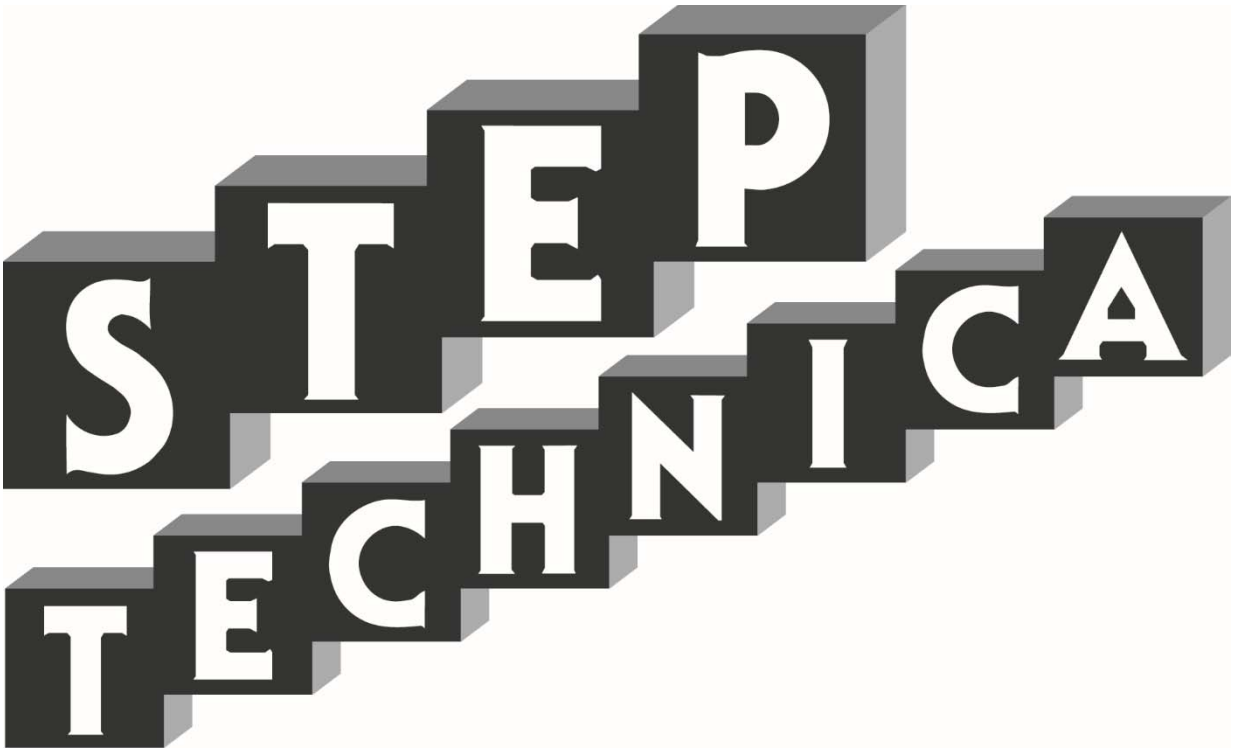

A Technical Guidance to Replace MKY40 with MKY43

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Note

1. The information in this document is subject to change without prior notice. Before using this product, please confirm that this is the latest version of this document.

2. Technical information in this document, such as explanations and circuit examples, are references for this product. When actually using this product, always fully evaluate the entire system according to the design purpose based on considerations of peripheral circuits and the PC board environment. We assume no responsibility for any incompatibility between this product and your system.

3. We assume no responsibility whatsoever for any losses or damages arising from the use of the information, products, and circuits in this document, or for infringement of patents and any other rights of a third party.

4. When using this product and the information and circuits in this document, we do not guaran-tee the right to use any property rights, intellectual property rights, and any other rights of a third party.

5. This product is not designed for use in critical applications, such as life support systems. Con-tact us when considering such applications.

1. Preface

This document is a quick guidance for users who consider to replace MKY40 with MKY43 due to the PDN (Product Discontinuance Notification) announced recently.

Note that users need to refer to each of product manuals in order to adopt and the replacement and design your system.

2. Points of advisory for replacement

2.1 Hardware

1) Since the external dimensions and power supply voltage are different between MKY40 and MKY43, the board must be redesigned.
2) If you have used a reset function using capacitor and resistor, you need to use reset IC instead.
3) If you have used the timing devices such as a crystal or a ceramic resonator, you need to adopt an oscillator to supply the driving clock which has been already generated.
4) MKY43 has no 32-bit user bus connection, though, 8/16 -bit user bus connection is necessary.
5) User bus is designed for 5V tolerant, so you can connect it to 5V-CPU.

2.2 Software

1) You need to update your software settings because MKY43 user bus has AC characteristics (CPU access timing to MKY device) which is different from MKY40.
2) MKY43 does not have window lock function which exists on MKY40.
   Instead, you need to use read/write hazard protection function of MKY43.
3) If you have used #STB and PING pins of MKY40, you need to add the setting to UTCR register on your software.
4) Since MKY43 does not have #INT2 pin which exists on MKY40, fixing your software is necessary.
5) If you have used 16-bit user bus connection, you need to fix it to access as 16-bit data because MKY43 does not support the byte write.
6) If you have used 8-bit user bus connection with MKY40, note that MKY43 has its own endian control which is different from MKY40.
7) If you have used resizing function with the NFSR register of MKY40, you need to fix your software because MKY43 has its own specification for resizing which is different from MKY40.

3. Differences in hardware

1) Package type and dimensions

MKY40 16.0 mm (100 pin 0.5 mm pitch LQFP)	→	MKY43 12.0 mm (64 pin 0.5mm pitch TQFP)

2) Specification change in power source voltage
Power source voltage: 3.3V

3) I/O mode omitted
MKY43 does not have I/O mode which exists on MKY40.

4) Crystal or ceramic resonator connection not supported
MKY43 supports an oscillator (generated clock) only.

5) No reset input using capacitor and resistor supported
Reset input using capacitor and resistor is not supported due to the specification difference in Schmitt-trigger input.

6) Driving clock output omitted
MKY43 does not have the TXD pin for clock output that exists on MKY40.

7) Specification change in input pins
All input pins of MKY43 are TTL level input type.

8) Specification change in Schmitt-trigger input pin
MKY43 has different specification in rise/fall time of input signal.

9) Specification change in connection to user bus
MKY43 connects to user bus by 16/8-bit connection.
MKY43 does not support the byte write in 16-bit bus connection.
User bus of MKY43 is 5V tolerant and able to connect with 5V range microcontroller.
(Note that you should be aware of leak current in connecting.)

10) Specification change in interrupt pins
MKY43 does not have #INT2 pin that exists on MKY40.

11) Change in method of setting station address and OWN width to be software-dependent.
MKY43 does not have the pins of #SA0 to #SA5, #OWN0 to #OWN5 that exist on MKY40.

12) Change in method of setting baud rate to be software-dependent.
MKY43 does not have BPS0/BPS1 pins that exist on MKY40.

13) General-purpose output port omitted
MKY43 does not have Po0 to Po3 pins that exist on MKY40.

14) Specification change in PING, #STB pins
MKY43 has the UYT1/UTY2 pins that does not exist on MKY40.

15) #LCARE signal pulse width setting omitted

16) Reduced power consumption
Average of operating voltage of MKY43 is 29mA. (MKY40: 75mA)

4. Differences in software

1) Specification change in timing of access to user bus
MKY43 accesses to user bus faster than MKY40 does. (Refer to AC characteristics.)

2) Specification change in data hazard protect function
The method has changed from window lock to hazard protection buffer.
MKY40 has two GM windows, which are integrated to one GM in MKY43, and window lock method is obsoleted. Accordingly, window lock function and the related registers of MKY40 have been deleted on MKY43. Instead, hazard protection function is added to MKY43.

3) Specification change in RFR, LFR register
MKY43 has its own specification in GMM mode which is different from MKY40

4) Specification change in MR0CR, MR1CR register
The timing to control RDY bit has been changed in MKY43.
The data read out from MRB when "1" is set to RDY bit has changed.
The condition to clear SZ0 to SZ5, SRC0 to SRC5 bits has changed.
MRB of MKY43 is write-protected when "1" is set to RCV bit, which differs from MKY40.

5) UTCR register added
Settings of UTY1/UTY2 pins are added in MKY43. (Controlling #CYCT, #PING signals)

6) Specification change in NFSR register
NFSR of MKY43 sends four resizing instructions to the communication line.
It differs from the behavior of MKY40.

7) Specification change in SSR register
MKY43 has no function of Po0 to Po3 pins.
MGNE and MGNC bits of MKY43 has changed to function when "1" is set to any bit in MGR.

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