



PRODUCT SELECTION GUIDE



SAMSUNG

Memory

As the leading volume supplier of DRAM, NAND Flash and SRAM, our commitment is to provide the industry's most extensive portfolio of memory solutions. Our product offering includes advanced memory for PCs, networking, graphics, mobile, server and workstation applications – all in the highest density modules and components available. Our dedication to technology, quality and service has earned us the International Standards Organization's highest rating, ISO9000.

SECTION A	PAGE
DRAM	
SDRAM	3a – 4a
DDR SDRAM	5a – 6a
DDR2 SDRAM	7a
RDRAM	8a
NETWORK DRAM	8a
MOBILE SDRAM	9a
GRAPHICS DDR SDRAM	10a
DRAM ORDERING INFORMATION	11a – 13a
NAND FLASH	
COMPONENTS, SMART MEDIA, COMPACT FLASH	14a
NAND FLASH ORDERING INFORMATION	14a – 15a
SRAM	
LOW POWER SRAM	16a
MICRO POWER SRAM	16a
HIGH DENSITY, LOW POWER (UTRAM)	17a
HIGH SPEED ASYNCHRONOUS FAST SRAM	17a
SPB & FT SRAM	17a – 18a
SPB & FT NTRAM	18a – 19a
LATE WRITE R-R SRAM	19a
DDR1 SRAM	19a – 20a
QDR SRAM	20a
DDR2 SRAM	20a
SRAM ORDERING INFORMATION	21a – 23a

SDRAM COMPONENTS

Density	Org	Speed (Mbps)	Part Number	Refresh	Pkg		Comments
					TSOP		
16Mb	1Mx16	143/166	K4S161622H-TC(L)(70/60)000	2K	50		2 Banks
64Mb	16Mx4	133/143	K4S640432H-TC(L)(75/70)000	4K	54		
64Mb	8Mx8	133/143	K4S640832H-TC(L)(75/70)000	4K	54		
64Mb	4Mx16	133/143	K4S641632H-TC(L)(75/70)000	4K	54		
64Mb	2Mx32	143/166	K4S643232H-TC(L)(70/60)000	4K	86		
128Mb	32Mx4	133/166	K4S280432F-TC(L)(75/60)000	4K	54		
128Mb	16Mx8	133/166	K4S280832F-TC(L)(75/60)000	4K	54		
128Mb	8Mx16	133/166	K4S281632F-TC(L)(75/60)000	4K	54		
256Mb	64Mx4	133	K4S560432E-TC(L)(75)000	8K	54		
256Mb	32Mx8	133	K4S560832E-TC(L)(75)000	8K	54		
256Mb	16Mx16	133	K4S561632E-TC(L)(75)000	8K	54		
512Mb	128Mx4	133/133	K4S510632C-TC(L)(75/7C)000	8K	54		stacked
512Mb	64Mx8	133/133	K4S510732C-TC(L)(75/7C)000	8K	54		stacked
512Mb	128Mx4	133/100/100	K4S510432B-TC(L)(75/1H/1L)000	8K	54		
512Mb	64Mx8	133/100/100	K4S510832B-TC(L)(75/1H/1L)000	8K	54		
512Mb	32Mx16	133/100/100	K4S511632B-TC(L)(75/1H/1L)000	8K	54		
1Gb	256Mx4	133	K4S1G0632B-TC(L)(75)000	8K	54		stacked; avail Q204

- NOTES: 1. The "1H" in the part number signifies an Intel PC100 SDRAM spec compliant device at CAS latency of 2.
 2. The "1L" in the part number signifies an Intel 100MHz SDRAM spec compliant device at CAS latency of 3.
 3. The "7C" in the part number signifies an Intel 133MHz SDRAM spec compliant device at CAS latency of 2.
 4. L = Commercial Temp., Low Power
 5. # Banks: 4
 Package: TSOP
 Voltage: 3.3V
 Speed: PC133 (133MHz CL=3/PC100 CL2)

SDRAM DIMM MODULES PC133 COMPLIANT: UNBUFFERED

Density	Org	Speed (Mbps)	Composition	Part Number	# Banks
					Module
128MB	16Mx64	PC133	128M: (16Mx8)*8	M366S1723FETS-C7A00	1
128MB	16Mx64	PC133	256M: (16Mx16)*4	M366S1654ETS-C7A00	1
128MB	16Mx72	PC133	128M: (16Mx8)*9	M374S1723FETS-C7A00	1
128MB	16Mx72	PC133	256M: (16Mx16)*5	M374S1654ETS-C7A00	1
256MB	32Mx64	PC133	128M: (16Mx8)*16	M366S3323FETS-C7A00	2
256MB	32Mx64	PC133	256M: (32Mx8)*8	M366S3253ETS-C7A00	1
256MB	32Mx64	PC133	256M: (16Mx16)*8	M366S3254ETS-C7A00	1
256MB	32Mx64	PC133	256M: (32Mx8)*8	M366S3253ETS-C7A00	1
256MB	32Mx72	PC133	128M: (16Mx8)*18	M374S3323FETS-C7A00	2
256MB	32Mx72	PC133	256M: (32Mx8)*9	M374S3253ETS-C7A00	1
512MB	64Mx64	PC133	256M: (32Mx8)*16	M366S6453ETS-C7A00	2
512MB	64Mx72	PC133	256M: (32Mx8)*18	M374S6453ETS-C7A00	2
1GB	128Mx64	PC133	512M: (64Mx8)*16	M366S2953BTS-C7A00	2
1GB	128Mx72	PC133	512M: (64Mx8)*18	M374S2953BTS-C7A00	2

- NOTES: 1. Type: 168 pin
 Package: TSOP components
 Voltage: 3.3V

SDRAM DIMM MODULES PC133 COMPLIANT: REGISTERED

Density	Org	Speed (Mbps)	Composition	Part Number	# Banks		Refresh	Comments
					Module			
128MB	16Mx72	PC133	(16Mx8)*9	M390S1723FT1-C7A00	1		4K	
256MB	32Mx72	PC133	(32Mx4)*18	M390S3320FT1-C7A00	2		4K	
256MB	32Mx72	PC133	(32Mx8)*9	M390S3253ET1-C7A00	1		4K	
512MB	64Mx72	PC133	(64Mx4)*18	M390S6450ET1-C7A00	2		8K	
512MB	64Mx72	PC133	(32Mx8)*18	M390S6453BT1-C7A00	2		8K	
1GB	128Mx72	PC133	(St. 128Mx4)*18	M390S2858ET1-C7A00	2		8K	stacked
1GB	128Mx72	PC133	(128Mx4)*18	M390S2950BT1-C7A00	2		8K	
2GB	256Mx72	PC133	(St. 256Mx4)*18	M390S5658BT1-C7A00	2		8K	stacked; avail Q204

NOTES: 1. Type: 168 pin, Double sided
 Package: TSOP components
 Voltage: 3.3V

1U SDRAM DIMM MODULES PC133 / PC100 COMPLIANT: REGISTERED
 LOW PROFILE DIMMS (1.2IN HEIGHT)

Density	Org	Speed	Composition	Part Number	# Banks		Refresh	Comments
					Module			
128MB	16Mx72	PC133	(16x8)*9	M390S1723FTU - C7A00	1		4K	
256MB	32Mx72	PC133	(32Mx4)*18	M390S3320FTU - C7A00	2		4K	
256MB	32Mx72	PC133	(32Mx8)*9	M390S3253ETU - C7A00	1		8K	
512MB	64Mx72	PC133	(64Mx4)*18	M390S6450ETU - C7A00	2		8K	
1GB	128Mx72	PC133	(St. 128Mx4)*18	M390S2858ETU - C7A00	2		8K	stacked
1GB	128Mx72	PC133	(128Mx4)*18	M390S2950BTU - C7A00	2		8K	
2GB	256Mx72	PC133	(St. 128Mx4)*18	M390S5658BTU - C7A00	2		8K	stacked, avail Q204

NOTES: 1. St. = Stacked components
 2. Type: 168 pin, Double sided
 Package: TSOP Components
 Voltage: 3.3V

SDRAM SODIMM MODULES

Density	Org	Speed	Composition	Part Number	Height (in)	# Banks	
						Module	
64MB	8Mx64	PC133	(8Mx16)*4	M464S0924FTS-L7A00	1.15		1
128MB	16Mx64	PC133	(8Mx16)*8	M464S1724FTS-L7A00	1.15		1
256MB	32Mx64	PC133	(16Mx16)*8	M464S3254ETS-L7A00	1.25		1
256MB	32Mx64	PC133	(32Mx16)*4	M464S3354BTS-C(L)7A	1.25		1
512MB	64Mx64	PC133	(32Mx16)*8	M464S6554BTS-C(L)7A	1.18		1
512MB	64Mx64	PC133	(64Mx8)*16	M464S6453EN0-C75/L7500	1.25		2

NOTES: 1. DS = Double-Sided
 2. L = Commercial Temp., Low Power

3. Interface: SSTL-2
 # Banks: 4
 Latency: CL6
 Refresh: 8K/32ms

DDR SDRAM COMPONENTS

Density	Org	Speed (Mbps)	Part Number	Package
256M	64Mx4	266/266/333	K4H560438E-TC(L)B0/A2/B3	66 pin TSOP
256M	64Mx4	266/266/333	K4H560438E-NC(L)B0/A2/B3	54 pin Shrink TSOP
256M	64Mx4	266/266/333	K4H560438E-GC(L)B0/A2/B3	60 ball FBGA
256M	32Mx8	266/266/333/400	K4H560838E-TC(L)B0/A2/B3/CC	66 pin TSOP
256M	32Mx8	266/266/333/400	K4H560838E-NC(L)B0/A2/B3/CC	54 pin Shrink TSOP
256M	32Mx8	266/266/333/400	K4H560838E-GC(L)B0/A2/B3/CC	60 ball FBGA
256M	16Mx16	266/266/333/400	K4H561638F-TC(L)B0/A2/B3/CC	66 pin TSOP
256M	16Mx16	266/266/333/400	K4H561638F-GC(L)B0/A2/B3/CC	60 ball FBGA
512M	128Mx4	266/266/333	K4H510438B-TC(L)B0/A2/B3	66 pin TSOP
512M	128Mx4	266/266/333	K4H510438B-NC(L)B0/A2/B3	54 pin Shrink TSOP
512M	128Mx4	266/266/333	K4H510438B-GC(L)B0/A2/B3	60 ball FBGA
512M	64Mx8	266/266/333/400	K4H510838B-TC(L)B0/A2/B3/CC	66 pin TSOP
512M	64Mx8	266/266/333/400	K4H510838B-NC(L)B0/A2/B3/CC	54 pin Shrink TSOP
512M	64Mx8	266/266/333/400	K4H510838B-GC(L)B0/A2/B3/CC	60 ball FBGA
512M	32Mx16	266/266/333/400	K4H511638B-TC(L)B0/A2/B3/CC	66 pin TSOP
512M	32Mx16	266/266/333/400	K4H511638B-GC(L)B0/A2/B3/CC	60 ball FBGA
1Gb	256Mx4	266/266/333	K4H1G0438M-TC(L)B0/A2/B3	66 pin TSOP
1Gb	128Mx8	266/266/333	K4H1G0838M-TC(L)B0/A2/B3	66 pin TSOP
1Gb	64Mx16	266/266/333	K4H1G1638M-TC(L)B0/A2/B3	66 pin TSOP

NOTES: 1. B0 = DDR266 (133MHz @ CL=2.5)
2. A2 = DDR266 (133MHz @ CL=2)

3. B3 = DDR333 (166MHz @ CL=2.5)
4. CC = DDR400 (200MHz @ CL=3)

DDR SDRAM DIMM MODULES: UNBUFFERED

Density	Org	Speed (Mbps)	Composition	Part Number
256MB	32Mx64	266/266/333	(32M x 8)*8	M368L3223ETN - CB0/A2/B3
256MB	32Mx64	400	(32M x 8)*8	M368L3223ETM - CCC00
256MB	32Mx72	266/266/333/400	(32M x 8)*9	M381L3223ETM - CB0/A2/B3/CC
512MB	64Mx64	266/266/333	(32M x 8)*16	M368L6423ETN - CB0/A2/B3
512MB	64Mx64	400	(32M x 8)*16	M368L6423ETM - CCC00
512MB	64Mx72	266/266/333/400	(32M x 8)*18	M381L6423ETM - CB0/A2/B3/CC
512MB	64Mx72	266/266/333/400	(64M x 8)*9	M381L6523BTM - CB0/A2/B3/CC
1GB	128Mx64	266/266/333	(64M x 8)*16	M368L2923BTN - CB0/A2/B3
1GB	128Mx64	400	(64M x 8)*18	M368L2923BTM - CCC
1GB	128Mx72	266/266/333/400	(64M x 8)*18	M381L2923BTM - CB0/A2/B3/CC
2GB	256Mx64	266/266/333	(128M x 8)*16	M368L5623MTN - CB0/A2/B3
2GB	256Mx72	266/266/333	(128M x 8)*18	M381L5623MTM - CB0/A2/B3

NOTES: B0 = DDR266 (133MHz @ CL=2.5)
A2 = DDR266 (133MHz @ CL=2)

B3 = DDR333 (166MHz @ CL=2.5)
CC = DDR400 (200MHz @ CL=3)

Type: 184-pin
Package: TSOP components
Voltage: 2.5V

DDR SDRAM DIMM MODULES: REGISTERED

Density	Org	Speed (Mbps)	Composition	Part Number	# Banks	
					Module	Comments
256MB	32Mx72	266/266	(32Mx8)*9	M383L3223ETS - CB0/A2	1	
512MB	64Mx72	266/266	(32Mx8)*18	M383L6423ETS - CB0/A2	2	x4 based Recommended
512MB	64Mx72	266/266	(64Mx4)*18	M383L6420FTS - CB0/A2	2	
512MB	64Mx72	266/266	(64Mx8)*9	M383L6523BTS - CB0/A2	1	
1GB	128Mx72	266/266	(St.128Mx4)*18	M383L2828ET1 - CB0/A2	2	Stacked
1GB	128Mx72	266/266	(64Mx8)*18	M383L2923BTS - CB0/A2	2	
1GB	128Mx72	266/266	(128Mx4)*18	M383L2920BTS - CB0/A2	2	
2GB	256Mx72	266/266	(St. 256Mx4)*18	M383L5628BT1 - CB0/A2	2	Stacked

NOTES: 1. B0 = DDR266 (133MHz @ CL=2.5)

2. A2 = DDR266 (133MHz @ CL=2)

3. Type: 184-pin
Package: TSOP components

DDR SDRAM 1U DIMM MODULES: REGISTERED

Density	Org	Speed (Mbps)	Composition	Part Number	Component	# Banks
					Package	Module
256MB	32Mx72	266/266	(32Mx8)*9	M312L3223ETS - C(L)B0/A2	TSOP	1
256MB	32Mx72	266/266/333/400	(32Mx8)*9	M312L3223EG0 - C(L)B0/A2/B3/CC	FBGA	1
512MB	64Mx72	266/266	(32Mx8)*18	M312L6423ETS - C(L)B0/A2	TSOP	2
512MB	64Mx72	266/266/333/400	(32Mx8)*18	M312L6423EG0 - C(L)B0/A2/B3/CC	FBGA	2
512MB	64Mx72	266/266	(64Mx8)*9	M312L6523BTS - CB0/A2	TSOP	1
512MB	64Mx72	266/266/333	(64Mx8)*9	M312L6523BG0 - CB0/A2/B3	FBGA	1
1GB	128Mx72	266/266	(St.128Mx4)*18	M312L2828ET0 - C(L)B0/A2	TSOP	2
1GB	128Mx72	266/266/333/400	(64Mx4)*36	M312L2820EG0 - C(L)B0/A2/B3/CC	FBGA	2
1GB	128Mx72	266/266	(64Mx8)*18	M312L2923BTS - CB0/A2	TSOP	2
1GB	128Mx72	266/266	(128Mx4)*18	M312L2920BTS - CB0/A2	TSOP	1
1GB	128Mx72	266/266/333	(128Mx4)*18	M312L2920BG0 - CB0/A2/B3	FBGA	1
2GB	256Mx72	266/266	(St. 256Mx4)*18	M312L5628BT0 - CB0/A2	TSOP	2
2GB	256Mx72	266/266/333	(128Mx4)*36	M312L5720BG0 - CB0/A2/B3	FBGA	2
4GB	512Mx72	266/266	(St. 512Mx4)*18	M312L5128MT0 - CB0/A2	TSOP	2
4GB	512Mx72	266/266/333	(St. 512Mx4)*18	M312L5128MG0 - CB0/A2/B3	FBGA	2

NOTES: 1. B0 = DDR266 (133MHz @ CL=2.5)

2. A2 = DDR266 (133MHz @ CL=2)

3. B3 = DDR333 (166MHz @ CL=2.5)

4. CC = DDR400 (200MHz @ CL=3)

5. Type: 184-pin

DDR DRAM SODIMM MODULES

Density	Org	Speed (Mbps)	Composition	Part Number	Component	# Banks
					Package	Module
128MB	16Mx64	266/266/333/400	(16M x 16)*4	M470L1624FT0 - C(L)B0/A2/B3/CC	TSOP	1
256MB	32Mx64	266/266/333/400	(16M x 16)*8	M470L3224FT0 - C(L)B0/A2/B3/CC	TSOP	2
256MB	32Mx64	266/266/333/400	(32M x 16)*4	M470L3224BT0 - C(L)B0/A2/B3/CC	TSOP	1
512MB	64Mx64	266/266/333/400	(32M x 8)*16	M470L6423ENO - C(L)B0/A2/B3/CC	Shrink TSOP	2
512MB	64Mx64	266/266/333/400	(32M x 16)*8	M470L6524BT0 - C(L)B0/A2/B3/CC	Shrink TSOP	2
1GB	128Mx64	266/266/333	(64M x 8)*16	M470L2923BNO - C(L)B3/A2/B0	Shrink TSOP	2
1GB	128Mx64	266/266/333	(64M x 16)*8	M470L2824MT0 - C(L)B3/A2/B0	Shrink TSOP	2

NOTES: 1. B0 = DDR266 (133MHz @ CL=2.5)

2. A2 = DDR266 (133MHz @ CL=2)

3. B3 = DDR333 (166MHz @ CL=2.5)

4. CC = DDR400 (200MHz @ CL=3)

5. Type: 200-pin, Double Sided

6. Height(in): 1.25

DDR2 DRAM COMPONENTS

Density	Org	Speed (Mbps)	Part Number
256Mb	x4	400/533	K4T56043QF-(CCC/CD5)
256Mb	x8	400/533	K4T56083QF-(CCC/CD5)
512Mb	x4	400/533	K4T51043QB-(CCC/CD5)
512Mb	x8	400/533	K4T51083QB-(CCC/CD5)
512Mb	x16	400/533	K4T51163QB-(CCC/CD5)
1Gb	x4	400/533	K4T1G044QM-(CCC/CD5)
1Gb	x8	400/533	K4T1G084QM-(CCC/CD5)

NOTES: 1. CCC - DDR2 -400 (3-3-3)

2. CD5 - DDR2 -533 (4-4-4)

3. Voltage: 1.8V

DDR2 SDRAM DIMM MODULES: UNBUFFERED

Density	Org	Speed (Mbps)	Part Number	Components
256MB	32Mx64	400/533	M378T3253FG0-(CCC/CD5)	256Mb
512MB	64Mx64	400/533	M378T6453FG0-(CCC/CD5)	256Mb
256MB	32Mx64	400/533	M378T3354BG0-(CCC/CD5)	512Mb
512MB	64Mx64	400/533	M378T6553BG0-(CCC/CD5)	512Mb
1GB	128Mx64	400/533	M378T2953BG0-(CCC/CD5)	512Mb
512MB	64Mx64	400/533	M378T6464MG0-(CCC/CD5)	1Gb
1GB	128Mx64	400/533	M378T2863MG0-(CCC/CD5)	1Gb
2GB	256Mx64	400/533	M378T5663MG0-(CCC/CD5)	1Gb

NOTES: 1. CC = 400Mbps

2. D5 = 533Mbps

3. Voltage: 1.8V
Package: FBGA (11x13mm)

DDR2 SDRAM 1U DIMM MODULES: REGISTERED

Density	Org	Speed (Mbps)	Part Number	Components
256MB	32Mx72	400/533	M393T3253FG0-(CCC/CD5)	256Mb
512MB	64Mx72	400/533	M393T6450FG0-(CCC/CD5)	256Mb
512MB	64Mx72	400/533	M393T6453FG0-(CCC/CD5)	256Mb
512MB	64Mx72	400/533	M393T6553BG0-(CCC/CD5)	512Mb
1GB	128Mx72	400/533	M393T2950BG0-(CCC/CD5)	512Mb
1GB	128Mx72	400/533	M393T2953BG0-(CCC/CD5)	512Mb
1GB	128Mx72	400/533	M393T2863MG0-(CCC/CD5)	1Gb
2GB	256Mx72	400/533	M393T5750BS0-(CCC/CD5)	512Mb
2GB	256Mx72	400/533	M393T5660MG0-(CCC/CD5)	1Gb
2GB	256Mx72	400/533	M393T5663MG0-(CCC/CD5)	1Gb

NOTES: 1. CC = 400Mbps

2. D5 = 533Mbps

3. Voltage: 1.8V
Package: FBGA (11x13mm)

DDR2 DRAM SODIMM MODULES

Density	Org	Speed (Mbps)	Part Number	Components
256MB	32Mx64	400/533	M470T3354BG0-(CCC/CD5)	512Mb
512MB	64Mx64	400/533	M470T6554BG0-(CCC/CD5)	512Mb
1GB	128Mx64	400/533	M470T2953BS0-(CCC/CD5)	512Mb
512MB	64Mx64	400/533	M470T6464MG0-(CCC/CD5)	1Gb
1GB	128Mx64	400/533	M470T2864MG0-(CCC/CD5)	1Gb

NOTES: 1. CC = 400Mbps

2. D5 = 533Mbps

3. Voltage: 1.8V
Package: FBGA (11x13mm)
Height(in): 1.25

RDRAM COMPONENTS

Density	Org	Speed (Mbps)	Part Number	Refresh	Package
5576M	x18	1066	K4R761869A-FC T9	32K/32ms	92ball FBGA
288M	x18	800/1066	K4R881869E-FCM8/T9	16K/32ms	92ball FBGA
256M	x16	800/1066	K4R571669E-FCM8/T9	16K/32ms	92ball FBGA
128M	x16	800/1066	K4R271669F-SCK8/S8	16K/32ms	54ball FBGA

NOTES: Voltage: 2.5 v

RIMM™ MODULES

Density	Org	Speed (Mbps)	# of Devices	Part Number	Component	Comments
512MB ECC	x18	800/1066Mbps	16	MR18R162GDF0-CM8/T9	288Mb	
256MB ECC	x18	800/1066Mbps	8	MR18R1628DF0-CM8/T9	288Mb	
128MB ECC	x18	800/1066Mbps	4	MR18R1624DF0-CM8/T9	288Mb	
512MB NON-ECC	x16	800/1066Mbps	16	MR16R162GDF0-CM8/T9	512Mb	
256MB NON-ECC	x16	800/1066Mbps	8	MR16R1628DF0-CM8/T9	256Mb	
128MB NON-ECC	x16	800/1066Mbps	4	MR16R1624DF0-CM8/T9	256Mb	
576MB NexMod	x18	800/1066Mbps	8	MN18R3268AF0-CT9	576Mb	
288MB NexMod	x18	800/1066Mbps	8	MN18R1628DF0-CT9	288Mb	
144MB NexMod	x18	800/1066Mbps	4	MN18R1624DF0-CT9	288Mb	

NETWORK DRAM

Density	Org	Speed (Mbps)	Part Number	Package	Comments
288Mb	32Mx9	500/600/667	K4C89093AF-ACF5/FB/F6	60 ball BGA	MP Q4
288Mb	16Mx18	500/600/667	K4C89183AF-ACF5/FB/F6	60 ball BGA	MP Q4
288Mb	8Mx36	500/600/667	K4C89363AF-GCF5/FB/F6	144 ball BGA	MP Q4
256Mb	32x8	400	K4C560838F-TCD4	66-pin TSOP	MP Q4
256Mb	16x16	400	K4C561638F-TCD4	66-pin TSOP	MP Q4

NOTES: 1. Interface: SSTL-2
 # Banks: 4
 Refresh: 8K/32ms
 Latency: CL6

MOBILE SDRAM COMPONENTS

Density	Org	Part Number	Refresh	Power	# Pins TSOP/BGA
64Mb	4Mx16	K4S641633H-(1)(2)(3)(4)	4K	3.0V	FBGA-54balls
64Mb	4Mx16	K4S641633LH-(1)(2)(3)(4)	4K	2.5V	FBGA-54balls
64Mb	4Mx16	K4M641633PH-(1)(2)(3)(4)	4K	1.8V	FBGA-54balls
64Mb	2MX32	K4S643233H-(1)(2)(3)(4)	4K	3.0V	FBGA-90balls
64Mb	2MX32	K4S643233LH-(1)(2)(3)(4)	4K	2.5V	FBGA-90balls
128Mb	8MX16	K4M281633F-(1)(2)(3)(4)	4K	3.0V	FBGA-54balls
128Mb	8MX16	K4M281633LF-(1)(2)(3)(4)	4K	2.5V	FBGA-54balls
128Mb	8MX16	K4M281633PE-(1)(2)(3)(4)	4K	1.8V	FBGA-54balls
128Mb	4MX32	K4S283233F-(1)(2)(3)(4)	4K	3.0V	FBGA-90balls
128Mb	4MX32	K4S283233LF-(1)(2)(3)(4)	4K	2.5V	FBGA-90balls
256Mb	16Mx16	K4S561633F-(1)(2)(3)(4)	8K	3.0V	54Balls BOC
256Mb	16Mx16	K4S561633LF-(1)(2)(3)(4)	8K	2.5V	54Balls BOC
256Mb	16Mx16	K4M561633PE-(1)(2)(3)(4)	4K	1.8V	FBGA-54balls
256Mb	8Mx32	K4M563233E-(1)(2)(3)(4)	4K	3.0V	FBGA-90balls
256Mb	8Mx32	K4M563233LE-(1)(2)(3)(4)	4K	2.5V	FBGA-90balls
256Mb	8Mx32	K4M563233PE-(1)(2)(3)(4)	4K	1.8V	FBGA-90balls
512Mb	32Mx16	K4M511533E-(1)(2)(3)(4)	8K	3.0V	FBGA-54balls
512Mb	32Mx16	K4M511533LE-(1)(2)(3)(4)	8K	2.5V	FBGA-54balls
512Mb	32Mx16	K4M511633E-(1)(2)(3)(4)	8K	3.0V	FBGA-54balls
512Mb	32Mx16	K4M511633LE-(1)(2)(3)(4)	8K	2.5V	FBGA-54balls
512Mb	32Mx16	K4M511633PE-(1)(2)(3)(4)	8K	1.8V	FBGA-54balls
512Mb	16Mx32	K4M513233E-(1)(2)(3)(4)	8K	3.0V	FBGA-90balls
512Mb	16Mx32	K4M513233LE-(1)(2)(3)(4)	8K	2.5V	FBGA-90balls
512Mb	16Mx32	K4M513233PE-(1)(2)(3)(4)	8K	1.8V	FBGA-54balls

NOTES: (1) Package

Leaded / Lead Free

R / B : 54balls FBGA Mono

X / Z : 54balls BOC Mono

L / F : 60balls FBGA Mono 0.8pitch

F / H : Smaller 90balls FBGA Mono

Y / P : 54balls CSP DDP

M / E : 90balls FBGA DDP

(2) Temp & Power

C : Commercial(-25 ~ 70°C), Normal

L : Commercial, Low

F : Commercial, Low, PASR & TCSR

B : Commercial, Super Low

R : Commercial, Super Low, PASR & TCSR

E : Extended(-25~85°C), Normal

N : Extended, Low

G : Extended, Low, PASR & TCSR

U : Extended, Super Low

S : Extended, Super Low, PASR & TCSR

(3) ~ (4) Speed

Mobile-SDRAM

75 : 133MHz, CL 3

80 : 125MHz, CL 3

1H : 105MHz, CL 2

1L : 105MHz, CL 3

15 : 66MHz, CL 2 & 3

Mobile-DDR

C3 : 133MHz, CL 3

C2 : 100MHz, CL 3

C0 : 66MHz, CL 3

GRAPHICS DDR SDRAM COMPONENTS

Density	Org	Clock Cycle		Part Number	(V)	Interface	Package	Features**
		Time (MHz)*						
128Mb	4Mx32	200Mhz		K4D263238F-QC50000	2.5	SSTL_2	100 TQFP	DDR
	4Mx32	350Mhz		K4D263238E-GC2A(33/36)000	2.5	SSTL_2	144 FBGA Leaded	DDR
	4Mx32	350Mhz		K4D263238E-VC2A(33/36)000	2.5	SSTL_2	144 FBGA Lead Free	DDR
	4Mx32	400Mhz		K4D263238E-GC25000	2.8	SSTL_2	144 FBGA Leaded	DDR
	4Mx32	400Mhz		K4D263238E-VC25000	2.8	SSTL_2	144 FBGA Lead Free	DDR
	4Mx32	350Mhz		K4D263238G-GC2A(33/36)000	2.5	SSTL_2	144 FBGA Leaded	DDR
	4Mx32	350Mhz		K4D263238G-VC2A(33/36)000	2.5	SSTL_2	144 FBGA Lead Free	DDR
	4Mx32	400Mhz		K4D26323QG-GC25(2A/33)000	1.8	SSTL_2	144 FBGA Leaded	DDR
	4Mx32	400Mhz		K4D26323QG-VC25(2A/33)000	1.8	SSTL_2	144 FBGA Lead Free	DDR
	4Mx32	500Mhz		K4D26323QG-GC20(22)000	2.0	SSTL_2	144 FBGA Leaded	DDR
	4Mx32	500Mhz		K4D26323QG-VC20(22)000	2.0	SSTL_2	144 FBGA Lead Free	DDR
	8Mx16	300Mhz		K4D261638F-TC33(36/40/50)000	2.5	SSTL_2	66 TSOPII Leaded	DDR
	8Mx16	300Mhz		K4D261638F-LC33(36/40/50)000	2.5	SSTL_2	66 TSOPII Lead Free	DDR
	256Mb	8Mx32	400Mhz		K4D55323QF-GC25(2A/33)000	1.8	SSTL_2	144 FBGA Leaded
8Mx32		400Mhz		K4D55323QF-VC25(2A/33)000	1.8	SSTL_2	144 FBGA Lead Free	GDDR1
8Mx32		500Mhz		K4D553235F-GC20(22/25/2A/33)000	1.8	SSTL_18	144 FBGA Leaded	GDDR1
8Mx32		500Mhz		K4D553235F-VC20(22/25/2A/33)000	1.8	SSTL_18	144 FBGA Lead Free	GDDR1
8Mx32		800Mhz		K4J55323QF-GC12(14/16/20)000	1.8	SSTL_18	144 FBGA Leaded	GDDR3
8Mx32		800Mhz		K4J55323QF-VC12(14/16/20)000	1.8	SSTL_18	144 FBGA Lead Free	GDDR3
16Mx16		500Mhz		K4N55163QF-GC20(22/25/30/37)000	1.8	SSTL	84 FBGA Leaded	GDDR2
16Mx16		300Mhz		K4D551638F-TC33(36/40/50/60)000	2.5	SSTL_2	66 TSOPII Leaded	DDR
16Mx16		300Mhz		K4D551638F-LC33(36/40/50/60)000	2.5	SSTL_2	66 TSOPII Lead Free	DDR

NOTES: * clock cycle time
** all products are 4 banks

Part No. Suffix	Description
12	1.25ns (800MHz)
14	1.429ns (700MHz)
16	1.667ns (600MHz)
18	1.818ns (550MHz)
20	2.0 ns (500MHz)
22	2.2 ns (450MHz)
25	2.5 ns (400MHz)
2C	2.67 ns (375MHz)
2A	2.86 ns (350MHz)
33	3.3 ns (300MHz)
36	3.6 ns (275MHz)
37	3.7 ns (266MHz)
40	4.0 ns (250MHz)
45	4.5 ns (222MHz)
50	5.0 ns (200MHz)
55	5.5 ns (183MHz)
60	6.0 ns (166MHz)

DRAM ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	

1. Memory (K)

- 62 : 64M,2K/16ms
- 64 : 64M,4K/64ms
- 66 : 64M,8K/64ms
- 72 : 72M,8K/32ms
- 76 : 576M,32K/32ms
- 80 : 8M,2K/32ms
- 88 : 288M,16K/32ms
- 89 : 288M,8K/32ms
- 1G : 1G,8K/64ms
- 2G : 2G,8K/64ms
- 4G : 4G,8K/64ms
- 2A : 128M,4K/64ms with TCSR
- 5A : 256M,8K/64ms with TCSR
- 6A : 64M,4K/64ms with TCSR

- S : SSTL-2,2.2V,1.8V
- U : DRSL,1.8V,1.8V

2. DRAM : 4

3. Small Classification

- A : Advanced Dram Technology
- C : Network-DRAM
- D : DDR SGRAM
- E : EDO
- F : FP
- G : SGRAM
- H : DDR SDRAM
- J : GDDR3 SDRAM
- M : Mobile SDRAM
- N : DDR SGRAM ϕ J
- P : FP(Quad CAS)
- Q : EDO(Quad CAS)
- R : Direct RDRAM
- S : SDRAM
- T : DDR SDRAM ϕ J
- V : VRAM
- W : WRAM
- X : Mobile DDR SDRAM
- Y : YDRAM
- Z : Value Added DRAM

4~5. Density, Refresh

- 11 : 1G,64K/16ms
- 15 : 16M,1K/16ms
- 16 : 16M,2K/32ms
- 17 : 16M,4K/64ms
- 26 : 128M,4K/32ms
- 27 : 128M,16K/32ms
- 28 : 128M,4K/64ms
- 32 : 32M,2K/32ms
- 40 : 4M,512/8ms
- 41 : 4M,1K/16ms
- 44 : 144M,16K/32ms
- 50 : 512M,32K/16ms
- 51 : 512M,8K/64ms
- 52 : 512M,8K/32ms
- 54 : 256M,16K/16ms
- 55 : 256M,4K/32ms
- 56 : 256M,8K/64ms
- 57 : 256M,16K/32ms
- 58 : 256M,8K/32ms

6~7. Organization

- | | | |
|----------------|----------|----------|
| 01 : x1 | 02 : x2 | 04 : x4 |
| 05 : x4 (2CS) | 08 : x8 | 09 : x9 |
| 15 : x16 (2CS) | 16 : x16 | 18 : x18 |
| 32 : x32 | 36 : x36 | |
- 03 : x2 (Including x1)
 - 06 : x4 Stack (Flexframe)
 - 07 : x8 Stack (Flexframe)
 - 17 : x16 (Including x8/x4)

8. Bank

- | | | |
|-----------|------------|------------|
| 1 : 1Bank | 2 : 2Bank | 3 : 4Bank |
| 4 : 8Bank | 5 : 16Bank | 6 : 32Bank |

9. Interface,VDD,VDDQ

- 0 : TTL,5.0V,5.0V
- 1 : TTL,5.0V,5.0V
- 2 : LVTTTL,3.3V,3.3V
- 3 : LVTTTL,3.0V,3.0V
- 4 : LVTTTL,2.5V,2.5V
- 7 : SSTL-2,3.3V,2.5V
- 8 : SSTL-2,2.5V,2.5V
- 9 : RSL,2.5V,2.5V
- A : SSTL,2.5V,1.8V
- H : SSTL-2 DLL,3.3V,2.5V
- J : LVTTTL,3.0V,1.8V
- L : LVTTTL,2.5V,1.8V
- M : LVTTTL,1.8V,1.5V
- N : LVTTTL,1.5V,1.5V
- P : LVTTTL,1.8V,1.8V
- Q : SSTL,1.8V,1.8V
- R : SSTL-2,2.8V,2.8V

10. Generation

- M : 1st Generation
- A : 2nd Generation
- B : 3rd Generation
- C : 4th Generation
- D : 5th Generation
- E : 6th Generation
- F : 7th Generation
- G : 8th Generation
- H : 9th Generation
- Y : Partial DRAM(2nd)
- Z : Partial DRAM (for RAMOSTAK Product)

911. " ----"

12. Package

- Advanced Dram Technology

- T : TSOP2
- Z : BOC(LF)

- DDR SDRAM

- J : TSOP2-400(LF,DDP)
- T : TSOP2-400
- K : TSOP2-400C(DDP)
- U : TSOP2-400(LF)
- G : MWBGA,WBGA
- Z : BOC(LF)
- P : BOC(DDP)
- N : STSOP2

- DDR SDRAM ϕ J

- V : STSOP2(LF)
- G : BOC
- Z : BOC(LF)
- S : BOC(Smaller)

- DDR SGRAM

- E : FBGA(LF,DDP)
- G : FBGA
- J : FBGA(DDP)
- V : FBGA(LF)
- P : FBGA(LLDDP)
- H : BOC
- L : TSOP2-400(LF)
- T : TSOP2-400
- Q : TQFP
- U : TQFP(LF)

- DDR SGRAM ϕ J

- GDDR SDRAM

- G : FBGA,BOC
- Direct RDRAM
- F : WBGA
- G : WBGA(LF)
- H : WBGA(LF,B/L 320)
- J : MWBGA(LF)
- M : μ BGA[®] packages** (M)
- N : μ BGA[®] packages**
- P : MWBGA
- R : 54-WBGA
- S : 54- μ BGA[®] packages**
- T : 54-WBGA(LF)

** μ BGA and micro BGA are registered trademarks of Tessera

DRAM ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
- SDRAM (tCC : Default CL3)						- DDR SGRAM (tCC : Default CL3)						-GDDR3 SDRAM						
10 : 10ns PC66 1		2 : 12ns		20 : 2.0ns		21 : 2.1ns(475MHz)		11 : 1.1ns		12 : 1.25ns								
15 : 15ns		22 : 2.2ns(450MHz)		25 : 2.5ns		14 : 1.429ns		16 : 1.667ns										
1H : 10ns@CL2,PC100		1L : 10ns PC100		30 : 3ns 33 : 3.3ns		18 : 1.818ns		20 : 2.0ns										
33 : 3.3ns		40 : 4ns		35 : 3.5ns		36 : 3.6ns		22 : 2.2ns		25 : 2.5ns								
45 : 4.5ns		50 : 5ns		3N 3.32ns(301MHz)		40 : 4ns		30 : 3.0ns		33 : 3.3ns								
55 : 5.5ns		56 : 5.6ns		45 : 4.5ns		50 : 5ns		- YDRAM										
60 : 6ns		67 : 6.7ns		55 : 5.5ns		60 : 6ns		A2 : 2.4Gbps,36ns,16cycles		A3 : 3.2Gbps,27ns,16cycles								
70 : 7ns		74 : 7.4ns		70 : 7ns		2A : 2.86ns(350MHz)		B3 : 3.2Gbps,35ns,20cycles		B4 : 4.0Gbps,28ns,20cycles								
75 : 7.5ns PC133		2B : 2.94ns(340MHz)		2C : 2.66ns(375MHz)		C3 : 3.2Gbps,35ns,24cycles		DS : Daisychain Sample		- DRAM COMMON								
7B : 7.5ns PC133,CL3,TRCD2,TRP2		< Only SDRAM TPB Code>		S0 : 4.0ns BIN		DS : NONE												
7C : 7.5ns PC133,CL2,TRCD2,TRP2		- DDR SGRAM t_f						16. Packing "Packing Type Reference"										
80 : 8ns		96 : 9.6ns		12 : 1.25ns		14 : 1.429ns		(To next page)										
DS : Daisychain Sample		16 : 1.667ns		18 : 1.818ns		2A : 2.86ns(350MHz)		17~18. Customer "Customer List Reference"										
< Only SDRAM TPB Code>		20 : 2ns		22 : 2.2ns		25 : 2.5ns												
S0 : 7.0ns BIN		T0 : 5.5ns BIN		25 : 2.5ns		33 : 3.3ns												
U0 : 6.0ns BIN		V0 : 7.5ns BIN		- Network-DRAM														
W0 : 8.0ns BIN		G0 : 5.6ns BIN		D3 : 6ns@CL4		D4 : 5ns@CL4												
				DA : 5.5ns@CL4		F5 : 4ns@CL6												
				F6 : 3ns@CL6		FB : 3.33ns@CL6												
				G7 : 2.5ns@CL7														

DRAM ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	

Packing Type (16 digit)

- Common to all products, except of Mask ROM
- Divided into TAPE & REEL(In Mask ROM, divided into TRAY, AMMO Packing Separately)

Type	Packing Type	New Marking	Old Marking
Component	TAPE & REEL	T	R
	Other (Tray, Tube, Jar)	0 (Number)	1 (Number)
	Stack	S	
Component (Mask ROM)	TRAY	Y	
	AMMO PACKING	A	
Module	MODULE TAPE & REEL	P	
	MODULE Other Packing	M	N

NAND FLASH DISCETE COMPONENTS

Density	Part Number	Organization	Speed (ns)	Voltage	Package
64Mb	K9F6408U0C-TCB0	EOL	EOL	EOL	EOL
128Mb	K9F2808U0C-YCB0	16Mx8	50	2.7-3.6V	TSOP48
256Mb	K9F5608U0C-YCB0	32Mx8	50	2.7-3.6V	TSOP48
512Mb	K9F1208U0A-YCB0	64Mx8	50	2.7-3.6V	TSOP48
1Gb	K9F1G08U0A-YCB	128Mx8	50	2.7-3.6V	TSOP48
2Gb	K9F2G08U0M-YCB	256Mx8	30	2.7-3.6V	TSOP48
4Gb	K9K4G08U0M-YCB	512Mx8	30	2.7-3.6V	TSOP48
8Gb	K9W8G08U1M-YCB	1024Mx8	30	2.7-3.6V	TSOP48

NAND FLASH SMART MEDIA

Density	Part Number	Organization	Speed (ns)	Voltage	Package
8MB	K9S6408V0C-SSB0	EOL	EOL	EOL	EOL
16MB	K9S2808V0C-SSB0	16Mx8	50	3.3V	COB-22
32MB	K9S5608V0C-SSB0	32Mx8	50	3.3V	COB-22
64MB	K9S1208V0A-SSB0	64Mx8	50	3.3V	COB-22
128MB	K9D1G08V0A-SSB0	128Mx8	50	3.3V	COB-22

NAND FLASH COMPACT FLASH CARDS (CFC)

Density	Part Number	Temperature	Voltage	Package
32MB	MC56C0321CY1-2CD00	Commercial	2.7-3.6V	CF-Type I
64MB	MC12C0641AY1-2CD00	Commercial	2.7-3.6V	CF-Type I
128MB	MC12C1281AY1-2CD00	Commercial	2.7-3.6V	CF-Type I
256MB	MC12C2561AY1-2CD00	Commercial	2.7-3.6V	CF-Type I

NAND FLASH ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

1. Memory (K)

F : SLC Normal
 G : MLC Normal
 K : SLC Die Stack
 W : SLC 4 Die Stack
 J : Non-Muxed One Nand
 U : 2 STACK MSP
 V : 4 STACK MSP

2. NAND Flash : 9

3. Small Classification (SLC : Single Level Cell, MLC : Multi Level Cell, SM : SmartMedia, S/B : Small Block)

1 : SLC 1 Chip XD Card
 2 : SLC 2 Chip XD Card
 4 : SLC 4 Chip XD Card
 A : SLC + Muxed I/F Chip
 B : Muxed I/F Chip
 S : SLC Single SM
 D : SLC Dual SM
 Q : 4CHIP SM
 T : SLC SINGLE (S/B)
 E : SLC DUAL (S/B)
 R : SLC 4DIE STACK (S/B)

4~5. Density

12 : 512M 16 : 16M
 28 : 128M 32 : 32M
 40 : 4M 56 : 256M
 64 : 64M 80 : 8M
 1G : 1G 2G : 2G
 4G : 4G 8G : 8G
 00 : NONE

6~7. Organization

00 : NONE 08 : x8
 16 : x16

8. Vcc

C : 5.0V(4.5V~5.5V)
 D : 2.65V(2.4V ~ 2.9V)
 E : 2.3V~3.6V
 Q : 1.8V(1.7V ~ 1.95V)
 T : 2.4V~3.0V
 U : 2.7V~3.6V
 V : 3.3V(3.0V~3.6V)
 W : 2.7V~5.5V,3.0V~5.5V
 0 : NONE

9. Mode

0 : Normal
 1 : Dual nCE & Dual Rn/B
 4 : Quad nCE & Single Rn/B
 A : Mask Option 1

NAND FLASH ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	

10. Generation

- M : 1st Generation
- A : 2nd Generation
- B : 3rd Generation
- C : 4th Generation
- D : 5th Generation
- Y : Partial NAND((2nd)
- Z : Partial NAND(1st)
- M : 1st Generation
- A : 2nd Generation
- B : 3rd Generation
- C : 4th Generation
- D : 5th Generation
- Y : Partial NAND((2nd)
- Z : Partial NAND(1st)

11. "CW"

12. Package

- A : COB
- C : CHIP BIZ
- E : TSOP1(LF,1217)
- G : FBGA
- J : FBGA(LF)
- L : LGA
- P : TSOP1(LF)
- R : TSOP2-R
- T : TSOP2
- W : WAFER
- B : TBGA
- D : 63-TBGA
- F : WSOP1(LF)
- H : TBGA(LF)
- K : TSOP1(1217)
- M : tLGA
- Q : TSOP2(LF)
- S : SMARTMEDIA
- V : WSOP
- Y : TSOP1

13. Temp

- C : Commercial
- S : SmartMedia
- B : SmartMedia BLUE
- 0 : NONE (Containing Wafer, CHIP, BIZ, Exception handling code)
- I : Industrial

14. Bad Block

- B : Include Bad Block
- D : Daisychain Sample
- K : Sandisk Bin
- L : 1~5 Bad Block
- N : Ini. All Good, Add. 10 Blocks
- S : All Good Block
- 0 : NONE (Containing Wafer, CHIP, BIZ, Exception handling code)

15. NAND-Reserved

- 0 : Reserved

16. Packing "Packing Type Reference"

(To last page)

17~18. Customer "Customer List Reference"

NAND FLASH ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	

Packing Type (16 digit)

Common to all products, except of Mask ROM
 Divided into TAPE & REEL(In Mask ROM, divided into TRAY, AMMO Packing Separately))

Type	Packing Type	New Marking	Old Marking
Component	TAPE & REEL	T	R
	Other (Tray, Tube, Jar)	0 (Number)	1 (Number)
	Stack	S	
Component (Mask ROM)	TRAY	Y	
	AMMO PACKING	A	
Module	MODULE TAPE & REEL	P	
	MODULE Other Packing	M	N

LOW POWER (5V) SRAM

Density	Part Number	Organization	Vcc (V)	Speed(ns)	Operating Temp	Operating Current (mA)	Standby Current (uA)	Package	Production Status
8M bit	K6X8008C2B	1Mx8	4.5 - 5.5	55,70	C,I	50	50	TSOP2(44)	Mass Production
	K6X8016C3B	512x16	4.5 - 5.5	55,70	C,I	60	50	TSOP2(44)	Mass Production
4M bit	K6T4016C3C	256x16	4.5 - 5.5	55,70	C,I	130	50	TSOP2(44)	Mass Production
	K6T4008C1C	512x8	4.5 - 5.5	55,70	C,I	55	30	32DIP,32SOP,TSOP2(32)	Mass Production
	K6X4016C3F	256x16	4.5 - 5.5	55,70	I,A	50	20,30	TSOP2(44)	Mass Production
	K6X4008C1F	512x8	4.5 - 5.5	55,70	I,A	40	20,30	32DIP,32SOP,TSOP2(32)	Mass Production
1M bit	K6T1008C2E	128x8	4.5 - 5.5	55,70	C,I	50	10	32DIP,32SOP,TSOP1(32)	EOL
	K6X1008C2D	128x8	4.5 - 5.5	55,70	I,A	35	15,25	32DIP,32SOP,TSOP1(32)	Mass Production
256K bit	K6T0808C1D	32x8	4.5 - 5.5	55,70	C,I	60	5	28SOP,TSOP1(28)	EOL
	K6X0808C1D	32x8	4.5 - 5.5	55,70	C,I	35	25	28SOP,TSOP1(28)	Mass Production

LOW VOLTAGE & LOW POWER SRAM

Density	Part Number	Organization	Vcc (V)	Speed (ns)	Operating Temp	Operating Current (mA)	Standby Current (uA)	Package	Production Status
8M bit	K6X8008T2B	1024Kx8	2.7 - 3.6	55,70	C,I	40	40	TSOP2(44)	Mass Production
	K6X8016T3B	512Kx16	2.7 - 3.6	55,70	C,I	45	40	TSOP2(44)	Mass Production
	K6F8016U3A	512Kx16	2.7 - 3.3	55,70	I	4	0.5	TSOP2(44)	EOL
	K6F8016V3A	512Kx16	3.0 - 3.6	55,70	I	4	1	TSOP2(44)	EOL
4M bit	K6T4008U1C	512x8	2.7 - 3.3	100	C,I	30	20	32SOP,TSOP2(32)	EOL
	K6T4016U3C	256x16	2.7 - 3.3, 3.0 - 3.6	55,70,85,100	C,I	45	15,20	TSOP2(44)	EOL
	K6T4008V1C	512x8	3.0 - 3.6	70,85	C,I	30	20	32SOP,TSOP2(32)	EOL
	K6T4016V3C	256x16	3.0 - 3.6	55,70,85,100	C,I	45	15,20	TSOP2(44)	EOL
	K6X4008T1F	512x8	2.7 - 3.6	70,85	I,A	30	20,30	32SOP,TSOP2(32)	Mass Production
	K6X4016T3F	256x16	2.7 - 3.6	70,85	I,A	40	20,30	TSOP2(44)	Mass Production
1M bit	K6T1008U2E	128x8	2.7 - 3.3	70,100	C,I	30	10	32SOP,32TSOP1	EOL
	K6T1008V2E	128x8	3.0 - 3.6	70,100	C,I	30	10	32SOP,32TSOP1	EOL
	K6F1008U2C	128x8	2.7 - 3.3	55,70	I	2	0.5	32TSOP1	Mass Production
	K6X1008T2D	128x8	2.7 - 3.6	70,85	I,A	25	10,20	32DIP,32SOP,TSOP2(32)	Mass Production
	K6F1008V2C	128x8	3.0 - 3.6	55,70	I	3	0.5	32TSOP1	Mass Production

MICRO POWER & LOW VOLTAGE SRAM

Density	Part Number	Organization	Vcc (V)	Speed (ns)	Operating Temp	Operating Current (mA)	Standby Current (uA)	Package	Production Status
32M bit	K6F3216R6M	1x16	1.65 - 1.95	70,85	I	3mA	40uA	55-TBGA	Mass Production
16M bit	K6F1616U6A	1x16	2.7 - 3.3	55,70	I	3	1	48-TBGA	Mass Production
	K6F1616R6A	1x16	1.65 - 2.2	70,85	I	3	1	48-TBGA	Mass Production
	K6F1616U6B	1x16	2.7 - 3.3	55,70	I	3	1	48-TBGA	Mass Production
	K6F1616R6B	1x16	1.65 - 2.2	70,85	I	3	1	48-TBGA	Mass Production
8M bit	K6F8016R6B	512x16	1.65 - 2.2	70,85	I	3	1	48-TBGA	Mass Production
	K6F8016U6B	512x16	2.7 - 3.3	55,70	I	4	1	48-TBGA	Mass Production
4M bit	K6F4008R2G	512Kx8	1.65 - 2.20	70,85	I	2	0.5	36TBGA	Mass Production
	K6F4008U2E	512Kx8	2.7 - 3.3	55,70	I	2	1	48TBGA/36TBGA	Mass Production
	K6F4008U2G	512Kx8	2.7 - 3.3	45,55,70	I	2	0.5	36TBGA	Mass Production
	K6F4016R4E	256Kx16	1.65 - 2.20	70,85	I	2	0.5	48TBGA	Mass Production
	K6F4016R6E	256Kx16	1.65 - 2.20	70,85	I	2	0.5	48TBGA	Mass Production
	K6F4016R6G	256Kx16	1.65 - 2.20	70,85	I	2	0.5	48TBGA	Mass Production
	K6F4016U4E	256Kx16	2.7 - 3.3	55,70	I	3	1	48TBGA	Mass Production
	K6F4016U4G	256Kx16	2.7 - 3.3	55,70	I	2	0.5	48TBGA	Mass Production
	K6F4016U6E	256Kx16	2.7 - 3.3	55,70	I	3	1	48TBGA	Mass Production
	K6F4016U6G	256Kx16	2.7 - 3.3	55,70	I	2	0.5	48TBGA	Mass Production
2M bit	K6F2016U4E	128x16	2.7 - 3.3	55,70	I	2	0.5	48-TBGA	Mass Production
	K6F2016R4E	128x16	1.65 - 2.2	70,85	I	2	0.5	48-FBGA	Mass Production
	K6F2008U2E	256x8	2.7 - 3.3	55,70	I	2	0.5	32TSOP1	Mass Production
	K6F2008V2E	256x8	3.0 - 3.6	55,70	I	3	0.5	32TSOP1	Mass Production
1M bit	K6F1016U4C	64x16	2.7 - 3.3	55,70	I	2	0.5	48-FBGA	Mass Production

UTRAM (HIGH DENSITY & LOW POWER)

Density	Part Number	Organization	Vcc (V)	Speed (ns)	Operating	Operating	Standby	Package	Production Status
					Temp	Current (mA)	Current (uA)		
32M bit	K1S321615M	2Mx16	3	100	E	20	150	48-TBGA	EOL
	K1S321611C	2Mx17	3	70	I	35	100	48-FBGA	Mass Production
	K1S321615A	2Mx16	3	85	E	35	100	48-TBGA	Mass Production
16M bit	K1S161615M	1Mx16	3	70	I	20	70	48-TBGA	Mass Production
	K1S1616B1M	1Mx16	1.8	70	I	35	60	48-TBGA	Mass Production

HIGH SPEED (4M BIT) ASYNCHRONOUS FAST SRAM

Density	Part Number	Organization	Vcc (V)	Speed (ns)	Operating	Operating	Standby	Package	Production Status
					Temp	Current (mA)	Current (uA)		
4M bit	K6R4016C1D	256Kx16	5	10, 12	C,I	65, 55	20, 5	44SOJ, 44TSOP2, 48TBGA	Mass Production
	K6R4016V1D	256Kx16	3.3	8, 10	C,L,I,P	80, 65	20, 5(1.2)	44SOJ, 44TSOP2, 48TBGA	Mass Production
	K6R4004C1D	1Mx4	5	10, 12	C,I	65, 55	20, 5	32 SOJ	Mass Production
	K6R4004V1D	1Mx4	3.3	8, 10	C,I	80, 65	20, 5	32 SOJ	Mass Production
	K6R4008C1D	512Kx8	5	10, 12	C,I,P	65, 55	20, 5	36 SOJ, 44 TSOP2	Mass Production
	K6R4008V1D	512Kx8	3.3	8, 10	C,I	80, 65	20, 5	36 SOJ, 44 TSOP2	Mass Production
3M bit	K6R3024V1D	128x24	3.3	9, 10, 12	C,I	170,150,130	40,15	119PBGA	Mass Production
1M bit	K6R1008V1D	128x8	3.3	8, 10, 12	C,I	170,150,130	20,5	32SOJ,32TSOP2	Mass Production
	K6R1008C1D	128x8	5	10, 12, 15	C,I	170,150,130	20,5	32SOJ,32TSOP2	Mass Production
	K6R1004V1D	256x4	3.3	8, 10, 12	C,I	170,150,130	20,5	32SOJ	Mass Production
	K6R1004C1D	256x4	5	10, 12, 15	C,I	170,150,130	20,5	32SOJ	Mass Production
	K6R1016V1D	64x16	3.3	8, 10, 12	C,I	170,150,130	20,5	44SOJ,44TSOP2,48TBGA	Mass Production
	K6R1016C1D	64x16	5	10, 12, 15	C,I	170,150,130	20,5	44SOJ,44TSOP2,48TBGA	Mass Production

SPB & FT (32M BIT) SRAM

Part Number	Organization	Operating	Access Time	Speed	I/O	Production			
		Mode					Vdd (V)	tCD(ns)	tCYC (MHz)
K7A323600M	1Mx36	SPB	3.3	2.6, 3.1, 4.0	250, 200, 138	3.3, 2.5	100TQFP	Mass Production	2E1D
K7A321800M	2Mx18	SPB	3.3	2.6, 3.1, 4.0	250, 200, 138	3.3, 2.5	100TQFP	Mass Production	2E1D
K7B323625M	1Mx36	SB	3.3	6.5, 7.5	133, 118, 100	3.3, 2.5	100TQFP	Mass Production	-
K7B321825M	2Mx18	SB	3.3	6.5, 7.5	133, 118, 100	3.3, 2.5	100TQFP	Mass Production	-

NOTES: 1. 2E1D stands for 2 cycle Enable and 1 cycle Disable

SPB & FT (16M BIT) SRAM

Part Number	Organization	Operating	Access Time	Speed	I/O	Production			
		Mode					Vdd (V)	tCD (ns)	tCYC (MHz)
K7A163600A	512Kx36	SPB	3.3	2.6, 3.1, 3.5, 4.0	250, 167, 138	3.3, 2.5	100TQFP	Mass Production	2E1D
K7A163601A	512Kx36	SPB	3.3	2.6, 3.1, 3.5, 4.0	200, 167	3.3, 2.5	100TQFP	Mass Production	2E2D
K7A161800A	1Mx18	SPB	3.3	2.6, 3.1, 3.5, 4.0	250, 167, 138	3.3, 2.5	100TQFP	Mass Production	2E1D
K7A161801A	1Mx18	SPB	3.3	2.6, 3.1, 3.5, 4.0	200, 167	3.3, 2.5	100TQFP	Mass Production	2E2D
K7B163625A	512Kx36	SB	3.3	7.5, 8.5	118, 100	3.3, 2.5	100TQFP	Mass Production	-
K7B161825A	1Mx18	SB	3.3	7.5, 8.5	118, 100	3.3, 2.5	100TQFP	Mass Production	-

NOTES: 1. 2E1D stands for 2 cycle Enable and 1 cycle Disable
2. 2E2D stands for 2 cycle Enable and 2 cycle Disable

SPB & FT (8M BIT) SRAM

Part Number	Organization	Operating Mode	Vdd (V)	Access Time tCD(ns)	Speed tCYC (MHz)	I/O Voltage (V)	Package	Production Status	Comments
K7A803600B	256x36	SPB	3.3	3.5,3.8	167,138	3.3,2.5	100TQFP	Mass Production	2E1D
K7A803609B	256x36	SPB	3.3	2.6	250	3.3,2.5	100TQFP	Mass Production	2E1D
K7A801800B	512x18	SPB	3.3	3.5,3.8	167,138	3.3,2.5	100TQFP	Mass Production	2E1D
K7A801809B	512x18	SPB	3.3	2.6	250	3.3,2.5	100TQFP	Mass Production	2E1D
K7B803625B	256x36	SB	3.3	6.5,7.5	133,117	3.3,2.5	100TQFP	Mass Production	-
K7B801825B	512x18	SB	3.3	6.5,7.5	133,117	3.3,2.5	100TQFP	Mass Production	-

NOTES: 1. 2E1D stands for 2 cycle Enable and 1 cycle Disable
2. 2E2D stands for 2 cycle Enable and 2 cycle Disable

SPB & FT (4M BIT) SRAM

Part Number	Organization	Operating Mode	Vdd (V)	Access Time tCD(ns)	Speed tCYC (MHz)	I/O Voltage (V)	Package	Production Status	Comments
K7A403600B	128Kx36	SPB	3.3	3.5, 4.0	167, 138	3.3, 2.5	100 TQFP	Mass Production	2E1D
K7A401800B	256Kx18	SPB	3.3	3.5, 4.0	167, 138	3.3, 2.5	100 TQFP	Mass Production	2E1D
K7A403609B	128Kx36	SPB	3.3	2.4, 2.8	250, 200	3.3, 2.5	100 TQFP	Mass Production	2E1D
K7A401809B	256Kx18	SPB	3.3	2.4, 2.8	250, 200	3.3, 2.5	100 TQFP	Mass Production	2E1D
K7A403200B	128Kx32	SPB	3.3	3.5, 4.0	167, 138	3.3, 2.5	100 TQFP	Mass Production	2E1D
K7B403625B	128Kx36	SB	3.3	6.5, 7.5	133, 118	3.3, 2.5	100 TQFP	Mass Production	-
K7B401825B	256Kx18	SB	3.3	6.5, 7.5	133, 118	3.3, 2.5	100 TQFP	Mass Production	-

NOTES: 1. 2E1D stands for 2 cycle Enable and 1 cycle Disable
2. 2E2D stands for 2 cycle Enable and 2 cycle Disable

SPB & FT (2M BIT) SRAM

Part Number	Organization	Operating Mode	Vdd (V)	Access Time tCD(ns)	Speed tCYC (MHz)	I/O Voltage (V)	Package	Production Status	Comments
K7A203600B	64Kx36	SPB	3.3	4.0	138	2.5, 3.3	100 TQFP	Mass Production	2E1D
K7A203200B	64Kx32	SPB	3.3	4.0	138	2.5, 3.3	100 TQFP	Mass Production	2E1D

NOTES: 1. 2E1D stands for 2 cycle Enable and 1 cycle Disable
2. 2E2D stands for 2 cycle Enable and 2 cycle Disable

SPB & FT (32M BIT) NTRAM

Part Number	Organization	Operating Mode	Vdd (V)	Access Time tCD(ns)	Speed tCYC (MHz)	I/O Voltage (V)	Package	Production Status	Comments
K7N323645M	1Mx36	SPB	2.5	2.6, 3.2, 3.5, 4.2	250, 200, 167, 133	2.5	100TQFP, 165FBGA	Mass Production	
K7N321845M	2Mx18	SPB	2.5	2.6, 3.2, 3.5, 4.2	250, 200, 167, 133	2.5	100TQFP, 165FBGA	Mass Production	
K7N323601M	1Mx36	SPB	3.3	2.6, 3.2, 3.5, 4.2	250, 200, 167, 133	3.3, 2.5	100TQFP, 165FBGA	Mass Production	
K7N321801M	2Mx18	SPB	3.3	2.6, 3.2, 3.5, 4.2	250, 200, 167, 133	3.3, 2.5	100TQFP, 165FBGA	Mass Production	
K7M323625M	1Mx36	FT	3.3	7.5	118	3.3, 2.5	100TQFP	Mass Production	
K7M321825M	2Mx18	FT	3.3	7.5	118	3.3, 2.5	100TQFP	Mass Production	

SPB & FT (16M BIT) NTRAM

Part Number	Organization	Operating Mode	Vdd (V)	Access Time tCD(ns)	Speed tCYC (MHz)	I/O Voltage (V)	Package	Production Status	Comments
K7N161801A	1Mx18	SPB	3.3	2.6, 3.2, 3.5, 4.2	250, 200, 167, 133	3.3, 2.5	100TQFP, 165FBGA	Mass Production	
K7N163601A	512Kx36	SPB	3.3	2.6, 3.2, 3.5, 4.2	250, 200, 167, 133	3.3, 2.5	100TQFP, 165FBGA	Mass Production	
K7N163645A	512Kx36	SPB	2.5	2.6, 3.2, 3.5, 4.2	250, 200, 167, 133	2.5	100TQFP, 165FBGA	Mass Production	
K7N161845A	1Mx18	SPB	2.5	2.6, 3.2, 3.5, 4.2	250, 200, 167, 133	2.5	100TQFP, 165FBGA	Mass Production	
K7M161825A	1Mx18	FT(SB)	3.3	6.5, 7.5	133, 117	3.3, 2.5	100TQFP	Mass Production	
K7M163625A	512Kx36	FT(SB)	3.3	6.5, 7.5	133, 117	3.3, 2.5	100TQFP	Mass Production	

SPB & FT (8M BIT) NTRAM

Part Number	Organization	Operating Mode	Vdd (V)	Access Time tCD(ns)	Speed tCYC (MHz)	I/O Voltage (V)	Package	Production Status
K7N803601B	256Kx36	SPB	3.3	3.5, 4.2	167,133	3.3,2.5	100TQFP	Mass Production
K7N801801B	512Kx18	SPB	3.3	3.5, 4.2	167,133	3.3,2.5	100TQFP	Mass Production
K7N803609B	256Kx36	SPB	3.3	2.6	250	3.3,2.5	100TQFP	Mass Production
K7N801809B	512Kx18	SPB	3.3	2.6	250	3.3,2.5	100TQFP	Mass Production
K7N803645B	256Kx36	SPB	2.5	3.5, 4.2	167,133	2.5	100TQFP	Mass Production
K7N801845B	512Kx18	SPB	2.5	3.5, 4.2	167,133	2.5	100TQFP	Mass Production
K7N803649B	256Kx36	SPB	2.5	2.6	250	2.5	100TQFP	Mass Production
K7N801849B	512Kx18	SPB	2.5	2.6	250	2.5	100TQFP	Mass Production
K7M801825B	512Kx18	FT	3.3	6.5,7.5	133,117	3.3, 2.5	100TQFP	Mass Production
K7M803625B	256Kx36	FT	3.3	6.5,7.5	133,117	3.3, 2.5	100TQFP	Mass Production

SPB & FT (4M BIT) NTRAM

Part Number	Organization	Operating Mode	Vdd (V)	Access Time tCD(ns)	Speed tCYC (MHz)	I/O Voltage (V)	Package	Production Status
K7N403601B	128Kx36	SPB	3.3	3.5, 4.2	167,133	3.3,2.5	100 TQFP	Mass Production
K7N401801B	256Kx18	SPB	3.3	3.5, 4.2	167,133	3.3,2.5	100 TQFP	Mass Production
K7N403609B	128Kx36	SPB	3.3	2.6, 3.0	250,200	3.3,2.5	100 TQFP	Mass Production
K7N401809B	256Kx18	SPB	3.3	2.6, 3.0	250,200	3.3,2.5	100 TQFP	Mass Production

LATE WRITE R-R (16M BIT) SRAM

Part Number	Organization	Operating Mode	Vdd (V)	Access Time tCD(ns)	Speed tCYC (MHz)	I/O Voltage (V)	Package	Production Status
K7P161866A	1Mx18	SP	2.5	2	250	1.5 (Max.1.9)	119BGA	Mass Production
K7P163666A	512Kx36	SP	2.5	1.6	300,250	1.5 (Max.1.9)	119BGA	Mass Production

LATE WRITE R-R (8M BIT) SRAM

Part Number	Organization	Operating Mode	Vdd (V)	Access Time tCD(ns)	Speed tCYC (MHz)	I/O Voltage (V)	Package	Production Status
K7P801811B	512Kx18	SP	3.3	1.5,1.6,2.0	333,300,250	1.5 (Max.2.0)	119BGA	Mass Production
K7P801866B	512Kx18	SP	2.5	1.5,1.6,2.0	333,300,25	1.5 (Max.2.0)	119BGA	Mass Production
K7P803611B	256Kx36	SP	3.3	1.5,1.6,2.0	333,300,250	1.5 (Max.2.0)	119BGA	Mass Production
K7P803666B	256Kx36	SP	2.5	1.5, 1.6, 2.0	333, 300,250	1.5 (Max.2.0)	119BGA	Mass Production
K7P801822B	512Kx18	SP	3.3	1.5, 1.6, 2.0	333, 300,250	2.5/3.3	119BGA	Mass Production
K7P803622B	256Kx36	SP	3.3	3.3,2.5,2.0	250,200,166	2.5/3.3	119BGA	Mass Production

LATE WRITE R-R & R-L (4M BIT) SRAM

Part Number	Organization	Operating Mode	Vdd (V)	Access Time tCD(ns)	Speed tCYC (MHz)	I/O Voltage (V)	Package	Production Status
K7P401822B	256Kx18	SP	3.3	2.5,2.7,3.0	250,200,167	2.5/3.3	119BGA	Mass Production
K7P401823B	256Kx18	SP	3.3	6.5	167	2.5/3.3	119BGA	Mass Production
K7P403622B	128Kx36	SP	3.3	2.5,2.7,3.0	250,200,167	2.5/3.3	119BGA	Mass Production

DDR1 (16MB) SRAM

Part Number	Organization	Vdd (V)	Access Time tCD (ns)	Cycle Time (MHz)	I/O Voltage (V)	Package	Production Status
K7D161874B	1Mx18	1.8~2.5	2.3	330/300	1.5	153BGA	ES Samples
K7D163674B	512Kx36	1.8~2.5	2.3	330/300	1.5	153BGA	ES Samples

DDR1 (8MB) SRAM

Part Number	Organization	Vdd (V)	tCD (ns)	Access Time (MHz)	Cycle Time Voltage (V)	I/O Package	Production Status
K7D803671B	256Kx36	2.5	1.7/1.9/2.1	333/330/250	1.5(Max 2.0)	153BGA	Mass Production
K7D801871B	512Kx18	2.5	1.7/1.9/2.1	333/330/250	1.5(Max 2.0)	153BGA	Mass Production

DDR1 (16MB) CIO/SIO SRAM

Part Number	Organization	Vdd (V)	tCD (ns)	Access Time (MHz)	Cycle Time Voltage (V)	I/O Package	Production Status	Comments
K7I161882B	1Mx18	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	CIO-2B
K7I161884B	1Mx18	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	CIO-4B
K7J161882B	1Mx18	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	SIO-2B
K7J163682B	512Kx36	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	SIO-2B
K7I163682B	512Kx36	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	CIO-2B
K7I163684B	512Kx36	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	CIO-4B

NOTES: 1. 2B stands for Burst of 2

2. 4B stands for Burst of 4

3. SIO is Separate I/O

4. CIO is Common I/O

QDR (16M BIT) SRAM

Part Number	Organization	Vdd (V)	tCD (ns)	Access Time (MHz)	Cycle Time Voltage (V)	I/O Package	Production Status	Comments
K7R160982B	2Mx9	1.8	0.45,0.50	200,167	1.5,1.8	165FBGA	Mass Production	QDR II - 2B
K7R161882B	1Mx18	1.8	0.45,0.50	200,167	1.5,1.8	165FBGA	Mass Production	QDR II - 2B
K7R161884B	1Mx18	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	QDR II - 4B
K7Q161852A	1Mx18	2.5	2.5,3.0	167,133	1.5,1.8	165FBGA	Mass Production	QDR I - 2B
K7Q161854A	1Mx18	2.5	2.5,3.0	167,133	1.5,1.8	165FBGA	Mass Production	QDR I - 4B
K7Q161882A	1Mx18	1.8	2.7,3.0	167,133	1.5,1.8	165FBGA	Mass Production	QDR I - 2B
K7Q161884A	1Mx18	1.8	2.5,3.0	167,133	1.5,1.8	169FBGA	Mass Production	QDR I - 4B
K7Q161862B	1Mx18	1.8v / 2.5v	2.5	167	1.5,1.8	165FBGA	Mass Production	QDR I - 2B
K7Q161864B	1Mx18	1.8v / 2.5v	2.5	167	1.5,1.8	165FBGA	Mass Production	QDR I - 4B
K7R163682B	512Kx36	1.8	0.45,0.50	200,167	1.5,1.8	165FBGA	Mass Production	QDR II - 2B
K7R163684B	512Kx36	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	QDR II - 4B
K7Q163652A	512Kx36	2.5	2.5,3.0	167,133	1.5,1.8	165FBGA	Mass Production	QDR I - 2B
K7Q163654A	512Kx36	2.5	2.5,3.0	167,133	1.5,1.8	165FBGA	Mass Production	QDR I - 4B
K7Q163682A	512Kx36	1.8	2.7,3.0	167,133	1.5,1.8	165FBGA	Mass Production	QDR I - 2B
K7Q163684A	512Kx36	1.8	2.5,3.0	167,133	1.5,1.8	165FBGA	Mass Production	QDR I - 4B
K7Q163662B	512Kx36	1.8v / 2.5v	2.5	167	1.5,1.8	165FBGA	Mass Production	QDR I - 2B
K7Q163664B	512Kx36	1.8v / 2.5v	2.5	167	1.5,1.8	165FBGA	Mass Production	QDR I - 4B

NOTES: 1. 2B stands for Burst of 2

2. 4B stands for Burst of 4

DDR2 CIO/SIO (32MB) SRAM

Part Number	Organization	Vdd (V)	tCD (ns)	Access Time (MHz)	Cycle Time Voltage (V)	I/O Package	Production Status	Comments
K7I321882M	2Mx18	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	CIO-2B
K7I321884M	2Mx18	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	CIO-4B
K7J321882M	2Mx18	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	SIO-2B
K7I323682M	1Mx36	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	CIO-2B
K7I323684M	1Mx36	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	CIO-4B
K7J323682M	1Mx36	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	SIO-2B

NOTES: 1. 2B stands for Burst of 2

2. 4B stands for Burst of 4

3. SIO is Separate I/O

4. CIO is Common I/O

QDR (32M BIT) SRAM

Part Number	Organization	Vdd (V)	tCD (ns)	Access Time (MHz)	Cycle Time Voltage (V)	I/O Package	Production Status	Comments
K7R320982M	4Mx9	1.8	0.45,0.50	200,167	1.5,1.8	165FBGA	Mass Production	QDR II-2B
K7R321882M	2Mx18	1.8	0.45,0.50	200,167	1.5,1.8	165FBGA	Mass Production	QDR II-2B
K7R321884M	2Mx18	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	QDR II-4B
K7R323682M	1Mx36	1.8	0.45,0.50	200,167	1.5,1.8	165FBGA	Mass Production	QDR II-2B
K7R323684M	1Mx36	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	165FBGA	Mass Production	QDR II-4B

NOTES: 1. 2B stands for Burst of 2

2. 4B stands for Burst of 4

ASYNCHRONOUS SRAM ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	

1. Memory (K)

E : 6th Generation

- WAFER, CHIP BIZ Level Division

2. Async SRAM : 6

F : 7th Generation

0 : NONE,NONE

G : 8th Generation

1 : Hot DC sort

H : 9th Generation

2 : Hot DC,selected AC sort

3 : Cold/Hot DC,selected AC sort

3. Small Classification

E : Corner Vcc/Vss + Fast SRAM

F : fCMOS Cell + LPSRAM

H : High Speed(LPSRAM)

X : High Voltage(LPSRAM)

J : BICMOS

L : Poly Load Cell + LPSRAM

R : Center Vcc/Vss + Fast SRAM

T : TFT Cell + LPSRAM

11. " ----"

12. Package

A : TBGA(LF)

B : SOP(LF)

C : CHIP BIZ

D : DIP

E : TBGA

F : FBGA

G : SOP

H : BGA

J : SOJ

K : SOJ(LF)

L : TSOP1-0813.4F(LF)

P : TSOP1-0820F(LF)

Q : TSOP2-400R(LF)

R : TSOP-R

T : TSOP

U : TSOP2-400(LF)

W : WAFER

Z : UBGA

* Exception

- 1MFSRAM B-ver

32-SOJ-300 > S

28-SOJ-300 > S

- 512K/1M/2M/4M LPSRAM

32-TSOP1-0813.4F > Y

32-TSOP1-0813.4 > Y

32-TSOP1-0813.4R > N

- 4M LPSRAM

32-TSOP2-400F > V

32-TSOP2-400R > M

14~15. Speed (tAA)

- fCMOS Cell + LPSRAM & Poly Load Cell +

LPSRAM & TFT Cell + LPSRAM

10 : 100ns

12 : 120ns

15 : 150ns

25 : 25ns(only fCMOS Cell)

30 : 300ns

35 : 35ns(except Poly Load Cell)

45 : 45ns(except fCMOS Cell)

55 : 55ns

60 : 60ns(only fCMOS Cell)

70 : 70ns

85 : 85ns

90 : 90ns(only fCMOS Cell)

DS : Daisychain Sample

- High Speed (LPSRAM)

20 : 20ns

25 : 25ns

- High Voltage (LPSRAM)

55 : 55ns

70 : 70ns

85 : 85ns

- Corner Vcc/Vss + Fast SRAM

10 : 10ns

12 : 12ns

13 : 13ns

15 : 15ns

17 : 17ns

20 : 20ns

25 : 25ns

30 : 30ns

35 : 35ns

45 : 45ns

- BICMOS & Center Vcc/Vss + Fast SRAM

06 : 6ns

08 : 8ns

09 : 9ns

10 : 10ns

12 : 12ns

13 : 13ns

15 : 15ns

17 : 17ns

20 : 20ns

25 : 25ns

30 : 30ns(only Center Vcc/Vss + Fast SRAM)

35 : 35ns(only Center Vcc/Vss + Fast SRAM)

7A : 7.2ns(only BICMOS)

8A : 8.6ns(only BICMOS)

DS : Daisychain Sample

- Async SRAM COMMON

00 : NONE

(Containing Wafer, CHIP BIZ, Exception code)

4~5. Density

06 : 64K

08 : 256K

09 : 512K

10 : 1M

16 : 16M

20 : 2M

30 : 3M

32 : 32M

40 : 4M

60 : 6M

64 : 64M

80 : 8M

6~7. Organization

01 : x1

04 : x4

08 : x8

16 : x16

18 : x18

24 : x24

32 : x32

8. Vcc

5 : 1.5V

C : 5.0V

Q : VDD 3.0V/VDDQ 1.8V

R : 1.65V~2.2V

S : 2.5V

T : 2.7V~3.6V

U : 3.0V

V : 3.3V

W : 2.2V~3.3V

9. Mode

1 : CS Low Active

2 : CS1, CS2 - Dual Chip Select Signal

3 : Single Chip Select with /LB,/UB(tOE)

4 : Single Chip Select with /LB,/UB(tCS)

5 : Dual Chip Select with /LB,/UB(tOE)

6 : Dual Chip Select with /LB,/UB(tCS)

7 : I/Os Control with /BYTE

8 : CDMA Function

9 : Multiplexed Address

A : Mirror Chip Option

13. 1st Chip Speed

- COMMON (Temp,Power)

A : Automotive,Normal

B : Commercial,Low Low

C : Commercial,Normal

D : Extended,Low Low

E : Extended,Normal

F : Industrial,Low Low

I : Industrial,Normal

L : Commercial,Low

M : Military,Normal

N : Extended,Low

P : Industrial,Low

Q : Automotive,Low

R : Industrial,Super Low

T : Extended,Super Low

U : Commercial,Ultra Super Low

0 : NONE,NONE

16. Packing "Packing Type Reference"

17~18. Customer (Special handling) code

SRAM ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Memory (K)			4~5. Density									25 : 3.3V,LVTTL,SB-FT WIDE					
2. Sync SRAM : 7			10 : 1M									30 : 1.8/2.5/3.3V,LVTTL,2E1D					
			20 : 2M									31 : 1.8/2.5/3.3V,LVTTL,2E2D					
3. Small Classification			40 : 4M									35 : 1.8/2.5/3.3V,LVTTL,SB-FT					
			64 : 64M									44 : 2.5V,LVTTL,2E1D					
			80 : 8M									45 : 2.5V,LVTTL,2E2D					
A : Sync Pipelined Burst			6~7. Organization									49 : 2.5V,LVTTL,Hi SPEED					
B : Sync Burst			08 : x8									52 : 2.5V,1.5/1.8V,HSTL,Burst2					
C : Custom Product			18 : x18									54 : 2.5V,1.5/1.8V,HSTL,Burst4					
D : Double Data Rate			32 : x32									62 : 2.5V/1.8V,HSTL,Burst2					
E : Double Data Rate 3-Clk Align			36 : x36									64 : 2.5V/1.8V,HSTL,Burst4					
H : Double Data Rate I-Common I/O			44 : x144									66 : 2.5V,HSTL,R-R					
I : Double Data Rate II-Common I/O			72 : x72									70 : 2.5V,HSTL,4-1-1-1					
J : Double Data Rate-Seperate I/O			8~9. Vcc,Interface,Mode									71 : 2.5V,HSTL,3-1-1-1					
L : Late Select			00 : 3.3V,LVTTL,2E1D WIDE									73 : 1.5V,1.8V,HSTL,All					
M : Sync Burst + NtRAM			01 : 3.3V,LVTTL,2E2D WIDE									74 : 1.8V,2.5V,HSTL,All					
N : Sync Pipelined Burst + NtRAM			08 : 3.3V,LVTTL,2E2D Hi SPEED									80 : 1.8V,LVCMOS,2E1D					
P : Sync Pipe			09 : 3.3V,LVTTL,Hi SPEED									82 : 1.8V,HSTL,Burst2					
Q : Quad Data Rate I			11 : 3.3V,HSTL,R-R									84 : 1.8V,HSTL,Burst4					
R : Quad Data Rate II			12 : 3.3V,HSTL,R-L									85 : 1.8V,LVCMOS,2E2D,Hi SPEED					
U : CSRAM			14 : 3.3V,HSTL,R-R Fixed ZQ									88 : 1.8V,HSTL,R-R					
Z : DLW RAM			22 : 3.3V,LVTTL,R-R									91 : 1.5V,HSTL,All					
			23 : 3.3V,LVTTL,R-L									95 : 1.0V,HSTL,All					

SRAM ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	

10. Generation

- M : 1st Generation
- A : 2nd Generation
- B : 3rd Generation
- C : 4th Generation
- D : 5th Generation
- Z : TEMPORARY CODE

11. "ζw"

12. Package

- H : BGA,FCBGA,PBGA
- G : BGA,FCBGA,PBGA(LF)
- F : FBGA Q : (L)QFP
- C : CHIP BIZ W : WAFER

13. Temp,Power

- **COMMON (Temp,Power)**
- 0 : NONE,NONE (Containing of Error handling code)
- A : Automotive,Normal
- B : Commercial,Low Low
- C : Commercial,Normal
- E : Extended,Normal
- I : Industrial,Normal
- **WAFER, CHIP BIZ Level Division**
- 0 : NONE,NONE
- 1 : Hot DC sort
- 2 : Hot DC,selected AC sort

14~15. Speed

- **Sync Burst,Sync Burst + NtRAM**
- & < Mode is R-L >**(Clock Accesss Time)
- 10 : 10ns(Sync Burst, Sync Burst + NtRAM)
- 38 : 3.8ns 43 : 4.3ns
- 48 : 4.8ns
- 50 : 5ns(Only Sync Pipe)
- 55 : 5.5ns 60 : 6ns
- 65 : 6.5ns 67 : 6.7ns
- 70 : 7ns 75 : 7.5ns
- 80 : 8ns 85 : 8.5ns
- 90 : 9ns

- Other Small Classification (Clock Cycle Time)

- 10 : 100MHz 11 : 117MHz
- 13 : 133MHz 14 : 138MHz
- 15 : 150MHz 16 : 166MHz
- 17 : 175MHz 18 : 183MHz
- 19 : 143MHz 20 : 200MHz
- 21 : 200MHz(2.0ns) 22 : 225MHz
- 25 : 250MHz
- 26 : 250MHz(1.75ns) 27 : 275MHz
- 30 : 300MHz 33 : 333MHz
- 35 : 350MHz
- 36 : 366MHz(t-CYCLE) 37 : 375MHz
- 40 : 400MHz(t-CYCLE) 42 : 425MHz
- 45 : 450MHz
- 50 : 500MHz(except Sync Pipe)
- 6A : 600MHz 6F : 650Mhz(Only CSRAM)
- 7F : 750MHz

16. Packing "Packing Type Reference (To last page)

17~18. Customer "Customer List Reference"

SRAM ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	

Packing Type (16 digit)

Common to all products, except of Mask ROM
 Divided into TAPE & REEL (In Mask ROM, divided into TRAY, AMMO Packing Separately))

Type	Packing Type	New Marking	Old Marking
Component	TAPE & REEL	T	R
	Other (Tray, Tube, Jar)	0 (Number)	1 (Number)
	Stack	S	
Component (Mask ROM)	TRAY	Y	
	AMMO PACKING	A	
Module	MODULE TAPE & REEL	P	
	MODULE Other Packing	M	N



SAMSUNG



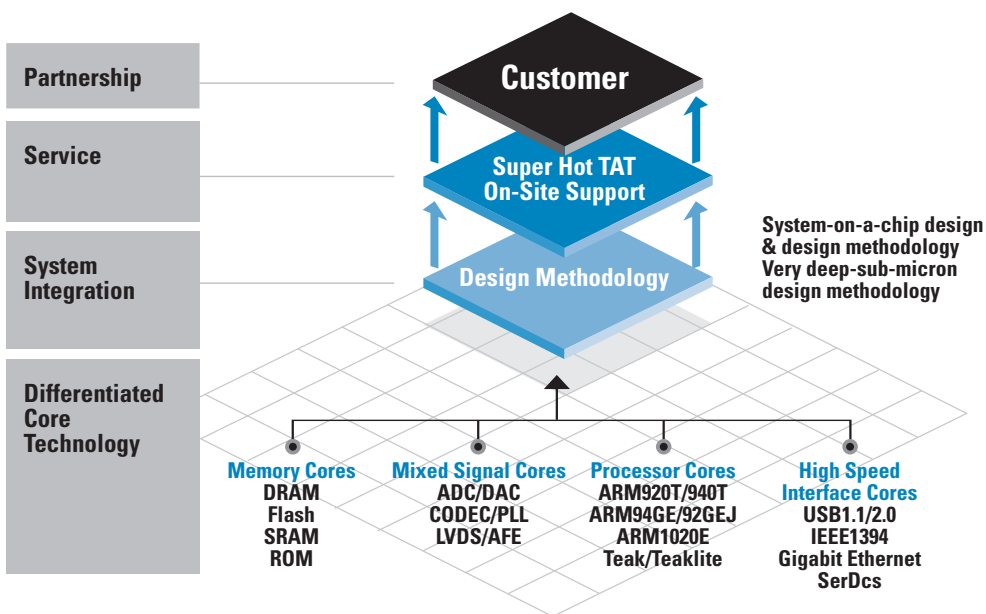
System LSI

As a technology leader in System LSI, we offer advanced System-On-A-Chip (SOC) and custom ASIC solutions, manufactured on dedicated fabrication lines that support deep submicron technology. Our extensive array of logic solutions includes microcontrollers, display driver ICs and network processors.

SECTION B	PAGE
ASIC	3b – 6b
ASIC ORDERING INFORMATION	7b
LCD DRIVER IC	8b – 9b
LCD DRIVER IC ORDERING INFORMATION	10b
MOBILE APPLICATION PROCESSORS	11b
HDTV / SET-TOP BOX PRODUCTS	12b
MICROCONTROLLERS (MCU)	13b – 17b
MICROCONTROLLERS (MCU)	
ORDERING INFORMATION	18b – 19b
EEPROMS	20b
EEPROMS ORDERING INFORMATION	21b
OPTICAL MEDIA SOLUTIONS	22b – 23b
HARD DISK DRIVES	23b

SAMSUNG ASIC

The best solution from design to chip



ASIC TECHNOLOGY LIBRARY

Technology Name	Library Name(s)	Description	Core Voltage (Nominal) (V)	Core Voltage Tolerance (V)	I/O Receive Voltage (V)	I/O Drive Voltage (V)	Maximum Vgs (V)
LF13	MFL150	0.13µm Merged Flash Memory with Logic	1.2	-0.1	2.5/3.3/5.0T	2.5/3.3	3.3
LD13	MDL150	0.13µm Merged DRAM with Logic	1.2	-0.1	2.5/3.3/5.0T	2.5/3.3	3.3
L13	STDH150	0.13µm High-Speed Standard Cell with L13HS	1.2	-0.1	2.5/3.3/5.0T	2.5/3.3	3.3
	STDH150HD	0.13µm High-Density Standard Cell with L13HS	1.2	-0.1	2.5/3.3/5.0T	2.5/3.3	3.3
	STD150	0.13µm High-Density Standard Cell with L13G	1.2	-0.1	2.5/3.3/5.0T	2.5/3.3	3.3
	STD150HS	0.13µm High-Speed Standard Cell with L13G	1.2	-0.1	2.5/3.3/5.0T	2.5/3.3	3.3
	STD150HVT	"0.13µm Low-Leakage and High-Density Standard Cell with L13G High-VTH option"	1.2	-0.1	2.5/3.3/5.0T	2.5/3.3	3.3
	STD150OD	"0.13µm High-Speed Standard Cell with L13G Over-Drive option"	1.5	-0.1	2.5/3.3/5.0T	2.5/3.3	3.3
	STD150HVTOD	"0.13µm Low-Leakage and High-Density Standard Cell with L13G High-VTH and Over-Drive option"	1.5	-0.1	2.5/3.3/5.0T	2.5/3.3	3.3
	STDL150	"0.13µm Low Leakage and High-Density Standard Cell with L13LP"	1.5	-0.1	1.5/2.5/3.3/5.0T	1.5/2.5/3.3	3.3
LF18	MFL130	0.18µm Merged Flash Memory with Logic	1.8	-0.15	1.8/2.5/3.3/5.0T	1.8/2.5/3.3	3.3
LD18	MDL130	0.18µm Merged DRAM with Logic	1.8	-0.15	1.8/2.5/3.3/5.0T	1.8/2.5/3.3	3.3
L18	STD130	0.18µm High-Density Standard Cell with L18	1.8	-0.15	1.8/2.5/3.3/5.0T	1.8/2.5/3.3	3.3
	STD131	0.18µm High-Speed Standard Cell with L18	1.8	-0.15	1.8/2.5/3.3/5.0T	1.8/2.5/3.3	3.3
	STDL130	"0.18µm Low Leakage and High-Density Standard Cell with L18LP"	1.8	-0.15	1.8/2.5/3.3/5.0T	1.8/2.5/3.3	3.3
	STDL131	"0.18µm Low Leakage and High Performance Standard Cell with L18LP"	1.8	-0.15	1.8/2.5/3.3/5.0T	1.8/2.5/3.3	3.3
L25	STD110	0.25µm High-Density Standard Cell	2.5	-0.2	2.5/3.3/5.0	2.5/3.3	3.3
	STD110	0.25µm Low Voltage High-Density Standard Cell	1.8	-0.15	2.5/3.3/5.0	2.5/3.3	3.3
	STD111	0.25µm High Performance Standard Cell	2.5	-0.2	2.5/3.3/5.0	2.5/3.3	3.3
LF35	MFL90	0.35µm Merged Flash Memory with Logic	3.3	-0.3	3.3/5.0	3.3	3.3
L35H	STDH90	0.35µm High-Density Standard Cell with dual gate oxide	3.3	-0.3	3.3/5.0	3.3/5.0	5
L35	STD90	0.35µm High-Density Standard Cell	3.3	-0.3	3.3/5.0	3.3	3.3

ASIC CORE LIBRARY

Samsung's deliverables for embedded cores include Verilog/VHDL models, synthesis models, and wire-bonded test chips, including packaged ARM core, TeakDSPCore™, Video Encoder/Decoder, and Ethernet10/100BT MAC/PHY. A software development toolkit, featuring an assembler, a debugger, a compiler and a linker is available. Samsung's ASIC Core Library arsenal provides the following cores and macrocells:

I/O LIBRARY		-----0.35μm-----	0.25μm	0.18μm	-----0.13μm-----		
		STD90 /					
		STDM90	STD110	STD130	STD150HS	STD150G	STD150LP
I/O	CMOS, TTL I/O Buffers	A	A	A	A	A	A
I/O-IP	3/5V tolerant	A	A	A	A	A	A
	Slew control	A	A	A	A	A	A
	PVT impedance control	NA	G	G	G	G	G
	True 5V I/O	A	NA	NA	NA	NA	NA
	AGP4X	NA	NA	NA	NA	NA	NA
	ATA5	A	A	AR	AR	AR	AR
	ATA6	NA	NA	AR	G	AR	AR
	CardBus/PCI	AR	AR	AR	AR	AR	AR
	GTL	A	AR	AR	G	G	G
	HSTL	G	G	AR	G	G	G
	IEEE1284	A	NA	NA	NA	NA	NA
	LVDS	G	AR	AR	AR	AR	AR
	OSC (KHz)	A	A	A	A	A	A
	OSC (MHz)	A	A	A	A	A	A
	PCI	A	A	AR	AR	AR	AR
	PECL	AR	AR	AR	G	G	G
	SSTL	AR	A	AR	AR	AR	AR
	Ultra2- SCSI (LVD)	D	NA	NA	NA	NA	NA
	USB1.1	A	A	A	A	A	A

NOTES: * I/O review sheet (I/O interface for I/O-IP review sheet in NCTS (New Cell Traveler Sheet))

- | | |
|---|---|
| 1 A = Available | 6 E = Under development (design and layout will be finished by the date) |
| 2 AR = Available upon Request | 7 F = Scheduled (design and layout will be finished by the date) |
| 3 B = Under test (test will be finished by the date) | 8 G = Will be developed based upon customer's request (SEC has more than 90% confidence for silicon result) |
| 4 C = In fabrication line (fab. out date) | 9 TBD = To Be Determined |
| 5 D = GDS is available but silicon has not been verified (SEC has more than 90% confidence in silicon result) | 10 NA = Not Available |

* For further information, please contact: jhprk@samsung.co.kr

ASIC DIGITAL CORE

DSP Cores	CPU Cores	Interface Cores	BUS Architecture
<ul style="list-style-type: none"> • SSP1820 (OAK Compatible 16-Bit DSP Core) • TeakLite (TeakLite Compatible 16-Bit DSP Core) • Teak (Teak Compatible 16-Bit DSP Core) 	<ul style="list-style-type: none"> • SAM17(8)X (ARM7TDMI Compatible RISC Processor) • SAM40X (ARM9TDMI Compatible RISC Processor) • SAM42X (ARM920T Compatible RISC Processor) • SAM44X (ARM940T Compatible RISC Processor) • ARM920T (ARM920T Compatible RISC Processor) • ARM940T (ARM940T Compatible RISC Processor) • ARM926EJS (ARM926EJ-S Compatible RISC Processor) • ARM1020E (ARM1020E Compatible RISC Processor) • ETM9 (Embedded Trace Macrocell for ARM9 core) • ETM7 (Embedded Trace Macrocell for ARM7 core) • ARM946E-S (ARM946E-S Compatible RISC Processor) • ARM7TDMI-S (ARM7TDMI-S Compatible RISC Processor) • ARM1136JF-S (ARM1136JF-S Compatible RISC Processor) 	<ul style="list-style-type: none"> USB1.1 Function Controller USB2.0 Function Controller USB1.1 Host Controller USB FS OTG Controller USB2.0 Phy (L18) USB2.0 Phy (L13) IEEE1394a Link IEE1394a DV Link IEEE1394a Phy (L18) PCI Bridge PCI Device PCI2AHB Ethernet MAC (10/100) 	<ul style="list-style-type: none"> • AMBA2.0 (Micro Pack v2.0) • AMBA3.0 (ADK)

ASIC LINE-UP TABLE FOR COMPILED MEMORY

	STD90		STD110		MDL120		STD130		STD130		STDH150		STD150		STD150	
	L35		L25		LD25		L18		L18L		L13HS		L13G		L13LP	
	HD	HD	LP	HD	HD	LP	HD	LP	HD	LP	HD	LP	HD	LP	HD	LP
SPSRAM	A	A	A	A	A	A	A	A	A	A	NA	A	A	AR	A	
SPSRAMBW	A	A	NA	A	A	A	A	A	A	A	NA	A	A	AR	A	
SPSRAMR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	A	A	AR	A	
DPSRAM	A	A	A	A	A	A	A	A	A	A	NA	A	A	AR	A	
DPSRAMBW	NA	NA	NA	NA	A	A	A	A	A	A	NA	A	A	AR	A	
DPSRAMR	NA	NA	NA	NA	NA	NA	NA	NA	A	NA	A	A	AR	A		
SPARAM	A	A	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	AR	NA	
SPARAMBW	NA	NA	NA	NA	A	NA	A	NA	NA	NA	NA	NA	NA	AR	NA	
ARFRAM	NA	A	NA	NA	A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SRRFRAM	NA	NA	NA	NA	NA	NA	NA	NA	A	NA	A	NA	A	NA	NA	
DROM @ Active	A	A	A	A	A	NA	A	NA	NA	NA	NA	NA	NA	NA	NA	
MROM @ Met-2	A	A	A	A	A	NA	A	NA	NA	NA	NA	NA	NA	NA	NA	
VROM @ Via-1	NA	NA	NA	NA	NA	NA	NA	NA	A	NA	A	NA	A	NA	NA	
FIFO	NA	NA	NA	NA	A	NA	A	NA	AR	NA	AR	NA	AR	AR	NA	
CAM	NA	NA	NA	NA	A	NA	A	NA	AR	NA	A	NA	AR	AR	NA	
HCSPSRAM	NA	NA	NA	NA	A	NA	NA	NA	AR	NA	A	NA	AR	AR	NA	
HCVROM @ Via-1	NA	NA	NA	NA	A	NA	NA	NA	AR	NA	A	NA	AR	AR	NA	

NOTES: A = Available AR = Available Upon Request E = Under Development (design and layout will be finished by the date) NA = Not Available

ASIC MIXED SIGNAL IP

High Resolution and Performance for Mixed Signal Cores (Based on Silicon Proven)	Low Voltage Mixed Signal Cores for SoC	Full Customer Support Specific Cores
<ul style="list-style-type: none"> ADC: 1.8V 8-bit 250MHz ADC 1.8V 10-bit 150MHz ADC 3.3V 14-bit 80MHz ADC" DAC: 3.3V 8-bit 300MHz DAC 3.3V 12-bit 80MHz DAC 3.3V 14-bit 40MHz DAC" 1.2V 8-bit 80MHz DAC" PLL : 3.3V 800MHz FSPLL 1.8V 200MHz Pixel Clock Gen 1.2V 230MHz Dithered PLL" CODEC : 3.3V 16-bit Audio DAC 3.3V 16-bit Audio CODEC" 	<ul style="list-style-type: none"> ADC : 1.2V 8-Bit 30MHz ADC 1.2V 10-bit 100MHz ADC" DAC : 1.2V 8-Bit 2MHz DAC PLL : 1.2V 100M/300M/500M FSPLL CODEC : 2.5V 16-bit Audio DAC 	<ul style="list-style-type: none"> Support for Various Kinds of MSC Architectures The Shortest TAT for Customer Specific Cores

ASIC DESIGN TOOLS AND METHODOLOGY / ASIC PACKAGING AND TESTABILITY

Advanced delay predictors, non-linear modeling, and comprehensive EDA tool support (Synopsys, Cadence, Mentor, WattWatcher, Avant!) are integral components of Samsung's ASIC design tools and methodology. This integration enables designers to minimize "design development time" and die size, while maximizing chip-level performance and reliability. Advanced deep submicron tools include Static Timing Analysis Signoff, Formal Verification, and Physical Synthesis.

The ASIC business is more than silicon and packaging, yet a company with strength in packaging is a tremendous asset in delivering a quality product and assuring fast time-to-volume. Samsung's packaging technology covers the gamut of package types and pin counts to accommodate function, power dissipation, and high levels of integration. Samsung's own packaging portfolio is enhanced by its partnership with Amkor, resulting in a wide variety of packaging options (PQFP, TQFP, PLCC, PBGA, mini BGA, flex BGA, SuperBGA and CSP). Samsung's renowned quality is applied to its ASIC business through support of comprehensive test methodologies, such as IEEE 1149.1, Scan ATPG, RAMBIST, Fault Grading, IDDQ, and Mixed Signal Testing.

ASIC FOUNDRY TECHNOLOGY LIBRARY

Technology	Process	Core Voltage	I/O Voltage	Cell Size
Logic	L13	0.13um	1.2~1.5V	SRAM : 1.85~2.43 um ²
	- G/HS/LP/RF/MS L09	90nm	1.0~1.2V	SRAM : 0.79~1.25 um ²
MDL (Embedded DRAM)	LD18	0.18um	1.8V	DRAM : 0.45 um ²
	LD13	0.13um	1.0~1.5V	DRAM : 0.34 um ²
MFL (Embedded Flash)	LF18	0.18um	1.8V	Flash : 0.63 um ²
	LF13	0.13um	1.0~1.5V	Flash : 0.45 um ²
	LFS13	0.13um	1.0~1.5V	Flash : <0.28 um ²
BiCMOS	BH3515	0.35um	15V	3.3V/5V
	BH3505	0.35um	5V	3.3V/5V
	BH1805	0.18um	1.8V	3.3V/5V
	BH1305	0.13um	1.2V~1.5V	2.5/3.3V
RF (SiGe BiCMOS)	BS3550	0.35um	3.3V	ft : 50GHz
	BS1850	0.18um	1.8V	ft : 120GHz
	BS13200	0.13um	1.2V~1.5V	ft : 200GHz

ASIC LEGACY FOUNDRY

Product	Technology	Feature	Production	Comments
CMOS Legacy	2.0um ~ 0.5um	S/D Poly, D/TLM	Foundry	5V with Mixed Signal (Optional)
Hi Voltage CMOS	0.8um ~ 0.13um	S/D Poly, D/TLM	Foundry	12, 13V, 15V, 20V, 30V, 45V
EEPROM	0.8um ~ 0.35um	D Poly, D/TLM	Foundry	
CIS	0.8um ~ 0.5um	S/D Poly, D/TLM	Foundry	B&W, RGB, Full Color

ASIC ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	

1. System LSI (S)

2. Large Classification : ASIC (4)

3. Small Classification

3 : MCP C : COT
 D : MDL F : MFL
 H : Gate Array L : STD Cell
 T : Embedded Cell

4~7.

Serial No

8. Version

A~Z
 *1st Version ~ X

9~10. Mask Option

11. " - "

12. Package Type

B : BGA C : CHIP BIZ
 D : DIP E : LQFP
 F : BCC G : PQ2
 H : SBGA J : ELP
 K : CTBGA L : TBGA
 M : QFP H P : PLCC
 Q : QFP R : TSSOP
 S : SOP T : TQFP
 U : LGA V : SSOP
 W : WAFER X : ETQF
 Y : FBGA Z : TEBGA

13. Reserved

- PKG Option
 0 : none
 1 : PKG Option 1
 2 : PKG Option 2

14. Packing

B : Tube U : Bulk
 R : Tray T : Tape & Reel
 S : Tape & Reel Reverse C : Chip Biz
 D : Chip Biz (3 Inch tray)
 E : Chip Biz (4 Inch tray)
 W : WF Biz Draft Wafer
 X : WF Biz Full Cutting
 7 : Tape & Reel (Pb-Free PKG)
 8 : Tray (Pb-Free PKG)
 9 : Tube (Pb-Free PKG)

15. Custom

Modify- Bonding , Marking , EDS Option ,
 PKG Type or PKG Option
 => Serial Number (0,1,2,3...A,B,C...)

STN CHARACTER LCD DRIVER ICs

Part Number	Segment	CG				Interface (Bit)	VDD (V)	Vlcd (Max. V)	DC/DC Convert (Times)	Package
		Common	ROM (Ch.)	CGRAM (Ch.)						
S6A0031	80	8	10160 (254)	80 (2)	4/8	2.4~5.5	6		Au bump chip	
S6A0032	80	16	10160 (254)	80 (2)	4/8	2.4~5.5	6		Au bump chip	
S6A0065		40				2.7~5.5	13		Bare die/64QFP	
S6A0069	40	16	10080 (236)	512 (8)	4/8	2.7~5.5	13		Bare die/80QFP	
S6A0070	80	16	8320 (224)	512 (8)	4/8	2.7~5.5	10		Bare die/Au bump chip	
S6A0071	60	32	8400 (240)	512 (8)	4/8	2.4~5.5	13	2	Au bump chip/TCP	
S6A0072	40	16	9600 (240)	160 (4)	4/8	2.7~5.5	11		Au bump chip	
S6A0073	60	34	9600 (240)	512 (8)	1/4	2.7~5.5	13	2~3	Bare die	
S6A0074	80	34	9600 (240)	512 (8)	1/4	2.7~5.5	13	2~3	Bare die	
S6A0075	100	34	9600 (240)	512 (8)	1/4	2.7~5.5	13	2~3	Bare die	
S6A0078	120	34	9600 (240)	512 (8)	1/4	2.7~5.5	13	2~3	Bare die/TCP	
S6A0079	120	34	9600 (240)	512 (8)	1/4	2.7~5.5	13	2~3	Bare die	
S6A0090	64	26	10240 (256)	160 (4)	1/4	2.4~5.5	11	2~3	Au bump chip/TCP	
S6A0093	80	26	10240 (256)	320 (8)	1/4	2.4~5.5	6	4	Au bump chip/TCP	
S6A0094*	80	34	21760 (544)	80 (6)	1/4	2.2~3.6	7	4	Au bump chip	
S6A2068	60	16	8320 (224)	512 (8)	4/8	2.7~5.5	10		Bare die/	

- NOTES: 1. Devices marked with an asterisk (*) are under development.
 2. TCP (Tape Carrier Package)
 3. Bare die is equivalent term with bare chip, pellet or die.
 4. COF (Chip On Film) is available in case of TCP.

STN GRAPHIC LCD DRIVER ICs

Part Number	Segment	Common	DDRAM (Bits)	Interface (Bit)	VDD (V)	Vlcd (Max. V)	DC/DC Convert (Times)	Package
4096	V	64	8	4.5~5.5	17	500		Bare die/100QFP/100TQFP
S6B0086	V	80		1/4	2.7~5.5	28		
S6B0715	100	33	8580	1/8	2.4~5.5	15	2~4	Au bump chip/TCP
S6B0717	100	55	6500	1/8	2.4~5.5	15	2~5	Au bump chip/TCP
S6B0718	104	81	9256	1/8	2.4~3.6	15	3~6	Au bump chip/TCP
S6B0719	160	105	16800	1/8	2.4~3.6	15	3~6	Au bump chip/TCP
S6B0723	132	65	8580	1/8	2.4~5.5	15	2~5	TCP
S6B0724	132	65	8580	1/8	2.4~5.5	15	2~5	Au bump chip
S6B0725	104	65	6860	1/8	2.4~3.6	15	2~5	Au bump chip
S6B0728	132	128	16896	1/8	2.4~3.6	15	3~7	Au bump chip/TCP
S6B0741	128	129	33024	1/8	1.8~3.3	15	3~6	TCP
S6B0755	128	65	8320	1/8	1.8~3.3	15	3~5	Au bump chip/TCP
S6B0756	96	65	6240	1/8	1.8~3.3	12	2~4	Au bump chip
S6B0759	128	81	10368	1/8	1.8~3.3	15	3~6	Au bump chip/TCP
S6B2400	96	65	12480	1/8	1.8~3.3	12	3~5	Au bump chip
S6B0794	160	160		4/8	2.4~5.5	32		Au bump chip/TCP
S6B0796	240	240		4/8	2.4~5.5	32		Au bump chip/TCP
S6B1713	132	65	8580	1/8	2.4~5.5	15	2~5	Au bump chip/TCP

- Notes: 1. Devices marked with an asterisk (*) are under development.
 2. TCP (Tape Carrier Package)
 3. Bare die is equivalent term with bare chip, pellet or die.
 4. COF (Chip On Film) is available in case of TCP.

STN GRAPHIC COLOR LCD DRIVER ICs

Device Name	Segment	Common	Color Depth	DDRAM (Bits)	Interface (Bit)	VDD (V)	Vlcd (Max. V)	DC/DC Convert	
								(Times)	Package
S6B33A1	132	160	256/4k	266,112	1/8/16	1.8~3.6	20	V	Au bump chip
S6B33A2	128	129	256/4k	196,608	1/8/16	1.8~3.3	20	V	Au bump chip
S6B33B0	144	177	256/4k/65k	405,504	1/8/16	1.8~3.3	20	V	Au bump chip
S6B3300*	104	80	256/4k	99,840	8-Jan	1.8~3.3	15	V	Au bump chip

NOTES: 1 Devices marked with an asterisk (*) are under development.
2 TCP (Tape Carrier Package), TBD (To Be Determined)

3 Bare die is equivalent term with bare chip, pellet or die.
4 COF (Chip On Film) is available in case of TCP.

STN GRAPHIC LCD DRIVER ICs

Part Number	Source (Output)	Gate (Output)	Application	Inversion	Grayscale	VDD (Min. V)	Vlcd (Max. V)	Frequency (Max. Hz)	Data Input Pin	Single/Dual Edge Clock	Built-in RSDS Rx Package
S6C0647		256	XGA/SXGA			3	40	200K			TCP/COF
S6C0649		256	XGA/SXGA			2.7	40	200K			TCP/COF
S6C0655		120/128 200/240/ 256/263	SVGA/SXGA VGA/SVGAXGA/ SXGA Plus			3	40	200K			TCP/COF
S6CG102		256/263	SXGA Plus			2.5	40	500K			TCP/COF
S6C0668	384		XGA/SXGA	D/N	64	2.7	8	55M	36	SE	TCP/COF
S6C1666	384		XGA/SXGA	D/N	64	2.7	13	65M	18	DE	V TCP/COF
S6C0669	384		XGA/SXGA	D/N	64	2.7	8	65M	18	DE	V TCP/COF
S6C0672	384		XGA/SXGA	D/N	64	2.7	13	65M	36	SE	TCP/COF
S6C0675	402/420		SXGA Plus	D/N	64	2.7	8	65M	18	DE	V TCP/COF
S6C0676	480		SXGA/UXGA/WUXGA	D/N	64	2.7	8	65M	36	SE	TCP/COF
S6C1101	384		XGA/SXGA	D/N	64	2.7	13.5	65M	18	DE	V TCP/COF
S6C1102*	480		SXGA/UXGA/WUXGA	D/N	64	2.7	11	85M	18	DE	V TCP/COF
S6C1103*	402/420		SXGA Plus	D/N	64	2.7	11	85M	18	DE	V TCP/COF
S6C1104	384		XGA/SXGA	D/N	64	2.7	12	85M	18	DE	V TCP/COF
S6C1108*	384		XGA/SXGA	D/N	64	2.7	12	85M	18	DE	V TCP/COF
S6C0670	384/402		SXGA/UXGA/WUXGA	D/N	256	2.7	15	55M	48	S/D	TCP/COF
S6C0671	384		XGA/SXGA	D/N	256	2.7	15	65M	48	SE	TCP/COF
S6C0680	384/402		SXGA/UXGA/WUXGA	D/N	256	2.7	13	55M	48	S/D	TCP/COF
S6C0681	384		XGA/SXGA	D/N	256	2.7	13	65M	48	SE	TCP/COF
S6C2101	384		XGA/SXGA	D/N	256	2.7	10.7	65M	24	DE	V TCP/COF
S6C2102*	384		XGA/SXGA	D/N	256	2.7	15	65M	24	DE	V TCP/COF
S6C2103*	480		SXGA/UXGA/WUXGA	D/N	256	2.7	15	85M	24	DE	V TCP/COF
S6C2104*	414/420		SXGA plus	D/N	256	2.7	15	85M	24	DE	V TCP/COF

NOTES: 1 Devices marked with an asterisk (*) are under development.
2 TCP (Tape Carrier Package)
3 COF (Chip On Film) is available in case of TCP
4 D = Dot Inversion
5 L = Line Inversion
6 D/N = Dot Inversion or N-Line Inversion
7 SE = Single Edge
8 DE = Double Edge
9 S/D = Single or Double Edge

Resolution	Column	Row
VGA	640	480
SVGA	800	600
XGA	1024	768
SXGA	1280	1024
SXGA Plus	1400	1050
UXGA	1600	1200
WUXGA	1920	1200

LCD DRIVER IC ORDERING INFORMATION

S	6	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. System LSI (S)			11. " - "									15. Back Lap					
2. Large Classification : LDI (6)			12~14. Package Type									0 : No Grinding					
3. Small Classification			- In Case of PKG									1 : 250°" 10um					
A : STN(Character) B : STN(Graphic)			(12) Package Type									5 : 200°" 10um					
C : TFT(Large) D : TFT(Mobile)			A : SDIP B : BUMP BIZ									8 : 300°" 10um(CHIP BIZ)					
F : TFT(Midsmall) E : OELD			C : CHIP BIZ E : LQFP									A : 300°" 10um					
P : PDI Vehicle			J : ELP K : TR									C : 300°" 10um(Wafer)					
V : Process			N : COB Q : QFP									G : 375°" 10um(CHIP BIZ)					
4~7.			S : SOP T : TQFP									J : 425°" 10um					
Serial No.			W : WAFER									M : 470°" 10um(Wafer)					
8. Version			(13) Reserved									N : 470°" 10um					
A~Z			- PKG Option									R : 350°" 10um(Wafer)					
*1st Version °~X			0 : none									U : 610°" 10um					
9~10. Mask Option			A : Test Condition 1									V : 500°" 10um(CHIP BIZ)					
- STN(Character)			(14) Packing									X : 425°" 10um(CHIP BIZ)					
00~99 : Font			- In Case of TAB / COF									Y : 470°" 10um(CHIP BIZ)					
- STN(Graphic)			(12)(13) Film Type									Z : No Grinding(CHIP/Wafer)					
Mask Option			00~49 °~TAB														
- TFT Device			50~99 °~COF														
Mask Option			(14) Revision														
			1st Version °~X														

MOBILE APPLICATION PROCESSORS

Part Number	CPU	Max Freq	Data Bus (bit)	I/O Pins	Interrupt (Ext)	Timer/Counter	Serial Interface	Cache	DMA	Features	PKG
S3C3410	ARM7TDMI	40MHz	8/16	74	35(12)	WDT/8TCx2 16TCx3	UART/IIC SIOx2	4KB	2-ch	10 ADC x 8	128QFP
S3C44B0	ARM7TDMI	66MHz	8/16/32	71	31(8)	WDT/16TCx5 Internal 16TC	UARTx2 IIC/IIS	8KB	4-ch	Mono/Color/Gray STN Cont., 10 ADC x 8	160LQFP 160FBGA
S3C2410	ARM920T	200MHz 266MHz	8/16/32	117	55(24)	WDT/16TCx4 Internal 16TC	UARTx3 SPIx2/IIC/IIS	16KB-I 16KB-D	4-ch	TFT/STN LCD Cont., NAND Flash Bootloader, USB hostx2, USB device, SD(SDIO)/MMC	272FBGA
S3C2440	ARM920T	300MHz 400MHz 533Mhz	8/16/32	130	59(24)	WDT/16TCx4 Internal 16TC	UARTx3 SPI/IIC/IIS	16KB-I 16KB-D	4-ch	TFT/STN LCD Controller, NAND Flash Bootloader, USB hostx2, USB device, SD(SDIO)/MMC, Camera I/F AC97	289FBGA
S3C24A0	ARM926EJ-S	200MHz	8/16/32	32	60(19)	WDT/16TCx4 Internal 16TC	UARTx2(IrDA) SPI/IIC/IIS IrDA(v1.1)	16KB-I 16KB-D	4-ch	TFT/STN LCD Controller, AC97, Camera I/F, NAND Flash Bootloader, MPEG4 CODEC,SD(SDIO)/MMC 8bit Modem I/F(4KB dual), Memory Stick	337FBGA

HDTV/STB PRODUCTS - CPU

Part Number	Product Description	Max CPU	Data Bus (bit)	I/O Ports	Interrupt (Ext)	Serial Interface	Cache	DMA/UART	Other Features	Typical Applications	PKG
S3C2800	Companion CPU for MPEG Decoder	ARM920T	200MHz	32	44 general purpose GPIO ports	34 3-ch 16-bit timer 16-bit Watchdog timer	PCI (32bits, 33MHz) 16KB-I 16KB-D	4-ch/2-ch	On-chip PLL clock generator	Set-top box, HDTV, and general purposes	208 LQFP

HDTV/STB PRODUCTS - MPEG DECODER

Part Number	Product Description	MPEG CPU	Max Resolution	Data Bus (bit)	I/O Pins	Serial Interface	Other Features	Typical Applications	PKG	
S5H2000	DTV MPEG Decoder	Companion External CPU S3C2800	up to MP@HL	135MHz	32	244	PCI (32bits, 33MHz)	2 Sets of Triple 10 bit DAC 2D Graphics, TS Demux Display Processor (IPC, Scaler) Digital HD (24bits)/SD (8bits) Input, CCIR 656-like input, Digital/Analog HD output, Analog SD output	Low to Mid-end HDTV/STB	352TBGA
S5H2010	DTV MPEG Decoder	Companion External CPU S3C2800	up to MP@HL	135MHz	32	276	PCI (32bits, 33MHz) UART, Smart Card I/F	2 Sets of Triple 10 bit DAC with enhanced CAS, 2D Graphics, TS Demux Enhanced Display Processor (IPC, Scaler) Digital HD (24bits)/SD (8bits) Input, CCIR 656-like input Digital/Analog HD output, Analog SD output	Low to Mid-end HDTV/STB	492BGA

4-BIT MICROCONTROLLER FAMILY

Part Number	Package	ROM	RAM	Interrupt	Timer/	LCD	ADC	Max. OSC.	Oper. Temp.		
		Kbytes	Nibble							I/O Pins	(Int/Ext)
S3C1xxx (KS51) Series											
S3C1840DZ0-DKB1	20DIP	1	32	15/19	-	-	-	6MHz	1.8 ~ 3.6	-20 ~ 85	
S3C1840DZ0-SKB1	20SOP										
S3C1840DZ0-SMB1	24SOP										
S3C1850DZ0-SMB1	24SOP	1	32	19	-	-	-	6MHz	1.8 ~ 3.6	-20 ~ 85	
S3C1860XZ0-DKB1	20DIP	1	32	15	-	-	-	6MHz	1.8 ~ 3.6	-20 ~ 85	
S3C1860XZ0-SKB1	20SOP										
S3C7xxx (KS57) Series											
S3C7048DZ0-AQB4	42SDIP	4	512	36	4/3	BT/WT/8Tx2	Yes	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C7048DZ0-QZR4	44QFP										
S3C7048DZ0-AQB8	42SDIP	8									
S3C7048DZ0-QZR8	44QFP										
S3C70F4XZ0-AVB4	30SDIP	4	512	24	3/2	BT/WT/8TC	Yes	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C70F4XZ0-SOB4	32SOP										
S3C7235DZ0-QWR8	80QFP	8	512	40	3/3	BT/WT/WDT/8T	Yes	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C7235DZ0-QWR5		16									
S3C72H8XZ0-QTR8	64QFP	8	512	21	3/3	BT/WT/WDT/8T/16T	-	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C72K8XZ0-QWR8	80QFP	8	1024	27	3/4	BT/WT/8TC	Yes	6MHz	2.0 ~ 5.5	-25 ~ 85	
S3C72M9XZ0-QAR5		16									
S3C72M9XZ0-QAR7	128QFP	24	3840	51	5/4	BT/WT/WDT/8T/16T	Yes	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C72M9XZ0-QAR9		32									
S3C72N4X Z0-QTR4	64QFP	4	288	24	2/2	BT/WT/8TC	-	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C72N5XZ0-QWR8	80QFP	8	512	40	3/3	BT/WT/8TC	Yes	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C72N5XZ0-QWR5		16									
S3C72P9XZ0-QXR5		16									
S3C72P9XZ0-QXR7	100QFP	24	1056	39	4/4	BT/WT/8TC/16TC	Yes	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C72P9XZ0-QXR9		32									
S3C72Q5XZ0-QXR8	100QFP	8	5264	39	3/3	BT/WT/8TCx2	-	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C72Q5XZ0-QXR5		16									
S3C7324XZ0-QTR4	64QFP	4	256	32	2/3	BT/WT/WDT/8T	-	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C7335XZ0-QWR8	80QFP	8	512	56	4/4	BT/WT/WDT/8T	Yes	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C7335XZ0-QWR5		16									
S3C7414DZ0-AQB4	42SDIP	4	256	35	5/3	BT/WT/WDT/8Tx2	Yes	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C7414DZ0-QZR4	44QFP										
S3C7515DZ0-ATB5	64SDIP	16	512	55	4/3	BT/WT/8Tx2	Yes	6MHz	2.0 ~ 5.5	-25 ~ 85	
S3C7515DZ0-QTR5	64QFP										
S3C7528DZ0-AQB4	42SDIP	4	768	35	3/3	BT/WT/WDT/8Tx2	-	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C7528DZ0-QZR4	44QFP										
S3C7528DZ0-AQB8	42SDIP	8									
S3C7528DZ0-QZR8	44QFP										
S3C7538DZ0-AVB4	30SDIP	4	768	23	3/1	BT/WT/WDT/8Tx2	-	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C7538DZ0-SOB4	32SOP										
S3C7538DZ0-AVB8	30SDIP	8									
S3C7538DZ0-SOB8	32SOP										
S3C7544XZ0-AMB4	24SDIP	4	512	17	2/2	BT/WDT/8T	-	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C7544XZ0-SMB4	24SOP										
S3C7559XZ0-ATB9	64SDIP	32	1024	55	4/3	BT/WT/WDT/8Tx2	Yes	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C7559XZ0-QTR9	64QFP										
S3C7565XZ0-QXR5	100QFP	16	5120	49	5/4	BT/WT/WDT/ 8T/16T	Yes	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C7574XZ0-QTR9	64QFP	4	288	23	2/2	BT/WT/8TC	-	6MHz	1.8 ~ 5.5	-25 ~ 85	
S3C7588AZ0-COC8	44pellet	8	768	25	4/4	BT/WT/WDT/8TCx2	-	3.58MHz	2.7 ~ 5.5	0 ~ 70	

- NOTES:
- * Under Development. Contact Samsung Sales offices for availability.
 - (1) () : S/W supported PWM.
 - Abbreviations: SIO = Serial Input/Output ADC = Analog to Digital converter PWM = Pulse Width Modulation ZCD = Zero Cross Detection Circuit DAC = Digital to Analog converter Com = Comparator DTMF = Dual Tone Multi Frequency FSK = Frequency Shift Keying 8TC / 16TC = 8-bit / 16-bit Timer/Counter BT / WT / WDT = Basic / Watch / Watchdog timer

8-BIT MICROCONTROLLER FAMILY

Part Number	Package Type	ROM Kbytes	RAM Bytes	I/O Pins	Interrupt (Int/Ext)	Timer/Counter	Serial Interface	LCD (Seg/Com)	ADC (Bit x Ch)	PWM(1) (Bit x Ch)	Max. OSC. Freq.	Vdd (V)	Oper. Temp.
S3C9xxx (KS86) Series													
S3C9004DZ0-DPB4	40DIP	4	208	32	1/12	BT/WDT/8T	-	-	-	(8x1)	4MHz	4.5 ~ 5.5	-25~ 85
S3C9228AZ0-AQB8	42SDIP	8	256	36	4/10	BT/WT/8TCx2	SIO	16x8	10x4	-	8MHz	2.0 ~ 5.5	-25 ~ 85
S3C9228AZ0-QZR8	44QFP												
S3C9228AZ0-LRR8	48ELP												
S3P9234XZ0-QTR4 *	64QFP	4	208	52	5/7	BT/WT/8TCx2	SIO	32/4	-	-	8MHz	2.0 ~ 5.5	-25 ~ 85
S3C9404DZ0-AVB4	30SDIP	4	208	22	3/3	BT/WDT/8Tx2	-	-	8x8	(10x1)	10MHz	2.7 ~ 5.5	-25 ~ 85
S3C9404DZ0-SOB4	32SOP												
S3C9414XZ0-AMB4	24SDIP	4	208	16	3/3	BT/WDT/8Tx2	-	-	10x5	(10x1)	10MHz	2.7 ~ 5.5	-25~ 85
S3C9414XZ0-SMB4	24SOP												
S3C9428XZ0-SNB4	28SOP	4	208	24	5/4	BT/WDT/8Tx2	IIC, SIO	-	10x12	12x2,(8x1)	16MHz	1.8 ~ 5.5	-25~ 85
S3C9428XZ0-SOB4	32SOP												
S3C9428XZ0-AVB4	30SDIP												
S3C9428XZ0-SNB8	28SOP	8											
S3C9428XZ0-SOB8	32SOP												
S3C9428XZ0-AVB8	30SDIP												
S3C9434XZ0-DIB4	18DIP	4	112	11/13	3/2	BT/WDT/8T	SIO	-	10x5	12x1	16MHz	3.0 ~ 5.5	-25~ 85
S3C9434XZ0-DKB4	20DIP												
S3C9434XZ0-SKB4	20SOP												
S3C9444XZ0-SCB4	8SOP	4	208	6	1/2	BT/8TC	-	-	10x3	-	10MHz	2.0 ~ 5.5	-25~ 85
S3C9444XZ0-DCB4	8DIP												
S3C9454AZ0-DHB4	16DIP	4	208	18	2/2	BT/8TC	-	-	10x9	8x1	10MHz	2.0 ~ 5.5	-25~ 85
S3C9454AZ0-SHB4	16SOP												
S3C9454AZ0-DKB4	20DIP												
S3C9454AZ0-SKB4	20SOP												
S3C9464XZ0-SCB4*	8SOP	4	208	6	7/2	BT/8TC	LIN, UART	-	10x3	-	10MHz	2.0 ~ 5.5	-40~ 85
S3C9464XZ0-DCB4*	8DIP												
S3C9474XZ0-DKB4*	20DIP	4	208	18	7/3	BT/8TC	LIN, UART	-	10x9	10x1	10MHz	2.0 ~ 5.5	-40~ 85
S3C9474XZ0-SKB4*	20SOP												
S3C9488XZ0-AOB8*	32SDIP	8	208	38/36/26	6/4	BT/8TX1	UART	19/8	10x9	8x1	10MHz	2.2 ~ 5.5	-25 ~ 85
S3C9488XZ0-SOB8*	32SOP												
S3C9488XZ0-AQB8*	42SDIP												
S3C9488XZ0-QZR8*	44QFP												
S3C9498XZ0-SNB8*	28SOP	8	208	22	11/5	BT/8TCx3/16TC	SIO UART		10x8	12x1(8x1)	16MHz	1.8~5.5	-25 ~ 85
S3C9498XZ0-SOB8*	32SOP			26									
S3C9498XZ0-AVB8*	30SDIP			24									
S3C9688XZ0-AQB8*	42SDIP	8	208	32	15/14	BT/WDT/8T	USB	-	-	-	6MHz	4.0 ~ 5.25	-25~ 85
S3C9688XZ0-QZR8*	44QFP												
S3P9698XZ0-DHB8*	16DIP	8	208	10/14	10/14	8BT/8WDT/8TC	USBSIO	-	-	-	6MHz	4.0 ~ 5.25	-25~ 85
S3P9698XZ0-SHB8*	16SOP												
S3P9698XZ0-DKB8*	20DIP												
S3P9698XZ0-SKB8*	20SOP												

8-BIT MICROCONTROLLER FAMILY

Part Number	Package Type	ROM Kbytes	RAM Bytes	I/O Pins (Int/Ext)	Interrupt Timer/ Counter	Serial Interface	LCD (Seg/Com)	ADC (Bit x Ch)	PWM(1) (Bit x Ch)	Max. OSC. Freq.	Oper. Vdd (V)	Oper. Temp.	
S3C9xxx (KS86) Series													
S3C80A5AZ0-SMB8	24SOP	8	272	19	5/8	BT/WDT/8Tx2/16T	-	-	8x1	8MHz	2.0 ~ 3.6	-25 ~ 85	
S3C80A5AZ0-AMB8	24SDIP												
S3C80A5AZ0-SMB5	24SOP	16											
S3C80A5AZ0-AMB5	24SDIP												
S3C80B5XZ0-SMB8	24SOP	8	272	19	5/8	BT/WDT/8Tx2/16T	-	-	8x1	4MHz	1.7 ~ 3.6	-25 ~ 85	
S3C80B5XZ0-AMB8	24SDIP												
S3C80B5XZ0-SMB5	24SOP	16											
S3C80B5XZ0-AMB5	24SDIP												
S3C80C5XZ0-SMB8	24SOP	8	272	19	5/8	BT/WDT/8Tx2/16T	-	-	8x1	4MHz	1.7 ~ 3.6	-25 ~ 85	
S3C80C5XZ0-AMB8	24SDIP												
S3C80C5XZ0-SMB5	24SOP	16											
S3C80C5XZ0-AMB5	4SDIP												
S3C80D5XZ0-SMB8	24SOP	8	272	19	5/8	BT/WDT/8Tx2/16T	-	-	8x1	8MHz	2.0 ~ 3.6	-25 ~ 85	
S3C80D5XZ0-AMB8	24SDIP												
S3C80DXZ0-SMB5	24SOP	16											
S3C80D5XZ0-AMB5	24SDIP												
S3C80E7XZ0-AOB5	32SDIP	16	272	26	5/12	BT/WDT/8Tx2/16T	-	-	8x1	8MHz	2.1~5.5	-25 ~ 85	
S3C80E7XZ0-SOB5	32SOP												
S3C80E7XZ0-DPB5	40DIP												
S3C80E7XZ0-AOB7	32SDIP	24											
S3C80E7XZ0-SOB7	32SOP												
S3C80E7XZ0-DPB7	40DIP												
S3C80F9XZ0-SOB7	32SOP	24	272	38	5/16	BT/8TC/16TC	-	-	8x1	8MHz	2.0 ~ 5.0	-25 ~ 85	
S3C80F9XZ0-AQB7	42SDIP												
S3C80F9XZ0-QZR7	44QFP / 48ELP												
S3C80F9XZ0-SOB9	32SOP	32											
S3C80F9XZ0-AQB9	42SDIP												
S3C80F9XZ0-QZR9	44QFP												
S3C80F9XZ0-LRR9	48ELP												
S3C80G9XZ0-SOB7	32SOP	24	272	38	5/16	BT/8TC/16TC	-	-	8x1	4MHz	1.7 ~ 5.0	-25 ~ 85	
S3C80G9XZ0-AQB7	42SDIP												
S3C80G9XZ0-QZR7	44QFP												
S3C80G9XZ0-SOB9	32SOP	32											
S3C80G9XZ0-AQB9	42SDIP												
S3C80G9XZ0-QZR9	44QFP												
S3C8095DZ0-SOB5	32SOP	16	272	26	5/12	BT/WDT/8Tx2/16T	-	-	(8x2)	12MHz	2.0 ~ 5.5	-20 ~ 85	
S3C8095DZ0-AOB5	32SDIP												
S3C8235BZ0-QTR8	64QFP	8	552	32	8/8	BT/8TCx2/16TC	-	24/8	10x8	8MHz	2.0 ~ 5.5	-25 ~ 85	
S3C8235BZ0-ETR8	64LQFP												
S3C8235BZ0-QTR5	64QFP	16	552	32	8/8	BT/8TCx2/16TC	-	24/8	10x8	8MHz	2.0 ~ 5.5	-25 ~ 85	
S3C8235BZ0-ETR5	64LQFP												
S3C8245AZ0-TWR8	80TQFP	8	544	45	8/8	BT/WDT/8Tx2/16Tx2	SIO	32/4	10x8	(8x2,16x1)	10MHz	1.8 ~ 5.5	-25 ~ 85
S3C8245AZ0-QWR8	80QFP												
S3C8245AZ0-TWR5	80TQFP	16											
S3C8245AZ0-QWR5	80QFP												
S3C8249XZ0-TWR7	80TQFP	24	1056	45	8/8	BT/WDT/8Tx2/16Tx2	SIO	32/4	10x8	(8x2,16x1)	10MHz	1.8 ~ 5.5	-25 ~ 85
S3C8249XZ0-QWR7	80QFP												
S3C8249XZ0-TWR7	80TQFP	32											
S3C8249XZ0-QWR7	80QFP												

8-BIT MICROCONTROLLER FAMILY

Part Number	Package Type	ROM Kbytes	RAM Bytes	I/O Pins	Interrupt (Int/Ext)	Timer/Counter	Serial Interface	LCD (Seg/Com)	ADC (Bit x Ch)	PWM(1) (Bit x Ch)	Max. OSC. Freq.	Vdd (V)	Oper. Temp.
S3C9xxx (KS86) Series, continued													
S3C825AC20-TWRA	80TQFP	48	2096	67	11/12	BT/WT/8TC/16TC	SIO, UART	28/8	10x4	(8x1, 16x1)	8MHz	2.0~5.5	-25 ~ 85
S3C825AC20-QWRA	80QFP												
S3C826AX20-COCA	144Pellet	48	2k	128	9/12	BT/8TCx3/16TCx1	SIO	80/16	8x4	8x2	8MHz	2.0 ~ 5.5	-25 ~ 85
S3C830AX20-QXRA	100QFP	48	2084	72	10/8	BT/WDT/WT/8Tx2/16T	SIOx2	40/4	8x4	8x1	4.5MHz	3.0 ~ 5.5	-25 ~ 85
S3C831BX20-QXRB	100QFP	64	2.5k	72	10/8	BT/WDT/WT/8Tx2/16T	SIOx2	40/4	8x8	8x1	9MHz	2.2 ~ 5.5	-25 ~ 85
S3C831BX20-TXRB	100TQFP												
S3C8325X20-QWR5*	80QFP	16	512	64	9/12	BT/WDT/WT/8Tx2/16T	SIO	28/8	8x8	8x1	4.5MHz	2.0 ~ 5.5	-25 ~ 85
S3C8325X20-TWR5*	80TQFP												
S3C8454X20-TWR4	80TQFP	4	1040	42	8/8	BT/WDT/8Tx2/ 16Tx2	SIO	-	8x4	8x2,(16x2)	25MHz	4.5 ~ 5.5	-25 ~ 85
S3C8454X20-QWR4	80QFP												
S3C8469X20-ATB5	64SDIP	16	528	56	11/10	BT/WDT/8Tx2/ 16Tx2	UART, SIO	-	10x8	14x2,(8x2)	12MHz	2.7 ~ 5.5	-25 ~ 85
S3C8469X20-QTR5	64QFP												
S3C8469X20-ATB9	64SDIP	32											
S3C8469X20-QTR9	64QFP												
S3C8475X20-AQB8	42SDIP	8	272	36	6/8	BT/WDT/8T/16T	UART	-	10x8	(8x1,10x1)	12MHz	2.7 ~ 5.5	-25 ~ 85
S3C8475X20-QZR8	44QFP												
S3C8475X20-AQB5	42SDIP	16											
S3C8475X20-QZR5	44QFP												
S3C848AX2Z-ATB5	64SDIP	48	2064	56	15/14	BT/8TX4/16TX2	UARTX2, SIO	10X8	14x2,(8x2)	12MHz	2.7-5.5	-25 ~ 85	
S3C848AX2Z-QTR5	64QFP												
S3C84A4X20-QTR4	64QFP	4	784	29	7/4	BT/8TCx2/16TCx2	-	-	8x4	8x2,(8x2)	30MHz	4.5 ~ 5.5	-25 ~ 85
S3C84BBX20-TWR9	80TQFP	64	2064	70	14/10	BT/8TCx2/16TCx2/8Tx2	UARTX2, SIO	10x8	8*1(DAC)	10MHz	2.7~5.5	-25 ~ 85	
S3C84BBX20-QWR9	80QFP												
S3C84DBX20-TWRB*	100TQFP	64	2064	90	14/10	BT/8TCx4/16TCx2	UARTX2, SIO	48/8	10x8	8*1(DAC)	10MHz	2.7~5.5	-25 ~ 85
S3C84DBX20-QWRB*	100QFP												
S3C84E9X20-AQB9*	42SDIP	32	272	36/34	9/12	BT/8TC/8T	UART	-	10X8	(8X1)	12MHz	2.7~5.5	-25 ~ 85
S3C84E9X20-QZR9*	44QFP					16TCx2/WT							
S3C851BX20-QDRB	160QFP	64	1808	42	1/7	BT/WT/WDT/ 8T/16T	UART,SIO	56/34	10x4	-	3.58MHz	2.7 ~ 5.5	0 - 70
S3C852BX20-QXRB	100QFP	64	1808	80	1/7	BT/WT/WDT/8T/16T	SIO	-	10x4	-	3.58MHz	2.7-5.5	0 - 70
S3C8629X20-AQB7	42SDIP	24	464	27	7/3	BT/8TC/8T/12C	IICx2	-	8x4	8x7	12MHz	4.0 ~ 5.5	-25 ~ 85
S3C8629X20-QZR7	44QFP												
S3C8629X20-AQB9	42SDIP	32											
S3C8629X20-QZR9	44QFP												
S3C863AX20-AQB9	42SDIP	32	1040	27	7/3	BT/8TC/8T/12C	M/M IIC,	-	8x4	8x7	12MHz	3.0 ~ 5.5	-25 ~ 85
S3C863AX20-QZR9	44QFP						Slave IIC						
S3C863AX20-AQBA	42SDIP	48											
S3C863AX20-QZRA	44QFP												
S3C8647X20-AOB5	32SDIP	16	384	19	6/3	BT/8TC/8T/12C	IIC	-	4x4	8x6	12MHz	4.0 ~ 5.5	-25 ~ 85
S3C8647X20-AOB7		24											
S3C880AX20-AQBA	42SDIP	48	336	26	5/4	BT/8TCx2	-	-	8x4	14x2,8x4 (8x1)	8MHz	4.5 ~ 5.5	-20 ~ 85
S3C8837D20-AQB5	42SDIP	16	272	26	5/2	BT/WDT/8Tx2	-	-	4x2	14x1	8MHz	4.5 ~ 5.5	-20~ 85
S3C8837D20-AQB7		24											
S3C8849X20-AQB7	42SDIP	24	272	26	5/4	BT/WDT/8Tx2	-	-	4x4	14x2,8x4	8MHz	4.5 ~ 5.5	-20 ~ 85
S3C8849X20-AQB9		32								(8x1)			

NOTES: 1. * Under Development. Contact Samsung Sales offices for availability.

2 (1) () : S/W supported PWM.

3 Abbreviations: ADC = Analog to Digital converter SIO = Serial Input/Output LVR=Low Voltage Reset FSK=Frequency Shift Keying DAC = Digital to Analog converter
ZCD = Zero Cross Detection Circuit LVD=Low Voltage Detector CAS=CPE Alerting Signal DTMF = Dual Tone Multi Frequency PWM = Pulse Width Modulation
SDT=Stuttered Dial Tone LIN=Local Interface Network Com = Comparator RDS=Radio Data System

4 Timer/Counters: BT / WT / WDT = Basic / Watch / Watchdog timer, 8T / 16T = 8-bit / 16-bit Timer/Counter

CALM RISC MICROCONTROLLER FAMILY

Part Number																
Full Code by PKG)	Package Type	ROM Kbytes	RAM Bytes	I/O Pins	Interrupt (Int/Ext)	Timer/ Counter	Serial Interface	LCD (Seg/Com)	ADC (Bit x Ch)	DAC (Bit x Ch)	PWM(1) (Bit x Ch)	Max. Osc. Freq.	Min Exe. Time (ns)	Vdd (V)	Oper. Temp.	
S3CBxxx, S3CCxxx, S3CKxxx Series																
S3CB42FXZ0-QXRF	100QFP	213	48K	65	11/8	BT, WT, 16TC x 1	UART/SIO/IIC/IIS	-	8x6	-	-	40MHz	25	3.0~3.6	-25~85	
S3CB42FXZ0-TXRF	100TQFP					(8TC x 2)										
S3CC410XZ0-EERO	208LQFP		88K	73	18/10	BT, WT, 16TC x 3	SIO/UART/IIC/IIS	1024x1024 pixels	8x8			80MHz	12.5	3.0~3.6	-20~75	
S3CC410XZ0-YERO	208FBGA															
S3CC11BXZ0-QXRF*	100QFP	64	10K	77	8/9	BT, WT, 8TC x 3	SIO	36/8	10x4	-	8x1	40MHz	25	2.0~3.6	-25~85	
S3CC11BXZ0-TXRF*	100TQFP															
S3CK11FXZ0-COCF*	117 Pellet	256	1K	90	13/8	BT, WT, 16TC x 1, 8TC x 2	SIO	64/16	10x1	10x1	8x2	8MHz	125	2.0~3.6	-25~85	
S3CK215AZ0-QWR5	80QFP	16	1K	39	9/4	BT, WT, 16TC x 2, 8TC x 2	SIO	30/4	10x8	9x1	8x2, 16x1	8MHz	125	2.0~5.5	-25~85	
S3FK519XZ0-QXR9*	100QFP	32	2.5K	56	8/5	8BT, WDT, 16TC	SIO	56/16	14x1	-	8x1	14.32MHz	100	2.3~3.6	0~70	
S3FK519XZ0-QAR9*	128QFP															
S3CK225XZ0-QTR5	64QFP	16	384	48	9/4	BT, WT, 16TC x 2, 8TC x 2	SIO	32/4	10x8	10x1	8x2, 16x1	8MHz	125	2.0~5.5	-25~85	
S3CK318XZ0-QZR8*	44QFP	8	256	36	7/7	BT, WT, 16TC x 1, 8TC x 1	SIO	16/8	10x4	10x1	16x1	8MHz	125	2.0~3.6	-25~85	

NOTES:

- () = S/W supported PWM.
- Abbreviations: ADC = Analog to Digital Converter DTMF = Dual Tone Multi Frequency ZCD = Zero Cross Detection Circuit Com = Comparator
DAC = Digital to Analog Converter SIO = Serial Input/Output PWM = Pulse Width Modulation
- Timer/Counters: BT / WT / WDT = Basic / Watch / Watchdog timer 8TC / 16TC = 8-bit / 16-bit Timer/Counter
- * Under Development. Contact you local Samsung Sales office for availability.

MICROCONTROLLER ORDERING INFORMATION

S	3	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. System LSI (S)		5~6. Application Category									9~10. Mask Option						
2. Large Classification : Microcontroller(3)		0n : General Purpose 1n : Voice 2n : LCD 3n : Audio 4n : General A/D 5n : Telecom 6n : PC & Peripheral,OA 7n : VFD 8n : Video 9n : Special (IC Card) An : General Purpose-1 Cn : C Fn : Telecom-1 Nn : Intel Application Zn : Assignment Code									11. " - "						
3. Small Classification		C : MASK ROM E : EVA-CHIP F : FLASH P : OTP 3 : MCP									12. Package Type						
4. Core		1 : 51 4-bit 2 : 32-bit ARM9 3 : 17 16-bit 4 : 32 32-bit 5 : 32-bit ARM10 6 : 56 4-bit 7 : 57 4-bit 8 : 88 8-bit 9 : 86 8-bit A : 15 Other B : 8-bit CALM RISC MAC C : 16-bit CALM RISC MAC D : 32-bit CALM RISC MAC I : CUSTOM MCU J : SC-200 K : 8-bit CALM RISC L : 16-bit CALM RISC R : 128-bit CALM RISC S : SC-100									* "n" : Serial No (1°,Z) 7. Rom Master 0 : 0K byte 1 : 1K byte 2 : 2K byte 3 : 12K byte 4 : 4K byte 5 : 16K byte 6 : 6K byte 7 : 24K byte 8 : 8K byte 9 : 32K byte A : 48K byte B : 64K byte C : 96K byte D : 128K byte F : 256K byte G : 384K byte H : 512K byte J : 1M byte K : 1M byte 8. Version A~Z *1st Version °~X						
											13. Package Pin " Refer to Next Page "						
											14. Packing " Refer to Next Page "						
											15. ROM Size " Refer to Next Page "						

MICROCONTROLLER ORDERING INFORMATION

S	3	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	

13. Package Pin

Wafer/CHIP BIZ = 0(NONE)

- SDIP

B : 56 M : 24 O : 32
 Q : 42 T : 64 V : 30

- LGA

A : 88 C : 83 J : 176

- DIP

C : 8 H : 16 I : 18
 K : 20 N : 28 P : 40

- LQFP

C : 144 D : 160 E : 208
 G : 256 J : 176 R : 48
 T : 64 W : 80 X : 100

- WQFP

T : 64

- BGA

A : 272 B : 416

- CSP

J : 176

- BQFP

B : 132

- UELP

T : 64

- ELP

R : 48 T : 64

- QFPH

D : 160 F : 240

- COB

C : 8 D : 8CNCL

- PLCC

C : 52 Z : 44

- QFP

A : 128 C : 144 D : 160
 E : 208 G : 256 R : 48
 T : 64 U : 304 W : 80
 X : 100 Z : 44

- SOP

C : 8 H : 16 I : 18
 K : 20 M : 24 N : 28
 O : 32

- TQFP

A : 128 T : 64 W : 80
 X : 100

- TEBGA

X : 492

- FBGA

A : 337 B : 81 C : 144
 D : 160 E : 208 F : 180
 G : 285 H : 320 K : 105
 L : 400 O : 272 P : 504
 Q : 289 T : 64

- SBGA

A : 432

- WAFER

0 : None 1 : Cust1 2 : Cust2

14. Packing

B : Tube
 U : Bulk
 R : Tray

T : Tape & Reel
 S : Tape & Reel Reverse
 C : Chip Biz
 D : Chip Biz (3 Inch tray)
 E : Chip Biz (4 Inch tray)
 F : Chip Biz (Reverse)
 W : WF Biz Draft Wafer
 X : WF Biz Full Cutting
 7 : Tape & Reel (Pb-Free PKG)
 8 : Tray (Pb-Free PKG)
 9 : Tube (Pb-Free PKG)

15. ROM Size

0 : 0K byte 1 : 1K byte
 2 : 2K byte 3 : 12K byte
 4 : 4K byte 5 : 16K byte
 6 : 6K byte 7 : 24K byte
 8 : 8K byte 9 : 32K byte
 A : 48K byte B : 64K byte
 C : 96K byte D : 128K byte
 E : Extended F : 256K byte
 G : 384K byte H : 512K byte
 J : 1M byte K : 1M byte
 M : Military N : Industrial
 X : Special MK3 Y : Special
 MK2
 Z : Special MK1
 * Smart Card IC : EEPROM Size
 * X,Y,Z : Special Marking (MASKROM)

SERIAL EEPROMS

Part Number	Density (bit)	Write Protection	Vopr (V)	Write Cycle		Interface	Package	Production Plan
				Time (Max)				
S524A40X20-RCT0	2K	by Hardware & Software	1.8 ~ 5.5	5 ms		I2C BUS	8TSSOP (T&R)	In Production
S524A40X21-DCB0	2K	by Hardware	1.8 ~ 5.5	5ms		I2C Bus	8DIP	In Production
S524A40X21-SCB0	2K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP	In Production
S524A40X21-SCT0	2K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP (T&R)	In Production
S524A40X41-DCB0	4K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8DIP	In Production
S524A40X41-SCB0	4K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP	In Production
S524A40X41-SCT0	4K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP (T&R)	In Production
S524A60X51-DCB0	16K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8DIP	In Production
S524A60X51-SCB0	16K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP	In Production
S524A60X51-SCT0	16K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP (T&R)	In Production
S524A60X81-DCB0	8K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8DIP	In Production
S524A60X81-SCB0	8K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP	In Production
S524A60X81-SCT0	8K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP (T&R)	In Production
S524A80X91-DCB0	32K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8DIP	In Production
S524A80X91-SCB0	32K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP	In Production
S524A80X91-SCT0	32K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP (T&R)	In Production
S524A80XB1-DCB0	64K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8DIP	In Production
S524A80XB1-DCB1	64K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP	In Production
S524A80XB1-DCB2	64K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8SOP (T&R)	In Production
S524AD0XF1-RCT0	256K	by Hardware	1.8 ~ 5.5	5 ms		I2C Bus	8TSSOP	In Production

- NOTES:
1. Temperature: -25 ~ 70c
 2. All products offer 100-year data retention, a 16M page buffer, and two-wired serial I2C-bus interfaces.
 3. All products operate at 100KHz, 400KHz clock frequency.

EEPROMS ORDERING INFORMATION

K	4	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. System LSI (S)			9. EEPROM Size			13. Temp											
2. Large Classification : MOS (5)			0 : 0K bit			1 : 1K bit			0 : Normal			C : -25° „ 70C					
3. Small Classification			2 : 2K bit			4 : 4K bit			I : -40° „ 85C			14. Packing					
2 : EEPROM Y : Memory Card			8 : 8K bit			5 : 16K bit			B : Tube			U : Bulk					
4. Interface Pro.			9 : 32K bit			B : 64K bit			R : Tray			T : Tape & Reel					
4 : IIC			F : 256K bit			H : 512K bit			S : Tape & Reel Reverse			C : Chip Biz					
5 : SPI or Asynchronous			10. Write Protection			11. " - "			D : Chip Biz (3 Inch tray)			E : Chip Biz (4 Inch tray)					
5. Voltage Option			N : No W/P			1 : H/W Only			F : Chip Biz (Reverse)			W : WF Biz Draft Wafer					
A : 1.8° „ 5.5			C : 2.5° „ 5.5			0 : H/W & S/W			X : WF Biz Full Cutting			7 : Tape & Reel (Pb-Free PKG)					
H : 4.5° „ 5.5			L : 2.0° „ 5.5			12. Package Type			8 : Tray (Pb-Free PKG)			9 : Tube (Pb-Free PKG)					
6. EEPROM Master			1 : TEBGA			A : SDIP			15. Customer			0 : None 1 : Bonding Opt.1					
0 : 0K bit			2 : 1K/2K bit			B : BGA			C : CHIP BIZ			2 : Bonding Opt.2			3 : Bonding Opt.3		
4 : 1K/2K/4K bit			5 : 16K bit			D : DIP			E : LQFP			4 : Bonding Opt.4			A : Special Marking 1		
6 : 8K/16K bit			8 : 4K/8K bit			F : BCC			G : CLCC			B : Special Marking 2			C : Special Marking 3		
B : 32K/64K bit			D : 128K/256K bit			H : LPQ4			J : ELP			D : Special Marking 4			E : Special Marking 5		
E : 512K bit			K : SBGA			L : CERDIP			N : COB			F : Special Marking 6			K : Reliability Test		
7. Reserved			M : QFP			P : PLCC			Q : QFP			L : No Logo			M : No Marking		
0 : none			R : TSSOP			T : TQFP			V : SSOP			N : ANAM Assembly			Z : Customer Option		
8. Version			W : WAFER			Y : FBGA			Z : STBGA								
A~Z			Z : STBGA														
*1st Version ~ X																	

COMBO DRIVE

SM-352 52X 24X 52X CD-RW + 16X DVD-ROM

SM-348 48X 24X 48X CD-RW + 16X DVD-ROM

Recording Capacity	Drive Type	Interface	Loading Type	Average Access Time	Dimensions (WxHxDmm)	Buffer Memory	Drive Mounting	Supported Disc
CD-RW Disc 700/650MB (Type 80/74) CDR Disc 800/700/650MB (Type 90/80/74)	Internal Type	EIDE/ATAPI	Motorized Tray Type	CD-RW, DVD: 130ms CD: 110ms	148.2 x 42 x 184	8MB / 2MB	Horizontal/Vertical	(SM-352) DVD/RAM, DVD-R, DVD-RW, DVD-ROM, DVD-Video, CD-R, CD-RW, CD-DA, CD-ROM, CD ROM/XA, VideoCD, CD-I, PhotoCD, CD-EXTRA, CD TEXT

CR-RW DRIVE

SW-252F 52X Write / 32X ReWrite / 52X Read

SW-252B 52X Write / 24X ReWrite / 52X Read

Recording Capacity	Drive Type	Interface	Loading Type	Average Access Time	Dimensions (WxHxDmm)	Buffer Memory	Drive Mounting	Supported Disc
CD-RW Disc 700/650MB (Type 80/74) CDR Disc 800/700/650MB (Type 90/80/74)	Internal Type	EIDE/ATAPI	Motorized Tray Type	(SW-252F) 100ms (SW-252B) 110ms	148.2 x 42 x 184	(SW-252F) 2MB (SW-252B) 8MB/ 2MB	Horizontal/Vertical	CD-R, CD-RW, CD-DA, CD-ROM, CD-ROM/XA, VideoCD, CD-I, PhotoCD, CD-EXTRA, CD-TEXT

DVD-MULTI RECORDER

SR-T03 DVD-RAM + DVD-R + DVD-RW + CD-R + CD-RW

Drive Type	Interface	Average Seek Time	Dimensions (WxHxDmm)	Buffer Memory	Supported Disc
Internal Type	EIDE/ATAPI	CD-ROM 130ms DVD-S 130ms DVD-R/DVD-RW 150ms DVD-RAM 170ms	148 x 42 x 200	2MB	DVD-RAM, DVD-ROM, DVD-R, DVD-RW, DVD-Video, CD-R, CD-RW, CD-DA, CD-ROM, CD-ROM-XA, Video-CD, CD-I, Photo CD, CD-EXTRA, CD-TEXT

DVD-ROM DRIVE

SD-816 16X Multi-Read DVD-ROM Drive

SD-616 16X DVD-ROM Drive

Drive Type	Interface	Loading Type	Average Access Time	Dimensions (WxHxDmm)	Buffer Memory	Drive Mounting	Supported Disc
Internal Type	EIDE/ATAPI	Motorized Tray Type	DVD 90ms CD 90ms	148.2 x 42 x 184	512KB	Horizontal/Vertical	(SD-816) DVD-RAM, DVD-R, DVD-RW, DVD-ROM, DVD-Video, CD-R, CD-RW, CD-DA, CD-ROM, CD-ROM/XA, Video-CD, CD-I, Photo CD, CD-EXTRA, CD-TEXT

CD-ROM DRIVE

SC-152 52X Multi-Read CD-ROM Drive

SC-148 48X Multi-Read CD-ROM Drive

Drive Type	Interface	Disc Diameter	Loading Type	Average Access Time	Dimensions (WxHxDmm)	Buffer Memory	Drive Mounting	Supported Disc
Internal Type	EIDE/ATAPI	80mm / 120mm	Motorized Tray Type	80ms	(SC-152) 148.2 x 42 x 184 (SC-148) 148.2 x 42 x 202	128KB	Horizontal/Vertical	CD-R, CD-RW, CD-DA, CD-ROM, CD-ROM/XA, VideoCD, CD-I, Photo CD, CD-EXTRA, CD-TEXT

COMBO SLIM DRIVE

SN-324 24X 24X 24X CD-RW + 8X DVD-ROM

Recording Capacity	Drive Type	Interface	Loading Type	Average Access Time	Dimensions (WxHxDmm)	Buffer Memory	Drive Mounting	Supported Disc
CD-RW Disc 700/650MB Type 80/74 CDR Disc 800/700/650MB (Type 90/80/74)	Internal Type	EIDE/ATAPI	Drawer Type	DVD: 110ms CD: 100ms	128 x 12.7 x 129	2MB	Horizontal/Vertical	DVD-R, DVD-RW, DVD-RAM, DVD-ROM, DVD-Video, CD-R, CD-RW, CD-DA, CD-ROM, CD-ROM/XA, VideoCD, CD-I, Photo CD, CD-EXTRA, CD-TEXT

CD-ROM SLIM DRIVE

SN-124 24X Multi-Read CD-ROM Slim Drive

Drive Type	Disc Diameter	Interface	Loading Type	Average Access Time	Dimensions (WxHxDmm)	Buffer Memory	Drive Mounting	Supported Disc
Internal Type	80mm / 120mm	EIDE/ATAPI	Drawer Type	110ms	128 x 12.7 x 129	128KB	Horizontal/Vertical	CD-R, CD-RW, CD-DA, CD-ROM, CD-ROM/XA, VideoCD, CD-I, Photo CD, CD-EXTRA, CD-TEXT

ULTRA SLIM COMBO DRIVE

SU-408

Recording Capacity	Drive Type	Interface	Loading Type	Average Access Time	Dimensions (WxHxDmm)	Buffer Memory	Drive Mounting	Supported Disc
CD-RW Disc 700/650MB Type 80/74 CDR Disc 800/700/650/550MB (Type 90/80/74/63)	Internal Type	EIDE/ATAPI	Drawer Type	DVD: 110ms CD: 100ms	128 x 9.5 x 129	2MB	Horizontal/Vertical	DVD-R, DVD-RW, DVD-ROM, DVD-Video, CD-R, CD-RW, CD-DA, CD-ROM, CD-ROM/XA, VideoCD, CD-I, Photo CD, CD-EXTRA, CD-TEXT

HARD DISK DRIVES (HDD)

		Capacity	Rotational Speed	P/N	# of Head	# of Disk	Interface	Buffer Size	
SpinPoint V Series	V80 Series	80GB	5400 rpm	SV0802N	2	1	ATA-133	2MB / 8MB	
		120GB	5400 rpm	SV1203N	3	2	ATA-133	2MB / 8MB	
		160GB	5400 rpm	SV1604N	4	2	ATA-133	2MB / 8MB	
		VL40P Series	40GB	5400 rpm	SV0411N	1	1	ATA-133	2 MB
SpinPoint P Series	P80 Series	80GB	7200 rpm	SP0802N	2	1	ATA-133	2MB / 8MB	
		120GB	7200 rpm	SP1203N	3	2	ATA-133	2MB / 8MB	
		160GB	7200 rpm	SP1604N	4	2	ATA-133	2MB / 8MB	
		P40 Series	40GB	7200 rpm	SP0411N	1	1	ATA-133	2MB
		P80 Series SATA	80GB	7200 rpm	SP0812C	2	1	S-ATA	8MB
	120GB		7200 rpm	SP1213C	3	2	S-ATA	8MB	
	160GB		7200 rpm	SP1614C	4	2	S-ATA	8MB	
		P40 Series SATA	40GB	7200 rpm	SP0411C	1	1	S-ATA	2MB

2.5" HARD DISK DRIVES (HDD)

		Capacity	Rotational Speed	P/N	# of Head	# of Disk	Interface	Buffer Size
SpinPoint M Series	M40 Series	30GB	5400 rpm	MP0302H	1	1	ATA-6	8MB
		40GB	5400 rpm	MP0402H	2	1	ATA-6	8MB
		60GB	5400 rpm	MP0603H	3	2	ATA-6	8MB
		80GB	5400 rpm	MP0804H	4	2	ATA-6	8MB



SAMSUNG



**Sales Reps
and Distributors**

We use a combination of sales channels to serve our customer base. A complete listing of our sales representatives, distributors and regional offices appears on the following pages.

Samsung Semiconductor Headquarters
3655 North First Street
San Jose, California 95134
408-544-4000

For complete product information visit our website:
<http://www.usa.samsungsemi.com>

*Note: All brands or product names are the property of their respective holders.

SECTION C**PAGE**

REPRESENTATIVES	3c-4c
DISTRIBUTORS	5c-7c
SAMSUNG SALES OFFICES	8c

REPRESENTATIVES

Rep	Region	Address	Phone	Fax
Adelsa Headquarters (Mexico City)	Mexico	Adelsa Headquarters Hda. Corralejo 80 Bosque de Echegaray Naucalpan, Estado de Mexico 53310	52-555-560-5002	52-555-363-1010
Adelsa Chihuahua Office	Mexico	Campo del Sandillal 9300 Col. Campo Bello Chihuahua , Chihuahua Mexico CP 31124	52-614-498-8259	52-614-498-8259
Adelsa Ciudad Juarez Office	Mexico	Av. 16 de Septiembre No. 2324 Oriente Col. Partido Romero Ciudad Juarez Mexico CP 32160	52-656-611-8852	52-656-616-6570
Adelsa Guadalajara Office	Mexico	Calle del Rosario #643 Col. Jardines de los Arcos Guadalajara, Jalisco Mexico CP 44500	52-33-3122-3054	52-33-3121-3635
Adelsa Monterrey Office	Mexico	Paseo Virrey de Acuna No. 105 Rinconada Colonial, Apodaca Apodaca, Nuevo Leon Mexico CP 66606	52-81-8386-3171	52-81-8386-4235
Advanced Technical Marketing, Inc. (ATMI) - Portland Office	NW	4900 SW Griffith Drive Suite #155 Beaverton, OR 97005	503-643-8307	503-643-4364
Advanced Technical Marketing, Inc. (ATMI) - Seattle Office	NW	8573 154th Ave. NE Redmond, WA 98052	425-869-7636	425-869-9841
Bestronics San Diego Office	SW	9988 Hibert Street Suite 210 San Diego, CA 92131	858-693-1111	858-693-1963
Customer 1st Minneapolis Office	NC	2950 Metro Drive Suite 101 Bloomington, MN 55425	952-851-7909	952-851-7907
Customer 1st Cedar Rapids Office	NC	1221 Park Place NE III, #H, Cedar Rapids, IA 52402	319-393-1351	952-851-7907
Customer 1st Kansas City Office	NC	10540 Marty #200N Overland Park, KS 66212	913-385-0390	952-851-7907
Digit-Tech Sales Inc San Juan Office	SE	PO Box 1945 Calle Ruiz Belvis #9 Altos Esq. Carro San German, PR 00683	787-892-4260	787-892-3366
Digit-Tech Sales Inc. Miami Office	SE	8240 NW 52nd Terrace Doral Center Miami FL 33166	305-591-2400	305-594-9878
Digit-Tech Sales Inc. Sao Paulo, Brazil Office	SE	Av. Brigadeiro Faria Lima 3729 5 Andar - Itaim Bibi 04538-905 Sao Paulo- SP Brazil	5511-3443-6250	5511-3443-6201
Dyne-A-Mark Corporation Orlando Office	SE	500 Winderley Pl. Ste. 100 Maitland, FL 32751	407-660-1661	407-660-9407
Front Range Marketing, Inc. Denver Office	NW	2601 31st Street Boulder, CO 80303	303-443-4780	303-447-0371
Front Range Marketing, Inc. Salt Lake City Office	NW	448 East 6400 South Suite 280 Murray, UT 84107	801-288-2500	801-288-2505

REPRESENTATIVES

Rep	Region	Address	Phone	Fax
InTELaTECH, Inc. Toronto Office	Canada	5225 Orbitor Drive Suite 2 Mississauga, Ontario Canada L4W 4Y8	905-629-0082	905-629-8910
InTELaTECH, Inc. Calgary Office	Canada	14939 Mt. McKenzie Drive South E Calgary, Alberta Canada T2Z 2M6	403-686-2268	403-686-6926
InTELaTECH, Inc. Montreal Office	Canada	1755 St Regis Blvd, Suite 220 Suite 220 St. Laurent, Quebec Canada H9B 2M9	514-421-5833	514-421-4105
InTELaTECH, Inc. Ottawa Office	Canada	700 March Road Suite 203 Kanata, ON Canada K2K 2V9	613-599-7330	613-271-0333
Intermountain Tech Boise Office	NW	1310 East First Street Meridian, ID 83642	208-888-6071	208-884-5180
I-Squared San Jose Office	NW	224 Airport Parkway, Suite 150 San Jose, CA 95110	408-988-3400	408-988-2079
I-Squared Petaluma Office	NW	1250 B Street Petaluma, CA 94952	707-773-3108	707-781-0629
Neptune Electronics Company Inc. (NECCO) - Long Island Office	NE	11 Oval Drive Suite 169 Islandia, NY 11749	631-234-2525	631-234-2707
New Tech Solutions Boston Office	NE	1 Van de Graaff Drive 4th Floor Burlington, MA 01803	781-229-8888	781-229-1614
Rep One Associates, Inc. Huntsville Office	SE	7535 South Memorial Parkway Huntsville, AL 35802	256-539-7371	256-533-4509
Rep One Associates, Inc. Atlanta Office	SE	3000 Langford Road Bld 300 Norcross, GA 30071	770-209-9242	770-209-9245
Rep One Associates, Inc. Raleigh Office	SE	6512 Six Forks Road, Suite 203B Raleigh, NC 27615	919-845-9900	919-845-9700
Rep One Associates, Inc. Charlotte Office	SE	1805 Sardis Road North, Suite 134 Charlotte, NC 28270	704-846-5744	704-846-5925
Summit Sales Phoenix Office	SW	7802 E. Gray Rd. Suite 600 Scottsdale, AZ 85260	480-998-4850	480-998-5274

DISTRIBUTORS

State/Country	City	Company	Phone	Fax	
Alabama	Huntsville	All American	256-837-1555	256-837-7733	
	Huntsville	Arrow - Bell	256-864-3300	256-864-3349	
	Huntsville	Jaco Electronics	256-864-3190	256-864-3196	
Arizona	Phoenix	All American	480-966-0006	480-966-0007	
	Tempe	Arrow - Bell	480-966-6600	480-966-4826	
	Tempe	Jaco Electronics	888-522-6520	480-967-1144	
California	Calabasas	All American	818-878-0555	818-878-0533	
	Calabasas	Arrow - Bell	818-880-9686	818-880-4687	
	Calabasas	Arrow Components	818-932-0793	818-932-1270	
	Cypress	All American	714-229-8600	714-229-8603	
	Cypress	All American	714-229-8600	714-229-8603	
	Foothill Ranch	Arrow - Bell	949-380-4700	949-454-4206	
	Foothill Ranch	Arrow - Zeus	949-454-4350	949-454-4355	
	Fremont	All American	510-623-3660	510-623-3666	
	Lake Forest	Jaco Electronics	949-462-9090	949-462-0490	
	Milpitas	Arrow - Bell	916-797-3200	916-624-9750	
	Milpitas	Arrow Components	408-441-4000	408-441-4067	
	Roseville	Arrow - Bell	916-797-3200	916-624-9750	
	San Diego	Arrow - Bell	858-541-1700	858-503-7691	
	San Diego	Arrow Components	858-541-1700	858-279-6862	
	San Diego	Jaco Electronics	858-689-1082	858-689-0190	
	San Diego	Jaco Electronics	858-694-8585	858-694-8583	
	San Jose	All American	408-441-1300	408-437-8970	
	San Jose	Arrow - Zeus	408-727-2500	303-600-1279	
	San Jose	Jaco Electronics	408-261-6700 800-696-0948	408-261-6717	
	San Jose	Jaco Electronics	408-453-9933	408-453-9941	
	Tustin	All American	714-573-5000	714-573-5050	
	Westlake Village	Jaco Electronics	805-495-9998	805-494-3864	
	Westlake Village	Jaco Electronics	805-694-8585	858-694-8583	
	Canada	Burnaby	Arrow - Bell	604-421-2333	604-421-5030
		Calgary	Arrow - Bell	403-259-6817	403-259-8699
		Dorval	Arrow - Bell	514-421-7411	514-421-7430
Kanata		Arrow - Bell	613-271-8200	613-271-8203	
Mississauga		All American	905-670-5946	905-670-5947	
Mississauga		Arrow - Bell	905-670-4291	905-670-7781	
Mississauga		Arrow Components	905-565-4405	905-565-4410	
Mississauga		Jaco Electronics	905-405-6230	905-405-6235	
Montreal		Arrow - Zeus	514-421-7411	978-694-2199	
Quebec City		Arrow - Bell	418-871-7500	418-871-6816	
Colorado		Englewood	Arrow - Bell	970-245-0186	970-245-2062
	Englewood	Arrow Components	303-708-5299	303-708-5280	
	Westminster	All American	303-222-0100	303-222-0110	
	Wheatridge	All American	303-422-2304	303-422-2529	
Connecticut	Wallingford	Arrow - Bell	203-265-7741	203-265-7988	
	Wallingford	Jaco Electronics	203-272-7750	203-272-8228	

DISTRIBUTORS

State/Country	City	Company	Phone	Fax
Florida	Altamonte Springs	All American	407-261-1304	407-261-1330
	Clearwater	All American	727-532-9800	727-538-5567
	Deerfield Beach	All American	954-429-2800	954-429-0391
	Deerfield Beach	Arrow - Bell	954-429-8200	954-428-3991
	Deerfield Beach	Jaco Electronics	954-425-0304	954-425-8077
			800-776-5226	
	Lake Mary	Arrow - Zeus	407-333-3055	407-333-9681
	Miami	All American Corporate	305-651-8282	305-620-7831
	Tampa	Jaco Electronics	813-854-6360	813-891-4056
	Tampa	Jaco Electronics Corporate Sales	813-854-2351	813-891-4056
Georgia	Duluth	Arrow - Bell	770-497-1300	770-476-1493
	Duluth	Jaco Electronics	770-446-1300	770-446-2991
Illinois	Itasca	Arrow - Bell	630-250-0500	630-250-0916
	Itasca	Arrow - Zeus	630-595-9730	630-595-9896
	Itasca	Arrow Components	630-285-6090	630-285-6096
	Schaumburg	All American	847-303-1995	847-303-1996
	Schaumburg	Jaco Electronics	847-303-0700	847-303-9573
	Schaumburg	Jaco Electronics	847-882-1700	847-882-8904
Indiana	Indianapolis	Arrow - Bell	317-913-1100	317-570-1344
Kansas	Overland Park	All American	913-851-5900	913-851-5905
	Lenexa	Arrow - Bell	913-541-9542	913-752-2612
Maryland	Columbia	All American	410-309-6262	410-309-6273
	Columbia	Arrow - Bell	410-309-0686	410-309-0699
	Columbia	Arrow Components	410-309-0899	410-309-0898
	Columbia	Arrow - Zeus	410-309-1541	410-309-1560
	Columbia	Jaco Electronics	410-995-6620	410-995-6032
Massachusetts	Burlington	Jaco Electronics	781-273-2800	781-270-0070
	Tewksbury	Jaco Electronics	978-640-0010	978-640-0755
			800-225-0818	
	Wilmington	Arrow - Bell	978-658-0900	978-694-1724
	Wilmington	Arrow - Zeus	978-658-4776	978-694-2199
	Wilmington	Arrow Components	978-694-6650	978-694-6652
Mexico	Guadalajara, Jalisco	Jaco Electronics	011-52-3-678-9294	011-52-3-678-9200
Michigan	Livonia	All American	734-464-2202	734-464-2433
	Plymouth	Arrow - Bell	734-455-0850	734-455-6656
Minnesota	Eden Prairie	All American	952-944-2151	952-944-9803
	Eden Prairie	Arrow - Bell	952-828-5350	952-828-5399
	Eden Prairie	Arrow Components	952-828-5300	952-828-5420
	Mendota Heights	Jaco Electronics	651-452-7464	651-452-7502
Missouri	St. Louis	Arrow - Bell	314-567-6888	314-567-1164
New Jersey	Marlton	All American	856-596-6666	856-797-1700
	Pine Brook	Arrow - Bell	973-882-8358	973-882-9109
	Pine Brook	Arrow Components	973-882-8358	973-882-9109

DISTRIBUTORS

State/Country	City	Company	Phone	Fax
New York	Hauppauge	All American	631-434-9000	631-434-9394
	Hauppauge	Arrow - Bell	631-851-2300	631-851-2360
	Hauppauge	Arrow Components	631-493-2200	631-493-2240
	Hauppauge	Jaco Electronics - Corp	631-273-5500	631-273-5799
	Melville	Arrow - Bell	631-391-4256	631-391-4280
	Purchase	Arrow - Zeus	914-701-7400	914-701-4262
	Purchase	Arrow - Zeus - Corporate	914-701-7400	914-251-1583
	Rochester	All American	585-292-6700	585-292-6755
North Carolina	Rochester	Arrow - Bell	716-427-0300	716-427-0735
	Raleigh	All American	919-851-6566	919-851-8734
	Raleigh	Arrow - Bell	919-876-3132	919-878-9517
Ohio	Raleigh	Jaco Electronics	919-876-7767	919-876-6964
	Centerville	Arrow - Bell	937-428-7300	937-428-7359
	Centerville	Arrow - Zeus	888-645-7364	937-428-7346
	Solon	Arrow - Bell	440-248-9996	440-248-5490
Oklahoma	Warrenville Heights	All American	216-514-0625	216-514-0822
	Tulsa	Arrow - Bell	918-252-7537	918-254-0917
Oregon	Beaverton	All American	503-531-3333	503-531-3695
	Beaverton	Arrow - Bell	503-629-8090	503-645-0611
	Beaverton	Jaco Electronics	503-626-1439	503-626-0979
Pennsylvania			800-245-5226	
	Horsham	Arrow - Bell	215-956-4800	215-675-9875
	Horsham	Arrow Components	215-956-4850	215-956-4855
Texas	Pittsburgh	Arrow - Bell	724-327-1130	724-327-4181
	Austin	All American	512-335-2280	512-335-2282
	Carrollton	Arrow - Bell	972-380-6464	972-248-7208
	Carrollton	Arrow - Zeus	972-380-4330	972-447-2222
	Carrollton	Arrow Components	972-250-5300	972-930-1374
	Richardson	All American	972-231-5300	972-437-0353
	Richardson	Jaco Electronics	972-234-5565	972-238-7068
Utah	Midvale	All American	801-565-8300	801-565-9983
	Salt Lake City	Arrow - Bell	801-973-8555	801-973-8909
Washington	Bellevue	Arrow - Bell	425-643-9992	425-643-9709
	Bellevue	Arrow Components	425-649-6238	425-649-6249
	Bothell	All American	425-806-4800	425-806-9900
Wisconsin	Brookfield	Arrow - Bell	262-879-0434	262-879-0474
	Waukesha	All American	262-798-5007	262-798-7055

SAMSUNG SALES OFFICES

West

HEADQUARTERS

3655 N. First Street
San Jose, CA 95134
408-544-4400
408-544-4934 Fax

NORTHWEST SALES

5400 Carillon Point
Kirkland, WA 98033
425-576-4131
425-576-4040 Fax

SOUTHWEST SALES

3351 Michelson Drive
Suite 250
Irvine, CA 92612
949-975-7000
949-975-7283 Fax

Southwest Technology Center

3351 Michelson Drive
Suite 250
Irvine, CA 92612
949-975-7000
949-975-7286 Fax

Central

NORTH CENTRAL

2895 Greenspoint Parkway
Suite 150
Hoffman Estates, IL 60195
847-882-1188
847-490-8995 Fax

8000 Regency Parkway
Suite 585
Cary, NC 27511
919-380-8483
919-380-8492 Fax

SOUTH CENTRAL SALES

11044 Research Blvd.
Suite A425
Austin TX 78759
512-342-1904
512-342-1915 Fax

14643 Dallas Parkway
Suite 320
Dallas, TX 75245
972-385-1114
972-385-1173 Fax

20405 SH 249
Suite 370
Houston, TX 77070-2607
281-376-2191
281-376-2192 Fax

East

NORTH EAST SALES

238 Littleton Road
Suite 201
Westford, MA 01886
978-392-2220
978-392-2240 Fax

300 Westage Business Center
Suite 295
Fishkill, NY 12524
845-897-7777
845-897-7780 Fax

SOUTH EAST SALES

6465 East Johns Crossing
Suite 400
Duluth, GA 30097
678-775-3255
770-622-3770 Fax

For more information, visit our website: www.usa.samsungsemi.com

Disclaimer: The information in this publication has been carefully checked and is believed to be entirely accurate at the time of publication. Samsung assumes no responsibility, however, for possible errors or omissions, or for any consequences resulting from the use of the information contained herein.

Samsung reserves the right to make changes in its products or product specifications with the intent to improve function or design at any time and without notice and is not required to update this documentation to reflect such changes. This publication does not convey to a purchaser of semiconductor devices described herein any license under the patent rights of Samsung or others. Samsung makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does Samsung assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation any consequential or incidental damages.

"Typical" parameters can and do vary in different applications. All operating parameters, including "Typicals" must be validated for each customer application by the customer's technical experts.

Samsung products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, for other applications intended to support or sustain life, or for any other application in which the failure of the Samsung product could create a situation where personal injury or death may occur.

Should the Buyer purchase or use a Samsung product for any such unintended or unauthorized application, the Buyer shall indemnify and hold Samsung and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, expenses, and reasonable attorney fees arising out of, either directly or indirectly, any claim of personal injury or death that may be associated with such unintended or unauthorized use, even if such claim alleges that Samsung was negligent regarding the design or manufacture of said product.



www.usa.samsungsemi.com

Copyright 2004. Samsung and Samsung Semiconductor Inc. are registered trademarks of Samsung Electronics, Co., Ltd. All other names and brands may be claimed as the property of others. The appearance of all products, dates, figures, diagrams and tables are subject to change at any time, without notice.

BR-04-ALL-001 Printed 2/04