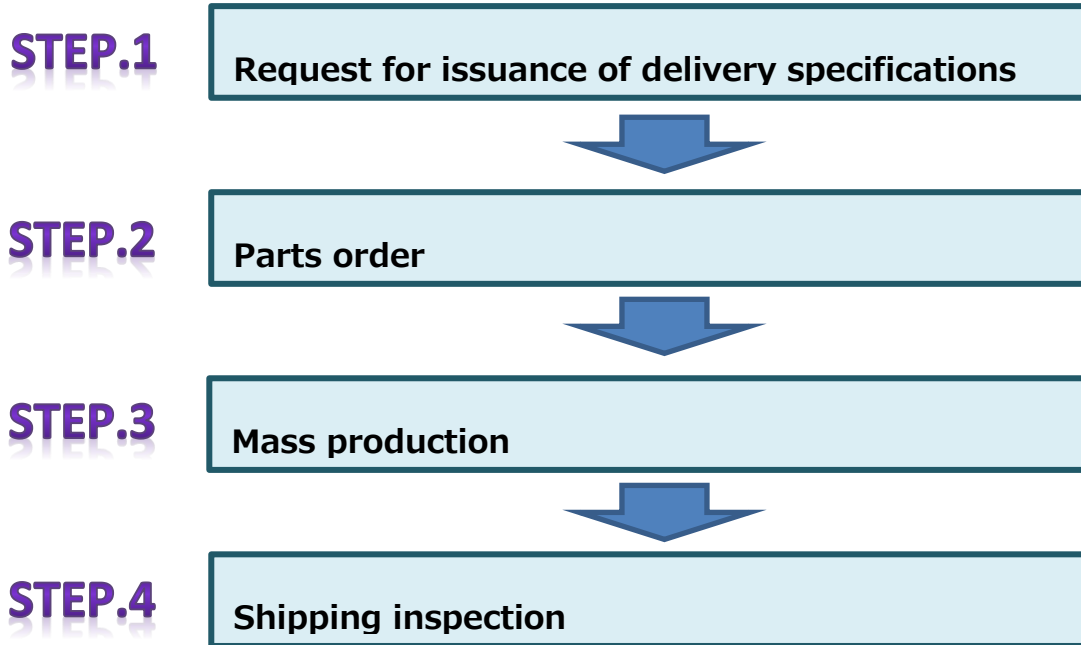


Flow of mass production by customers

Here, we will explain the general flow of mass production by customers.



Step.1 Request for issuance of delivery specifications

Prior to mass production, request the sales representative to issue the module delivery specifications.

We will submit data sheet, delivery specifications related to shipping packaging specifications, mounting conditions, etc. according to the customer's request.

Step.2 Parts order

We will place an order for parts for mass production. Please contact your sales representative for details.

Step.3 Mass production

Once the ordered set of parts is available, we will start mass production such as component mounting. Before mass production, make a final check of the mounting conditions and storage conditions described in the delivery specifications.

Step.4 Shipping inspection

In the shipping inspection, we perform various inspections necessary for the customer's final product, such as FW writing of the customer's final product, functional test, current measurement, and wireless communication test. The reference information for shipping inspection is described below, but the inspection items and judgment method will differ depending on the specifications of the customer's product and the customer's inspection policy, so it is up to the customer to make the final judgment.

●FW writing

We will explain an example of the FW writing method during mass production.

■Case to write in the customer's mass production process

When writing the application software for Bluetooth low energy developed by the customer to the Flash ROM with built-in CPU in the mass production process of the customer's product, it is common to use a flash programmer (flash writer).

As a flash programmer compatible with MK715x1 (NRF52811 or nRF52832 manufactured by Nordic), we recommend the flash writing tool manufactured by EmbITeK Co., Ltd..

Please refer to the following web page for details.

<https://www.embitek.co.jp/product/hwtools.html#production>

■Case of entrusting writing to Lapis Technology

We also provide a "firmware writing service" in which user program data is written and shipped at the factory. If you have any requests, please contact the sales representative for details such as order conditions.

●Functional test

In order to confirm the normality of module mounting on the motherboard, we perform a functional test to confirm the interface with the external microcomputer and peripheral parts.

● **Current measurement**

Current measurement under low current consumption may be effective to confirm that there are no mounting defects such as short circuits between unused pins. It is also effective to prepare a test FW to set such a specific state.

● **Wireless communication test**

MK71511 / MK71521 modules have acquired construction type certification, and we have confirmed all transmission power, frequency deviation, radiation spurious, etc. in the shipping inspection. Therefore, there is no need to make similar measurements on your final product.

However, in your final product, you need to check the wireless communication with the antenna connected. For example, a simple test to check the received signal level (RSSI) when communicating with the other device may be applied. For more accurate inspection, it is necessary to consider fixing the antenna position inside the shield box.