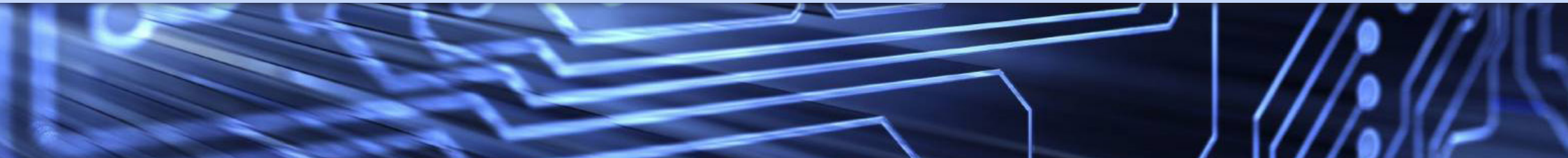


PRODUCT CATALOG 2022



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Alliance Memory is pleased to highlight our new product offerings in DRAM, SRAM and FLASH eMMC in this new 2022 edition of our Product Selection Guide. We continue to be the premier legacy memory supplier offering high quality products, minimal die shrinks and long term support.

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Synchronous DRAM 3.3V (x4, x8, x16 and x32)



| DENSITY | ORG | VCC | PACKAGE | CLOCK FREQUENCY (MHz) | TEMPERATURE | ALLIANCE |
|---------|----------|------|-----------------------------|-----------------------|------------------------------------|---------------------------|
| 16Mb | 1M x 16 | 3.3V | 50pin TSOP II | 143/166 MHz | Commercial, Industrial | AS4C1M16S-6/7 TxN |
| 64Mb | 4M x 16 | 3.3V | 54pin TSOP II | 143/166/200 MHz | Commercial, Industrial, Automotive | AS4C4M16SA-5/6/7 TxN |
| 64Mb | 4M x 16 | 3.3V | 54pin TSOP II | 166 MHz | Industrial | AS4C4M16SB-6TIN |
| 64Mb | 4M x 16 | 3.3V | 54-ball FBGA / 60-ball FBGA | 143/166 MHz | Commercial, Industrial, Automotive | AS4C4M16SA-6/7 BxN, B2xN |
| 64Mb | 2M x 32 | 3.3V | 90-ball TFBGA | 143/166 MHz | Commercial, Industrial | AS4C2M32S-6/7 BxN |
| 64Mb | 2M x 32 | 3.3V | 86pin TSOP II | 143/166 MHz | Commercial, Industrial | AS4C2M32SA-6/7 TxN |
| 128Mb | 8M x 16 | 3.3V | 54pin TSOP II/54-ball FBGA | 143/166 MHz | Commercial, Industrial, Automotive | AS4C8M16SA-6/7 TxN/BxN |
| 128Mb | 8M x 16 | 3.3V | 54pin TSOP II | 166 MHz | Industrial | AS4C8M16SB-6TIN |
| 128Mb | 4M x 32 | 3.3V | 90-ball TFBGA | 143/166 MHz | Commercial, Industrial | AS4C4M32S-6/7 BxN |
| 128Mb | 4M x 32 | 3.3V | 86pin TSOP II | 143/166 MHz | Commercial, Industrial | AS4C4M32SA-6/7 TxN |
| 256Mb | 16M x 16 | 3.3V | 54pin TSOP II/54-ball FBGA | 143/166 MHz | Commercial, Industrial, Automotive | AS4C16M16SA/B-6/7 TxN/BxN |
| 256Mb | 8M x 32 | 3.3V | 86pin TSOP II | 143/166 MHz | Commercial, Industrial | AS4C8M32S-6/7 TxN |
| 256Mb | 8M x 32 | 3.3V | 90-ball TFBGA | 143/166 MHz | Commercial, Industrial | AS4C8M32SA-6/7 BxN |
| 256Mb | 32M x 8 | 3.3V | 54pin TSOP II | 143/166 MHz | Commercial, Industrial | AS4C32M8SA-6/7 TxN |
| 256Mb | 64M x 4 | 3.3V | 54pin TSOP II | 143/166 MHz | Commercial, Industrial | AS4C64M4SA-6/7 TxN |
| 512Mb | 32M x 16 | 3.3V | 54-ball FBGA | 143 MHz | Industrial | AS4C32M16SB-7BIN |
| 512Mb | 32M x 16 | 3.3V | 54pin TSOP II | 143/166MHz | Commercial, Industrial | AS4C32M16SB-6/7 TxN |
| 512Mb | 32M x 16 | 3.3V | 54pin TSOP II | 143 MHz | Industrial (Single Die) | AS4C32M16SC-7TIN |
| 512Mb | 16M x 32 | 3.3V | 86pin TSOP II | 143 MHz | Industrial (Single Die) | AS4C16M32SC-7TIN |
| 512Mb | 64M x 8 | 3.3V | 54pin TSOP II | 143 MHz | Industrial (Single Die) | AS4C64M8SC-7TIN |
| 512Mb | 64M x 8 | 3.3V | 54pin TSOP II | 133 MHz | Commercial, Industrial | AS4C64M8SD-7TCN |

* x=Temperature Range C=0 ~ +70 °C I=-40 ~ +85 °C A=-40 ~ +105

Synchronous DRAM 3.3V Cross Reference



| DENSITY | ORG | ALLIANCE | SAMSUNG (EOL) | MICRON | SK HYNIX (EOL) | ISSI | WINBOND | NANYA (EOL) | ELITE (ESMT) | ELPIDA (EOL) |
|---------|----------|-----------------------------|-----------------|--------------------------|----------------|-------------|------------------|------------------|--------------------|-----------------------|
| 16Mb | 1M x 16 | AS4C1M16S-6/7TxN | K4S161622E | MT48LC1M16A1 | HY57V161610 | IS42S16100 | W9816G6TH | NT56V1616AOT | M12L16161A-xTG2Q | EDS1616AGTA |
| 64Mb | 4M x 16 | AS4C4M16SA-6/7TxN | K4S641632N-UCxx | MT48LC4M16A2P | HY57V641620 | IS42S16400 | W9864G6JH | NT56V6620C0T-xxB | M12L64164A-xTG2U | uPD4564163G5-Axx |
| 64Mb | 4M x 16 | AS4C4M16SB-6TIN | K4S641632N-UCxx | MT48LC4M16A2P | HY57V641620 | IS42S16400 | W9864G6JH | NT56V6620C0T-xxB | M12L64164A-xTG2U | uPD4564163G5-Axx |
| 64Mb | 4M x 16 | AS4C4M16SA-6/7BxN | | MT48LCM16A2B4(F4) | HY5V66D | IS42S16400 | W9864G6JT | | M12L64154A-xBG2C | |
| 64Mb | 4M x 16 | AS4C4M16SA-7B2CN | | | | IS42S16400 | W9864G6JB-7 | | | |
| 64Mb | 2M x 32 | AS4C2M32S-6/7BxN | | MT48LC2M32B2B5-x | HY5V62 | IS42S32200 | W9864G2IB-x | | | EDS6432AFBH |
| 64Mb | 2M x 32 | AS4C2M32SA-6/7TxN | K4S643232H-Ucxx | MT48LC2M32B2P-x (EOL) | HY57V643220 | IS42S32200 | W9864G2J(G,I)H-x | | M12L64322A-xTG2U | EDS6432AFTA |
| 128Mb | 8M x 16 | AS4C8M16SA-6/7TxN | K4S281632K-UCxx | MT48LC8M16A2P | HY57V281620 | IS42S16800 | W9812G6K(G,I)H | NT5SV8M16AT-xxB | M12L128168A-xTG2N | uPD45128163G5-Axx |
| 128Mb | 8M x 16 | AS4C8M16SA-6/7BxN | K4S281632D-RL75 | MT48LC8M16A2B4(F4) | HY5V26 | IS42S16800 | W9812G6JB | | M12L128168A-xBG2N | |
| 128Mb | 8M x 16 | AS4C8M16SB-6TIN | K4S281632K-UCxx | MT48LC8M16A2P | HY57V281620 | IS42S16800 | W9812G6K(G,I)H | NT5SV8M16AT-xxB | M12L128168A-xTG2N | uPD45128163G5-Axx |
| 128Mb | 4M x 32 | AS4C4M32S-6/7BxN | | MT48LC4M32B2B5-x | HY5V22 | IS42S32400 | W9812G21(G)B-x | | M12L128324-xBG2E | EDS1232AHHB |
| 128Mb | 4M x 32 | AS4C4M32SA-6/7TxN | | MT48LC4M32B2P-x (EOL) | HY57V283220T | IS42S32400 | W9812G2GH | | | EDS1232AHTA |
| 256Mb | 16M x 16 | AS4C16M16SA/B-6/7TxN | K4S561632N-UCxx | MT48LC16M16A2P | H57V2562GTR | IS42S16160 | W9825G6K(D,E,J)H | NT5SV16M16AT-xxB | M12L2561616A-xTG2A | EDS2516AP(AF,AC)TA-xx |
| 256Mb | 16M x 16 | AS4C16M16SA-6/7BxN | K4S561632D-RL75 | MT48LC16M16A2B4 | HY5V56 | IS42S16160 | W9825G6JB | | M12L2561616A-xBG2A | EDS2516EE(JE)BH |
| 256Mb | 8M x 32 | AS4C8M32S-6/7TxN | | MT48LC8M32B2B5-x (EOL) | HY5V52 | IS42S32800 | W9825G2J(D)B-x | | | EDS2532EEBH |
| 256Mb | 8M x 32 | AS4C8M32SA-6/7BxN | | MT48LC8M32B2B5-x | HY5V52 | IS42S32800 | W9825G2J(D)B-x | | | EDS2532EEBH |
| 256Mb | 32M X 8 | AS4C32M8SA-6/7TxN | | MT48LC32M8A2P | | IS42S83200J | | | | |
| 256Mb | 64M x 4 | AS4C64M4SA-6/7TxN | | MT48LC64M4A2P (EOL) | | IS42S32800 | | | | |
| 512Mb | 32M x 16 | AS4C32M16SB-7BIN | | | | IS42S16320 | | | M12L5121632A | |
| 512Mb | 32M x 16 | AS4C32M16SB-6/7TxN | K4S511632M-TC75 | MT48LC32M16A2 (EOL) | | IS42S16320 | | | M12L5121632A | EDS5116ABTA |
| 512Mb | 32M x 16 | AS4C32M16SC-7TIN | K4S511632M-TC75 | MT48LC32M16A2 (EOL) | | IS42S16320 | | | | EDS5116ABTA |
| 512Mb | 16M x 32 | AS4C16M32SC-7TIN | | | | IS42S32160 | | | | |
| 512Mb | 64M x 8 | AS4C64M8SC-7TIN | | MT48LC64M8A2P-75:C (EOL) | | IS42S86400 | | | | |
| 512Mb | 64M x 8 | AS4C64M8SD-7TCN | | MT48LC64M8A2P-75:C (EOL) | | IS42S86400 | | | | |

DDR1 2.5V DRAM



| DENSITY | ORG | VCC | PACKAGE | CLOCK FREQUENCY (MHz) | DATA RATE | TEMPERATURE OPTIONS | ALLIANCE |
|---------|----------|------|-----------------------------|-----------------------|--------------|------------------------------------|--|
| 64Mb | 4M x 16 | 2.5V | 66pin TSOP II | 200 MHz | 400 Mbps/pin | Commercial, Industrial, Automotive | AS4C4M16D1A-5TxN |
| 64Mb | 2M x 32 | 2.5V | 144-ball FBGA | 200 MHz | 400 Mbps/pin | Commercial, Industrial | AS4C2M32D1A-5BxN |
| 128Mb | 8M x 16 | 2.5V | 66pin TSOP II | 200 MHz | 400 Mbps/pin | Commercial, Industrial | AS4C8M16D1A-5TxN |
| 128Mb | 8M x 16 | 2.5V | 60-ball FBGA | 200 MHz | 400 Mbps/pin | Commercial, Industrial | AS4C8M16D1-5BxN |
| 128Mb | 4M x 32 | 2.5V | 144-ball FBGA | 200 MHz | 400 Mbps/pin | Commercial, Industrial | AS4C4M32D1A-5BxN |
| 256Mb | 16M x 16 | 2.5V | 66pin TSOP II | 200 MHz | 400 Mbps/pin | Commercial, Industrial | AS4C16M16D1A-5TxN |
| 256Mb | 16M x 16 | 2.5V | 60-ball FBGA | 200 MHz | 400 Mbps/pin | Commercial, Industrial, Automotive | AS4C16M16D1-5BxN |
| 512Mb | 32M x 16 | 2.5V | 66pin TSOP II | 200 MHz | 400 Mbps/pin | Commercial, Industrial, Automotive | AS4C32M16D1A-5TxN |
| 512Mb | 32M x 16 | 2.5V | 60-ball FBGA | 200 MHz | 400 Mbps/pin | Commercial, Industrial, Automotive | AS4C32M16D1-5BxN |
| 512Mb | 64M x 8 | 2.5V | 66pin TSOP II, 60-ball FBGA | 200 MHz | 400 Mbps/pin | Commercial, Industrial | AS4C64M8D1-5TxN/5BxN |
| 1Gb | 64M x 16 | 2.5V | 66pin TSOP II, 60-ball FBGA | 166 MHz | 333 Mbps/pin | Commercial, Industrial | AS4C64M16D1-6TxN AS4C64M16D1A-6TxN/6BxN |

* x=Temperature Range C=0 ~ +70 °C I=-40 ~ +85 °C A=-40 ~ +105 °C

DDR1 2.5V DRAM Cross Reference

| DENSITY | ALLIANCE | SAMSUNG (EOL) | MICRON | ISSI | HYNIX - ALL EOL | WINBOND | NANYA | ELITE (ESMT) | ELPIDA |
|---------|-------------------|---------------|-------------------|-----------------|-----------------|-----------------|--------------|--------------------|----------|
| 64Mb | AS4C4M16D1A-5TxN | K4H641638N | MT46V4M16TG (EOL) | IS43R16400B-5TL | | W9464G6K(I,J)H | | M13S64164A-5TG2Y | (EOL) |
| 64Mb | AS4C2M32D1A-5BxN | | | | | | | | |
| 128Mb | AS4C8M16D1-5BxN | K4H281638D | | IS43R16800E-5BL | | W9412G6JB | | M13S128168A-5BG2N | EDD1216A |
| 128Mb | AS4C8M16D1A-5TxN | K4H281638D | MT46V8M16 (EOL) | IS43R16800E-5TL | HY5DU1281622 | W9412G6K(I,J)H | | M13S128168A-5TG2N | EDD1216A |
| 128Mb | AS4C4M32D1A-5BxN | | MT46V4M32FK (EOL) | IS43R32400E-5BL | | W9412GIB | | M13S128324A-5BG2M | EDD1232A |
| 256Mb | AS4C32M8D1-5TxN | K4H560838N | MT46V32M8P (EOL) | IS43R83200 | HY5DU56822 | | NT5DS32M8ES | | EDD2508A |
| 256Mb | AS4C16M16D1-5BxN | K4H561638D | MT46V16M16CY-5B | IS43R16160 | HY5DU561622 | W9425G6JB | | M13S2561616A-xBG2A | |
| 256Mb | AS4C16M16D1A-5TxN | KH561638D | MT46V16M16P | IS43R16160 | HY5DU561622 | W945G6K(D,E,J)H | | M13S2561616A-xTG2A | EDD2516A |
| 512Mb | AS4C32M16D1-5BxN | K4H511638J | MT46V32M16CY | IS43R16320 | HY5DU121622 | | | | EDD5116 |
| 512Mb | AS4C32M16D1A-5TxN | K4H511638J | MT46V32M16P | IS43R16320 | HY5DU121622 | | NT5DS32M16ES | M13S5121632A-5TG2S | EDD5116A |
| 512Mb | AS4C64M8D1-5TxN | K4H510838J | MT46V64M8P | IS43R86400 | HY5DU12822 | | NT5DS64M8ES | | EDD5108A |
| 512Mb | AS4C64M8D1-5BxN | K4H510838J | MT46V64M8CY(BN) | IS43R86400 | HY5DU12822 | | | | |
| 1Gb | AS4C64M16D1-6TxN | | MT46V64M16P (EOL) | | | | | | |
| 1Gb | AS4C64M16D1A-6TxN | | MT46V64M16P (EOL) | | | | | | |

DDR2 1.8V DRAM



| DENSITY | ORG | VCC | PACKAGE | CLOCK FREQUENCY (MHz) | DATA RATE | TEMPERATURE OPTIONS | ALLIANCE |
|---------|-----------|------|--------------|-----------------------|--------------|------------------------------------|--|
| 256Mb | 16M x 16 | 1.8V | 84-ball FBGA | 400 MHz | 800 Mbps/pin | Commercial, Industrial | AS4C16M16D2-25BxN |
| 512Mb | 32M x 16 | 1.8V | 84-ball FBGA | 400 MHz | 800 Mbps/pin | Commercial, Industrial, Automotive | AS4C32M16D2A/C-25BxN |
| 512Mb | 64M x 8 | 1.8V | 60-ball FBGA | 400 MHz | 800 Mbps/pin | Commercial, Industrial, Automotive | AS4C64M8D2-25BxN |
| 1Gb | 64M x 16 | 1.8V | 84-ball FBGA | 400 MHz | 800 Mbps/pin | Commercial, Industrial, Automotive | AS4C64M16D2A-25BxN |
| 1Gb | 64M x 16 | 1.8V | 84-ball FBGA | 400 MHz | 800 Mbps/pin | Commercial | AS4C64M16D2B-25BCN |
| 1Gb | 128M x 8 | 1.8V | 60-ball FBGA | 400 MHz | 800 Mbps/pin | Commercial, Industrial | AS4C128M8D2A-25BxN |
| 2Gb | 128M x 16 | 1.8V | 84-ball FBGA | 400 MHz | 800 Mbps/pin | Commercial, Industrial | AS4C128M16D2-25BxN |
| 2Gb | 128M x 16 | 1.8V | 84-ball FBGA | 400 MHz | 800 Mbps/pin | Commercial, Industrial, Automotive | AS4C128M16D2A-25BxN |
| 2Gb | 256M x 8 | 1.8V | 60-ball FBGA | 400 MHz | 800 Mbps/pin | Commercial | AS4C256M8D2A-25BCN AS4C256M8D2A-25BCN |

C=0 ~ +70 °C I=-40 ~ +95 °C A=-40 ~ +105 °C

* X=TEMPERATURE RANGE

DDR2 1.8V DRAM Cross Reference

| DENSITY | ALLIANCE | SAMSUNG (EOL) | MICRON | ISSI | WINBOND | NANYA | ELITE (ESMT) | HYNIX (EOL) |
|---------|---|---------------|----------------------|-------------|--------------|--------------|--------------------|-------------|
| 256Mb | AS4C16M16D2-25BxN | K4T56163Q | MT47H16M16BG | IS43DR16160 | W9725G6K(J)B | NT5TU16M16BG | M14D2561616A-2.5BG | HY5PS561621 |
| 512Mb | AS4C32M16D2A/C-25BxN | K4T51163Q | MT47H32M16HR(NF)-25E | IS43DR16320 | W9751G6K(J)B | NT5TU32M16GG | M14D5121632A-2.5BG | HY5PS121621 |
| 512Mb | AS4C64M8D2-25BxN | K4T51083Q | MT47H64M8CF(SH)-25E | IS43DR86400 | W9751G8K(J)B | NT5TU64M8EE | | H5PS5182KFR |
| 1Gb | AS4C64M16D2A-25BxN | K4T1G164Q | MT47H64M16HR(NF)-25E | IS43DR16640 | W971GG6JB | NT5TU64M16HG | M14D1G1664A-2.5BG | H5PS1G63 |
| 1Gb | AS4C64M16D2B-25BCN | K4T1G164Q | MT47H64M16HR(NF)-25E | IS43DR16640 | W971GG6JB | NT5TU64M16HG | M14D1G1664A-2.5BG | H5PS1G63 |
| 1Gb | AS4C128M8D2A-25BxN | K4T1G084Q | MT47H128M8SH-25E | IS43DR81280 | W971GG8JB | NT5TU128M8HE | M14D1G8128A | H5PS1G83 |
| 2Gb | AS4C128M16D2-25BxN | | MT47H128M16RT-25E | IS43DR16128 | W972GG6JB | | | |
| 2Gb | AS4C128M16D2A-25BxN | | MT47H128M16RT-25E | IS43DR16128 | W972GG6JB | | | |
| 2Gb | AS4C256M8D2A-25BxN AS4C256M8D2-25BxN | | MT47H256M8EB-25E | IS43DR82560 | W972GG8JB | | | |

DDR3 1.5V SDRAM



| DENSITY | ORG | VCC | PACKAGE | CLOCK FREQUENCY | DATA RATE | TEMPERATURE OPTIONS | ALLIANCE |
|---------|-----------|------|--------------|------------------|---|------------------------------------|---------------------|
| 512Mb | 32M x 16 | 1.5V | 96-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial | AS4C32M16D3-12BxN |
| 512Mb | 64M x 8 | 1.5V | 78-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial | AS4C64M8D3-12BxN |
| 1Gb | 64M x 16 | 1.5V | 96-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial, Automotive | AS4C64M16D3B-12BxN |
| 1Gb | 128M x 8 | 1.5V | 78-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial, Automotive | AS4C128M8D3B-12BxN |
| 2Gb | 128M x 16 | 1.5V | 96-ball FBGA | 1066 MHz | 2133 Mbps/pin | Commercial | AS4C128M16D3C-93BCN |
| 4Gb | 256M x 16 | 1.5V | 96-ball FBGA | 800/933/1066 MHz | 1600 Mbps/pin 1866 Mbps/pin 2133 Mbps/pin | Commercial, Industrial | AS4C256M16D3C-xxBxN |

* x=Temperature Range

C=0 ~ +95 °C (Extended) I=-40 ~ +95 °C A=-40 ~ +105 °C

DDR3L 1.35V SDRAM

| DENSITY | ORG | VCC | PACKAGE | CLOCK FREQUENCY | DATA RATE | TEMPERATURE OPTIONS | ALLIANCE |
|---------|-----------|-------|--------------|-----------------|--------------------------------|------------------------------------|--|
| 512Mb | 32M x 16 | 1.35V | 96-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial | AS4C32M16D3L-12BxN |
| 512Mb | 64M x 8 | 1.35V | 78-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial | AS4C64M8D3L-12BxN |
| 1Gb | 64M x 16 | 1.35V | 96-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial, Automotive | AS4C64M16D3LB-12BxN AS4C64M16D3LC-12BxN |
| 1Gb | 128M x 8 | 1.35V | 78-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial, Automotive | AS4C128M8D3LB-12BxN AS4C128M8D3LC-12BxN |
| 2Gb | 128M X 16 | 1.35V | 96-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial, Automotive | AS4C128M16D3LC-12BxN |
| 2Gb | 256M X 8 | 1.35V | 78-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial, Automotive | AS4C256M8D3LC-12BxN |
| 4Gb | 256M x 16 | 1.35V | 96-ball FBGA | 800 /933MHz | 1600 Mbps/pin 1833 Mbps/pin | Commercial, Industrial, Automotive | AS4C256M16D3LC-xxBxN |
| 4Gb | 512M x 8 | 1.35V | 78-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial, Automotive | AS4C512M8D3LC-xxBxN |
| 8Gb | 512M x 16 | 1.35V | 96-ball FBGA | 800 MHz | 1866 Mbps/pin | Commercial, Industrial, Automotive | AS4C512M16D3LA-10BxN |
| 8Gb | 512M x 16 | 1.35V | 96-ball FBGA | 800 MHz | 1600 Mbps/pin | Commercial, Industrial | AS4C512M16D3LB-12BxN AS4C512M16D3LC-12BxN |
| 8Gb | 1G x 8 | 1.35V | 78-ball FBGA | 933 MHz | 1866 Mbps/pin | Commercial,Industrial, Automotive | AS4C1G8D3LA-10BxN |

* x=Temperature Range

C=0 ~ +95 °C (Extended) I=-40 ~ +95 °C A=-40 ~ +105 °C

DDR3/L SDRAM Cross Reference



| DENSITY | ALLIANCE | MICRON | SAMSUNG | ISSI | HYNIX | WINBOND | ELITE (ESMT) | ELPIDA | NANYA |
|---------|---|---|------------------|--------------------|-------------------|--------------|------------------|--------------------|-----------------------|
| 512Mb | AS4C32M16D3-12BxN | | | | | W6351G6KB-x | M15F5121632A | EDJ5316BASE | |
| 512Mb | AS4C64M8D3-12BxN | | | | | | | EDJ5308BASE | |
| 512Mb | AS4C32M16D3L-12BxN | | | | | | M15T5121632A | EDJ5316BASE | |
| 512Mb | AS4C64M8D3L-12BxN | | | | | | | EDJ5308BASE | |
| 1G | AS4C64M16D3B-12BxN | MT41J64M16JT(TW)-125 (EOL) | K4B1G1646E/G/I | IS43TR16640 | H5TQ1G63D | W631GG6MB | M15F1G1664A | EDJ1116DJ(BA)BG | NT5CB64M16F(G)P |
| 1G | AS4C64M16D3LB/C-12BxN | MT41K64M16JT(TW)-125 | K4B1G1646E/G/I | IS43TR16640A(B)L | H5TC1G63EFR (EOL) | W631GU6MB | M15T1G1664A-(2C) | EDJ1116EJBG | NT5CC64M16F(G)P-DI |
| 1G | AS4C128M8D3B-12BxN | MT41J128M8JP(DA)-125 | K4B1G0846E/F/G/I | IS43TR81280 | H5TQ1G83 | W631GG8MB | | EDJ1108DJ(BA)BG | NT5CB128M8F(G)N-DI |
| 1G | AS4C128M8D3LB/C-12BxN | MT41K128M8JP(DA)-125 | K4B1G0846G/I | IS43TR81280A(B)L | H5TC1G83EFR (EOL) | W631GU8MB | | EDJ1108EJBG | NT5CC128M8F(G)N-DI |
| 2G | AS4C128M16D3C-93BCN | MT41J128M16JT(TW)-125 | K4B2G1646E/F | IS43TR16128 | H5TQ2G63 | W632GG6NB | M15F2G16128A | EDJ2116DEBG | NT5CB128M16I(F)P-DI |
| 2G | AS4C128M16D3LC-12BxN | MT41K128M16JT-125 | K4B2G1646E/F | IS43TR16128A(B,C)L | H5TC2G63 | W632GU6NB | M15F2G16128A | EDJ2116EEBG | NT5CC128M16I(F)P-DI |
| 2G | AS4C256M8D3LC-12BxN | MT41K256M8DA-125 | K4B2G0846E/F | IS43TR82560A-xBL | H5TQ2G83FFR-x | W632GU8NB | | EDJ2108DEBG | NT5CB256M8IN-FL |
| 4G | AS4C256M16D3C-93BCN AS4C256M16D3C-10BxN AS4C256M16D3C-12BxN | MT41J256M16HA-107 MT41J256M16HA-125 | K4B4G1646B/D | IS43TR16256A | H5TQ4G63 | W634GG6NB | M15F4G16256A | EDJ4216BFBG (BASE) | NT5CB256M16C(D,E)P-DI |
| 4G | AS4C256M16D3LC-10BxN AS4C256M16D3LC-12BxN | MT41K256M16HA-107/125 MT41K256M16TW-107/125 | K4B4G1646E/D/F | IS43TR16256AL | H5TC4G63 | W634GU6NB | M15F4G16256A | EDJ4216EFBG | NT5CC256M16C(D,E)P-DI |
| 4G | AS4C512M8D3LC-12BxN | MT41K512M8DA-125 | K4B4G0846B/C/D/E | IS43TR85120AL | H5TC4G83 | W634GU8MB/NB | | EDJ4208EFBG | NT5CC512M8C(D,E)N-DI |
| 8G | AS4C512M16D3LA-10BxN | MT41K512M16VRN-107 MT41K512M16VRP-107 MT41K512M16HA-125 (EOL) | K4B8G1646x (EOL) | IS43TR16512 | H5TC8G63CMR | | M15T8G16512A | | |
| 8G | AS4C512M16D3LB-12BxN | MT41K512M16HA-125 (EOL) | K4B8G1646x (EOL) | IS43TR16512 | H5TC8G63CMR | | M15T8G16512A | | |
| 8G | AS4C1G8D3LA-10BxN | MT41K1G8SN-107/125:E | K4B8G0846x (EOL) | IS43TR81024 | H5TC8G83BMR | | | | |
| 8G | MT41K512M16HA-125 | MT41K512M16HA-125 | K4B8G1646x (EOL) | IS43TR16512 | H5TC8G63CMR | | M15T8G16512A | | |

DDR4



| DENSITY | ORG | VCC | PACKAGES | CLOCK FREQUENCY | DATA RATE | TEMPERATURE OPTIONS | ALLIANCE |
|---------|-----------|------|--------------|-----------------|---------------|------------------------|---------------------------|
| 4Gb | 256M x 16 | 1.2V | 96-ball FBGA | 1333 MHz | 2666 Mbps/pin | Commercial, Industrial | AS4C256M16D4-75BxN |
| 4Gb | 512M x 8 | 1.2V | 78-ball FBGA | 1333 MHz | 2666 Mbps/pin | Commercial, Industrial | AS4C512M8D4-75BxN |
| 4Gb | 256M x 16 | 1.2V | 96-ball FBGA | 1200 MHz | 2400 Mbps/pin | Commercial, Industrial | AS4C256M16D4-83BxN |
| 4Gb | 512M x 8 | 1.2V | 78-ball FBGA | 1200 MHz | 2400 Mbps/pin | Commercial, Industrial | AS4C512M8D4-83BxN |
| 8Gb | 512M x 16 | 1.2V | 96-ball FBGA | 1333 MHz | 2666 Mbps/pin | Commercial, Industrial | AS4C512M16D4-75BxN |
| 8Gb | 1G x 8 | 1.2V | 78-ball FBGA | 1333 MHz | 2666 Mbps/pin | Commercial, Industrial | AS4C1G8D4-75BxN |

DDR4 Cross Reference

| DENSITY | ORG | ALLIANCE | MICRON | NANYA | SAMSUNG | HYNIX | ELITE(ESMT) | ISSI |
|---------|-----------|----------------------------|-----------------------|--|--------------------------|----------------------------|--------------|----------------|
| 4Gb | 256M x 16 | AS4C256M16D4-83BxN | MT40A256M16GE/ LY | NT5AD256M16D4/E4 | K4A4G165WE K4A4G165WF | H5AN4G6NBJR | M16U4G16256A | IS43QR16256A/B |
| 4Gb | 512M x 8 | AS4C512M8D4-83BxN | MT40A512M8RH/SA /WE | NT5AD512M8D3/E3 | K4A4G085WE K4A4G085WF | H5AN4G8NBJR | | IS43QR85120B |
| 4Gb | 256M x 16 | AS4C256M16D4A-75BxN | MT40A256M16GE /LY | NT5AD256M16D4/E4 | K4A4G165WE K4A4G165WF | H5AN4G6NBJR | M16U4G16256A | IS43QR16256A/B |
| 4Gb | 512M x 8 | AS4C512M8D4A-75BxN | MT40A512M8RH/SA /WE | NT5AD512M8D3/E3 | K4A4G085WE K4A4G085WF | H5AN4G8NBJR | | IS43QR85120B |
| 8Gb | 512M x 16 | AS4C512M16D4-75BxN | MT40A512M16LY/ JY/ TB | NT5AD512M16C4 NT5AD512M16A4 NT5AD512M16G4 NT5AD512M16H4 | K4A8G165WB K4A8G165WC | H5AN8G6NCJR H5AN8G6NDJR | | IS43QR16512A |
| 8Gb | 1G x 8 | AS4C1G8D4-75BxN | MT40A1G8SA/WE | NT5AD1024M8C3 NT5AD1024M8A3 NT5AD1024M8G3 NT5AD1024M8H3 | K4A8G085WB K4A8G085WC | H5AN8G8NCJR H5AN8G8NDJR | | IS43QR81024A |

MOBILE LOW POWER SDRAM



| DENSITY | ORG | VCC | PACKAGE | CLOCK FREQUENCY | TEMPERATURE OPTIONS | ALLIANCE |
|---------|----------|--------------|-------------------------|-----------------|--------------------------|--------------------------|
| 128Mb | 8M x 16 | 1.7V ~ 1.95V | 54-ball FBGA (8 x 8mm) | 166 MHz | Industrial -40°C ~ +85°C | AS4C8M16MSA-6BIN |
| 128Mb | 4M x 32 | 1.7V ~ 1.95V | 90-ball FBGA (8 x 13mm) | 166 MHz | Industrial -40°C ~ +85°C | AS4C4M32MSA-6BIN |
| 256Mb | 16M x 16 | 1.7V ~ 1.95V | 54-ball FBGA (8 x 8mm) | 166 MHz | Industrial -40°C ~ +85°C | AS4C16M16MSA-6BIN |
| 256Mb | 8M x 32 | 1.7V ~ 1.95V | 90-ball FBGA (8 x 13mm) | 166 MHz | Industrial -40°C ~ +85°C | AS4C8M32MSA-6BIN |
| 256Mb | 8M x 32 | 1.7V ~ 1.95V | 90-ball FBGA (8 x 13mm) | 166 MHz | Industrial -40°C ~ +85°C | AS4C8M32MSB-6BIN |
| 512Mb | 32M x 16 | 1.7V ~ 1.95V | 54-ball FBGA (8 x 9mm) | 166 MHz | Industrial -40°C ~ +85°C | AS4C32M16MSA-6BIN |
| 512Mb | 16M x 32 | 1.7V ~ 1.95V | 90-ball FBGA (8 x 13mm) | 166 MHz | Industrial -40°C ~ +85°C | AS4C16M32MSA-6BIN |
| 512Mb | 16M x 32 | 1.7V ~ 1.95V | 90-ball FBGA (8 x 13mm) | 166 MHz | Industrial -40°C ~ +85°C | AS4C16M32MSB-6BIN |

MOBILE LOW POWER SDRAM Cross Reference

| DENSITY | ALLIANCE | MICRON | ISSI | NANYA | ELITE (ESMT) | WINBOND |
|---------|--------------------------|----------------------|----------------|-----------------|--------------|------------------------|
| 128M | AS4C8M16MSA-6BIN | NA | IS42VM16800H | NA | | W987D6HBGX |
| 128M | AS4C4M32MSA-6BIN | NA | IS42VM32400H | NA | | W987D2HBJX |
| 256M | AS4C16M16MSA-6BIN | MT48H16M16LFBF (EOL) | IS42VM16160K | NA | M52D2561616A | W988D6FBGX |
| 256M | AS4C8M32MSA-6BIN | MT48H8M32LFB5 (EOL) | IS42VM32800K | NA | M52D256328A | W988D2FBJX |
| 256M | AS4C8M32MSB-6BIN | MT48H8M32LFB5 (EOL) | IS42VM32800K | NA | M52D256328A | W988D2FBJX |
| 512M | AS4C32M16MSA-6BIN | MT48H32M16LFB4-6 IT | IS42VM16320D/E | NT6SM32M16BG-S1 | M52D5123216A | W989D6DBG W989D6KGB |
| 512M | AS4C16M32MSA-6BIN | MT48H16M32LFB5-6 IT | IS42VM32160D/E | NT6SM16M32BK-S1 | M52D5123216A | W989D2DBJ W989D2KBJ |
| 512M | AS4C16M32MSB-6BIN | MT48H16M32LFB5-6 IT | IS42VM32160D/E | NT6SM16M32BK-S1 | M52D5123216A | W989D2DBJ W989D2KBJ |

MOBILE LOW POWER DDR



| DENSITY | ORG | VCC | PACKAGE | CLOCK FREQUENCY | DATA RATE | TEMPERATURE OPTIONS | ALLIANCE |
|---------|----------|------|---------------|-----------------|--------------|---|--------------------|
| 256Mb | 16M x 16 | 1.8V | 60-ball FBGA | 166 MHz | 333 Mbps/pin | Extended -30°C ~ +85°C | AS4C16M16MD1-6BCN |
| 512Mb | 32M x 16 | 1.8V | 60-ball FPBGA | 200 MHz | 400 Mbps/pin | Extended -30°C ~ +85°C | AS4C32M16MD1A-5BCN |
| 512Mb | 16M x 32 | 1.8V | 90-ball FPBGA | 200 MHz | 400 Mbps/pin | Extended -25°C ~ +85°C , Industrial -40°C ~ +85°C | AS4C16M32MD1-5BxN |
| 1Gb | 64M x 16 | 1.8V | 60-ball FPBGA | 200 MHz | 400 Mbps/pin | Industrial -40°C ~ +85°C | AS4C64M16MD1A-5BIN |
| 1Gb | 32M x 32 | 1.8V | 90-ball FPBGA | 200 MHz | 400 Mbps/pin | Industrial -40°C ~ +85°C | AS4C32M32MD1A-5BIN |
| 2Gb | 64M x 32 | 1.8V | 90-ball FPBGA | 200 MHz | 400 Mbps/pin | Extended -25°C ~ +85°C , Industrial -40°C ~ +85°C | AS4C64M32MD1-5BxN |
| 2Gb | 64M x 32 | 1.8V | 90-ball FPBGA | 200 MHz | 400 Mbps/pin | Industrial -40°C ~ +85°C | AS4C64M32MD1A-5BIN |

MOBILE LOW POWER DDR Cross Reference

| DENSITY | ALLIANCE | MICRON | SAMSUNG | ISSI | HYNIX | NANYA | ELITE (ESMT) | WINBOND |
|---------|--------------------|------------------|-------------|----------------|--------------------|--------------------|--------------------|-------------------------|
| 256Mb | AS4C16M16MD1-6BCN | MT46H16M16LFBF-6 | K4X56163SPN | IS43LR16160 | HY5MS5B6/ H5MS2562 | NT6DM16M16AD-T1 | M53D2561616A-6BG2F | W948D6FBHX W948D6KBH |
| 512Mb | AS4C32M16MD1A-5BCN | MT46H32M16LFBF-5 | K4X51163PI | IS43LR16320B/C | HY5MS7B6/ H5MS5162 | NT6DM32M16A(B)D-T1 | M53D5121632A-5BG2T | W949D6DBHX W949D6KBH |
| 512Mb | AS4C16M32MD1-5BxN | MT46H16M32LFB5-5 | K4X51323PI | IS43LR32160B/C | H5MS5132/ H5MS5122 | NT6DM16M32A(B)C-T1 | M53D5123216A-5BG2S | W949D2DBJX W949D2KBJ |
| 1Gb | AS4C64M16MD1A-5BIN | MT46H64M16LFBF | K4X1G163PE | IS43LR16640C/A | H5MS1G62 | | M53D1G1664A | W94AD6KBH |
| 1Gb | AS4C32M32MD1A-5BIN | MT46H32M32LFB5-5 | K4X1G323PF | IS43LR32320C/B | H5MS1G22 | NT6DM32M32BC-T1 | M53D1G3232A | W94AD2KBJX |
| 2Gb | AS4C64M32MD1-5BCN | MT46H64M32LFB5-5 | K4X2G323PC | IS43LR32640A/B | H5M52G22 | | | |
| 2Gb | AS4C64M32MD1A-5BIN | MT46H64M32LFB5-5 | K4X2G323PC | IS43LR32640A/B | H5M52G22 | | | |

MOBILE LOW POWER DDR2



| DENSITY | ORG | VCC | PACKAGE | CLOCK FREQUENCY (MHz) | DATA RATE | TEMPERATURE OPTIONS | ALLIANCE |
|---------|-----------|-----------|-------------------|-----------------------|---------------|--------------------------|------------------------|
| 256Mb | 8M X 32 | 1.2V/1.8V | 134-ball FBGA | 400 MHz | 800 Mbps/pin | Extended -25°C ~ +85°C | AS4C8M32MD2A-25BCN |
| 256Mb | 8M X 32 | 1.2V/1.8V | 168-ball POP FBGA | 400 MHz | 800 Mbps/pin | Extended -25°C ~ +85°C | AS4C8M32MD2A-25BPCN |
| 1Gb | 64M x 16 | 1.2V/1.8V | 134-ball FBGA | 400 MHz | 800 Mbps/pin | Industrial -40°C ~ +85°C | AS4C64M16MD2A-25BIN |
| 1Gb | 32M x 32 | 1.2V/1.8V | 134-ball FBGA | 400 MHz | 800 Mbps/pin | Industrial -40°C ~ +85°C | AS4C32M32MD2A-25BIN |
| 2Gb | 128M x 16 | 1.2V/1.8V | 134-ball FBGA | 400MHz | 800 Mbps/pin | Industrial -40°C ~ +85°C | AS4C128M16MD2A-25BIN |
| 2Gb | 64M x 32 | 1.2V/1.8V | 134-ball FBGA | 400 MHz | 800 Mbps/pin | Industrial -40°C ~ +85°C | AS4C64M32MD2A-25BIN |
| 4Gb | 128M x 32 | 1.2V/1.8V | 134-ball FBGA | 533 MHz | 1066 Mbps/pin | Industrial -40°C ~ +85°C | AS4C128M32MD2A-18BIN |
| 4Gb | 128M x 32 | 1.2V/1.8V | 134-ball FBGA | 400 MHz | 800 Mbps/pin | Industrial -40°C ~ +85°C | AS4C128M32MD2A-25BIN |
| 4Gb | 128M X 32 | 1.2V/1.8V | 134-ball FBGA | 400 MHz | 800 Mbps/pin | Industrial -40°C ~ +85°C | MT42L128M32DITJ-25IT:A |

MOBILE LOW POWER DDR2 Cross Reference

| DENSITY | ALLIANCE | MICRON | SAMSUNG | ISSI | HYNIX | NANYA | ELITE (ESMT) | WINBOND |
|---------|---|---|---------|---|-------|---------------------|--------------|--------------------------|
| 256Mb | AS4C8M32MD2A-25BPCN AS4C8M32MD2A-25BCN | | | IS43LD32800A/B-25BL/I IS43LD32800B-3BL/I | | | | W978H2KBVX2E |
| 1Gb | AS4C64M16MD2A-25BIN | MT42L64M16D1HE-25 | | IS43LD16640D/C/A | | NT6TL64M16BA(I)-G0 | M54D1G1664A | W97AH6KBVX2 W97AH6NBV |
| 1Gb | AS4C32M32MD2A-25BIN | MT42L32M32D1HE-25 MT42L32M32D2HE-25 | | IS43LD32320D/C/A | | NT6TL32M32BI(A)-G0 | M54D1G3232A | W97AH2KBVX2 W97AH2NBV |
| 2Gb | AS4C128M16MD2A-25BIN | MT42L128M16D1MH-25 MT42L128M16D1MG-25 MT42L128M16D2 | | IS43LD16128B/C | | NT6TL128M16CI(A)-G0 | M54D2G3264A | W97BH6KBVX2 W97BH6MBV |
| 2Gb | AS4C64M32MD2A-25BIN | MT42L64M32D1MH-25 MT42L64M32D1MG-25 MT42L64M32D2 | | IS43LD32640B/C | | NT6TL64M32CI(A)-G0 | M54D2G16128A | W97BH2KBVX2 W97BH2MBV |
| 4Gb | AS4C128M32MD2A-18BIN | MT42L128M32D1GU-18 (EOL) MT42L128M32D1GV-18 (EOL) | | IS43LD32128C/B/A | | NT6TL128M32BI(A)-G0 | | |
| 4Gb | AS4C128M32MD2A-25BIN | MT42L128M32D1GU-25 (EOL) MT42L128M32D1GV-25 (EOL) | | IS43LD32128C/B/A | | NT6TL128M32BI(A)-G0 | | |

LPDDR4



| DENSITY | ORG | VCC | PACKAGES | CLOCK FREQUENCY | DATA RATE | TEMPERATURE OPTIONS | Alliance Memory |
|---------|-----------|----------|-----------|-----------------|-----------|--------------------------------|-----------------------------|
| 2Gb | 128M x 16 | 1.1,1.8V | 200b FBGA | 1600 MHz | 3200 Mbps | Automotive A2 (-40°C to 105°C) | AS4C128M16MD4-062BAN |
| 4Gb | 128M x 32 | 1.1,1.8V | 200b FBGA | 1600 MHz | 3200 Mbps | Automotive A2 (-40°C to 105°C) | AS4C128M32MD4-062BAN |
| 4Gb | 256M x 16 | 1.1,1.8V | 200b FBGA | 1600 MHz | 3200 Mbps | Automotive A2 (-40°C to 105°C) | AS4C256M16MD4-062BAN |
| 8Gb | 256M x 32 | 1.1,1.8V | 200b FBGA | 1600 MHz | 3200 Mbps | Automotive A2 (-40°C to 105°C) | AS4C256M32MD4-062BAN |

LPDDR4X

| DENSITY | ORG | VCC | PACKAGES | CLOCK FREQUENCY | DATA RATE | TEMPERATURE OPTIONS | Alliance Memory |
|---------|-----------|--------------------|-----------|-----------------|-----------|--------------------------------|------------------------------|
| 8Gb | 256M x 32 | 1.8V / 1.1V / 0.6V | 200b FBGA | 1600 MHz | 3200 Mbps | Automotive A2 (-40°C to 105°C) | AS4C256M32MD4V-062BAN |

LPDDR4 / LPDDR4X Cross Reference

| DENSITY | ORG | ALLIANCE | MICRON | SAMSUNG | HYNIX | NANYA | ISSI | WINBOND |
|---------|-----------|------------------------------|-----------------|---|----------------|---------------|---------------------------------------|------------------------|
| 2Gb | 128M x 16 | AS4C128M16MD4-062BAN | MT53E128M16D1DS | | | NT6AN128M16AV | IS43/46LQ16128A IS43/46LQ16128EA | W66BL6NBU W66BP6NBU |
| 4Gb | 128M x 32 | AS4C128M32MD4-062BAN | MT53B128M32D1DS | K4F4E3S4HF-GFCJ K4F4E3S4HF-GHCJ | | NT6AN128T32AV | IS43/46LQ32128A IS43/46LQ32128EA | W66CL2NQU W66CP2NQU |
| 4Gb | 256M x 16 | AS4C256M16MD4-062BAN | MT53E256M16D1DS | | H9HCNNN4KUMLHR | NT6AN256M16AV | IS43/46LQ16256A IS43/46LQ16256EA | W66CP6NBU |
| 8Gb | 256M x 32 | AS4C256M32MD4-062BAN | MT53B256M32D1DS | K4F8E304HB-MGCJ K4F8E3S4HB-MFCJ K4F8E3S4HB-MHCJ | H9HCNNN8KUMLHR | NT6AN256T32AV | IS43/46LQ32256A IS43/46LQ32256EA | W66DP2NQU |
| 8Gb | 256M x 32 | AS4C256M32MD4V-062BAN | MT53E256M32D2DS | K4U8E3S4AD-GFCL K4U8E3S4AD-GHCL | | NT6AP256T32AV | IS43/46LQ32256AL IS43/46LQ32256EAL | W66DQ2NQU |

Fast Asynchronous SRAM

5V FAST ASYNCHRONOUS SRAM



| DENSITY | ORG | VCC | PACKAGES | TEMPERATURE | SPEED (NS) | ALLIANCE |
|---------|-----------|-----|---|--|-------------|--|
| 64Kb | 8K x 8 | 5V | SOJ (28pin),Skinny PDIP (28pin-300mil) | Commercial 0°C ~ +70°C Industrial -40°C ~ +85°C | 15 | AS7C164A-15JxN AS7C164A-15PxN |
| 256Kb | 32K x 8 | 5V | SOJ (28pin) TSOP I (28pin) | Commercial 0°C ~ +70°C Industrial -40°C ~ +85°C | 10/12/15/20 | AS7C256A-xxJxN AS7C256A-xxTxN |
| 256Kb | 32K x 8 | 5V | PDIP (28pin) | Industrial -40°C ~ +85°C | 15 | AS7C256B-15PIN |
| 512Kb | 32K x 16 | 5V | SOJ (44) TSOP II (44) | Commercial 0°C ~ +70°C | 12/15 | AS7C513B-15JCN AS7C513B-xxTCN |
| 1Mb | 128K x 8 | 5V | SOJ (32.3) SOJ (32.4) TSOP I (32) | Commercial 0°C ~ +70°C Industrial -40°C ~ +85°C | 12/15/20 | AS7C1024B-xxJxN AS7C1024B-xxTxN AS7C1024B-xxTJxN |
| 1Mb | 128K x 8 | 5V | SOJ (32.3) SOJ (32.4) | Commercial 0°C ~ +70°C Industrial -40°C ~ +85°C | 10/12/15 | AS7C1025B-xxJIN AS7C1025B-xxTJCN |
| 1Mb | 64K x 16 | 5V | SOJ (44) TSOP II (44) | Commercial 0°C ~ +70°C Industrial -40°C ~ +85°C | 10/12/15/20 | AS7C1026B-xxJxN AS7C1026B-xxTxN |
| 4Mb | 512K x 8 | 5V | SOJ (36) TSOP II (44) | Commercial 0°C ~ +70°C Industrial -40°C ~ +85°C | 12/15/20 | AS7C4096A-xxJxN AS7C4096A-xxTxN |
| 4Mb | 256K x 16 | 5V | SOJ (44) TSOP II (44) | Commercial 0°C ~ +70°C Industrial -40°C ~ +85°C | 12/15/20 | AS7C4098A-xxJxN AS7C4098A-xxTxN |

Fast Asynchronous SRAM

3.3V FAST ASYNCHRONOUS SRAM



| DENSITY | ORG | VCC | PACKAGES | TEMPERATURE | SPEED (NS) | ALLIANCE |
|---------|-----------|------|---|--------------------------|---------------|---|
| 256Kb | 32K x 8 | 3.3V | SOJ (28) TSOP I (28) | Commercial Industrial | 10/12/15/20 | AS7C3256A-xxJxN AS7C3256A-xxTxN |
| 512Kb | 32K x 16 | 3.3V | SOJ (44) TSOP II (44) | Commercial | 10/12/15/20 | AS7C3513B-xxJCN AS7C3513B-xxTCN |
| 1Mb | 128K x 8 | 3.3V | SOJ (32.3 & 32.4) TSOP I (32) | Commercial | 10/12/15/20 | AS7C31024B-xxTJCN AS7C31024B-xxJCN |
| 1Mb | 128K x 8 | 3.3V | SOJ (32.3 & 32.4) | Commercial Industrial | 10/12/15/20 | AS7C31025B-xxTJxN AS7C31025B-xxJxN |
| 1Mb | 64K x 16 | 3.3V | SOJ (44) TSOP II (44) | Commercial Industrial | 10/12/15/20 | AS7C31026B-xxJxN AS7C31026B-xxTxN |
| 2Mb | 128K x 16 | 3.3V | TSOP II (44) | Commercial Industrial | 10/12/15/20 | AS7C32098A-xxTxN |
| 2Mb | 256K x 8 | 3.3V | TSOP II (44) | Commercial Industrial | 10/12/15/20 | AS7C32096A-xxTxN |
| 4Mb | 512K x 8 | 3.3V | SOJ (36) TSOP II (44) TFBGA (36) | Commercial Industrial | 8/10/12/15/20 | AS7C34096A-xxJxN, AS7C34096A-xxTxN AS7C34096B-10TIN, AS7C34096A-10BIN |
| 4Mb | 256K x 16 | 3.3V | SOJ (44) TSOP II (44) TFBGA (48) | Commercial Industrial | 8/10/12/15/20 | AS7C34098A-xxJxN, AS7C34098A-xxTxN AS7C34098B-xxBxN, AS7C34098B-10TIN/BIN |
| 8Mb | 1024K x 8 | 3.3V | TFBGA (48) TSOP II (44) | Industrial | 10 | AS7C38096A-10TIN, AS7C38096A-10BIN AS7C38096B-10BIN |
| 8Mb | 512K x 16 | 3.3V | TFBGA (48) TSOP II (44) | Industrial | 10 | AS7C38098A-10TIN, AS7C38098A-10BIN |
| 8Mb | 256K x 32 | 3.3V | TFBGA (90) | Industrial | 10 | AS7C325632-10BIN |
| 16Mb | 512K x32 | 3.3V | TFBGA (90) | Industrial | 10 | AS7C351232-10BIN |
| 16Mb | 1M x 16 | 3.3V | TFBGA (48) TSOP I (48) TSOP II (54) | Industrial | 10 | AS7C316098A-10TIN, AS7C316098A-10BIN AS7C316098B-10TIN, AS7C316098B-10BIN |
| 16Mb | 2M x 8 | 3.3V | TFBGA (48) TSOP I (48) TSOP II (54) TSOP II (44) | Industrial | 10 | AS7C316096A-10TIN AS7C316096B-10TIN, AS7C316096B-10BIN AS7C316096C-10TIN, AS7C316096C-10BIN |

Fast Asynchronous SRAM Cross Reference



64K FAST

| ORG | VCC | PACKAGE | SPEED (NS) | ALLIANCE | SAMSUNG | CYPRESS (EOL) | IDT | ISSI |
|--------|-----|--------------------------|------------|----------------|---------|---------------------|--------------------------------|-----------------|
| 8K x 8 | 5V | 28pin SOJ (300mil) | 15 | AS7C164A-15JxN | | CY7C185-15VI (EOL) | IDT7164SXXYG IDT7164L20YG/I | IS61C64AL-XXJLI |
| 8K x 8 | 5V | 28pin Skinny PDIP 300mil | 15 | AS7C164A-15PxN | | CY7C185-20PXC (EOL) | | |

256K FAST

| ORG | VCC | PACKAGE | SPEED (NS) | ALLIANCE | SAMSUNG (EOL) | CYPRESS | IDT | ISSI |
|---------|------|--------------|-------------|---------------------|----------------|------------------|---------------------------|------------------|
| 32K x 8 | 5V | 28pin SOJ | 10,12,15,20 | AS7C256A-xxJCN/JIN | K6E0808C (EOL) | CY7C199D-XXVXI | IDT71256SAXXYG/71256SA | IS61C256AL-XXJL |
| 32K x 8 | 5V | 28pin TSOP I | 10,12,15,20 | AS7C256A-xxTCN/TIN | | CY7C199D-XXZXI | IDT71256SAXXPZG/71256SA | IS61C256AL-XXTL |
| 32K x 8 | 3.3V | 28pin SOJ | 10,12,15,20 | AS7C3256A-xxJCN/JIN | K6E0808V | CY7C1399BN-12VXC | IDT71V256SAXXYG/71V256SA | IS61LV256AL-10JL |
| 32K x 8 | 3.3V | 28pin TSOP I | 10,12,15,20 | AS7C3256A-xxTCN/TIN | | CY7C1399BN-XXZXI | IDT71V256SAXXPZG/71V256SA | IS61LV256AL-10TL |

512K FAST

| ORG | VCC | PACKAGE | SPEED (NS) | ALLIANCE | SAMSUNG | CYPRESS | IDT | ISSI |
|----------|------|------------------------|------------|-----------------|---------|---------------------|-----|---------------------|
| 32K x 16 | 5V | 44pin SOJ (400MIL) | 15 | AS7C513B-xxJCN | | CY7C1020D-10VXI | | IS61C321AL-12KLI |
| 32K x 16 | 5V | 44pin TSOP II (400MIL) | 12,15 | AS7C513B-xxTCN | | CY7C1020D-10ZSXI | | IS61C3216AL-12TLI |
| 32K x 16 | 3.3V | 44pin TSOP II (400MIL) | 12,15,20 | AS7C3513B-xxTCN | | CY7C1020DV33-10ZSXI | | IS61WV3216BLL-12TLI |
| 32K x 16 | 3.3V | 44pin SOJ (400MIL) | 10,12,15 | AS7C3513B-xxJCN | | CY7C1020DV33-10VXI | | |

Fast Asynchronous SRAM Cross Reference



1M FAST

| ORG | VCC | PACKAGE | SPEED (NS) | ALLIANCE | SAMSUNG (EOL) | CYPRESS | IDT | ISSI |
|----------|------|---------------------------------|-------------|---------------------|-----------------|----------------------|---------------------------|----------------------|
| 128K x 8 | 5V | 32pin SOJ (400MIL) (Center P&G) | 12,15,20 | AS7C1025B-xxJxN | K6R1008C1D-KI10 | | IDT71124SXXYG / 71124 | |
| 128K x 8 | 5V | 32pin SOJ (300MIL) (Center P&G) | 10,12,15,20 | AS7C1025B-xxTJCN | | CY7C1019D-10VXI | | |
| 128K x 8 | 3.3V | 32pin SOJ (400MIL) (Center P&G) | 10,12,15,20 | AS7C31025B-xxJxN | K6R1008V1D-KI10 | CY7C1019DV33-10VXI | IDT71V124SAXXYG / 71V124 | IS63WV1024L-10KLI |
| 128K x 8 | 3.3V | 32pin TSOP II (Center P&G) | 12 | AS7C31025C-12TIN | K6R1008V1D-UIXX | CY7C1019DV33-XX-ZSXI | IDT71V124SAXXTYG / 71V124 | IS63WV1288DBLLXXTLI |
| 128K x 8 | 3.3V | 32pin SOJ (300MIL) (Center P&G) | 10,12,15,20 | AS7C31025B-xxTJCN | | CY7C1018DV33-10VXI | IDT71V124SAXXTYG / 71V124 | IS63WV1288DBLL-10JLI |
| 128K x 8 | 5V | 32pin SOJ (400MIL) (Corner P&G) | 12,15,20 | AS7C1024B-xxJCN/JIN | | CY7C109D-10VXI | IDT71024SXXYG / 71024 | IS61C1024AL-12KLI |
| 128K x 8 | 5V | 32pin TSOP I (Corner P&G) | 12,15,20 | AS7C1024B-xxTCN | | CY7C109D-10ZXI | | IS61C1024AL-12TLI |
| 128K x 8 | 5V | 32pin SOJ (300MIL) (Corner P&G) | 12,15,20 | AS7C1024B-xxTJCN | | CY7C1009D-10VXI | IDT71024SXXTYG / 71024 | IS61C1024AL-12JLI |
| 128K x 8 | 3.3V | 32pin SOJ (400MIL) (Corner P&G) | 12,15,20 | AS7C31024B-xxJCN | | CY1019DV33-10VXI | | IS63WV1288DBLL-10KLI |
| 128K x 8 | 3.3V | 32pin TSOP I (Corner P&G) | 10,12,15,20 | AS7C31024B-xxTCN | | | | IS63WV1288DBLL-10HLI |
| 128K x 8 | 3.3V | 32pin SOJ (300MIL) (Corner P&G) | 10,12,15,20 | AS7C31024B-xxTJCN | | CY7C1018DV33-10VXI | | IS63WV1288DBLL-10JLI |
| 64K x 16 | 5V | 44pin SOJ (400MIL) | 10,12,15,20 | AS7C1026B-xxJxN | K6R1016C1D-KI10 | CY7C1021D-XXVXC | IDT71016SXXYG / 71016 | IS61C6416AL-12KLI |
| 64K x 16 | 5V | 44pin TSOP II (400MIL) | 10,12,15,20 | AS7C1026B-xxTxN | K6R1016C1D-UI10 | CY7C1021D-XXZSXI | IDT71016SXXPHG / 71016 | IS61C6416AL-12TLI |
| 64K x 16 | 3.3V | 44pin SOJ (400MIL) | 10,12,15,20 | AS7C31026B-xxJxN | K6R1016V1D-KI10 | CY7C1021DV33-XXVXI | IDT71V016SAXXYG / 71V016 | IS61WV6416DBLL-10KLI |
| 64K x 16 | 3.3V | 44pin TSOP II (400MIL) | 10,12,15,20 | AS7C31026B-xxTxN | K6R1016V1D-UI10 | CY7C1021DV33-XXZSXI | IDT71V016SAXXPHG / 71V016 | IS61WV6416DBLL-10TLI |

2M FAST

| ORG | VCC | PACKAGE | SPEED (NS) | ALLIANCE | SAMSUNG | CYPRESS | IDT | ISSI |
|-----------|------|---------------|-------------|------------------|---------|---------------------|-----|----------------------|
| 128K x 16 | 3.3V | 44pin TSOP II | 10,12,15,20 | AS7C32098A-xxTxN | | CY7C1011DV33-10ZSXI | | IS61WV12816DBLL-10TL |
| 256K x 8 | 3.3V | 44pin TSOP II | 10,12,15,20 | AS7C32096A-xxTxN | | CY7C1010DV33-10ZSXI | | IS61WV256EDBLL-10TLI |

Fast Asynchronous SRAM Cross Reference



4M FAST

| ORG | VCC | PACKAGE | SPEED (NS) | ALLIANCE | SAMSUNG | CYPRESS | IDT | ISSI |
|-----------|------|------------------------|---------------|-------------------------|-----------------|---------------------|--------------------------|------------------------|
| 512K x 8 | 5V | 36pin SOJ (400MIL) | 12,15,20 | AS7C4096A-xxJxN | K6R4008C1D-KI10 | CY7C1049D-10VXI | | IS61C5128AL-10KLI |
| 512K x 8 | 5V | 44pin TSOP II (400MIL) | 12,15,20 | AS7C4096A-xxTxN | K6R4008C1D-UI10 | | | IS61C5128AL-10TLI |
| 512K x 8 | 3.3V | 36pin SOJ (400MIL) | 8,10,12,15,20 | AS7C34096A-xxJxN | K6R4008V1D-KI10 | CY7C1049DV33-10VXI | IDT71V424SXXYG / 71V424 | IS61WV5128EDBLL-10KLI |
| 512K x 8 | 3.3V | 44pin TSOP II (400MIL) | 10,12,15,20 | AS7C34096A-xxTxN | K6R4008V1D-UI10 | CY7C1049DV33-10ZSI | IDT71V424SXXPHG / 71V424 | IS61WV5128EDBLL-10TLI |
| 256K x 16 | 5V | 44pin SOJ (400MIL) | 12,15,20 | AS7C4098A-xxJxN | K6R4016C1D-KI10 | CY7C1041D-10VXI | | IS61C25616AL-10KLI |
| 256K x 16 | 5V | 44pin TSOP II (400MIL) | 12,15,20 | AS7C4098A-xxTxN | K6R4016C1D-UI10 | CY7C1041D-10ZSXI | | IS61C25616AL-10TL |
| 256K x 16 | 3.3V | 44pin SOJ (400MIL) | 10,12,15,20 | AS7C34098A-xxJxN | K6R4016V1D-KI10 | CY7C1041DV33-10VXI | IDT71V416SXXYG / 71V416 | NA |
| 256K x 16 | 3.3V | 44pin TSOP II (400MIL) | 8,10,12,15,20 | AS7C34098A-xxTxN | K6R4016V1D-UI10 | CY7C1041DV33-10ZSXI | IDT71V416SXXPHG / 71V416 | IS61WV25616EDBLL-10TLI |
| 256K x 16 | 3.3V | 48ball TFBGA | 10 | AS7C34098A-xxBIN | | CY7C1041DV33-10BVXI | IDT71V416SXXBE / 71V416 | IS61WV25616EDBLL-10BLI |

8M FAST

| ORG | VCC | PACKAGE | SPEED (NS) | ALLIANCE | SAMSUNG | CYPRESS | IDT | ISSI |
|-----------|------|---------------------------------|------------|-------------------------|---------|---------------------|-----|----------------------|
| 512K x 16 | 3.3V | 44pin TSOP II | 10 | AS7C38098A-10TIN | | CY7C1051DV33-10ZSXI | | IS61WV51216BLL-XXTLI |
| 512K x 16 | 3.3V | 48ball TFBGA | 10 | AS7C38098A-10BIN | | CY7C1051DV33-10BAXI | | IS61WV51216BLL-10MLI |
| 256K x 32 | 3.3V | 90ball TFBGA | 10 | AS7C325632-10BIN | | | | IS61WV25632BLL-10BLI |
| 1M x 8 | 3.3V | 44pin TSOP II | 10 | AS7C38096A-10TIN | | CY7C1059DV33-10ZSXI | | IS61WV10248BLL-10TLI |
| 1M x 8 | 3.3V | 48ball TFBGA (different pinout) | 10 | AS7C38096A-10BIN | | | | |
| 1M x 8 | 3.3V | 48ball TFBGA (different pinout) | 10 | AS7C38096B-10BIN | | | | IS61WV10248BLL-10MLI |

Fast Asynchronous SRAM Cross Reference



16M FAST

| ORG | VCC | PACKAGE | SPEED (NS) | ALLIANCE | SAMSUNG | CYPRESS | IDT | ISSI |
|-----------|------|--------------------|------------|-------------------|---------|---|-----|-------------------------|
| 1M x 16 | 3.3V | 48pin TSOP I | 10 | AS7C316098A-10TIN | | CY7C1061GN30-10ZXI | | IS61WV102416FBLL-10TLI |
| 1M x 16 | 3.3V | 48ball TFBGA | 10 | AS7C316098A-10BIN | | CY7C1061GN30-10BV1XI | | IS61WV102416FBLL-10BLI |
| 1M x 16 | 3.3V | 54pin TSOP II | 10 | AS7C316098B-10TIN | | CY7C1061GN30-10ZSXI | | IS61WV102416FBLL-10T2LI |
| 1M x 16 | 3.3V | 48ball TFBGA | 10 | AS7C316098B-10BIN | | | | |
| 2M x 8 | 3.3V | 48pin TSOP I | 10 | AS7C316096A-10TIN | | | | |
| 2M x 8 | 3.3V | 54pin TSOP II | 10 | AS7C316096B-10TIN | | CY7C1069GN30-10ZSXI/ CY7C1069DV33-10ZSXI | | IS61WV20488FBLL-10T2LI |
| 2M x 8 | 3.3V | 44pin TSOP II | 10 | AS7C316096C-10TIN | | | | IS61WV20488FBLL-10TLI |
| 2M x 8 | 3.3V | 48ball TFBGA (1CE) | 10 | AS7C316096C-10BIN | | | | IS61WV20488FBLL-10BLI |
| 2M x 8 | 3.3V | 48ball TFBGA (2CE) | 10 | AS7C316096B-10BIN | | CY7C1069GN30-10BVXI | | |
| 512K x 32 | 3.3V | 90ball TFBGA | 10 | A7C351232-10BIN | | | | IS61WV51232BLL-10BLI |

Low Power Asynchronous SRAM

2.7V - 3.6V LOW POWER SRAMS



| DENSITY | ORG | VCC | PACKAGES | SPEED (NS) | ALLIANCE |
|---------|------------------|-------------|--|------------|---------------------|
| 256Kb | 32K x 8 | 2.5V ~ 3.6V | 28pin SOP (330mm) | 70 | AS62V256A |
| 2Mb | 256K x 8 | 2.7 ~ 3.6V | 32pin 450 mil SOP, 32pin TSOP I (8 x 20mm), 32pin STSOP (8 x 13.4mm), 36ball TFBGA (6 x 8mm) | 55 | AS6C2008 |
| 8Mb | 1024K x 8 | 2.7 ~ 3.6V | 48ball FPBGA (8 x 10mm) | 45 | AS6C8008A |
| 8Mb | 1024k x 8 | 2.7 ~ 3.6V | 44pin TSOP II | 45/55 | AS6C8008B |
| 8Mb | 512K x 16 | 2.7 ~ 3.6V | 44pin TSOP II, 48ball TFBGA (8 x 10mm*)** | 45/55 | AS6C8016B |
| 16Mb | 1M x 16 | 2.7 ~ 3.6V | 48ball TFBGA (6 x 8mm), 48pin TSOP I (12 x 20mm) | 45/55 | AS6C1616/ AS6C1616B |
| 16Mb | 2M x 8 | 2.7 ~ 3.6V | 44pin TSOP II, 48ball TFBGA | 55 | AS6C1608B |
| 32Mb | 2M x 16 / 4M x 8 | 2.7 ~ 3.6V | 48pin TSOP I (12 x 20mm) , 48ball TFBGA (6 x 8mm) | 55 | AS6C3216A |
| 64Mb | 4M x 16 / 8M x 8 | 2.7 ~ 3.6V | 48pin TSOP I , 48ball TFBGA (6x8mm) , Dual chip select 4M x 16 or 8M x 8 | 55 | AS6C6416 |

Low Power Asynchronous SRAM

2.7V - 5.5V LOW POWER SRAMS



| DENSITY | ORG | VCC | PACKAGES | SPEED (NS) | ALLIANCE |
|---------|-----------|------------|---|------------|------------|
| 64Kb | 8K x 8 | 2.7 ~ 5.5V | 28pin 600 mil PDIP, 28pin 330 mil SOP, 28pin sTSOP (8x13.4mm) | 55 | AS6C6264 |
| 256Kb | 32K x 8 | 2.7 ~ 5.5V | 28pin 600 mil PDIP, 28pin 330 mil SOP, 28pin sTSOP (8x13.4mm) | 55 | AS6C62256 |
| 1Mb | 64K x 16 | 2.7 ~ 5.5V | 44pin 400 mil TSOP II TFBGA (48) | 55 | AS6C1016 |
| 1Mb | 128K x 8 | 2.7 ~ 5.5V | 32pin 450 mil SOP, 32pin TSOP I (8 x 20mm), 32pin sTSOP (8 x 13.4mm), TFBGA (36), 32pin PDIP | 55 | AS6C1008 |
| 2Mb | 256K x 8 | 2.7 ~ 5.5V | 32pin 450 mil SOP, 32pin TSOP I (8 x 20mm) 32pin sTSOP (8 x 13.4mm), TFBGA (36) | 55 | AS6C2008A |
| 2Mb | 128K x 16 | 2.7 ~ 5.5V | 44pin 400 mil TSOP II, TFBGA (48) | 55 | AS6C2016 |
| 4Mb | 512K x 8 | 2.7 ~ 5.5V | 32pin 450 mil SOP, 32pin TSOP I (8 x 20mm), 32pin sTSOP (8 x 13.4mm), TFBGA (48), 32pin 600 mil PDIP, 32pin TSOP II | 55/70 | AS6C4008 |
| 4Mb | 256K x 16 | 2.7 ~ 5.5V | 44pin TSOP II, TFBGA (48) | 55 | AS6C4016 |
| 8Mb | 1024K x 8 | 2.7 ~ 5.5V | 44pin TSOP II, TFBGA (48) | 55 | AS6C8008/B |
| 8Mb | 512K x 16 | 2.7 ~ 5.5V | 44pin TSOP II, 48ball TFBGA (6 x 8mm*) one chip select pins:B5** , 48pin TSOP I | 55 | AS6C8016/B |

* = AS6C8016A TFBGA PART'S DIE SIZE IS 8X10MM – WHICH IS BIGGER THAN AS6C8016 TFBGA PACKAGE WHICH IS 6X8MM – BUT THEIR LEAD PITCH ARE THE SAME.

** = AS6C8016A TFBGA PART HAS TWO CHIP SELECT PINS: B5 AND A6. THE VALID LEVEL FOR B5 PIN IS LOW LEVEL, THE VALID LEVEL FOR A6 PIN IS HIGH LEVEL IF CUSTOMER REPLACES A SINGLE CS PIN PART LIKE AS6C8016 WITH AS6C8016A NEED TO PULL UP A6 PIN.

Low Power Asynchronous SRAM Cross Reference



64K LOW POWER

| ORG | VCC | PACKAGE | ALLIANCE | ZMD (EOL) | CYPRESS (EOL) | HITACHI (EOL) | NEC (EOL) | HYNIX (EOL) |
|--------|-------------|---------------------------|------------------------|-----------------|---------------|---------------|-----------|-------------|
| 8K x 8 | 2.7V ~ 5.5V | 28pin 600mil DIP | AS6C6264-55PxN | U6264BDC07LLG1 | | HM6264BLP | | HY6264P |
| 8K x 8 | 2.7V ~ 5.5V | 28pin 330mil SOP | AS6C6264-55SxN | U6264BS2C07LLG1 | CY6264-55SNXI | HM6264BLFP | uPD4464 | HY6264G |
| 8K x 8 | 2.7V ~ 5.5V | 28pin STSOP (8 x 13.4 mm) | AS6C6264-55STCN | | | | | |

256K LOW POWER

| ORG | VCC | PACKAGE | ALLIANCE | ZMD | SAMSUNG (EOL) | CYPRESS (EOL) | RENESAS | BRILLIANCE (EOL) | ISSI |
|---------|-------------|---------------------------|-------------------------|------------------|-----------------|--------------------|----------------|------------------|-------------------|
| 32K x 8 | 2.7V ~ 5.5V | 28pin 600mil DIP | AS6C62256-55PCN | U62256ADC07LLG1 | K6X0808C1D-DF55 | CY62256NLL-70PXC | | BS62LV256PCP-55 | |
| 32K x 8 | 2.7V ~ 5.5V | 28pin 330mil SOP | AS6C62256-55SxN | U62256AS2C07LLG1 | K6X0808C1D-BF55 | CY62256NLL-55SNXI | R1LP5256ESP-5S | BS62LV256SCP-55 | IS62C256AL-45ULI |
| 32K x 8 | 2.5V ~ 3.6V | 28pin 330mil SOP | AS62V256-70SIN | | | CY62256NVLL-70SNXI | R1LV5256ESP-5S | BS62LV256SCP-55 | IS62LV256AL-45ULI |
| 32K x 8 | 2.7V ~ 5.5V | 28pin STSOP (8 x 13.4 mm) | AS6C62256-55STxN | | K6X0808C1D-LF55 | CY62256NLL-55ZRXI | R1LP5256ESA-5S | BS62LV256STCP-55 | IS62LV256AL-45TLI |

1M LOW POWER

| ORG | VCC | PACKAGE | ALLIANCE | SAMSUNG (EOL) | CYPRESS | RENESAS | RENESAS | BRILLIANCE (EOL) | NEC (EOL) | ISSI |
|----------|-------------|---------------------------|------------------------|--------------------------|----------------------|------------------|-----------------|-------------------|-----------------------|----------------------|
| 128K x 8 | 2.7V ~ 5.5V | 32pin 600mil DIP | AS6C1008-55PxN | K6X1008C2D-DB55 | | | | BS62LV1027PCP-55 | uPD431000ACZ-70L | |
| 128K x 8 | 2.7V ~ 5.5V | 32pin 450mil SOP | AS6C1008-55SIN | K6X1008C2D-GF55(Lead)/BF | CY62128ELL-45SXI | M5M51008DFP-55HI | R1LP0108ESP-5SI | BS62LV1027SIP-55 | uPD431000AGW-70L | IS62C1024AL-35QLI |
| 128K x 8 | 2.7V ~ 5.5V | 32pin TSOP I (8 x 20 mm) | AS6C1008-55TIN | K6X1008C2D-TF55 or PF | CY62128ELL-45ZXI | M5M51008DVP-55HI | R1LP0108ESF-5SI | BS62LV1027TIP-55 | uPD431000AGZ-70LL-KKH | IS62C1024AL-35TLI |
| 128K x 8 | 2.7V ~ 5.5V | 32pin STSOP (8 x 13.4 mm) | AS6C1008-55STIN | | CY62128ELL-45ZAXI | M5M51008DKV-55HI | R1LP0108ESA-5SI | BS62LV1027STIP-55 | uPD431000AGU-B10-9JH | IS62C1024AL-45HLI |
| 64K x 16 | 2.7V ~ 5.5V | 48ball TFBGA | AS6C1016-55BIN | K6F1016U4C-EF55 | CY62127DV30LL-55BVXI | | | BS616LV1010AI-70 | | IS62WV6416DBLL-45BLI |
| 64K x 16 | 2.7V ~ 5.5V | 44pin TSOP II | AS6C1016-55ZIN | | CY62126EV30LL-45SXIT | | | BS616LV1010EI-70 | | IS62WV6416DBLL-45TLI |

Low Power Asynchronous SRAM Cross Reference



2M LOW POWER

| ORG | VCC | PACKAGE | ALLIANCE | SAMSUNG (EOL) | CYPRESS | RENESAS | RENESAS | BRILLIANCE (EOL) | ISSI |
|-----------|-------------|---------------------------|------------------|--------------------|----------------------|------------------|------------------|-------------------|--|
| 256K x 8 | 2.7V ~ 3.6V | 32pin 450mil SOP | AS6C2008-55SIN | | CY62138FV30LL-45SXI | | | BS62LV2006SIP-55 | |
| 256K x 8 | 2.7V ~ 3.6V | 32pin TSOP I (8 x 20 mm) | AS6C2008-55TIN | | CY62138FV30LL-45ZXI | | | BS62LV2006TIP-55 | IS62WV2568BLL-55TLI |
| 256K x 8 | 2.7V ~ 3.6V | 32pin STSOP (8 x 13.4 mm) | AS6C2008-55STIN | K6F2008V2E-LF70000 | CY62138FV30LL-45ZAXI | M5M5V208AKV-55HI | R1LV0208BSA-5SI | BS62LV2006STIP-55 | IS62WV2568BLL-55HLI |
| 256K x 8 | 2.7V ~ 3.6V | 36ball TFBGA (6mm x 8mm) | AS6C2008-55BIN | | CY62138FV30LL-45BVXI | | | | IS62WV2568BLL-55B2LI |
| 128K x 16 | 2.7V ~ 5.5V | 44pin TSOP II | AS6C2016-55ZIN | | CY62136FVLL-70ZSXI | M5M5V216ATP-70HI | R1LV0216-BSB-5SI | BS616LV2016EIP-55 | IS62WV12816BLL-55TLI |
| 128K x 16 | 2.7V ~ 5.5V | 48ball TFBGA | AS6C2016-55BIN | K6F2016U4E-EF55000 | CY62136FVLL-70BVXI | | | BS616LV2019AIG-55 | IS62WV12816BLL-55B2LI |
| 256K x 8 | 2.7V ~ 5.5V | 32pin 450mil SOP | AS6C2008A-55SIN | | CY62138FV30LL-45SXI | | | BS62LV2006SIP-55 | |
| 256K x 8 | 2.7V ~ 5.5V | 32pin TSOP I (8 x 20mm) | AS6C2008A-55TIN | | CY62138FV30LL-45ZXI | | | BS62LV2006TIP-55 | IS62WV2568BLL-55TLI IS62WV2568BLL-70TLI |
| 256K x 8 | 2.7V ~ 5.5V | 36ball TFBGA (6mm x 8mm) | AS6C2008A-55BIN | | CY62138FV30LL-45BVXI | | | | IS62WV2568BLL-55BLI IS62WV2568BLL-70BLI |
| 256K x 8 | 2.7V ~ 5.5V | 32pin TSOP I (8 x 13.4mm) | AS6C2008A-55STIN | | CY62138FV30LL-55ZAXI | | | BS62LV2006TIP-55 | IS62WV2568BLL-55HLI IS62WV2568BLL-70HLI |

4M LOW POWER

| ORG | VCC | PACKAGE | ALLIANCE | SAMSUNG (EOL) | CYPRESS | RENESAS | BRILLIANCE (EOL) | ISSI |
|-----------|------------|--------------------------|-----------------|-----------------------|--|------------------|-------------------|-----------------------|
| 512K x 8 | 2.7 ~ 5.5V | 32pin 600mil DIP | AS6C4008-55PxN | K4X4008C1F-DB55 | | | BS62LV4006PCP-55 | |
| 512K x 8 | 2.7 ~ 5.5V | 32pin 450mil SOP | AS6C4008-55SIN | K6X4008C1F-GF55 or BF | CY62148ELL-55SXI CY62148EV30LL-55SXI | R1LV0408CSP-5SI | BS62LV4006SIP-55 | IS62C5128BLL-45QLI |
| 512K x 8 | 2.7 ~ 5.5V | 32pin STSOP (8 x 13.4mm) | AS6C4008-55STIN | K6X4008T1F-YF55 or LF | CY62148ELL-55ZAXI CY62148EV30LL-55ZAXI | R1LV0408DSA-5SI | BS62LV4006STIP-55 | IS62C5128BL-45HLI |
| 512K x 8 | 2.7 ~ 5.5V | 32pin TSOP II | AS6C4008-55ZIN | K6X4008C1F-VF55 | CY62148ELL-45ZSXI CY62148DV30 | R1LV0408DSB-5SI | BS62LV4006ECP55 | IS62WV5128DBLL-45T2LI |
| 512K x 8 | 2.7 ~ 5.5V | 36pin TFBGA (6mm x 8mm) | AS6C4008-55BIN | | CY62148EV30LL-55BVXI CY62148DV30-55BVXI | R1LV0408DBG-5SI | BS62LV4006HIG-55 | IS62WV5128EBLL-45BLI |
| 512K x 8 | 2.7 ~ 5.5V | 32pin TSOP I (8 x 20mm) | AS6C4008-55TIN | | | | BS62LV4006ECP-55 | IS62WV5128EBLL-45QLI |
| 256K x 16 | 2.7 ~ 5.5V | 44pin TSOP II | AS6C4016-55ZIN | K6X4016C3F-TF70000 | CY62146ELL-45ZSXI | | BS616LV4017EIP-55 | IS62WV5128BLL-55TLI |
| | | | | K6X4016T3F-TF70000 | CY62147E30LL-45ZSXI | R1LV0414DSB-5SI | BS616LV4017EIP-55 | IS62C25616BL-45T2LI |
| 256K x 16 | 2.7V~ 5.5V | 48ball TFBGA | AS6C4016-55BIN | K6F4016U6G-EF70000 | CY62147E30LL-45BVXI | RMLV0416EGBG-4S2 | BS616LV4017AIP-55 | IS62WV25616DBLL-45BLI |

Low Power Asynchronous SRAM Cross Reference



8M LOW POWER

| ORG | VCC | PACKAGE | ALLIANCE | SAMSUNG (EOL) | CYPRESS | RENESAS | RENESAS | RENESAS | BRILLIANCE | ISSI |
|-----------|------------|--------------------------|--|---------------------|-----------------------|-----------------|-----------------|-------------------|------------------|-----------------------|
| 1M x 8 | 2.7 ~ 5.5V | 44pin TSOP II | AS6C8008-55ZIN | K6X8008(C/T)2B-UF55 | CY62158EV30LL-45ZSXI | | R1LV0808ASB-5SI | HM62V8100LTTI-5SL | BS62LV8001ECP-55 | IS62WV1024BLL-55TLI |
| 1M x 8 | 2.7 ~ 3.6V | 44pin TSOP II | AS6C8008B-45ZIN AS6C8008B-55ZIN | | CY62158EV30LL-45ZSXI | | R1LV0808ASB-5SI | HM62V8100LTTI-5SL | BS62LV8001ECP-55 | IS62WV1024BLL-55TLI |
| 1M x 8 | 2.7 ~ 5.5V | 48ball TFBGA | AS6C8008A-45BIN | | CY62158EV30LL-45BVXI | EOL | | HM62V8100LBPI-5SL | BS62LV8001ECP-55 | IS62WV1024BLL-55MLI |
| 1M x 8 | 2.7 ~ 3.6V | 48ball TFBGA | AS6C8008B-45BIN | | CY62158EV30LL-45BVXI | EOL | | HM62V8100LBPI-5SL | BS62LV8001FIP-55 | IS62WV1024BLL-55MLI |
| 512K x 16 | 2.7 ~ 5.5V | 48ball TFBGA (6 x 8mm)* | AS6C8016-55BIN* | K6F8016U6G-FF55 | | M5M5W816WG-55HI | R1LV0816ABG-5SI | | BS616LV8017ECP55 | IS62WV51216BLL-55BLI |
| 512K x 16 | 2.7 ~ 3.6V | 48ball TFBGA (6 x 8mm)** | AS6C8016B-45BIN** AS6C8016B-55BIN** | | CY2157EV30LL-45BVXIT | | | | | IS62WV51216BLL-55BLI |
| 512K x 16 | 2.7 ~ 5.5V | 44pin TSOP II | AS6C8016 -55ZIN | K6X8016(C/T)3B-UF55 | CY62157EV30LL-55ZSXI | M5M5W816TP-55HI | R1LV0816ASA-5SI | HM62165114LTT-5SL | BS616LV8017FCP70 | IS62WV51216BLL-55T2LI |
| 512K x 16 | 3.3V | 44pin TSOP II | AS6C8016B-45ZIN AS6C8016B-55ZIN | | CY62157EV30LL-45ZSXIT | | | | | IS62WV51216BLL-55T2LI |
| 512K x 16 | 2.7 ~ 5.5V | 48pin TSOP I | AS6C8016-55TIN | | CY62157EV30LL-45ZXIT | | | | | IS62WV51216GBLL-45TLI |

* =one chip select pin:B5

** =two chip select pins:B5 and A6

16M LOW POWER

| ORG | VCC | PACKAGE | ALLIANCE | CYPRESS | RENESAS | BRILLIANCE (EOL) | ISSI |
|---------|------------|---------------|--|--|--|-------------------|--|
| 1M x 16 | 2.7 ~ 3.6V | 48pin TSOP I | AS6C1616-55TIN AS6C1616B-45TIN AS6C1616B-55TIN | CY62167E30LL-55ZXI | R1LV1616RSA-5SI RMLV1616AGSA-5S2 | BS6216LV1611TCP55 | IS62WV102416DBLL-45TLI IS62WV102416DBLL-55TLI |
| 1M x 16 | 2.7 ~ 3.6V | 48ball TFBGA | AS6C1616B-45BIN AS6C1616B-55BIN | CY62167DV30LL-55BVXIT CY62167EV30LL-70BVI | R1LV1616HBG-4SI R1LV1616HBG-5SI R1LV1616RBG-5SI R1LV1616RBG-5SI RMLV1616AGBG-5S2 | BS6216LV1611FCP70 | IS62WV102416EBLL-45BLI IS62WV102416EBLL-55BLI |
| 2M x 8 | 2.7 ~ 3.6V | 44pin TSOP II | AS6C1608-45TIN | CY62168EV30LL-55ZXI | | BS6216LV1600EIP55 | IS62WV20488EBLL-55BLI |
| 2M x 8 | 2.7 ~ 3.6V | 48ball TFBGA | AS6C1608-55BIN | CY62168DV30LL-55BVI | | | IS62WV20488EBLL-45BLI IS62WV20488EBLL-55BLI IS62WV20488FBLL-45BLI IS62WV20488FBLL-55BLI |

Low Power Asynchronous SRAM Cross Reference

32M LOW POWER

| ORG | VCC | PACKAGE | ALLIANCE | CYPRESS | RENESAS |
|---------|------------|--------------|------------------------|----------------------|-------------------------------------|
| 2M x 16 | 2.7 ~ 3.6V | 48pin TSOP I | AS6C3216A-55TIN | CY62177EV30LL-55ZXI | R1LV3216RSA-5SI RMLV3216AGSA-5S2 |
| 2M x 16 | 2.7 ~ 3.6V | 48ball TFBGA | AS6C3216A-55BIN | CY62177EV30LL-55BAXI | R1LV3216CSA-5SI RMLV3216AGBG-5S2 |

*48pin TSOP I (please note: dual chip select 2Mx16 or 4Mx8)

64M LOW POWER

| ORG | VCC | PACKAGE | ALLIANCE | CYPRESS | RENESAS |
|---------|-------------|--------------|-----------------------|----------------------|------------------------------------|
| 4M x 16 | 2.7V ~ 3.6V | 48pin TSOP I | AS6C6416-55TIN | | R1WV6416RSA-5S RMWV6416AGSA-5S2 |
| 4M x 16 | 2.7V ~ 3.6V | 48ball BGA | AS6C6416-55BIN | CY62187EV30LL-55BAXI | R1WV6416RBG-5S RMWV6416AGBG-5S2 |

*48pin TSOP I (please note: dual chip select 4Mx16 or 8Mx8)

Parallel 5V NOR Flash



| DENSITY | BUS WIDTH | VCC | PACKAGES | TEMPERATURE RANGE | SPEED (NS) | ALLIANCE | REMARKS |
|---------|-----------|-----|--------------|-------------------|------------|------------------------------------|----------------------------------|
| 1Mb | x8 | 5V | PLCC 32 | -40C to 85C | 55 | AS29CF010-55CCIN | Uniform Sector, Industrial Grade |
| 2Mb | x8 , x16 | 5V | SOP 44pin | -40C to 125C | 55 | M29F200FB55M3F2 | Bottom Boot, Automotive Grade3 |
| 4Mb | x8 | 5V | PLCC 32 | -40C to 85C | 55 | AS29CF040-55CCIN | Uniform Sector, Industrial Grade |
| 4Mb | x8 , x16 | 5V | SOP 44pin | -40C to 125C | 55 | M29F400FB55M3F2 | Bottom Boot, Automotive Grade3 |
| 4Mb | x8 , x16 | 5V | TSOP I 48pin | -40C to 85C | 55 | M29F400FT5AN6E2 | Top Boot, Automotive Grade6 |
| 4Mb | x8 , x16 | 5V | TSOP I 48pin | -40C to 125C | 55 | M29F400FB55N3E2 M29F400FB55N3F2 | Bottom Boot, Automotive Grade3 |
| 8Mb | x8 , x16 | 5V | TSOP I 48pin | -40C to 85C | 55 | AS29CF800T-55TIN | Top Boot, Industrial Grade |
| 8Mb | x8 , x16 | 5V | TSOP I 48pin | -40C to 85C | 55 | AS29CF800B-55TIN | Bottom Boot, Industrial Grade |
| 8Mb | x8 , x16 | 5V | TSOP I 48pin | -40C to 85C | 55 | M29F800FB5AN6E2 M29F800FB5AN6F2 | Bottom Boot, Automotive Grade6 |
| 8Mb | x8 , x16 | 5V | TSOP.I 48pin | -40C to 125C | 55 | M29F800FT55N3E2 | Top Boot, Automotive Grade3 |
| 8Mb | x8 , x16 | 5V | SOP 44pin | -40C to 125C | 55 | M29F800FB55M3F2 | Bottom Boot, Automotive Grade3 |
| 16Mb | x8 , x16 | 5V | TSOP.I 48pin | -40C to 85C | 55 | AS29CF160B-55TIN | Bottom Boot, Industrial Grade |
| 16Mb | x8 , x16 | 5V | TSOP.I 48pin | -40C to 85C | 55 | AS29CF160T-55TIN | Top Boot, Industrial Grade |
| 16Mb | x8 , x16 | 5V | TSOP.I 48pin | -40C to 85C | 55 | M29F160FB5AN6F2 | Bottom Boot, Automotive Grade6 |
| 16Mb | x8 , x16 | 5V | TSOP.I 48pin | -40C to 125C | 55 | M29F160FT55N3E2 | Top Boot, Automotive Grade3 |

*Alliance Memory has collaborated with Micron for exclusive rights to continue to supply M29FX marked parts - SOLD NCNR - immediate delivery

Parallel 5V NOR Flash.Cross Reference



| DENSITY | VCC | PACKAGE | SPEED (NS) | ALLIANCE | Micron | Cypress / Spansion | Macronix |
|---------|-----|------------|------------|------------------------------------|----------|--------------------|--------------------|
| 1M | 5V | PLCC 32 | 55 | AS29CF010-55CCIN | | AM29F010B* (EOL) | |
| 2M | 5V | SOP 44pin | 55 | M29F200FB55M3F2 | M29F200F | AM29F200BB* (EOL) | MX29F200CBM* (EOL) |
| 4M | 5V | PLCC 32 | 55 | AS29CF040-55CCIN | M29F040 | AM29F040B | MX29F040C |
| 4M | 5V | SOP 44pin | 55 | M29F400FB55M3F2 | M29F400F | AM29F400BB* (EOL) | MX29F400CBM* (EOL) |
| 4M | 5V | TSOP 48pin | 55 | M29F400FB55N3E2 M29F400FB55N3F2 | M29F400F | AM29F400BB* (EOL) | MX29F400CBT |
| 4M | 5V | TSOP 48pin | 55 | M29F400FT5AN6E2 | M29F400F | AM29F400BT* (EOL) | MX29F400CTT |
| 8M | 5V | TSOP 48pin | 55 | AS29CF800T-55TIN | M29F800F | AM29F800BT* (EOL) | MX29F800C T/B |
| 8M | 5V | TSOP 48pin | 55 | AS29CF800B-55TIN | M29F800F | AM29F800BB* (EOL) | MX29F800C T/B |
| 8M | 5V | TSOP 48pin | 55 | M29F800FB5AN6E2 M29F800FB5AN6F2 | M29F800F | AM29F800BB* (EOL) | MX29F800CBT |
| 8M | 5V | TSOP 48pin | 55 | M29F800FT55N3E2 | M29F800F | AM29F800BT* (EOL) | MX29F800CTT |
| 8M | 5V | SOP 44pin | 55 | M29F800FB55M3F2 | M29F800F | AM29F800BB* (EOL) | MX29F800CBM* (EOL) |
| 16M | 5V | TSOP 48pin | 55 | AS29CF160T-55TIN | M29F160F | AM29F160DT* (EOL) | |
| 16M | 5V | TSOP 48pin | 55 | AS29CF160B-55TIN | M29F160F | AM29F160DB* (EOL) | |
| 16M | 5V | TSOP 48pin | 55 | M29F160FB5AN6F2 | M29F160F | AM29F160DB* (EOL) | |
| 16M | 5V | TSOP 48pin | 55 | M29F160FT55N3E2 | M29F160F | AM29F160DT* (EOL) | |

Serial NOR Flash



| DENSITY | BUS WIDTH | VCC | PACKAGES | TEMPERATURE RANGE | SPEED (MHz) | ALLIANCE | REMARKS |
|---------|-----------|------|-----------------------|-------------------|-------------|-------------------------|--|
| 2Mb | x1 | 3V | 8pin SOIC Narrow body | -40C to 85C | 75 | M45PE20-VMN6P | PAGE ERASABLE, 2Mb Serial Flash (256K x 8bits, 1024 pages, 4 Sectors), Industrial Grade |
| 8Mb | x1 | 3V | 8pin DFN (6mm x 5mm) | -40C to 85C | 75 | M45PE80-VMP6TG | PAGE ERASABLE 8Mb Serial Flash (1K x 8bits, 4096 pages, 16 Sectors), Industrial Grade, T&R |
| 16Mb | x1 | 3V | 8pin SOIC Wide body | -40C to 85C | 75 | M45PE16-VMW6TG | PAGE ERASABLE, 16MB Serial Flash (2K x 8bits, 8192 pages, 32 Sectors), Industrial Grade |
| 32Mb | x1/x2/x4 | 3V | 8PIN DFN (4MM X 3MM) | -40C to 125C | 108 | N25Q032A13EF4A0F | 32Mb Serial NOR Flash, Multiple IO, 64 Sectors, 4KB Sector Erase, Automotive Grade T&R |
| 32Mb | x1/x2/x4 | 3V | 8pin SOIC Narrow body | -40C to 85C | 108 | N25Q032A13ESC40F | 32Mb Serial NOR Flash, Multiple IO, 64 Sectors, 4KB Sector Erase, Industrial Grade, T&R |
| 32Mb | x1/x2/x4 | 3V | 8pin SOIC Narrow body | -40C to 85C | 108 | N25Q032A13ESC40G | 32Mb Serial NOR Flash, Multiple IO, 64 Sectors, 4KB Sector Erase, Industrial Grade, Tube |
| 32Mb | x1/x2/x4 | 3V | 8pin SOIC Narrow body | -40C to 125C | 108 | N25Q032A13ESCA0F | 32Mb Serial NOR Flash, Multiple IO, 64 Sectors, 4KB Sector Erase, Automotive Grade, T&R |
| 32Mb | x1/x2/x4 | 3V | 16pin SOIC Wide body | -40C to 125C | 108 | N25Q032A13ESFA0F | 32Mb Serial NOR Flash, Multiple IO, 64 Sectors, 4KB Sector Erase, Automotive Grade, T&R |
| 64Mb | x1/x2/x4 | 1.8V | 8pin SOIC Wide body | -40C to 125C | 108 | N25Q064A11ESEA0F | 64Mb Serial NOR Flash, Multiple IO, 128 Sectors, 4KB Sector Erase, Automotive Grade T&R |
| 64Mb | x1/x2/x4 | 3V | 8pin DFN (6mm x 5mm) | -40C to 85C | 108 | N25Q064A13EF640E | 64Mb Serial NOR Flash, Multiple IO, 128 Sectors, 4KB Sector Erase, Industrial Grade, Tray |
| 64Mb | x1/x2/x4 | 3V | 8pin DFN (8mm x 6mm) | -40C to 125C | 108 | N25Q064A13EF8A0E | 64Mb Serial NOR Flash, Multiple IO, 128 Sectors, 4KB Sector Erase, Automotive Grade Tray |
| 64Mb | x1/x2/x4 | 3V | 8pin DFN (8mm x 6mm) | -40C to 125C | 108 | N25Q064A13EF8A0F | 64Mb Serial NOR Flash, Multiple IO, 128 Sectors, 4KB Sector Erase, Automotive Grade T&R |
| 64Mb | x1/x2/x4 | 3V | 8pin DFN (8mm x 6mm) | -40C to 85C* | 108 | N25Q064A13EF8H0E | 64Mb Serial NOR Flash, Multiple IO, 128 Sectors, 4KB Sector Erase, Industrial Grade High Reliability, Tray |
| 64Mb | x1/x2/x4 | 3V | 16pin SOIC Wide body | -40C to 125C | 108 | N25Q064A13ESFA0F | 64Mb Serial NOR Flash, Multiple IO, 128 Sectors, 4KB Sector Erase, Automotive Grade T&R |
| 64Mb | x1/x2/x4 | 3V | 8pin SOIC (209mils) | -40C to 85C | 104 | AS25F364MQ-10SIN | 64Mb, 3V Serial NOR Flash, Multiple IO, Default Feature1, Industrial Grade, 8SOIC Wide Body Package |
| 64Mb | x1/x2/x4 | 3V | 8L WSON (6x5mm) | -40C to 85C | 104 | AS25F364MQ-10WIN | 64Mb, 3V Serial NOR Flash, Multiple IO, Default Feature1, Industrial Grade, 8WSON Package |

Serial NOR Flash Cross Reference



| DENSITY | VCC | PACKAGES | ALLIANCE | MICRON | WINBOND | ADESTO | SPANSION | MACRONIX | ISSI | GigaDevices |
|---------|------|------------------------------|-------------------------|---------------|---------|-------------------|-------------|----------|-----------------------|-------------|
| 2Mb | 3V | 8pin SOIC Narrow body | M45PE20-VMN6P | | | AT45DB021E | | | | |
| 8Mb | 3V | 8pin DFN (6mm x 5mm) | M45PE80-VMP6TG | | | AT45DB081E | | | | |
| 16Mb | 3V | 8pin SOIC Wide body | M45PE16-VMW6TG | | | AT45DB161E | | | | |
| 32Mb | 3V | 8pin DFN (4mm x 3mm) | N25Q032A13EF4A0F | | W25Q32 | AT25DF32/AT25SF32 | S25FL032A/P | MX25L32 | IS25LP032 / IS25LQ032 | GD25Q32 |
| 32Mb | 3V | 8pin SOIC Narrow body | N25Q032A13ESC40F | | W25Q32 | AT25DF32/AT25SF32 | S25FL032A/P | MX25L32 | IS25LP032 / IS25LQ032 | GD25Q32 |
| 32Mb | 3V | 8pin SOIC Narrow body | N25Q032A13ESC40G | | W25Q32 | AT25DF32/AT25SF32 | S25FL032A/P | MX25L32 | IS25LP032 / IS25LQ032 | GD25Q32 |
| 32Mb | 3V | 8pin SOIC Narrow body | N25Q032A13ESCA0F | | W25Q32 | AT25DF32/AT25SF32 | S25FL032A/P | MX25L32 | IS25LP032 / IS25LQ032 | GD25Q32 |
| 32Mb | 3V | 16pin SOIC Wide body | N25Q032A13ESFA0F | | W25Q32 | AT25DF32/AT25SF32 | S25FL032A/P | MX25L32 | IS25LP032 / IS25LQ032 | GD25Q32 |
| 64Mb | 1.8V | 8pin SOIC Wide body | N25Q064A11ESEA0F | | W25Q64 | AT25SL64/AT25QL64 | | MX25U64 | IS25WP064 | GD25LQ64 |
| 64Mb | 3V | 8pin DFN (6mm x 5mm) | N25Q064A13EF640E | | W25Q64 | AT25SF64/AT25QF64 | S25FL064A/P | MX25L64 | IS25LP064 | GD25Q64 |
| 64Mb | 3V | 8pin DFN (8mm x 6mm) | N25Q064A13EF8A0E | | W25Q64 | AT25SF64/AT25QF64 | S25FL064A/P | MX25L64 | IS25LP064 | GD25Q64 |
| 64Mb | 3V | 8pin DFN (8mm x 6mm) | N25Q064A13EF8A0F | | W25Q64 | AT25SF64/AT25QF64 | S25FL064A/P | MX25L64 | IS25LP064 | GD25Q64 |
| 64Mb | 3V | 8pin DFN (8mm x 6mm) | N25Q064A13EF8H0E | | W25Q64 | AT25SF64/AT25QF64 | S25FL064A/P | MX25L64 | IS25LP064 | GD25Q64 |
| 64Mb | 3V | 16pin SOIC Wide body | N25Q064A13ESFA0F | | W25Q64 | AT25SF64/AT25QF64 | S25FL064A/P | MX25L64 | IS25LP064 | GD25Q64 |
| 64Mb | 3V | 8pin SOP Wide Body (209mils) | AS25F364MQ-10SIN | N25Q064A13ESE | W25Q64 | AT25QF64 | S25FL064 | MX25L64 | IS25LP064 | GD25Q64 |
| 64Mb | 3V | 8L WSON (6x5mm) | AS25F364MQ-10WIN | N25Q064A13EF6 | W25Q64 | AT25QF64 | S25FL064 | MX25L64 | IS25L064 | GD25Q64 |

Serial NAND Flash



| DENSITY | BUS WIDTH | VCC | SPEED (NS) | PACKAGES | TEMPERTURE RANGE | TYPE | ALLIANCE |
|---------|------------|------|------------|----------|----------------------------|---|--------------------|
| 1Gb | x1, x2, x4 | 3V | 120 Mhz | LGA 8pin | Industrial (-40°C to 85°C) | 4bit ECC, (2048 + 64) bytes × 64 pages × 1024 blocks | AS5F31G04SND-08LIN |
| 2Gb | x1, x2, x4 | 1.8V | 100 Mhz | LGA 8pin | Industrial (-40°C to 85°C) | 8bit ECC, (2048 + 128) bytes × 64 pages × 2048 blocks | AS5F12G04SND-10LIN |
| 2Gb | x1, x2, x4 | 3V | 120 Mhz | LGA 8pin | Industrial (-40°C to 85°C) | 8bit ECC, (2048 + 128) bytes × 64 pages × 2048 blocks | AS5F32G04SND-08LIN |
| 4Gb | x1, x2, x4 | 1.8V | 100 Mhz | LGA 8pin | Industrial (-40°C to 85°C) | 8bit ECC, (2048 + 128) bytes × 64 pages × 4096 blocks | AS5F14G04SND-10LIN |
| 4Gb | x1, x2, x4 | 3V | 120 Mhz | LGA 8pin | Industrial (-40°C to 85°C) | 8bit ECC, (2048 + 128) bytes × 64 pages × 4096 blocks | AS5F34G04SND-08LIN |
| 8Gb | x1, x2, x4 | 1.8V | 100 Mhz | LGA 8pin | Industrial (-40°C to 85°C) | 8bit ECC, (4096 + 256) bytes × 64 pages × 4096 blocks | AS5F18G04SND-10LIN |
| 8Gb | x1, x2, x4 | 3V | 120 Mhz | LGA 8pin | Industrial (-40°C to 85°C) | 8bit ECC, (4096 + 256) bytes × 64 pages × 4096 blocks | AS5F38G04SND-08LIN |

Serial NAND Flash Cross Reference

| DENSITY | VCC | SPEED (NS) | ALLIANCE | Toshiba/KIOXIA | Micron | Winbond | Macronix | GigeDevices |
|---------|------|------------|--------------------|-----------------|-----------------------|----------------------|------------------------------|--|
| 1Gb | 3.3V | 120Mhz | AS5F31G04SND-08LIN | TC58CVG0S3HRAIJ | MT29F1G01ABAFDWB-IT | W25N01GV W25N01KV | MX35LF1GE4AB | GD5F1GQ4UB/C/E/Fxxx GD5F1GQ5UExxG/H |
| 2Gb | 1.8V | 100Mhz | AS5F12G04SND-10LIN | TC58CYG1S3HRAIJ | MT29F2G01ABBGDWB-IT:G | W25N02JW W25N02KV | MX35UF2G14AC | GD5F2GQ4Rx GD5F2GM7RExxG GD5F2GQ5RExxG/H |
| 2Gb | 3.3V | 120Mhz | AS5F32G04SND-08LIN | TC58CVG1S3HRAIJ | MT29F2G01ABAGDWB-IT | W25M02GV W25N02KW | MX35LF2G14AC | GD5F2GQ4Ux GD5F2GM7UExxG GD5F2GQ5UExxG/H |
| 4Gb | 1.8V | 100Mhz | AS5F14G04SND-10LIN | TC58CYG2S0HRAIJ | MT29F4G01ABBFDWB-IT | W25N04KW | MX35UF4G24AD MX35UF4GE4AD | GD5F4GQ6Rx GD5F4GM8RExxG GD5F4GQ6RExxG/H |
| 4Gb | 3.3V | 120Mhz | AS5F34G04SND-08LIN | TC58CVG2S0HRAIJ | MT29F4G01ABAFDWB | W25N04KV | MX35LF4G24AD MX35LF4GE4AD | GD5F4GQ6Ux GD5F4GM8UExxG GD5F4GQ6UExxG/H |
| 8Gb | 1.8V | 100Mhz | AS5F18G04SND-10LIN | TH58CYG3S0HRAIJ | | | | |
| 8Gb | 3.3V | 120Mhz | AS5F38G04SND-08LIN | TH58CVG3S0HRAIJ | | | | |

eMMC



| DENSITY | VCC | PACKAGES | CLOCK FREQUENCY | Flash Voltage | TEMPERATURE OPTIONS | Alliance Memory |
|---------|-----------|-----------|-----------------|---------------|---------------------------|------------------------|
| 4GB | 2.7V~3.6V | 153b FBGA | 200 MHz | 3.3V | Industrial(-40°C to 85°C) | ASFC4G31M-51BIN |
| 8GB | 1.1,1.8V | 153b FBGA | 200 MHz | 3.3V | Industrial(-40°C to 85°C) | ASFC8G31M-51BIN |

eMMC Cross Reference

| DENSITY | ALLIANCE | MICRON | SAMSUNG | HYNIX | Macronix | Kingston | KIOXIA | Sky-High | ISSI |
|---------|------------------------|-----------|------------|------------|----------|----------|-----------|-----------|-----------|
| 4GB | ASFC4G31M-51BIN | MTFC4Gxxx | | H26M412xxx | MX52LM04 | EMMC04G | THGBMNG5D | S40FC004C | IS21ES04G |
| 8GB | ASFC8G31M-51BIN | MTFC8Gxxx | KLM8G1Gxxx | | MX52LM08 | EMMC08G | THGBMNG5C | S40FC008C | IS21ES08G |

pSRAM PSEUDO SRAM

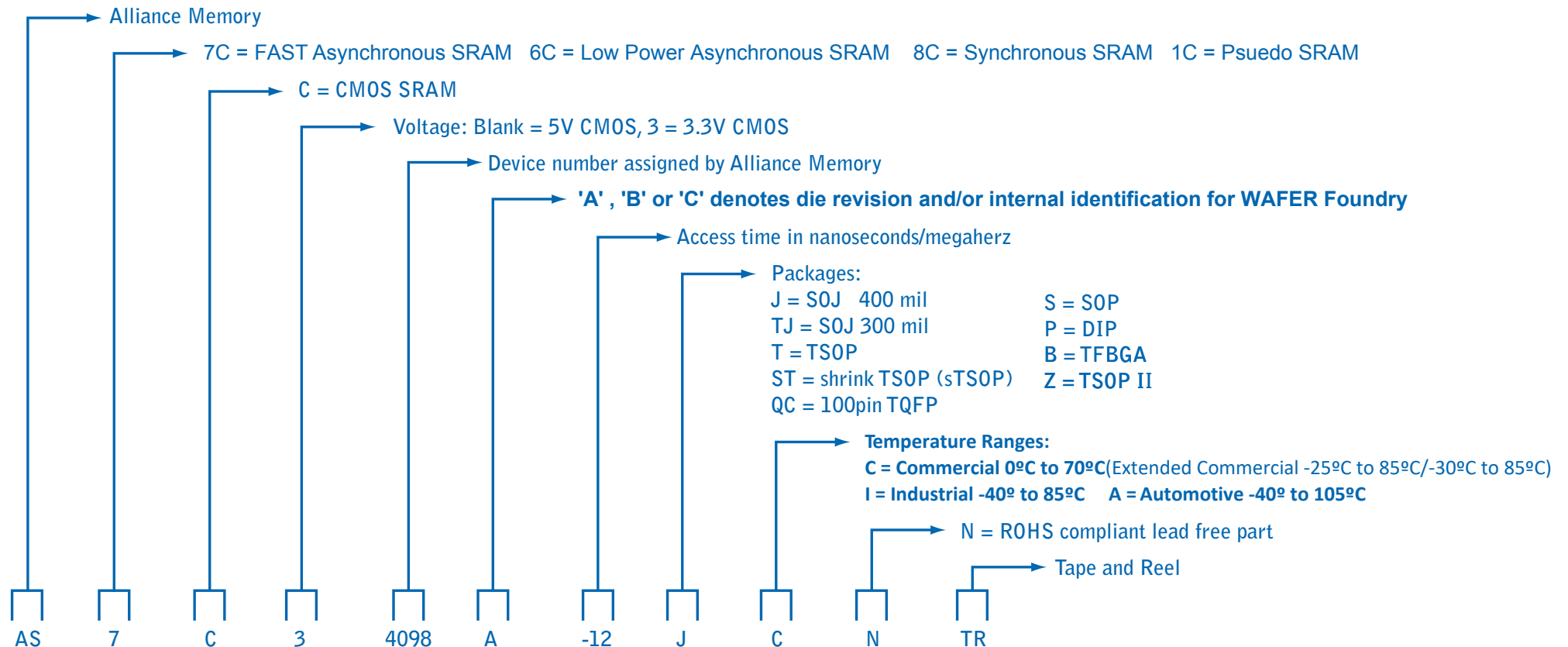


| DENSITY | ORG | VCC | PACKAGE | Temperature | SPEED | ALLIANCE |
|---------------------------|-----------|---------------------|-------------------------|---------------------------|-------|---------------------------|
| 8Mb | 512K x 16 | 1.7v ~1.95v (1.8v) | 48FPBGA (6.0x7.0x1.0mm) | Industrial (-30°C ~+85°C) | 70ns | AS1C512K16PL-70BIN |
| 8Mb | 512K x 16 | 2.6v to 3.3v (3V) | 48FPBGA (6.0x7.0x1.0mm) | Industrial (-40°C~ +85°C) | 70ns | AS1C512K16P-70BIN |
| 16Mb | 1M X16 | 1.7v to 1.95v(1.8v) | 48FPBGA (6.0x7.0x1.0mm) | Industrial (-40°C~ +85°C) | 70ns | AS1C1M16PL-70BIN |
| 16Mb | 1M X16 | 2.6v to 3.3v (3V) | 48FPBGA (6.0x7.0x1.0mm) | Industrial (-40°C~ +85°C) | 70ns | AS1C1M16P-70BIN |
| 32Mb | 2M X16 | 2.6v to 3.3v (3V) | 48FPBGA (6.0x7.0x1.0mm) | Industrial (-40°C~ +85°C) | 70ns | AS1C2M16P-70BIN |
| 64Mb | 4M X16 | 1.7v to 1.95v(1.8v) | 49FBGA (4.0x4.0x0.8mm) | Industrial (-30°C ~+85°C) | 70ns | AS1C4M16PL-70BIN |
| 128Mb (*2-stacked die) | 8M X16 | 1.7v to 1.95v(1.8v) | 49FBGA (4.0x4.0x0.8mm) | Industrial (-30°C ~+85°C) | 70ns | AS1C8M16PL-70BIN |

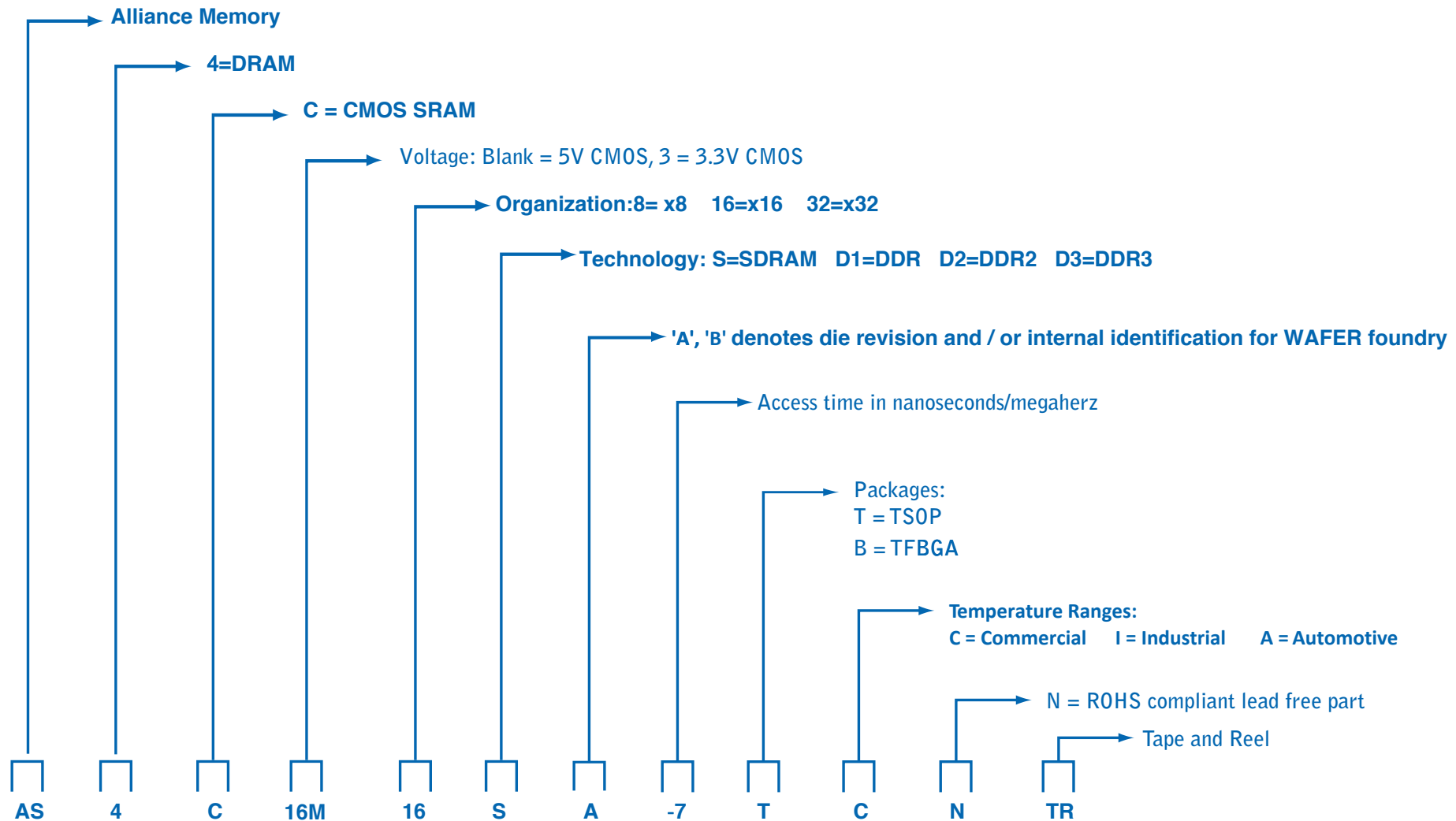
pSRAM Cross Reference

| ORG | DENSITY | PACKAGE | COMMENTS/ PREV REV | ALLIANCE | JSC/JEJU | ISSI | FIDELIX | AP MEMORY |
|---------------------------|-----------|----------|-------------------------|---------------------------|----------------------|-----------------------|------------|-----------|
| 8Mb | 512K x 16 | 48 FPBGA | page mode & Non-DPD | AS1C512K16PL-70BIN | EM784SP16BPP-70LF | IS66WV51216EALL-70BLI | | |
| 8Mb | 512K x 16 | 48 FPBGA | Non-page mode & Non-DPD | AS1C512K16P-70BIN | JS784SU16BSP-70LFI | IS66WV51216EBLL-70BLI | FMP0817CAx | |
| 16Mb | 1M X16 | 48 FPBGA | Non-page mode & Non-DPD | AS1C1M16PL-70BIN | EM7164SP16CSP-70LFI | IS66WVE1M16EALL-70BLI | FMP1617CCx | |
| 16Mb | 1M X16 | 48 FPBGA | Non-page mode & Non-DPD | AS1C1M16P-70BIN | JS164SU16BSP-70LFI | IS66WVE1M16EBLL-70BLI | FMP1617CAx | |
| 32Mb | 2M X16 | 48 FPBGA | Non-page mode & Non-DPD | AS1C2M16P-70BIN | JS7324SU16BSP-70LFI | IS66WVE2M16EBLL-70BLI | FMP3217CAx | |
| 64Mb | 4M X16 | 49 FBGA | DPD mode | AS1C4M16PL-70BIN | EMC643SP16CK-DT-70LF | | | |
| 128Mb (*2-stacked die) | 8M X16 | 49 FBGA | DPD mode | AS1C8M16PL-70BIN | JSC283SP16ATDT-70LF | | | APS128XX |

ALLIANCE PART NUMBERING SYSTEM-SRAM



ALLIANCE PART NUMBERING SYSTEM-DRAM



Alliance Packaging Quantities

FAST SRAM ORDER QTY



| Part # | Package Suffix | Package | Box Qty | Quantity Per Tray/Tube | Reel size | Tape Width (mm) | Tape Pitch (mm) |
|------------------------------|----------------|-----------------------------|---------|------------------------|-----------|-----------------|-----------------|
| 164A, 256A, 3256A | JxN | 28 SOJ - 300mil | 2500 | 25/Tube | 1000 | 24 | 12 |
| 256B | JIN | 28 SOJ - 300mil | 1080 | 27/Tube | 1000 | 24 | 12 |
| 3256B | JIN | 28 SOJ - 300mil | 1352 | 26/Tube | 1000 | 24 | 12 |
| 256A, 3256A | TxN | 28 TSOP I (8x13.4) | 2340 | 234/Tray | 1000 | 24 | 12 |
| 1025B, 31025B, 1024B, 31024B | TJCN | 32.3 SOJ - 300mil | 2200 | 22/Tube | 1000 | 32 | 12 |
| 1024C | TJIN | 32.3 SOJ - 300mil | 920 | 23/Tube | 1000 | 32 | 12 |
| 31025C | TJIN | 32.3 SOJ - 300mil | 805 | 23/Tube | 1000 | 32 | 12 |
| 1025B, 31025B, 1024B, 31024B | JCN | 32.4 SOJ - 400mil | 2100 | 21/Tube | 1000 | 32 | 16 |
| 1024C, 1025C, 31025C | JIN | 32.4 SOJ - 400mil | 805 | 23/Tube | 1000 | 32 | 16 |
| 513B, 3513B, 1026B, 31026B | JCN | 44 SOJ - 400mil - 1 Meg | 1600 | 16/Tube | 500 | 44 | 16 |
| 1026C, 31026C | JIN | 44 SOJ - 400mil - 1 Meg | 560 | 16/Tube | 500 | 44 | 16 |
| 1024B, 31024B | TCN | 32 TSOP I (8x20) | 1560 | 156/Tray | 1000 | 32 | 12 |
| 31025C | TIN | 32 TSOP I (8x20) | 805 | 23/Tube | 1000 | 32 | 12 |
| 513B, 3513B, 1026B, 31026B | TCN | 44 TSOP II - 400mil - 1 Meg | 1350 | 135/Tray | 1000 | 32 | 16 |
| 1026C, 31026C | TIN | 44 TSOP II - 400mil - 1 Meg | 1352 | 26/Tube | 1500 | 32 | 16 |
| 31026C | BIN | 48ball FBGA | 3600 | 360/Tray | 2000 | 44 | 16 |
| 4096A, 34096A, 4098A, 34098A | TxN | 44 TSOP II - 400mil - 4 Meg | 1350 | 135/Tray | 1000 | 32 | 16 |
| 4096A, 34096A | JxN | 36 SOJ - 400mil | 1900 | 19/Tube | 500 | 44 | 16 |
| 4098A, 34098A | JxN | 44 SOJ - 400mil - 4 Meg | 1600 | 16/Tube | 500 | 44 | 16 |
| 34098A | B | 48ball BGA | 2200 | 480/Tray | | | |
| 38096A, 38098A | TIN | 44 TSOP II | 1350 | 135/Tray | 1000 | 44 | 16 |
| 38096A, 38098A | B | 48ball BGA | 4800 | 480/Tray | 2000 | 44 | 16 |
| 316096A, 316098A | TIN | 48 TSOP I | 1350 | 135/Tray | 1000 | 44 | 16 |
| 316098A | B | 48ball BGA | 4800 | 480/Tray | 2000 | 16 | 16 |
| 325632,351232 | BIN | 90ball TFBGA | 2400 | 240/Tray | 2000 | | |

Alliance Packaging Quantities

LOW POWER SRAM ORDER QTY



| Part # | Package Suffix | Package | Box Qty | Quantity Per Tray/Tube | Reel size | Tape Width (mm) | Tape Pitch (mm) |
|--|----------------|----------------------|--------------|------------------------|-----------|-----------------|-----------------|
| 6264/62256 | S | 28pin 330mil SOP | 2500 | 25/Tube | 1000 | 24 | 16 |
| 6264/62256 | P | 28pin 600mil DIP | 600 | 15S/Tube | NA | NA | NA |
| 6264/62256 | ST | 28pin STSOP (8x13.4) | 2340 | 234/Tray | 1500 | 24 | 12 |
| 1008/2008/4008 | P | 32pin 600mil DIP | 520 | 13S/Tube | NA | NA | NA |
| 1008/2008/4008 | S | 32pin 450mil SOP | 2200 | 22/Tube | 1000 | 32 | 16 |
| 1008/2008/4008 | T | 32pin TSOP I (8x20) | 1560 | 156/Tray | 1500 | 32 | 12 |
| 1008/2008/4008 | ST | 32pin STSOP (8x13.4) | 2340 | 234/Tray | 1500 | 24 | 12 |
| 1016/2016/4016/8008/8016 | Z | 44pin TSOP II 400mil | 1350 | 135/Tray | 1000 | 32 | 12 |
| 1616/6416 | T | 48pin TSOP I | 960 | 96/Tray | 1500 | | |
| 1008/2008/4008/8008/1016/ 1616/2016/4016/8016/1616/3216 | B | 36B/48B TFBGA (6x8) | 4800 or 3000 | 480/Tray Or 300/Tray | 2000 | 16 | 12 |
| 4008 | Z | 32pin TSOP II | 1170 | 117/Tray | 1000 | 32 | 16 |

Alliance Packaging Quantities



DRAM ORDER QTY

| Part # | Package | Box Qty | Quantity Tray/Reel | Reel size |
|----------------------------------|---------------|---------|--------------------|-----------|
| SDRAM | | | | |
| AS4C1M16S | 50pin TSOP II | 1170 | 117/Tray | 1000 |
| AS4C4M16SA/AS4C32M8SA/AS4C64M4SA | 54pin TSOP II | 1080 | 108/Tray | 1000 |
| AS4C4M16SA | 54ball BGA | 3480 | 348/Tray | 2500 |
| AS4C4M16SA-7B2CN | 60ball FBGA | 2860 | 286/Tray | 2000 |
| AS4C2M32SA/AS4C4M32SA/AS4C8M32S | 86pin TSOP II | 1080 | 108/Tray | 1000 |
| AS4C2M32S/AS4C4M32S | 90ball BGA | 1900 | 190/Tray | 2000 |
| AS4C8M16SA | 54pin TSOP II | 1080 | 108/Tray | 1000 |
| AS4C8M16SA | 54ball TFBGA | 3480 | 348/Tray | 2500 |
| AS4C16M16SA/AS4C16M16SB | 54pin TSOP II | 1080 | 108/Tray | 1000 |
| AS4C16M16SA | 54ball FBGA | 3480 | 348/Tray | 2500 |
| AS4C8M32SA | 90 ball LFBGA | 1900 | 190/Tray | 2000 |
| AS4C32M16SB | 54pin TSOP II | 1080 | 108/Tray | 1000 |
| AS4C32M16SB | 54ball FBGA | 3480 | 348/Tray | 1000 |
| MT48LC32M16A2P-75* | 54pin TSOP II | 1000 | 108/Tray | 1000 |
| MT48LC64M8A2P-75* | 54pin TSOP II | 1000 | 108/Tray | 1000 |

*Alliance Memory has collaborated with Micron for exclusive rights to continue to provide these Micron marked parts

Alliance Packaging Quantities



DRAM ORDER QTY

| Part # | Package | Box Qty | Quantity Tray/Reel | Reel size |
|---|---------------|---------|--------------------|-----------|
| DDR1 | | | | |
| AS4C4M16D1A/AS4C8M16D1/AS4C8M16D1A/AS4C16M16D1/AS4C16M16D1A/AS4C32M8D1/ AS4C32M16D1/AS4C32M16D1A/AS4C64M8D1/AS4C64M16D1/AS4C64M16D1A/AS4C128M8D1 | 66pin TSOP II | 1080 | 108/Tray | 1000 |
| AS4C8M16D1/AS4C16M16D1/AS4C32M16D1/AS4C64M8D1A | 60ball BGA | 2400 | 240/Tray | 2500 |
| AS4C2M32D1A/AS4C4M32D1A | 144ball FBGA | 1890 | 189/Tray | 1500 |
| DDR2 | | | | |
| AS4C16M16D2/AS4C32M16D2A/AS4C64M16D2A/AS4C128M16D2A | 84ball FBGA | 2090 | 209/Tray | 2500 |
| AS4C64M8D2/AS4C128MD2A/AS4C256M8D2A | 60ball FBGA | 2640 | 209/Tray | 2500 |
| AS4C128M8D2B | 60ball FBGA | 2000 | 300/Tray | 2500 |
| AS4C128M16D2 | 84ball FBGA | 1620 | 209/Tray | 2500 |
| AS4C256M8D2 | 60ball FBGA | 1360 | 136/Tray | 2500 |
| DDR3 | | | | |
| AS4C32M16D3-12BxN/AS4C32M16D3L-12BxN | 96ball FBGA | 1900 | 209/Tray | 1500 |
| AS4C64M8D3-12BxN/AS4C64M8D3L-12BxN | 78ball FBGA | 2420 | 242/Tray | 2500 |
| AS4C128M8D3B/AS4C128M8D3LB | 78ball FBGA | 2420 | 242/Tray | 1000 |
| AS4C64M16D3B | 96ball FBGA | 1900 | 209/Tray | 2000 |
| AS4C64M16D3LB | 96ball FBGA | 1900 | 190/Tray | 2000 |
| AS4C128M16D3C | 96ball FBGA | 2090 | 209/Tray | 1500 |
| AS4C128M16D3LC | 96ball FBGA | 1980 | 190/Tray | 2000 |
| AS4C256M8D3LC | 78ball FBGA | 2420 | 242/Tray | 2500 |
| AS4C256M16D3C | 96ball FBGA | 1900 | 190/Tray | 1000 |
| AS4C256M16D3LC | 96ball FBGA | 1800 | 180/Tray | 2000 |
| AS4C512M8D3LC/AS4C1GD3LA | 78ball FBGA | 2200 | 220/Tray | 1000 |
| AS4C256M32D3/AS4C256M32D3L | 136ball FBGA | 2200 | 220/Tray | 1000 |
| AS4C512M16D3L/AS4C1G8MD3L/MT41K512M16HA-107:A*/MT41512M16HA-125:A*(*=Micron parts) | 96ball FBGA | 1020 | 170/Tray | 1000 |
| AS4C512M16D3LA/AS4C512M16D3LB | 96ball FBGA | 1800 | 180/Tray | 2000 |

Alliance Packaging Quantities

DRAM ORDER QTY



| Part # | Package | Box Qty | Quantity Tray/Reel | Reel size |
|---|----------------------------------|---------|--------------------|--------------|
| MOBILE SDRAM | | | | |
| AS4C8M16MSA/AS4C16M16MSA/AS4C32M16MSA | 54-ball FBGA | 3190 | 319/Tray | 1000 |
| AS4C4M32MSA/AS4C8M32MSA/AS4C16M32MSA | 90-ball FBGA | 1900 | 190/Tray | 1500 |
| MOBILE DDR1 | | | | |
| AS4C16M16MD1 | 60-ball FPBGA | 1600 | 160/Tray | 1000 |
| AS4C32M16MD1A | 60-ball FPBGA | 1600 | 160/Tray | 1000 |
| AS4C16M32MD1 | 90-ball FPBGA | 2400 | 240/Tray | 1000 |
| AS4C64M16MD1A | 60-ball FPBGA | 1600 | 160/Tray | 1000 |
| AS4C32M32MD1A | 90-ball FPBGA | 2400 | 240/Tray | 1000 |
| AS4C64M32MD1 | 90-ball FPBGA | 2400 | 240/Tray | 1000 |
| MOBILE DDR2 | | | | |
| AS4C64M16MD2A-25BIN/AS4C32M32MD2A-25BIN | 134ball FBGA (10 x 11.5 x 1.0) | 1280 | 128/Tray | 1000 |
| AS4C128M16MD2A-25BIN | 134ball FBGA (10 x 11.5 x 1.0) | 1280 | 171/Tray | 1000 |
| AS4C128M32MD2-18/25BIN/ | 134ball FBGA (11.5 x 11.5 x 1.0) | 1680 | 168/Tray | 1000 |
| AS4C8M32MD2A-25BCN | 134ball FBGA (11.5 x 11.5 x 1.0) | 1710 | 171/Tray | 1000 |
| AS4C8M32MD2A-25PBCN | 168ball FBGA (12 x 12 x 0.9) | 1680 | 168/Tray | Do Not Offer |
| AS4C64M32MD2A-25BIN | 134ball FBGA (12 x 12 x 0.9) | 1710 | 171/Tray | 2000 |

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