

SDRAM Product Guide

November 2007

Memory Division

勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-34970699
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

SDRAM

Pin assignment diagram for the K4S160822C-000 memory device. The diagram shows 11 pins with their functions:

- Pin 1: **SAMSUNG Memory**
- Pin 2: **DRAM**
- Pin 3: **Product**
- Pin 4: **Density & Refresh**
- Pin 5: **Organization**
- Pin 6: **Bank**
- Pin 7: **Bank**
- Pin 8: **Bank**
- Pin 9: **Revision**
- Pin 10: **Package Type**
- Pin 11: **Temperature & Power**
- Pin 12: **Speed**

勝特力材料 886-3-5753170
勝特力電子(上海) 86-21-34970699
勝特力電子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

B. SDRAM Component Product Guide

Density	Bank	Part Number	Package ^{*1} & Power ^{*2} & Speed ^{*3}	Org.	Interface	Refresh	Power (V)	Package	Avail.
64Mb K-die	4Banks	K4S640832K	UC75 UL75	8M x 8	LVTTL	4K/64ms	3.3 ± 0.3V	Lead-free 54pin TSOP(II)	EOL DEC. '08
		K4S641632K	UC50/C60/C75 UL50/L60/L75	4M x 16					
64Mb N-die	4Banks	K4S640832N	LC75 LL75	8M x 8	LVTTL	4K/64ms	3.3 ± 0.3V	Lead-free & Halogen-free 54pin TSOP(II)	4Q'07 CS
		K4S641632N	LC50/C60/C75 LL50/L60/L75	4M x 16					
128Mb I-die	4Banks	K4S280432I	UC75 UL75	32M x 4	LVTTL	4K/64ms	3.3 ± 0.3V	Lead-free 54pin TSOP(II)	EOL AUG. '08
		K4S280832I	UC75 UL75	16M x 8					
		K4S281632I	UC60/C75 UL60/L75	8M x 16					
128Mb K-die	4Banks	K4S280432K	U ^{*4} C75 UL75	32M x 4	LVTTL	4K/64ms	3.3 ± 0.3V	Lead-free & Halogen-free 54pin TSOP(II) ^{*4}	Now
		K4S280832K	UC75 UL75	16M x 8					
		K4S281632K	UC60/C75 UL60/L75	8M x 16					
256Mb H-die	4Banks	K4S560432H	UC75 UL75	64M x 4	LVTTL	8K/64ms	3.3 ± 0.3V	Lead-free 54pin TSOP(II)	EOL SEP. '08
		K4S560832H	UC75 UL75	32M x 8					
		K4S561632H	UC60/C75 UL60/L75	16M x 16					
256Mb J-die	4Banks	K4S560432J	U ^{*4} C75 UL75	64M x 4	LVTTL	8K/64ms	3.3 ± 0.3V	Lead-free & Halogen-free 54pin TSOP(II) ^{*4}	Now
		K4S560832J	UC75 UL75	32M x 8					
		K4S561632J	UC60/C75 UL60/L75	16M x 16					
512Mb D-die	4Banks	K4S510432D	UC75 UL75	128M x 4	LVTTL	8K/64ms	3.3 ± 0.3V	Lead-free 54pin TSOP(II)	Now
		K4S510832D	UC75 UL75	64M x 8					
		K4S511632D	UC75 UL75	32M x 16					

Note 1 :
 U : TSOP(II) (Lead-free)
 L : TSOP(II) (Lead-free & Halogen-free)

Note 2 :

Temperature and Power	Description
C	Temperature, Normal Power
L	Temperature, Low Power

- Commercial Temp (0°C < Ta < 70°C)

Note 3 :

Speed	Description
75	7.5ns, PC133 (133Mhz @ CL=3)
60	6.0 ns (166Mhz @ CL=3)
50	5.0 ns (200Mhz @ CL=3)

* All products have backward compatibility with PC100.

Note 4 : 128Mb K-die SDR and 256Mb J-die SDR DRAMs support Lead-free & Halogen-free package with Lead-free package code(-U)

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

C. Industrial Temperature SDRAM Component Product Guide

Density	Bank	Part Number	Package*1 & Power*2 & Speed*3	Org.	Interface	Refresh	Power (V)	Package	Avail.
64Mb K-die	4Banks	KS641632K	UI60/I75 UP60/P75	4M x 16	LVTTL	4K/64ms	3.3 ± 0.3V	Lead-free 54pin TSOP(II)	EOL DEC.'08
64Mb N-die	4Banks	KS641632N	LI60/I75 LP60/P75	4M x 16	LVTTL	4K/64ms	3.3 ± 0.3V	Lead-free & Halogen-free 54pin TSOP(II)	1Q'08
128Mb I-die	4Banks	K4S281632I	UI60/I75 UP60/P75	8M x 16	LVTTL	4K/64ms	3.3 ± 0.3V	Lead-free 54pin TSOP(II)	EOL AUG.'08
128Mb K-die	4Banks	K4S281632K	U*4I60/I75 UP60/P75	8M x 16	LVTTL	4K/64ms	3.3 ± 0.3V	Lead-free & Halogen-free 54pin TSOP(II)*4	Now
256Mb H-die	4Banks	K4S561632H	UI60/I75 UP60/P75	16M x 16	LVTTL	8K/64ms	3.3 ± 0.3V	Lead-free 54pin TSOP(II)	EOL SEP.'08
256Mb J-die	4Banks	K4S561632J	U*4I60/I75 UP60/P75	16M x 16	LVTTL	8K/64ms	3.3 ± 0.3V	Lead-free & Halogen-free 54pin TSOP(II)*4	Now

Note 1 :

U : TSOP(II) (Lead-free)

L : TSOP(II) (Lead-free & Halogen-free)

Note 3 :

Note 2 :

Temperature and Power	Description
I	Industrial Temperature, Normal Power
P	Industrial Temperature, Low Power

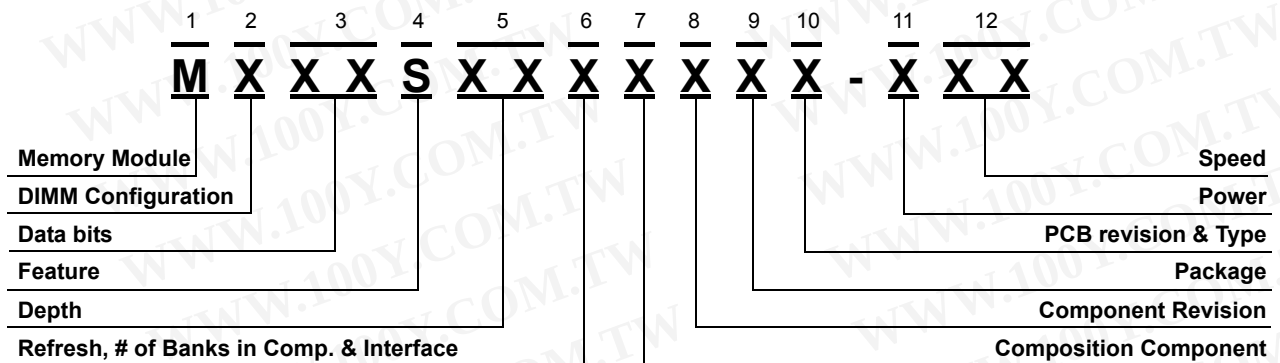
- Industrial Temp (-40°C < Ta < 85°C)

Speed	Description
75	7.5ns, PC133 (133Mhz @ CL=3)
60	6.0 ns (166Mhz @ CL=3)
50	5.0 ns (200Mhz @ CL=3)

Note 4 : 128Mb K-die SDR and 256Mb J-die SDR DRAMs support Lead-free & Halogen-free package with Lead-free package code(-U)

勝 特 力 材 料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

D. SDRAM Module Ordering Information



1. Memory Module : M

2. DIMM Configuration

3 : DIMM
4 : SODIMM

3. Data Bits

63 : x63 PC100 / PC133 μ SODIMM
with SPD for 144pin
64 : x64 PC100 / PC133 SODIMM
with SPD for 144pin (Intel/JEDEC)
66 : x64 Unbuffered DIMM
with SPD for 144pin/168pin (Intel/JEDEC)
74 : x72 /ECC Unbuffered DIMM
with SPD for 168pin (Intel/JEDEC)
77 : x72 /ECC PLL + Register DIMM
with SPD for 168pin (Intel PC100)
90 : x72 /ECC PLL + Register DIMM
with SPD for 168pin (JEDEC PC133)

4. Feature

S : SDRAM

5. Depth

16 : 16M	09 : 8M (for 128Mb/512Mb)
32 : 32M	17 : 16M (for 128Mb/512Mb)
64 : 64M	33 : 32M (for 128Mb/512Mb)
28 : 128M	65 : 64M (for 128Mb/512Mb)
56 : 256M	29 : 128M (for 128Mb/512Mb)
	59 : 256M (for 128Mb/512Mb)

6. Refresh, # of Banks in comp. & Interface

2 : 4K/ 64ms Ref., 4Banks & LVTTTL
5 : 8K/ 64ms Ref., 4Banks & LVTTTL

7. Composition Component

0 : x 4
3 : x 8
4 : x16
8 : x 4 Stack (Flexframe)
9 : x 8 Stack (Flexframe)

8. Component Revision

M : 1st Gen.	A : 2nd Gen.
B : 3rd Gen.	C : 4th Gen.
D : 5th Gen.	E : 6th Gen.
F : 7th Gen.	H : 9th Gen.
J : 11h Gen.	

9. Package

T : TSOP(II) (400mil)
N : sTSOP(II) (400mil)
U : TSOP(II) Lead-free (400mil)
V : sTSOP(II) Lead-free (400mil)

10. PCB Revision & Type

0 : Mother PCB	1 : 1st Rev.
2 : 2nd Rev.	3 : 3rd Rev.
U : Low Profile DIMM	S : 4Layer PCB.

11. Power

C : Commercial Normal (0°C ~ 70°C)
L : Commercial Low (0°C ~ 70°C)

12. Speed (Default CL= 3)

7A : PC133 (133MHz CL=3/PC100 CL2)

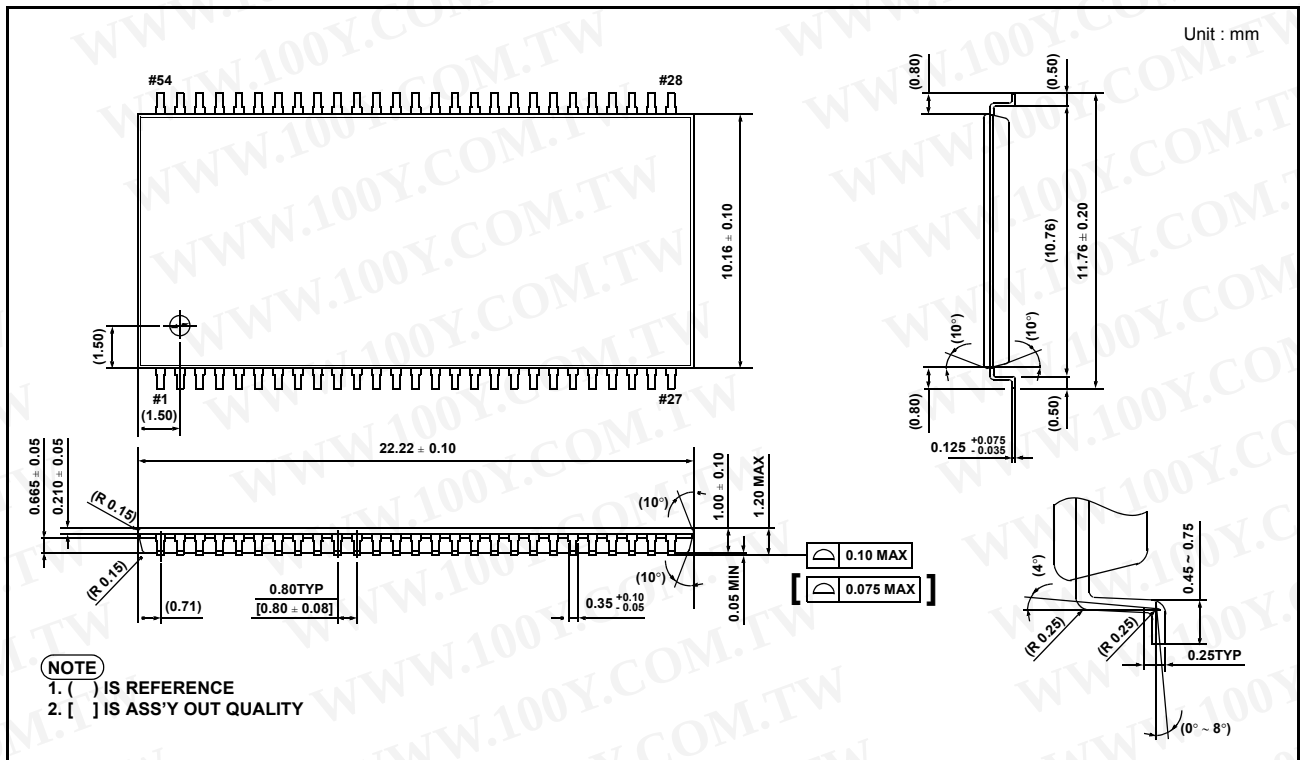
勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-34970699
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

E. SDRAM Module Product Guide

Org.	Density	Part No.	Speed	Composition	Comp. Version	Power (V)	Internal Banks	External Banks	Feature	Avail.		
168pin PC133 Registered DIMM												
32Mx72	256MB	M390S3253HU1	C7A	32M x 8 * 9 pcs	256Mb H-die	3.3 V	4	1	DS, 1500mil	EOL JUN.'08		
64Mx72	512MB	M390S6450HU1	C7A	64M x 4 * 18 pcs	256Mb H-die			1	DS, 1700mil			
		M390S6450HUU	C7A	64M x 4 * 18 pcs	256Mb H-die			1	DS, 1200mil			
168pin PC133 Unbuffered DIMM												
8Mx64	64MB	M366S0924IUS	C7A	8M x 16 * 4 pcs	128Mb I-die	3.3V	4	1	SS, 1000mil	EOL JUN.'08		
16Mx64	128MB	M366S1723IUS	C7A	16M x 8 * 8 pcs	128Mb I-die			1	SS, 1375mil			
		M366S1654HUS	C7A	16M x 16 * 4 pcs	256Mb H-die			1	SS, 1000mil	EOL JUN.'08		
		M366S1654JUS	C7A	16M x 16 * 4 pcs	256Mb J-die			1	SS, 1000mil	Now		
		16Mx72	M374S1723IUS	C7A	16M x 8 * 9 pcs			128Mb I-die	1	SS, 1375mil	EOL JUN.'08	
32Mx64	256MB	M366S3323IUS	C7A	16M x 8 * 16 pcs	128Mb I-die			2	DS, 1375mil			
32Mx72		M374S3323IUS	C7A	16M x 8 * 18 pcs	128Mb I-die			2	DS, 1375mil			
32Mx64		M366S3253JUS	C7A	32M x 8 * 8 pcs	256Mb J-die			1	SS, 1375mil	Now		
64Mx64	512MB	M366S6453HUS	C7A	32M x 8 * 16 pcs	256Mb H-die			2	DS, 1375mil	EOL JUN.'08		
		M366S6453JUS	C7A	32M x 8 * 16 pcs	256Mb J-die			2	DS, 1375mil	Now		
144pin PC133 SODIMM												
16Mx64	128MB	M464S1724IUS	L7A	8M x 16 * 8 pcs	128Mb I-die			3.3V	4	1	DS, 1250mil	EOL JUN.'08
		M464S1724KUS	L7A	8M x 16 * 8 pcs	128Mb K-die	1	DS, 1250mil			Now		
32Mx64	256MB	M464S3254HUS	L7A	16M x 16 * 8 pcs	256Mb H-die	1	DS, 1250mil			EOL JUN.'08		
		M464S3254JUS	L7A	16M x 16 * 8 pcs	256Mb J-die	1	DS, 1250mil			Now		
64Mx64	512MB	M464S6453HV0	L7A	32M x 8 * 16 pcs	256Mb H-die	2	DS, 1250mil			EOL JUN.'08		
		M464S6453JV0	L7A	32M x 8 * 16 pcs	256Mb J-die	2	DS, 1250mil			Now		

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

F. Package Dimension



54Pin TSOP(II) Package Dimension

勝特力材料 886-3-5753170
勝特力電子(上海) 86-21-34970699
勝特力電子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

For further information,

semiconductor@samsung.com

勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-34970699
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)