



**A Technical Guidance to  
Replace MKY34 / MKY35 with  
MKY37**

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## 1. Preface

This document is a quick guidance for users who consider to replace MKY34 and MKY35 with MKY37 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 are different between MKY34/MKY35 and MKY37, 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) You need to investigate the connection to the peripheral circuits since the Do pin of MKY37 has its own output capability which is different from those of MKY34 and MKY35.
- 5) You need to investigate the connection to the peripheral circuits since the Di pin of MKY37 has its own input level which is different from those of MKY34 and MKY35.
- 6) If you have used cascade connection of MKY34, you need to design the circuit for cascade connection separately. (Refer to "Appendix 2" in MKY37 User' s Manual.)
- 7) If you have used Co pin of MKY34 or MKY35, you will be in need of the clock which has been already generated separately when using MKY37.
- 8) You need to investigate the signal timing when using MKY37 if you have designed the peripheral circuits using STB1/STB2 of MKY34 or MKY35.
- 9) MKY37 has no general-purpose 6-channel counter, serial ID send function, and PWM function. You need to compose those functions separately using the peripheral circuits, Di input, Do output.
- 10) MKY37 has the MON pin for visual indication of network connection, which is not available with MKY34.
- 11) MKY37 has the BPS0/BPS1 pin for easy setting of baud rate.

### 2.2 Software

Software related issues due to replacing MKY36 as center IC

- 1) MKY37 has no general-purpose 6-channel counter, serial ID send function, and PWM function. You need to rebuild your software to compose those functions.
- 2) You need no corrections for control word, Di input, and Do output.

### 3. Differences in hardware

#### 3.1 The common key points for replacement of MKY34 / MKY35

1) Package type and dimensions

MKY34	22.9 mm	(84 pin 0.8 mm pitch QFP)	→	MKY37	12.0 mm
MKY35	9.0 mm	(48 pin 0.5 mm pitch TQFP)			(64 pin 0.5mm pitch TQFP)

2) Driving clock output omitted

MKY37 does not have the Co pin that exist on MKY34 and MKY35.

3) Crystal or ceramic resonator connection not supported

MKY37 supports an oscillator (generated clock) only.

4) 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.

5) Reduced power consumption

15mA at 12Mbps, 7.5mA at 6Mbps, 3.5mA at 3Mbps  
(MKY34: 50mA at 12Mbps, MKY35: 25mA at 12Mbps)

6) Specification change in Di input timing

Di input of MKY37 is set to be operated at the middle point of STB2 pulse.

7) Specification change in CLR pin

MKY37 adopts the sampling method which is different from MKY34 and MKY35 in order to operate clear input. (For noise protection purpose)

8) Specification change in input pins

All input pins of MKY37 are TTL level input type.

9) Specification change in Schmitt-trigger input pin

MKY37 has its own specification for rise/fall time of input signal which is different from MKY34/ MKY35.

#### 3.2 Individual key points for replacement of MKY34

1) Cascade connection omitted

MKY37 has no pins of RXDN, TXDN, TXEN, OA0 to OA5 that exist on MKY34.

2) General-purpose 6-channel counter omitted

MKY37 has no pins of Pi0 to Pi5, FC1, FC2, FC3 that exist on MKY34.

3) Serial ID send function omitted

MKY37 has no pins of SE, SDI, SCK, SLD that exist on MKY34.

4) Battery-backup function omitted

MKY37 has no STOP pin that exist on MKY34.

5) Function of MON pin added

#MON pin of MKY37 has added function to check scan response starting.

6) BPS pins added

MKY37 has BPS0, BPS1 pins for baud rate setting by four patterns.

3.3 Individual key points for replacement of MKY35

1) Specification change in Di and Do pins

MKY37 has 16 input pins (Di) and output pins (Do) respectively.

2) PWM mode omitted

MKY37 has no pins of POI, DIR, ECS, EBC, which means, MKY37 does not have any functions related to PWM.

3) Functions of universal counter and free count mode omitted

MKY37 does not have any functions related to universal counter and free count mode.

4) Specification change in MON pin

#MON pin of MKY37 has added function to check scan response starting.

5) Specification change in BPS pin

MKY37 has BPS0, BPS1 pins for baud rate setting by four patterns.

6) Specification change in Do output timing

Di input of MKY37 is set to be operated at the middle point of STB1 pulse

4. Differences in software

Software related issues due to replacing MKY36 as center IC

1) 6-channel counter function of MKY34 is not supported.

2) Serial ID send function of MKY34 is not supported.

3) PWM control function of MKY35 is not supported.

4) Universal counter function and free count mode function of MKY35 are not supported.

5. Contact us

Your sales distributor or below.

StepTechnica Co., Ltd.

757-3, Shimofujisawa, Iruma, Saitama

E-Mail: support@steptechnica.com