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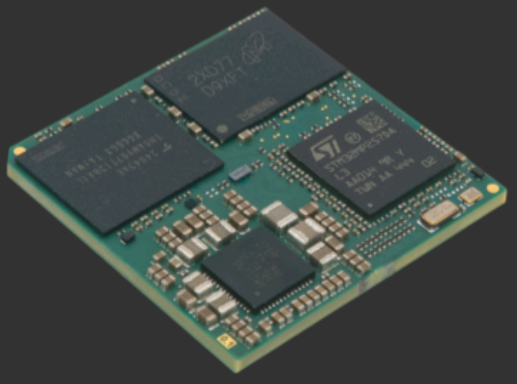
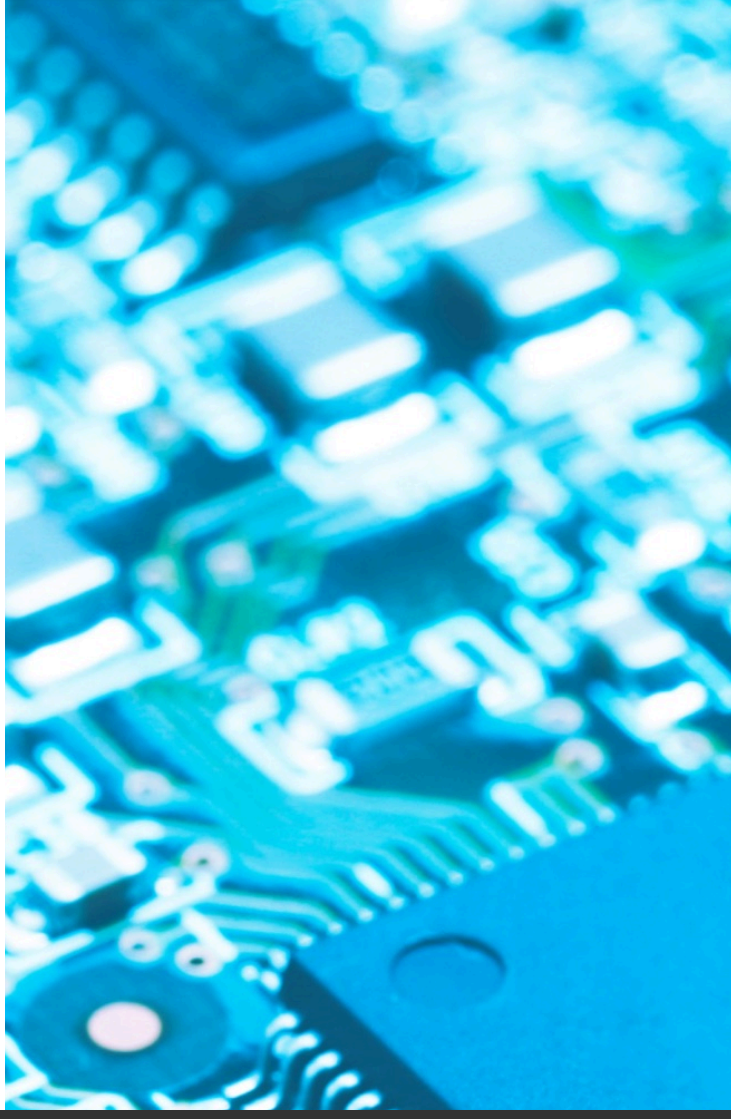
Production Manual



Production Manual

OSM-S



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Imprint

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Symbols and Typographic Conventions

These symbols represent important details or aspects for working with bytesatwork-products.

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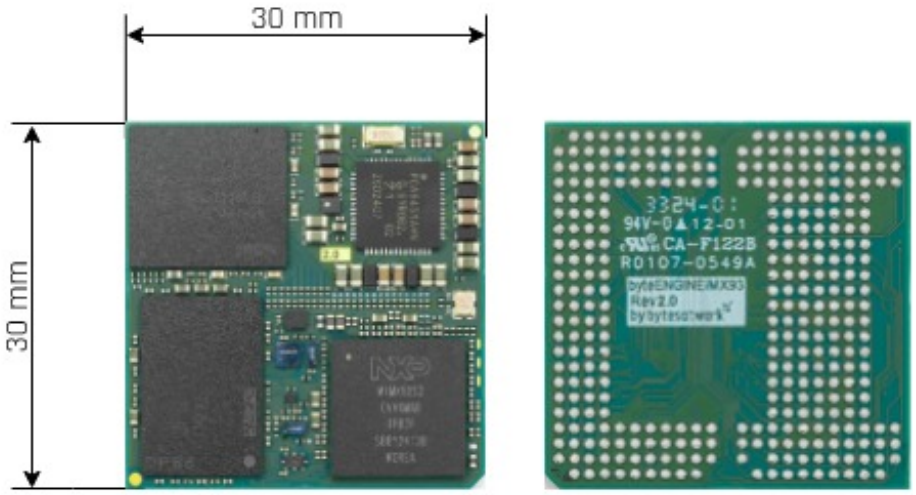
Table of Contents

1. Module Information

Currently, there are three OSM-S system on modules available.

1.1. byteENGINE IMX9x



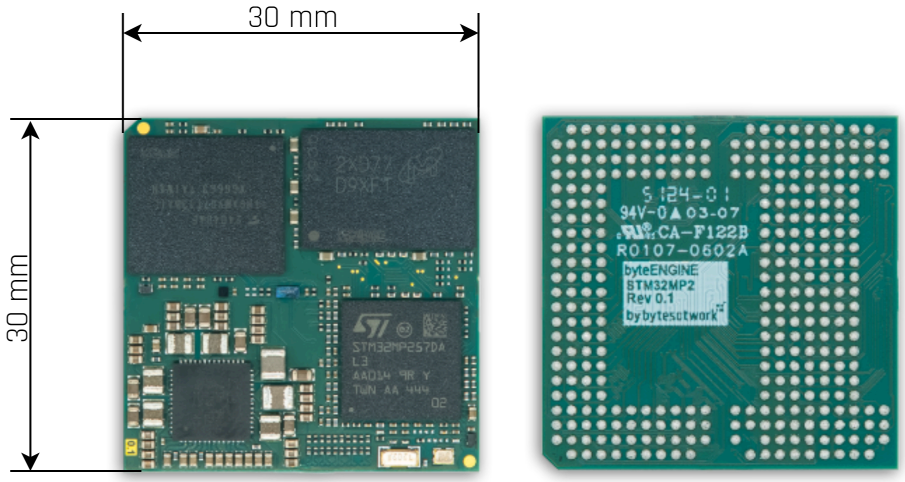
byteENGINE IMX9x Specification

CPU	Up to Dual ARM® Cortex® A55 processors
Frequency	Max. 1.7 GHz
Co-Processor	Cortex® M33 up to 250 MHz
Memory	512 MB to 2048 MB LPDDR4
Flash eMMC	up to 128 GB
Temperature	Industrial: -40° to +85° C, consumer: 0 to 85° C
Power Supply	5.0 V, 4 W

For detailed module information including technical documentation please refer to the IMX9x Datasheet.

Datasheet byteENGINE IMX9x

1.2. byteENGINE STM32MP2



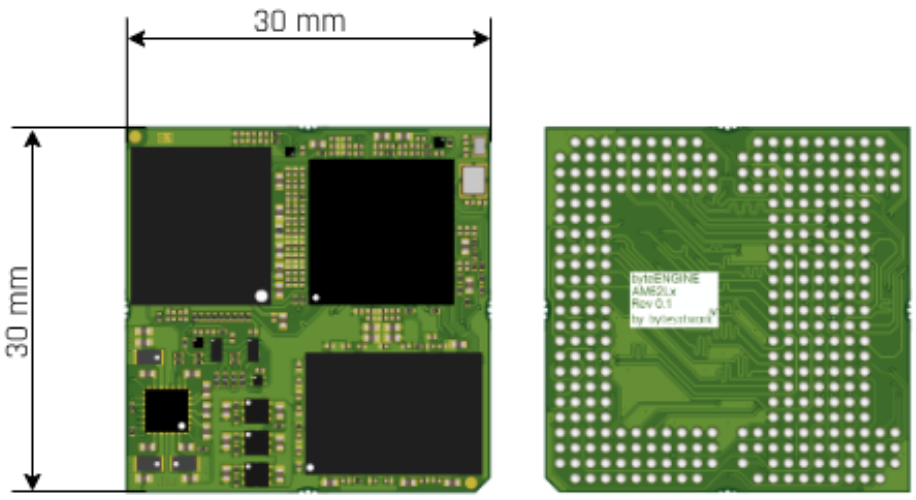
byteENGINE STM32MP2 Specification

CPU	Up to Dual ARM® Cortex® A35 processors
Frequency	Max. 1.5 GHz
Co-Processor	Cortex® M33 up to 400 MHz
Memory	512 MB to 2048 MB LPDDR4
Flash eMMC	up to 128 GB
Temperature	Industrial: -40° to +85° C, consumer: 0 to 85° C
Power Supply	5.0 V, 4 W

For detailed module information including technical documentation please refer to the STM32MP2 Datasheet.

Datasheet byteENGINE STM32MP2

1.3. byteENGINE AM62L



byteENGINE AM62L Specification

CPU	Up to dual ARM® Cortex® A53 processors
Frequency	1.25 GHz
Memory	512 MB to 2048 MB LPDDR4
Flash eMMC	up to 128 GB
Temperature	Industrial: -40° to +85° C, consumer: 0 to 85° C
Power Supply	5.0 V, 2 W

For detailed module information including technical documentation please refer to the AM62L Datasheet.

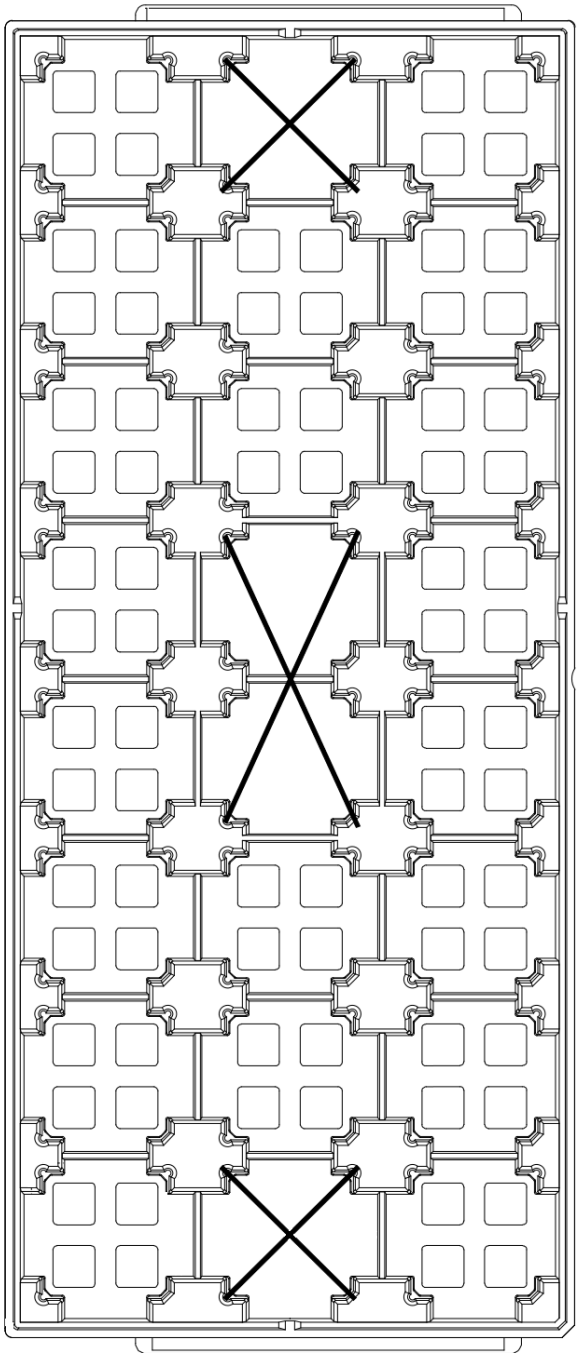
Datasheet byteENGINE AM62L

2. Handling

2.1. Packaging

Our OSM-S Modules can be shipped in trays. The packaging has to be specified when ordering.

The Trays measure 322.6 mm x 136 mm and fit 20 modules each. The packaging, covered by one empty tray, will be vacuum sealed.



Tape packaging is available for samples, documentation will follow soon.

2.2. Storage Conditions

To ensure optimal performance and reliability, all OSM-S Modules shall be handled and stored in accordance with moisture sensitivity requirements.

The OSM-S Modules are classified as **MSL Level 3** in accordance with J-STD-020.

Floor Life: After opening the moisture barrier bag, components may be exposed to ambient condistoins for a maximum of 168 hours at ≤30°C and ≤60% relative humidity (RH).

Handling after floor life expiry: Modules that exceed the specified floor life shall be baked in accordance with J-STD-033 prior to reflow solderingto restore suitability for assembly.

2.3. Unique Identification

All system on modules are shipped with a 7x7mm serial number (UID) sticker on them. The package includes a certificate of conformity generated out of our production test. With this UID, your modules are fully traceable to delivery date, order, our production lot and production date. To retrieve this information, please contact us.

2.4. PCB Marking

Our OSM-S system on modules have a marking on the PCB bottom side containing the name and revision of the module.

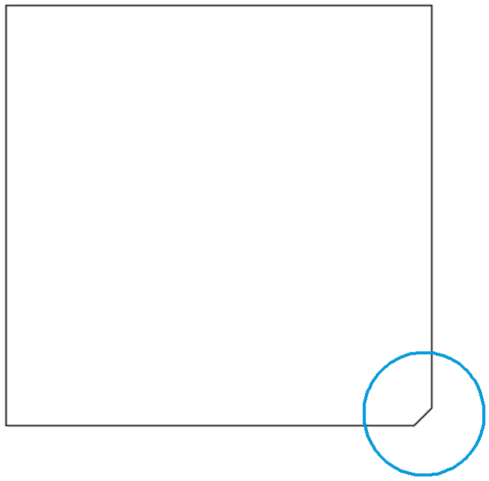
3. Production

3.1. Stencil Parameters for Soldering

Parameter	Recommendation
Stencil Thickness	100 µm
Material	Electropolished stainless steel (optional nano-coating)
Aperture size	0.80mm (same as pad)

3.2. Orientation Mark for Placement

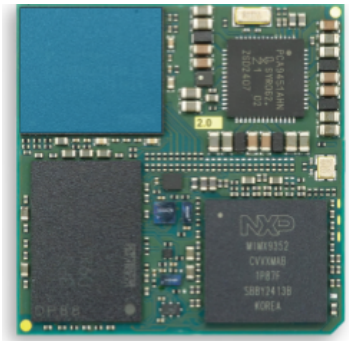
As a reference point for positioning the OSM-S Module, one corner of the module is chamfered.



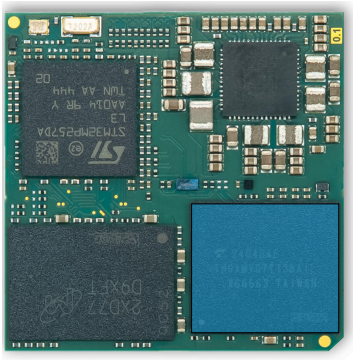
3.3. Pick and Place Recommendation

Always use the biggest nozzle to pick up the modules.
Following pick position (area marked in blue) are recommended for reliable SMT placement, depending on module type:

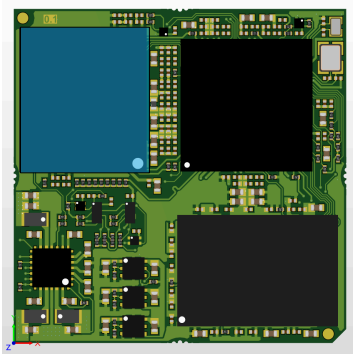
byteENGINE IMX9x:



byteENGINE STM32MP2:



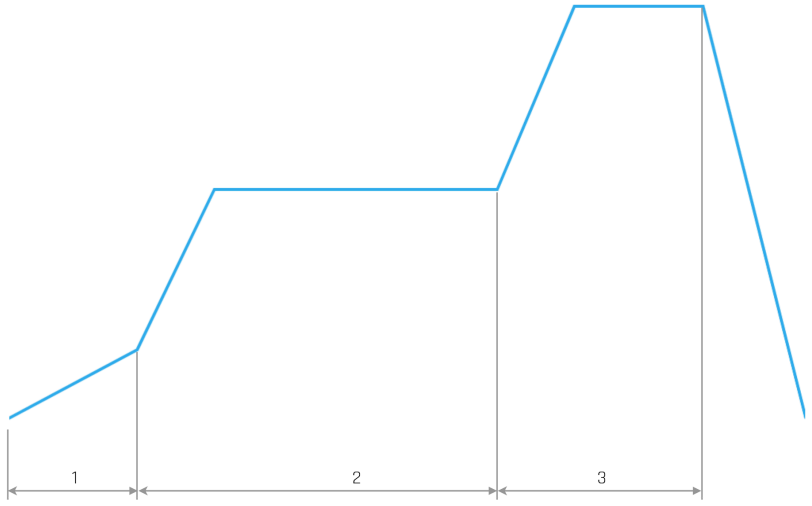
byteENGINE AM62L:



3.4. Soldering profile

Following conditions have to be met :

- Dry OSM-S Module (MSL 3)
- 2 (two) soldering cycles are permitted in total
- Total time above 60°C must not exceed 600s
- The profile is only valid for Vapor Phase Soldering. Reflow may require higher temperatures, however, 260°C must not be exceeded.



Phase	Description	Temperature	Time
1	Synchronisation for temperature equalization, if required	Max. 80 °C	N/A
2	Preheat	Typical: 160 °C Max: 190 °C	Typical: ≤60 s Max.: 90 s
3	Soldering	Typical: 225 °C Max.: 240 °C	Typical: 15 s Max.: 30 s

4. References

Notice

Files can only be downloaded with login credentials.
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Links

- bytewiki:
  https://bytewiki.readthedocs.io/
- bytesatwork on github:
  https://github.com/bytesatwork
- Datasheet byteENGINEIMX9x:
  Datasheet byteENGINE IMX9x
- Datasheet byteENGINE STM32MP2:
  Datasheet byteENGINE STM32MP2
- Datasheet byteENGINE AM62L
  Datasheet byteENGINE AM62L
- OSM HW Specification (login required):
  https://sget.org
- OSM Design Guide (login required):
  https://sget.org

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Product Information

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