.
- F : 7th Gen.
- H : 9th Gen.
- J : 11th Gen.
- A : 2nd Gen.
- C : 4th Gen.
- E : 6th Gen.
- G : 8th Gen.
- I : 10th Gen.
- K : 12th Gen.

11. Package Type

- Q : TQFP
- U : TQFP (Lead Free)
- G : 84/144 FBGA
- V : 144 FBGA (Lead Free)
- Z : 84 FBGA(Lead Free)
- T : TSOP
- L : TSOP (Lead Free)
- A : 136 FBGA
- B : 136 FBGA(Lead Free)

12. Temperature & Power

- C : Commercial Normal
- L : Commercial Low

13-14. Speed

- 08 : 0.8ns (1200MHz)
- 09 : 0.9ns (1100MHz)
- 1A : 1.0ns (1000MHz)
- 11 : 1.1ns (900MHz)
- 12 : 1.25ns (800MHz)
- 14 : 1.429ns (700MHz)
- 16 : 1.667ns (600MHz)
- 18 : 1.818ns (550MHz)
- 20 : 2.0ns (500MHz)
- 22 : 2.2ns (450MHz)
- 25 : 2.5ns (400MHz)
- 2C : 2.66ns (375MHz)
- 2A : 2.86ns (350MHz)
- 33 : 3.3ns (300MHz)
- 36 : 3.6ns (275MHz)
- 40 : 4.0ns (250MHz)
- 45 : 4.5ns (222MHz)
- 50/5A : 5.0ns (200MHz)
- 55 : 5.5ns (183MHz)
- 60 : 6.0ns (166MHz)
- 06 : 0.62ns (1600MHz)
- 6A : 0.66ns (1500MHz)
- 07 : 0.71ns (1400MHz)

B. Graphic Memory Component Product Guides

GDDR SDRAM Component

Density	Partnumber	Organization	Bank/Interface	VDD	Refresh	Speed*	Package
128Mb	K4D261638K	8Mx16	4Bank/SSTL_25	2.5V±5%	4K/32ms	40/50	66TSOP(2)
	K4D263238K	4Mx32	4Bank/SSTL_25	2.5V±5%	4K/32ms	40/50	100TQFP
	K4D263238K	4Mx32	4Bank/SSTL_25	2.5V±5%	4K/32ms	40/50	144FBGA
256Mb	K4D551638H	16Mx16	4Bank/SSTL_25	2.35~2.7V	8K/64ms	40/50	66TSOP(2)

gDDR2 SDRAM Component

Density	Partnumber	Organization	Bank/Interface	VDD	Refresh	Speed*	Package
256Mb	K4N56163QG	16Mx16	4Bank/SSTL_18	2.0V ± 0.1	8K/64ms	20/22	84FBGA
	K4N56163QG	16Mx16	4Bank/SSTL_18	1.8±0.1	8K/64ms	25/2A	84FBGA
512Mb	K4N51163QC	32Mx16	4Bank/SSTL_18	1.8V±0.1	8K/64ms	25/2A/33/36	84FBGA
	K4N51163QE	32Mx16	4Bank/SSTL_18	2.0V±0.1	8K/64ms	20/22	84FBGA
	K4N51163QE	32Mx16	4Bank/SSTL_18	1.8V±0.1	8K/64ms	25/2A	84FBGA

GDDR3 SDRAM Component

Density	Partnumber	Organization	Bank/Interface	VDD	Refresh	Speed*	Package
256Mb	K4J55323QG	8Mx32	4Bank/POD_18	2.0V ± 0.1	4K/32ms	1A/11	136FBGA
	K4J55323QG	8Mx32	4Bank/POD_18	1.8V ± 0.1	4K/32ms	12/14/16/20	136FBGA
512Mb	K4J52324QE	16Mx32	8Bank/POD_18	1.9V±0.1	8K/32ms	1A/11	136FBGA
	K4J52324QE	16Mx32	8Bank/POD_18	1.8V±0.1	8K/32ms	12/14	136FBGA

GDDR4 SDRAM Component

Density	Partnumber	Organization	Bank/Interface	VDD	Refresh	Speed*	Package
512Mb	K4U52324QE	16Mx32	8Bank/POD_18	1.8V±0.1	8K/32ms	06/07/08/09	136FBGA