

# MACRONIX

## PART NUMBER SELECTION GUIDE




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# MACRONIX Serial NOR Flash

| Density | Voltage | Product Status[1] | Part Number | Organization 4 (KB) | Organization 32 (KB) | Organization 64 (KB) | Bus Width | DTR | SFDP Mode | HOLD Pin | RESET Pin[2] | Security Feature | Note | Package | KGD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **OctaFlash** | | | | | | | | | | | | | | | |
| 128Mb | 3V | ➔ | MX25LM12845G | • | | • | x1, x8 | • | • | | • | | 7 | 16-SOP, 24-TFBGA | |
| | 1.8V | ➔ | MX25UM12845G | • | | • | x1, x8 | • | • | | • | | 7 | 16-SOP, 24-TFBGA | |
| 256Mb | 3V | ➔ | MX25LM25645G | • | | • | x1, x8 | • | • | | • | | 7 | 16-SOP, 24-TFBGA | |
| | 1.8V | ➔ | MX25UM25645G | • | | • | x1, x8 | • | • | | • | | 7 | 16-SOP, 24-TFBGA | |
| 512Mb | 3V | ➔ | MX25LM51245G | • | | • | x1, x8 | • | • | | • | | 7 | 16-SOP, 24-TFBGA | • |
| | 1.8V | ➔ | MX25UM51245G | • | | • | x1, x8 | • | • | | • | | 7 | 16-SOP, 24-TFBGA | |
| 1Gb | 3V | ➔ | MX66LM1G45G | • | | • | x1, x8 | • | • | | • | | 7 | 24-TFBGA | |
| | 1.8V | ➔ | MX66UM1G45G | • | | • | x1, x8 | • | • | | • | | 7 | 24-TFBGA | |
| 2Gb | 3V | ➔ | MX66LM2G45G | • | | • | x1, x8 | • | • | | • | | 7 | 24-TFBGA | |
| | 1.8V | ➔ | MX66UM2G45G | • | | • | x1, x8 | • | • | | • | | 7 | 24-TFBGA | |
| **Ultra Low Power / Wide Range Vcc Flash** | | | | | | | | | | | | | | | |
| 512Kb | 1.65-3.6V | ➔ | MX25R512F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-SOP / TSSOP / USON, WLCSP | |
| 1Mb | | ➔ | MX25R1035F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-SOP / TSSOP / USON, WLCSP | |
| 2Mb | | ➔ | MX25R2035F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-SOP / TSSOP / USON, WLCSP | • |
| 4Mb | | ➔ | MX25R4035F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-SOP / USON / WSON, WLCSP | • |
| 8Mb | | ➔ | MX25R8035F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-SOP / USON / WSON, WLCSP | • |
| 16Mb | | ➔ | MX25R1635F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-SOP / USON / WSON, WLCSP | • |
| 32Mb | | ➔ | MX25R3235F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-SOP / WSON / USON, WLCSP | • |
| 64Mb | | ➔ | MX25R6435F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-SOP / WSON / USON, WLCSP | • |
| **Serial NOR Flash I-Grade (-40°C to 85°C)** | | | | | | | | | | | | | | | |
| 512Kb | 3V | | MX25L512E | • | | • | x1, x2 | | • | • | | | | 8-SOP / TSSOP / USON | • |
| | | | MX25L5121E | • | | • | x1 | | | | | | 5,10 | 8-SOP / TSSOP / USON | • |
| | 2.5V | | MX25V512E | • | | • | x1, x2 | | | • | | | | 8-SOP / TSSOP / USON | • |
| | | ➔ | MX25V512F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP / USON | • |
| | 1.8V | ➔ | MX25U5121E | • | | • | x1, x2, x4 | | | • | | | | 8-SOP / TSSOP / USON | • |
| 1Mb | 3V | | MX25L1006E | • | | • | x1, x2 | | • | • | | | | 8-SOP / USON, WLCSP | • |
| | | | MX25L1021E | • | | • | x1 | | | | | | 5,10 | 8-SOP | • |
| | | | MX25L1026E | • | | • | x1, x2 | | • | • | | | 10 | 8-SOP | |
| | 2.5V | | MX25V1006E | • | | • | x1, x2 | | | • | | | | 8-SOP / TSSOP / USON | • |
| | | ➔ | MX25V1006F | • | • | • | x1, x2 | | | | | | | 8-SOP / TSSOP / USON | • |
| | | ➔ | MX25V1035F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP / USON | • |
| | 1.8V | ➔ | MX25U1001E | • | | • | x1, x2, x4 | | | • | | | | 8-SOP / TSSOP / USON | • |
| 2Mb | 3V | | MX25L2006E | • | | • | x1, x2 | | • | • | | | | 8-SOP / WSON / USON | • |
| | | | MX25L2026E | • | | • | x1, x2 | | • | • | | | 10 | 8-SOP | |
| | 2.5V | | MX25V2006E | • | | • | x1, x2 | | • | • | | | | 8-SOP / VSOP / WSON / USON | • |
| | | ➔ | MX25V2033F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP | • |
| | | | MX25V2035F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP / WSON / USON | • |
| | 1.8V | ➔ | MX25U2033E | • | • | • | x1, x2, x4 | | • | • | | | | 8-SOP / WSON / USON, WLCSP | • |
| | | | MX25U2035F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-USON | |
| 4Mb | 3V | | MX25L4006E | • | | • | x1, x2 | | • | • | | | | 8-PDIP / SOP / WSON / USON | • |
| | | | MX25L4026E | • | | • | x1, x2 | | • | • | | | | 8-SOP | |
| | 2.5V | | MX25V4006E | • | | • | x1, x2 | | • | • | | | | 8-SOP / VSOP / WSON / USON | • |
| | | ➔ | MX25V4035F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP / WSON / USON | • |
| | 1.8V | ➔ | MX25U4033E | • | • | • | x1, x2, x4 | | • | • | | | | 8-SOP / WSON / USON, WLCSP | • |
| | | | MX25U4035F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-USON | • |
| 8Mb | 3V | | MX25L8006E | • | | • | x1, x2 | | • | • | | | | 8-PDIP / SOP / WSON / USON | • |
| | | | MX25L8036E | • | | • | x1, x2, x4 | | | | | | | 8-SOP | |
| | | | MX25L8073E | • | | • | x1, x2, x4 | | • | | | | 9 | 8-SOP | |
| | 2.5V | | MX25V8006E | • | | • | x1, x2 | | • | • | | | | 8-SOP / WSON | • |
| | | ➔ | MX25V8035F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP / WSON / USON | • |
| | 1.8V | ➔ | MX25U8033E | • | • | • | x1, x2, x4 | | • | • | | | | 8-SOP / WSON / USON, WLCSP | • |
| | | | MX25U8035F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-USON | • |
| 16Mb | 3V | | MX25L1606E | • | | • | x1, x2 | | • | • | | | | 8-PDIP / SOP / WSON / USON, 16-SOP, 24-TFBGA | • |
| | | | MX25L1633E | • | | • | x1, x2, x4 | | | | | | | 8-SOP / WSON / USON | • |
| | | | MX25L1636E | • | | • | x1, x2, x4 | | | | | | | 8-SOP | |
| | | | MX25L1655D | • | | • | x1, x2, x4 | | | | | • | | 8-SOP, 24-TFBGA | |
| | | | MX25L1673E | • | | • | x1, x2, x4 | | • | | | | 9 | 8-SOP / WSON | |
| | 2.5V | ➔ | MX25V1635F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP / WSON / USON, 16-SOP, 24-TFBGA, | • |
| | 1.8V | | MX25U1633F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-USON | • |
| | | ➔ | MX25U1635F | • | • | • | x1, x2, x4 | | • | | • | | 7 | 8-SOP / WSON / USON, WLCSP | • |
| 32Mb | 3V | | MX25L3206E | • | | • | x1, x2 | | • | • | | | | 8-SOP / WSON / USON, 24-TFBGA | |
| | | ➔ | MX25L3233F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP / WSON / USON, 16-SOP | • |
| | | | MX25L3236F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP | |
| | | | MX25L3255E | • | • | • | x1, x2, x4 | | • | • | | | | 8-SOP, 24-TFBGA | • |
| | | | MX25L3273F | • | • | • | x1, x2, x4 | | • | • | | | 7,9 | 8-SOP | |
| | 1.8V | ➔ | MX25U3235F | • | • | • | x1, x2, x4 | | • | | • | | 7 | 8-SOP / WSON / USON / XSON, WLCSP | • |
| | | | MX25U3273F | • | • | • | x1, x2, x4 | | • | | | | 7,9 | 8-SOP | |

**Notes: For further product details and specifications, please refer to the respective datasheets.**

1. ➔ Primary product for promotion.
   A Advance Information
   **Blank** Product is available for custom applications or special markets.
2. RESET pin may not be available for all package options.
3. OTP area pre-programmed at the factory.
4. 3- and 4-Byte addressing.
5. Commercial temperature only.
6. 4-Byte addressing only, with legacy commands.
7. Suspend/Resume function added.
8. Wireless temperature range.
9. Quad Mode enabled at factory (QE Bit=1).
10. Volatile Block Protect (BP) bits.
11. Extended Temperature (-55°C to 125°C)
12. Ultra low Power Mode and High Performance Mode support (Default Mode by option.)
13. N grade=Industrial plus plus (-40°C to 105°C).
14. RESET# and HOLD# depends on part number options.

| Package Type | WLCSP | 8-PDIP | 8-SOP | 8-SOP | 8-VSOP | 8-VSOP | 8-TSSOP | 8-WSON | 8-WSON | 8-USON | 8-USON | 8-USON | 8-XSON | 16-SOP | 24-TFBGA | 24-TFBGA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Package Size (mm) | | 300mil | 150mil | 200mil | 150mil | 200mil | 173mil | 6x5 | 8x6 | 2x3 | 4x3 | 4x4 | 4x4 | 300mil | 4x6 grid | 5x5 grid |

The information contained herein is provided based on the current product status. Macronix reserves the right to change product and specifications, or to make correction or modification without notice.

For other information or specification of succeeding products, please contact your local Macronix sales representative or visit Macronix's website at www.macronix.com

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# MACRONIX Serial NOR Flash

| Density | Voltage | Product Status[1] | Part Number | Organization 4 (KB) | Organization 32 (KB) | Organization 64 (KB) | Bus Width | DTR | SFDP Mode | HOLD Pin | RESET Pin[2] | Security Feature | Note | Package | KGD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Serial NOR Flash I-Grade (-40°C to 85°C)** | | | | | | | | | | | | | | | |
| 64Mb | 3V | | MX25L6406E | • | • | • | x1, x2 | | • | | | | | 8-SOP/ VSOP / WSON / USON, 24-TFBGA | |
| | | ➔ | MX25L6433F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP / WSON, 16-SOP, 24-TFBGA | • |
| | | | MX25L6435E | • | • | • | x1, x2, x4 | | • | • | | | | 8-SOP / WSON, 16-SOP, 24-TFBGA | |
| | | | MX25L6436F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP | |
| | | | MX25L6439E | • | • | • | x1, x4 | | • | • | | | 7 | 8-VSOP | |
| | | | MX25L6450F | • | • | • | x1, x2, x4 | | • | | | | 9 | 8-PDIP / SOP / WSON | |
| | | | MX25L6456E | • | • | • | x1, x2, x4 | | • | • | | • | 7 | 8-SOP, 24-TFBGA | • |
| | | | MX25L6473E | • | • | • | x1, x2, x4 | | • | | | | 9 | 8-SOP / VSOP / WSON, WLCSP | |
| | | | MX25L6473F | • | • | • | x1, x2, x4 | | • | • | | | 7,9 | 8-SOP / WSON | |
| | 1.8V | ➔ | MX25U6435F | • | • | • | x1, x2, x4 | | • | | • | | 7 | 8-SOP / WSON, WLCSP | • |
| | | | MX25U6473F | • | • | • | x1, x2, x4 | | • | | | | 7,9 | 8-SOP | |
| 128Mb | 3V | ➔ | MX25L12835F | • | • | • | x1, x2, x4 | | • | | • | | 7 | 8-SOP / WSON, 16-SOP | • |
| | | | MX25L12839F | • | • | • | x1, x4 | | • | | • | | 7,8 | 8-WSON | |
| | | | MX25L12845G | • | • | • | x1, x2, x4 | • | • | | • | | 7 | 8-SOP / WSON, 16-SOP, 24-TFBGA | |
| | | | MX25L12850F | • | • | • | x1, x2, x4 | | • | | | | 7,9 | 8-PDIP / SOP / WSON | |
| | | | MX25L12855F | • | • | • | x1, x2, x4 | | • | | • | • | 7 | 16-SOP, 24-TFBGA | |
| | | | MX25L12865F | • | • | • | x1, x2, x4 | | • | • | • | | 7 | 16-SOP | |
| | | | MX25L12873F | • | • | • | x1, x2, x4 | | • | | | | 7,9 | 8-SOP / WSON, 16-SOP | |
| | | ➔ | MX25L12873G | • | • | • | x1, x2, x4 | • | • | | • | | 7 | 8-SOP / WSON, 16-SOP | |
| | 1.8V | ➔ | MX25U12835F | • | • | • | x1, x2, x4 | | • | | • | | 7 | 8-SOP / WSON, 16-SOP, WLCSP | • |
| | | | MX25U12873F | • | • | • | x1, x2, x4 | | • | | | | 7,9 | 8-SOP / WSON | |
| 256Mb | 3V | | MX25L25635F | • | • | • | x1, x2, x4 | | • | | • | | 4,7 | 8-WSON, 16-SOP, 24-TFBGA | • |
| | | | MX25L25639F | • | • | • | x1, x4 | | • | | • | | 4,7,8 | 8-WSON | |
| | | ➔ | MX25L25645G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 8-SOP / WSON, 16-SOP, 24-TFBGA | • |
| | | | MX25L25655F | • | • | • | x1, x2, x4 | | • | | • | • | 4,7 | 16-SOP, 24-TFBGA | |
| | | ➔ | MX25L25673G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 8-SOP / WSON, 16-SOP | |
| | | | MX25L25735F | • | • | • | x1, x2, x4 | | • | • | | | 6,7 | 8-WSON, 16-SOP | |
| | 1.8V | | MX25U25635F | • | • | • | x1, x2, x4 | | • | | • | | 4,7 | 8-WSON, 16-SOP, 24-TFBGA, WLCSP | |
| | | | MX25U25645G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 8-WSON, 16-SOP, 24-TFBGA | |
| 512Mb | 3V | | MX25L51237G | • | • | • | x1, x2, x4 | • | | | • | | 4,7 | 16-SOP | |
| | | ➔ | MX25L51245G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 8-WSON, 16-SOP, 24-TFBGA | • |
| | | | MX25L51255G | • | • | • | x1, x2, x4 | • | • | | • | • | 4,7 | 16-SOP, 24-TFBGA | |
| | | | MX66L51235F | • | • | • | x1, x2, x4 | | • | | • | | 4,7 | 8-WSON, 16-SOP, 24-TFBGA | |
| | | | MX66L51255F | • | • | • | x1, x2, x4 | | • | | • | • | 4,7 | 16-SOP, 24-TFBGA | |
| | 1.8V | | MX25U51245G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 8-WSON, 16-SOP, 24-TFBGA, WLCSP | • |
| | | | MX66U51235F | • | • | • | x1, x2, x4 | | • | | • | | 4,7 | 8-WSON, 16-SOP, 24-TFBGA | |
| 1Gb | 3V | | MX66L1G37G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 16-SOP | |
| | | ➔ | MX66L1G45G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 16-SOP, 24-TFBGA | |
| | | | MX66L1G55G | • | • | • | x1, x2, x4 | • | • | | • | • | 4,7 | 16-SOP, 24-TFBGA | |
| | | | MX66L1G85G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 24-TFBGA | |
| | 1.8V | | MX66U1G45G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 16-SOP, 24-TFBGA | |
| 2Gb | 3V | | MX66L2G45G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 24-TFBGA | • |
| | 1.8V | | MX66U2G45G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 24-TFBGA | |
| **Serial NOR Flash J-Grade (-40°C to 105°C)** | | | | | | | | | | | | | | | |
| 1Mb | 3V | | MX25L1006E | • | | • | x1, x2 | | • | • | | | | | • |
| 4Mb | 2.5V | | MX25V4006E | • | | • | x1, x2 | | • | • | | | | 8-SOP | |
| | | | MX25V4035F | • | • | • | x1, x2, x4 | | • | • | | | 7 | | • |
| 8Mb | 3V | | MX25L8006E | • | | • | x1, x2 | | • | • | | | | 8-SOP | • |
| | 1.65-3.6V | | MX25R8035F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-SOP | • |
| 16Mb | 3V | | MX25L1606E | • | | • | x1, x2 | | • | • | | | | 8-USON / SOP | |
| | 2.5V | | MX25V1635F | • | • | • | x1, x2, x4 | | • | • | | | | 8-USON | |
| 32Mb | 3V | | MX25L3233F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP | |
| | | | MX25L3235E | • | • | • | x1, x2, x4 | | • | • | | | | 24-TFBGA | |
| | | | MX25L3255E | • | • | • | x1, x2, x4 | | • | • | | • | | 24-TFBGA | |
| | 1.65-3.6V | | MX25R3235F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-USON | |
| 64Mb | 3V | | MX25L6433F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 8-SOP, 16-SOP | |
| | | | MX25L6435E | • | • | • | x1, x2, x4 | | • | • | | | | 8-SOP | |
| | | | MX25L6456F | • | • | • | x1, x2, x4 | | • | • | | | 7 | 24-TFBGA | |
| | 1.65-3.6V | | MX25R6435F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-SOP | |
| 128Mb | 3V | | MX25L12835F | • | • | • | x1, x2, x4 | | • | | • | | 7 | 8-SOP / WSON, 16-SOP | |
| | | | MX25L12845G | • | • | • | x1, x2, x4 | • | • | | • | | 7 | 24-TFBGA | |
| | 1.8V | | MX25U12835F | • | • | • | x1, x2, x4 | | • | | • | | 7 | 8-SOP / WSON | |
| | | | MX25U12835F | • | • | • | x1, x2, x4 | | • | | • | | 7,13 | 16-SOP | |
| 256Mb | 3V | | MX25L25635F | • | • | • | x1, x2, x4 | | • | | • | | 4,7 | 16-SOP, 24-TFBGA | |
| | | | MX25L25655F | • | • | • | x1, x2, x4 | | • | | • | • | 4,7 | 24-TFBGA | |
| 512Mb | 3V | | MX66L51235F | • | • | • | x1, x2, x4 | | • | | • | | 4,7 | 16-SOP | |
| | | | MX25L51245G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 16-SOP, 24-TFBGA | |
| 1Gb | 3V | | MX66L1G45G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 24-TFBGA | |
| | 1.8V | A | MX66U1G45G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 16-SOP | |
| | | | MX66U1G45G | • | • | • | x1, x2, x4 | • | • | | • | | 4,7 | 24-TFBGA | |
| **Serial NOR Flash K-Grade (-40°C to 125°C)** | | | | | | | | | | | | | | | |
| 512Kb | 3V | | MX25L512E | • | | • | x1, x2 | | | • | | | | | • |
| 2Mb | 3V | | MX25L2006E | • | | • | x1, x2 | | • | • | | | | 8-USON | |
| | 2.5V | | MX25V2006E | • | | • | x1, x2 | | • | • | | | | | • |
| 4Mb | 3V | | MX25L4006E | • | | • | x1, x2 | | • | • | | | | 8-SOP / USON | |
| | 2.5V | | MX25V4006E | • | | • | x1, x2 | | | • | | | | | • |
| 8Mb | 3V | | MX25L8006E | • | | • | x1, x2 | | • | • | | | | 8-USON | |
| 32Mb | 3V | | MX25L3235E | • | • | • | x1, x2, x4 | | • | • | | | | 8-SOP | |
| 64Mb | 3V | | MX25R6435F | • | • | • | x1, x2, x4 | | • | • | • | | 7,12,14 | 8-SOP | |
| 256Mb | 3V | | MX25L25635F | • | • | • | x1, x2, x4 | | • | | • | | 4,7 | 8-WSON | |
| 512Mb | 1.8V | | MX66U51235F | • | • | • | x1, x2, x4 | | • | | • | | 4,7,11 | 16-SOP | |

**Notes: For further product details and specifications, please refer to the respective datasheets.**

1. ➔ Primary product for promotion.
   A Advance Information
   **Blank** Product is available for custom applications or special markets.
2. RESET pin may not be available for all package options.
3. OTP area pre-programmed at the factory.
4. 3- and 4-Byte addressing.
5. Commercial temperature only.
6. 4-Byte addressing only, with legacy commands.
7. Suspend/Resume function added.
8. Wireless temperature range.
9. Quad Mode enabled at factory (QE Bit=1).
10. Volatile Block Protect (BP) bits.
11. Extended Temperature (-55°C to 125°C)
12. Ultra low Power Mode and High Performance Mode support (Default Mode by option.)
13. N grade=Industrial plus plus (-40°C to 105°C).
14. RESET# and HOLD# depends on part number options.

| Package Type | WLCSP | 8-PDIP | 8-SOP | 8-SOP | 8-VSOP | 8-VSOP | 8-TSSOP | 8-WSON | 8-WSON | 8-USON | 8-USON | 8-USON | 8-XSON | 16-SOP | 24-TFBGA | 24-TFBGA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Package Size (mm) | | 300mil | 150mil | 200mil | 150mil | 200mil | 173mil | 6x5 | 8x6 | 2x3 | 4x3 | 4x4 | 4x4 | 300mil | 4x6 grid | 5x5 grid |

The information contained herein is provided based on the current product status. Macronix reserves the right to change product and specifications, or to make correction or modification without notice.

For other information or specification of succeeding products, please contact your local Macronix sales representative or visit Macronix's website at www.macronix.com

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# MACRONIX Parallel NOR Flash

| Density | Voltage | Product Status[1] | Part Number | Organization x8 | Organization x16 | Sector Unif. | Sector Boot | Read Speed (ns) | | | | WP#/ ACC | Advanced Sector Protection | Advanced Security[2] | Note | Package | KGD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parallel NOR Flash I-Grade (-40°C to 85°C)** | | | | | | | | | | | | | | | | | |
| 2Mb | 5V | ● | MX29F200C | • | • | | • | 70 | 90 | | | | | | | 44-SOP, 48-TSOP | |
| 4Mb | 5V | | MX29F040C | • | | • | | 70 | 90 | | | | | | | 32-PLCC / TSOP | • |
| | | ● | MX29F400C | • | • | | • | 70 | 90 | | | | | | | 44-SOP, 48-TSOP | |
| | 3V | | MX29LV040C | • | | • | | 55Q | 70 | 90 | | | | | 4 | 32-PLCC / TSOP | |
| | | ● | MX29LV400C | • | • | | • | 55Q | 70 | 90 | | | | | 4 | 44-SOP, 48-TSOP / LFBGA / TFBGA / WFBGA / XFLGA | • |
| | 1.8V | | MX29SL402C | • | • | | • | 90 | | | | | | | | 48-TSOP / LFBGA / TFBGA / WFBGA / XFLGA | • |
| 8Mb | 5V | | MX29F800C | • | • | | • | 70 | | | | | | | | 44-SOP, 48-TSOP / LFBGA | |
| | 3V | ● | MX29LV800C | • | • | | • | 45Q | 55Q | 70 | 90 | | | | | 44-SOP, 48-TSOP / LFBGA / TFBGA / WFBGA / XFLGA | • |
| | 1.8V | | MX29SL800C | • | • | | • | 90 | | | | | | | | 48-TSOP / LFBGA / TFBGA / XFLGA | |
| | | | MX29SL802C | • | • | | • | 90 | | | | | | | | 48-WFBGA | |
| 16Mb | 3V | ● | MX29LV160D | • | • | | • | 70 | | | | • | | | | 48-TSOP / LFBGA / TFBGA / WFBGA / XFLGA | • |
| 32Mb | 3V | | MX29GA320E/321E | • | • | • | | 70 | | | | • | • | • | | 64-FBGA / LFBGA | |
| | | | MX29GL320E T/B | • | • | | • | 70 | | | | • | • | | | 48-TSOP / LFBGA | |
| | | | MX29GL320E H/L | • | • | • | | 70 | | | | • | • | | | 56-TSOP, 64-LFBGA | • |
| | | | MX29LA320E | • | • | • | | 70 | | | | • | | • | | 64-FBGA | • |
| | | ● | MX29LV320E | • | • | | • | 70 | | | | • | | | | 44-SOP, 48-TSOP / LFBGA / TFBGA | • |
| | 1.8V | | MX29NS320E | | • | | • | 80 | | | | | | | 5 | 56-TFBGA | |
| 64Mb | 3V | | MX29GA640E/641E | • | • | • | | 70 | 90 | | | • | • | • | | 64-FBGA / LFBGA | |
| | | | MX29GL640E T/B | • | • | | • | 70 | | | | • | • | | | 48-TSOP / LFBGA | • |
| | | | MX29GL640E H/L | • | • | • | | 70 | | | | • | • | | | 56-TSOP, 64-LFBGA | • |
| | | | MX29LA640E | • | • | • | | 70 | | | | • | | • | | 64-FBGA | • |
| | | ● | MX29LV640E | • | • | | • | 70 | | | | • | | | | 48-TSOP / LFBGA | • |
| | 1.8V | | MX29NS640E | | • | | • | 80 | | | | | | | 5 | 56-TFBGA | |
| 128Mb | 3V | | MX29GA128F/129F | • | • | • | | 90 | | | | • | • | • | | 64-FBGA / LFBGA | |
| | | ● | MX29GL128F | • | • | • | | 70 | 90 | 110 | | • | • | | 3 | 56-TSOP / FBGA, 64-LFBGA, 70-SSOP | • |
| | 1.8V | | MX29NS128E | | • | | • | 80 | | | | | | | 5 | 56-TFBGA | |
| | | | MX29VS128F | | • | | • | 80 | | | | | | | 6 | 56-TFBGA | • |
| 256Mb | 3V | | MX29GA256F/257F | • | • | • | | 90 | 100 | | | • | • | • | | 64-FBGA / LFBGA | • |
| | | ● | MX29GL256F | • | • | • | | 70Q | 90Q | 100 | 110 | • | • | | 3 | 56-TSOP / FBGA, 64-LFBGA, 70-SSOP | • |
| 512Mb | 3V | | MX29GA512F | • | • | • | | 100 | 110 | | | • | • | • | | 64-LFBGA | |
| | | | MX29GL512F | • | • | • | | 100 | 110 | 120 | | • | • | | 3 | 56-TSOP / FBGA, 64-LFBGA, 70-SSOP | |
| | | ● | MX29GL512G | • | • | • | | 100 | 110 | | | • | • | | 3 | 56-TSOP, 64-LFBGA | |
| 1Gb | 3V | | MX68GA1G0F | • | • | • | | 110 | | | | • | • | • | | 64-LFBGA | |
| | | | MX68GL1G0F | • | • | • | | 110 | 120 | | | • | • | | 3 | 56-TSOP, 64-LFBGA, 70-SSOP | |
| | | ● | MX68GL1G0G | • | • | • | | 100 | | | | • | • | | 3 | 56-TSOP | |
| 2Gb | 3V | | MX68GL2G0F | • | • | • | | 120 | | | | • | • | | 3 | 70-SSOP | |
| **Parallel NOR Flash J-Grade (-40°C to 105°C)** | | | | | | | | | | | | | | | | | |
| 512Mb | 3V | | MX29GL512F | • | • | • | | 120 | | | | • | • | | | 56-TSOP | |
| 1Gb | 3V | | MX68GL1G0F | • | • | • | | 120 | | | | • | • | | | 56-TSOP | |

**Notes : For further product details and specifications, please refer to the respective datasheets.**

1. ● Primary product for promotion.
   **Blank** Product is available for custom applications or special markets.
2. Advanced Security indicates that a portion of memory may be permanently locked by user.
3. VIO=1.65-3.6V option available.
4. 45Q and/or 55Q = Restricted Vcc (3.0-3.6V)
5. Burst Read capable.
6. Multi Bank, Read While Write, Multiplexed, Burst Read capable.

| Package Type | 32-PLCC | 32-TSOP | 32-TSOP | 44-SOP | 48-TSOP | 48-TFBGA | 48-TFBGA | 48-LFBGA | 48-WFBGA | 48-XFLGA | 56-TSOP | 56-FBGA | 56-TFBGA | 64-FBGA | 64-LFBGA | 70-SSOP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Package Size (mm) | | 8x20 | 8x14 | 500mil | 12x20 | 6x8x1.2 | 6x8x1.2 | 6x8x1.3 | 4x6x0.75 | 4x6x0.5 | 14x20 | 7x9x1.2 | 7.7x6.2x1.2 | 10x13x1.2 | 11x13x1.4 | 16x58.5 |
| Ball Size (mm) | | | | | | 0.30 | 0.40 | 0.40 | 0.30 | 0.25 | | 0.40 | 0.30 | 0.40 | 0.60 | |
| Ball Pitch (mm) | | | | | | 0.80 | 0.80 | 0.80 | 0.50 | 0.50 | | 0.80 | 0.50 | 1.00 | 1.00 | |

The information contained herein is provided based on the current product status. Macronix reserves the right to change product and specifications, or to make correction or modification without notice.

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# MACRONIX NAND Flash

## SLC NAND Flash I-Grade (-40°C to 85°C)

| Density | Voltage | Product Status[1] | Part Number | Tech. Node | Organization | | Page Size | Read Speed | | ECC Mode | ONFI | P/E Cycles | Cache Read | WP# Pin | Secure Feature | | Package | KGD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | x8 | x16 | 2KB | Latency | Seq. Read | | | | | | Block Protection | Permanent Block Lock | | |
| 512Mb | 3V | | MX30LF1208AA | 75nm | • | | • | 25µs | 30ns | 1-bit | n/a | 100K | • | • | | | 48-TSOP, 63-VFBGA | • |
| 1Gb | 3V | | MX30LF1G08AA | 75nm | • | | • | 25µs | 30ns | 1-bit | n/a | 100K | • | • | | | 48-TSOP, 63-VFBGA | • |
| | | ➲ | MX30LF1G18AC | 36nm | • | | • | 25µs | 20ns | 4-bit | • | 100K | • | • | • | | 48-TSOP, 63-VFBGA | • |
| | | | MX30LF1G18SC | 36nm | • | | • | 25µs | 20ns | 4-bit | • | 100K | • | • | • | • | 63-VFBGA | |
| | | | MX30LF1G28AC | 36nm | • | | • | 25µs | 20ns | 8-bit | • | 100K | • | • | • | | 63-VFBGA | |
| | | | MX30LF1G28SC | 36nm | • | | • | 25µs | 20ns | 8-bit | • | 100K | • | • | • | • | 63-VFBGA | |
| | | | MX30LF1GE8AB | 36nm | • | | • | 70µs | 20ns | ECC-free | • | 100K | | • | | | 48-TSOP / VFBGA, 63-VFBGA | |
| | 1.8V | | MX30UF1G16AC | 36nm | | • | • | 25µs | 25ns | 4-bit | • | 100K | • | • | • | | 48-VFBGA, 63-VFBGA | |
| | | ➲ | MX30UF1G18AC | 36nm | • | | • | 25µs | 25ns | 4-bit | • | 100K | • | • | • | | 48-TSOP / VFBGA, 63-VFBGA | |
| 2Gb | 3V | ➲ | MX30LF2G18AC | 36nm | • | | • | 25µs | 20ns | 4-bit | • | 100K | • | • | • | | 48-TSOP, 63-VFBGA | • |
| | | | MX30LF2G18SC | 36nm | • | | • | 25µs | 20ns | 4-bit | • | 100K | • | • | • | • | 63-VFBGA | |
| | | | MX30LF2G28AC | 36nm | • | | • | 25µs | 20ns | 8-bit | • | 100K | • | • | • | | 48-TSOP, 63-VFBGA | |
| | | | MX30LF2G28SC | 36nm | • | | • | 25µs | 20ns | 8-bit | • | 100K | • | • | • | • | 63-VFBGA | |
| | | | MX30LF2G28AB | 36nm | • | | • | 25µs | 20ns | 8-bit | • | 100K | • | • | | | 48-TSOP, 63-VFBGA | |
| | | | MX30LF2GE8AB | 36nm | • | | • | 70µs | 20ns | ECC-free | • | 100K | | • | | | 48-TSOP, 63-VFBGA | |
| | 1.8V | | MX30UF2G16AB | 36nm | | • | • | 25µs | 25ns | 4-bit | • | 100K | • | • | • | | 63-VFBGA | |
| | | | MX30UF2G16AC | 36nm | | • | • | 25µs | 25ns | 4-bit | • | 100K | • | • | • | | 48-VFBGA | |
| | | | MX30UF2G18AB | 36nm | • | | • | 25µs | 25ns | 4-bit | • | 100K | • | • | • | | 48-TSOP, 63-VFBGA | |
| | | ➲ | MX30UF2G18AC | 36nm | • | | • | 25µs | 25ns | 4-bit | • | 100K | • | • | • | | 48-TSOP / VFBGA | |
| | | | MX30UF2G26AB | 36nm | | • | • | 25µs | 25ns | 8-bit | • | 100K | • | • | • | | 63-VFBGA | |
| | | | MX30UF2G28AB | 36nm | • | | • | 25µs | 25ns | 8-bit | • | 100K | • | • | • | | 48-TSOP, 63-VFBGA | |
| | | | MX30UF2GE8AB | 36nm | • | | • | 70µs | 25ns | ECC-free | • | 100K | | • | | | 63-VFBGA | |
| 4Gb | 3V | ➲ | MX30LF4G18AC | 36nm | • | | • | 25µs | 20ns | 4-bit | • | 100K | • | • | • | | 48-TSOP, 63-VFBGA | • |
| | | | MX30LF4G18SC | 36nm | • | | • | 25µs | 20ns | 4-bit | • | 100K | • | • | • | • | 63-VFBGA | |
| | | | MX30LF4G28AB | 36nm | • | | • | 25µs | 20ns | 8-bit | • | 100K | • | • | | | 48-TSOP, 63-VFBGA | |
| | | | MX30LF4G28AC | 36nm | • | | • | 25µs | 20ns | 8-bit | • | 100K | • | • | • | | 48-TSOP, 63-VFBGA | |
| | | | MX30LF4GE8AB | 36nm | • | | • | 70µs | 20ns | ECC-free | • | 100K | | • | | | 48-TSOP | |
| | 1.8V | | MX30UF4G16AB | 36nm | | • | • | 25µs | 25ns | 4-bit | • | 100K | • | • | • | | 63-VFBGA | |
| | | ➲ | MX30UF4G18AB | 36nm | • | | • | 25µs | 25ns | 4-bit | • | 100K | • | • | • | | 48-TSOP, 63-VFBGA | |
| | | | MX30UF4G26AB | 36nm | | • | • | 25µs | 25ns | 8-bit | • | 100K | • | • | • | | 63-VFBGA | |
| | | | MX30UF4G28AB | 36nm | • | | • | 25µs | 25ns | 8-bit | • | 100K | • | • | • | | 48-TSOP, 63-VFBGA | |
| | | | MX30UF4GE8AB | 36nm | • | | • | 70µs | 25ns | ECC-free | • | 100K | | • | | | 63-VFBGA | |
| 8Gb | 3V | ➲ | MX60LF8G18AC | 36nm | • | | • | 25µs | 20ns | 4-bit | • | 100K | • | • | | | 48-TSOP, 63-VFBGA | |
| | | | MX60LF8G28AB | 36nm | • | | • | 25µs | 20ns | 8-bit | • | 100K | • | • | | | 48-TSOP, 63-VFBGA | |

## SLC NAND Flash J-Grade (-40°C to 105°C)

| Density | Voltage | Product Status[1] | Part Number | Tech. Node | Organization | | Page Size | Read Speed | | ECC Mode | ONFI | P/E Cycles | Cache Read | WP# Pin | Secure Feature | | Package | KGD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | x8 | x16 | 2KB | Latency | Seq. Read | | | | | | Block Protection | Permanent Block Lock | | |
| 1Gb | 3V | | MX30LF1G08AA | 75nm | • | | • | 25µs | 30ns | 1-bit | n/a | 100K | • | • | | | 48-TSOP, 63-VFBGA | • |
| | | ➲ | MX30LF1G18AC | 36nm | • | | • | 25µs | 20ns | 4-bit | • | 100K | • | • | | | 48-TSOP, 63-VFBGA | • |
| 2Gb | 3V | ➲ | MX30LF2G18AC | 36nm | • | | • | 25µs | 20ns | 4-bit | • | 100K | • | • | | | 48-TSOP, 63-VFBGA | • |

**Notes: For further product details and specifications, please refer to the respective datasheets.**

1. ➲ Primary product for promotion..
   **CM** Please contact Macronix sales representative for product application.
   **Blank** Product is available for custom applications or special markets.

| Package Type | 48-TSOP | 48-VFBGA | 63-VFBGA |
|---|---|---|---|
| Package Size (mm) | 12x20 | 6x8 | 9x11 |

## Serial NAND Flash I-Grade (-40°C to 85°C)

| Density | Voltage | Product Status[1] | Part Number | Tech. Node | Read Speed per "cmd-addr-data" Bus Width (MHz)[2] | | | Read Speed | Page Size | ECC Mode | P/E Cycles | WP# Pin | Package |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | FREAD 1-1-1 | DREAD 1-1-2 | QREAD 1-1-4 | Latency | 2KB | | | | |
| 1Gb | 3V | | MX35LF1GE4AB | 36nm | 104 | 104 | 104 | 70µs | • | ECC-free | 100K | • | 8-WSON |
| 2Gb | 3V | | MX35LF2GE4AB | 36nm | 104 | 104 | 104 | 70µs | • | ECC-free | 100K | • | 16-SOP |
| | | A | MX35LF2G14AC | 36nm | 104 | 104 | 104 | 25µs | • | 4-bit ECC | 100K | • | 8-WSON |

**Notes: For further product details and specifications, please refer to the respective datasheets.**

1. **Blank** Product is available for custom applications or special markets.
   A Advance Information
2. Read Speeds with maximum number of dummy cycles.

| Package Type | 8-WSON | 16-SOP |
|---|---|---|
| Package Size (mm) | 8x6 | 300mil |

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# MACRONIX NOR-Based MCP

| MCP NOR Flash I-Grade (-40°C to 85°C) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Part Number | Product Type | OctaFlash Density | OctaRAM Density | OctaFlash Bus Width | OctaRAM Bus Width | Voltage | Package |
| **Serial NOR Flash** | | | | | | | |
| MX65L12A64AA | OctaMCP | 512Mb | 64Mb | x8 | x8 | 3V | 6x8mm 24-TFBGA |
| Part Number | Product Type | NOR Density | pSRAM Density | NOR Bus Width | pSRAM Bus Width | Voltage | Package |
| **Parallel NOR Flash** | | | | | | | |
| MX69GL126F | De-Mux | 128Mb | 32Mb | x16 | x16 | 3V | 7x9mm 56-TFBGA |
| MX69GL640E | De-Mux | 64Mb (Uniform Sector) | 32Mb | x16 | x16 | 3V | 7x9mm 56-TFBGA |
| MX69GL642E | De-Mux | 64Mb (Top Boot) | 32Mb | x16 | x16 | 3V | 7x9mm 56-TFBGA |
| MX69N64E32 | AD-Mux | 64Mb | 32Mb | x16 | x16 | 1.8V | 6.2x7.7mm 56-TFBGA |
| MX69N64E32 | AD-Mux | 64Mb | 32Mb | x16 | x16 | 1.8V | 6x6mm 56-TFBGA |

| MCP NOR Flash W-Grade (-25°C to 85°C) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Part Number | Product Type | NOR Density | pSRAM Density | NOR Bus Width | pSRAM Bus Width | Voltage | Package |
| **Serial NOR Flash** | | | | | | | |
| MX65U28F64 | QPI Mode | 128Mb | 64Mb | x4 | x16 | 1.8V | 6.2x7.7mm 56-TFBGA |
| MX65U64F32 | QPI Mode | 64Mb | 32Mb | x4 | x16 | 1.8V | 6.2x7.7mm 56-TFBGA |
| **Parallel NOR Flash** | | | | | | | |
| MX69V28F64 | AD-Mux | 128Mb | 64Mb | x16 | x16 | 1.8V | 6.2x7.7x1.2mm 56-TFBGA |
| MX69V28F64 | AD-Mux | 128Mb | 64Mb | x16 | x16 | 1.8V | 6.2x7.7x1.05mm 56-TFBGA |
| MX69N64E32 | AD-Mux | 64Mb | 32Mb | x16 | x16 | 1.8V | 6x6mm 56-TFBGA |

# MACRONIX NAND-Based MCP

| MCP NAND Flash I-Grade (-40°C to 85°C) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Part Number | NAND ONFI Product Type | LPDDR Product Type | | NAND Density | LPDDR Density | NAND Bus Width | LPDDR Bus Width | Voltage | ECC Requirement | Package | | Temperature Range | |
| | | LPDDR2 | LPDDR | | | | | | | 8x10.5mm 162-TFBGA | 8x9mm 130-TFBGA | -30°C to +85°C | -40°C to +85°C |
| MX63U4GC2GGA | • | • | | 4Gb | 2Gb | x8 | x16 | 1.8V | 4-bit ECC | • | | • | • |
| MX63U4GC2GHA | • | • | | | | | x32 | 1.8V | | • | | • | • |
| MX63U4GA2GHA | • | • | | | | | x32 | 1.8V | 8-bit ECC | • | | • | • |
| MX63U4GA2GBA | • | • | | | | | x32 | 1.8V | | • | | • | |
| MX63U2GE2GGA | • | • | | 2Gb | 2Gb | x8 | x16 | 1.8V | 4-bit ECC | • | | • | • |
| MX63U2GE2GHA | • | • | | | | | x32 | 1.8V | | • | | • | • |
| MX63U2GE2GGA | • | • | | | | | x16 | 1.8V | | • | | • | • |
| MX63U2GD1GJA | • | | • | 2Gb | 1Gb | x16 | x16 | 1.8V | 4-bit ECC | | • | • | • |
| MX63U2GC1GCA | • | • | | | | x8 | x32 | 1.8V | | • | | • | • |
| MX63U2GC1GKA | • | | • | | | x8 | x32 | 1.8V | | | • | • | • |
| MX63U2GA1GCA | • | • | | | | x8 | x32 | 1.8V | 8-bit ECC | • | | • | • |
| MX63U2GB1GCA | • | • | | | | x16 | x32 | 1.8V | | • | | • | • |
| MX63U1GD1GAA | • | • | | 1Gb | 1Gb | x16 | x16 | 1.8V | 4-bit ECC | • | | • | • |
| MX63U1GD12EA | • | | • | | 512Mb | x16 | x16 | 1.8V | | | • | • | • |
| MX63U1GC1GCA | • | • | | | 1Gb | x8 | x32 | 1.8V | | • | | • | • |
| MX63U1GC1GAA | • | • | | | 1Gb | x8 | x16 | 1.8V | | • | | • | • |
| MX63U1GC12HA | • | • | | | 512Mb | x8 | x32 | 1.8V | | • | | • | • |
| MX63U1GC12FA | • | | • | | 512Mb | x8 | x32 | 1.8V | | | • | • | • |
| MX63U1GD12EA | • | | • | | 512Mb | x16 | x16 | 1.8V | | | • | • | • |

**Note: For further information, please contact our regional sales representatives.**

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For other information or specification of succeeding products, please contact your local Macronix sales representative or visit Macronix's website at www.macronix.com

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# MACRONIX e•MMC™

| e•MMC™ I-Grade (-40°C to 85°C) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Density | Voltage | Product Status[1] | Part Number | Tech. Node | e.MMC Version | Bus Width | Max. Bandwidth (MB/s) | Package |
| 8GB | 2.7V-3.6V | A | MX52LM08A11XVI | MLC | 5.1 | x1, x4, x8 | 400 | 11.5x13mm 153-FBGA |
| 4GB | 2.7V-3.6V | A | MX52LM04A11XSI | MLC | 5.1 | x1, x4, x8 | 400 | 11.5x13mm 153-FBGA |
| 2GB | 2.7V-3.6V | A | MX52LM02A11XTI | MLC | 5.1 | x1, x4, x8 | 400 | 9x9mm 153-FBGA |
| 2GB | 2.7V-3.6V | A | MX52LM02A11XSI | MLC | 5.1 | x1, x4, x8 | 400 | 11.5x13mm 153-FBGA |
| 1GB | 2.7V-3.6V | A | MX52LM01A11XTI | MLC | 5.1 | x1, x4, x8 | 400 | 9x9mm 153-FBGA |
| 1GB | 2.7V-3.6V | A | MX52LM01A11XSI | MLC | 5.1 | x1, x4, x8 | 400 | 11.5x13mm 153-FBGA |

**Notes: e•MMC™ is the trademark of JEDEC/MMCA.**

**Notes: For further product details and specifications, please refer to the respective datasheets.**

1. **Blank** Product is available for custom applications or special markets.
   A Advance Information

| Package Type | 153-VFBGA | 153-VFBGA | 153-VFBGA |
|---|---|---|---|
| Package Size (mm) | 11.5x13x0.8 | 11.5x13x1.0 | 9x9x0.8 |

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# MACRONIX Product Naming Guide

## Serial NOR Flash Example

MX 25L 256 35 F M I - 10 G

**DEVICE :**
25L/66L : 3V, Serial NOR Flash
25U/66U : 1.8V, Serial NOR Flash
25V : 2.5V, Serial NOR Flash

**DENSITY :**
512 : 512Kb
10 : 1Mb
20 : 2Mb
40 : 4Mb
80 : 8Mb
16 : 16Mb
32 : 32Mb
64 : 64Mb
128 : 128Mb
256/257 : 256Mb
512 : 512Mb
1G : 1Gb
2G : 2Gb

**MODE :**
06 : Single-in, Dual-out
08 : Unique ID
26 : Default Lock Protection
33/35/39 : MXSMIO®-Multi-in, Multi-out
36 : MXSMIO®-Single-in, Multi-out
45 : MXSMIO® Duplex(DTR)-Multi-in, Multi-out
50 : MXSMIO®-Security RPMC type
55 : MXSMIO®-Security type
73 : MXSMIO®-Multi I/O, Quad I/O Permanent Enable
85 : MXSMIO®-Multi I/O, Dual Quad

**PACKAGE TYPE :**
P : PDIP
ZN/Z2/Z3/Z4 : WSON
ZU/ZB : USON
M/M1/M2 : SOP
MB/MD : VSOP
O : 8-TSSOP
X : BGA
BA/BB/BC/BD/BE/BF : WLCSP

**TEMPERATURE RANGE :**
E : Industrial (-55°C to 125°C)
I : Industrial (-40°C to 85°C)
J : Industrial (-40°C to 105°C )
K : Industrial (-40°C to 125°C )
S : Automotive Grade 3 (-40°C to 85°C)
R : Automotive Grade 2 (-40°C to 105°C)
Q : Automotive Grade 1 (-40°C to 125°C)

**SPEED :**
05 : 200MHz
08 : 133MHz
10 : 104MHz/108MHz
12 : 80MHz/86MHz
13 : 75MHz
15 : 66MHz
20 : 45MHz

**OPTION :**
G : RoHS Compliant

**GENERATION**

## OctaFlash and Serial NOR Flash 1.8V G-Generation Example

MX 25UM 256 45 G M I 0A

**DEVICE :**
25U/66U : 1.8V, Serial NOR Flash
25LM/66LM : 3V, 8 I/O, Serial NOR Flash
25UM/66UM : 1.8V,8 I/O,Serial NOR Flash

**DENSITY :**
128 : 128Mb
256 : 256Mb
512 : 512Mb
1G : 1Gb
2G : 2Gb

**MODE :**
45 : MXSMIO® Duplex(DTR)-Multi-in, Multi-out

**PACKAGE TYPE :**
M/M2 : SOP
XD/XR : BGA
ZN/Z2 : WSON

**TEMPERATURE RANGE :**
I : Industrial (-40°C to 85°C)
S : Automotive Grade 3 (-40°C to 85°C)
R : Automotive Grade 2 (-40°C to 105°C)
Q : Automotive Grade 1 (-40°C to 125°C)

**MODEL CODE :**
0A : Default STR, x1 I/O enable
1A : Default DTR, x8 I/O enable
00 : Default STR, x1 I/O enable, with password protection
10 : Default DTR, x8 I/O enable,with password protection

**GENERATION**

## Ultra Low Power / Wide Range Vcc Serial NOR Flash Example

MX 25R 64 35 F M2 I L 0

**DEVICE :**
25R : Serial NOR Flash (Ultra Low Power/1.65-3.6V )

**DENSITY :**
512 : 512Kb
10 : 1Mb
20 : 2Mb
40 : 4Mb
80 : 8Mb
16 : 16Mb
32 : 32Mb
64 : 64Mb

**MODE :**
35 : MXSMIO®-Multi-in, Multi-out

**PACKAGE TYPE :**
ZN/Z2/Z3/Z4 : WSON
ZU/ZB/ZA : USON
M1/M2 : SOP
O : 8-TSSOP
BD/BF : WLCSP

**TEMPERATURE RANGE :**
I : Industrial (-40°C to 85°C)

**OPTION 1 :**
L : Ultra Low Power Mode (Default)
H : High Performance Mode (Default)

**OPTION 2 :**
0 : RESET#, Manufacturing Location
1 : HOLD#, Manufacturing Location
2 : RESET#, Manufacturing Location
3 : HOLD#, Manufacturing Location

**GENERATION**

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# MACRONIX Product Naming Guide

## Parallel NOR Flash Example

MX 29GL 512 F H XF I - 90 G

**DEVICE :**
29F : 5V
29LV/29GL/68GL : 3V
29NS/29VS/29SL : 1.8V
29LA/29GA/68GA : Security type

**DENSITY :**
20x : 2Mb
40x/040 : 4Mb
80x : 8Mb
16x : 16Mb
32x : 32Mb
64x : 64Mb
12x : 128Mb
25x : 256Mb
51x : 512Mb
1Gx : 1Gb

**GENERATION**

**BLOCK TYPE :**
T : Top Boot
B : Bottom Boot
H : Uniform Sector, Highest Address Sector Protected
L : Uniform Sector, Lowest Address Sector Protected
U : VI/O=1.65 to VCC, VCC=2.7V-3.6V, Highest Address Sector Protected
D : VI/O=1.65 to VCC, VCC=2.7V-3.6V, Lowest Address Sector Protected

**PACKAGE TYPE :**
M: SOP
Q : PLCC
T : TSOP
X : BGA

**TEMPERATURE RANGE :**
C : Commercial (0°C to 70°C)
I : Industrial (-40°C to 85°C)
J : Industrial (-40°C to 105°C)
S : Automotive Grade 3 (-40°C to 85°C)
R : Automotive Grade 2 (-40°C to 105°C)

**SPEED :**
55 : 55ns
70 : 70ns
80 : 80ns
90 : 90ns
10 : 100ns
11 : 110ns
12 : 120ns

**OPTION :**
G : RoHS Compliant
Q : Restricted Vcc (3.0V-3.6V), RoHS Compliant

## NAND Flash Example

MX 30 L F 1G 0 8 A A - XK I x

**TYPE:**
30 : SLC NAND Flash
60 : SLC NAND Flash (stacked die)
35 : SLC Serial NAND Flash

**VOLTAGE:**
L : 2.7V-3.6V
U: 1.7V-1.95V

**CLASSIFICATION:**
F : SLC+Large Block

**DENSITY :**
12 : 512Mb
1G : 1Gb
2G : 2Gb
4G : 4Gb
8G : 8Gb

**ECC :**
0 : 1bit (2bit in Automotive Grade)
1 : 4bit
2 : 8bit
E : ECC-free

**Bus Width :**
4 : x4
8 : x8
6 : x16

**MODE :**
A : Die#, CE#:1, R/B#:1
S : Die#, CE#:1, R/B#:1; Security feature supported

**GENERATION**

**PACKAGE TYPE :**
M : 16-SOP (300mil)
T : 48-TSOP (12x20mm)
XK : 63-VFBGA (9x11mm)
XQ : 48-VFBGA (6x8mm)
Z2/Z4 : 8-WSON (8x6mm)

**OPERATING TEMPERATURE :**
I :Industrial (-40°C to 85°C)
J :Industrial (-40°C to 105°C)
S :Automotive Grade 3 (-40°C to 85°C)
R :Automotive Grade 2 (-40°C to 105°C)

**RESERVED**

## eMMC Example

MX 52 L M 04 A 1 1 XS I x

**TYPE:**
52 : e•MMC™ Series

**VOLTAGE:**
L : 2.7V-3.6V

**CLASSIFICATION:**
M : MLC

**DENSITY :**
01 : 1G-byte
02 : 2G-byte
04 : 4G-byte
08 : 8G-byte

**GENERATION :**

**Controller Rev. :**
1 : CTR #1

**Configuration :**
1 : Standard Type

**PACKAGE TYPE :**
XS : 153-VFBGA (11.5x13x0.8mm)
XV : 153-VFBGA (11.5x13x1.0mm)
XT : 153-VFBGA (9x9x0.8mm)

**OPERATING TEMPERATURE :**
I :Industrial (-40°C to 85°C)

**RESERVED**

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