



A Technical Guidance to Replace MKY33 with MKY36

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1. Preface

This document is a quick guidance for users who consider to replace MKY33 with MKY36 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 MKY33 and MKY36, the board must be redesigned.
- 2) The design would be simplified because external SRAM is unnecessary.
- 3) If you have used a reset function using capacitor and resistor, you need to use reset IC instead.
- 4) 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 MKY36 user bus has AC characteristics (CPU access timing to MKY device) which is different from MKY33.
- 2) You need to update the address value settings because MKY36 has SCR register address which is different from MKY33.
Before setting SCR, Full/Half-duplex communication mode and baud rate settings are need to be set to BCR register.
- 3) You need to use INTOR, INT1R registers on software instead of using an interrupt function by SCANW, SCANR, DREQ pins.
- 4) The setting method will be easier to avoid data hazard in 8-bit user bus connection because MKY36 has HPR register.
- 5) We provide a sample of source code for replacing MKY33 with MKY36.
Contact us by e-mail: support@steptechnica.com

3. Differences in hardware

1) Package type and dimensions

MKY33 22.9 mm	→	MKY36 12.0 mm
(84 pin 0.8 mm pitch QFP)		(64 pin 0.5mm pitch TQFP)

2) Specification change in power supply voltage

Power supply voltage: 3.3V

3) No reset input using capacitor and resistor supported

Reset input is not supported due to the specification difference of Schmitt-trigger input.

- 4) No external SRAM is necessary
SRAM built in MKY36 enables you to use no external SRAM.
MKY36 does not have pins of MD0 to MD7, MA0 to MA10, #MRD, #MWR, MS that exist on MKY33.
 - 5) Specification change in input pins
All input pins of MKY36 are TTL level input type.
 - 6) Specification change in Schmitt-trigger input pin
MKY36 has different specification in rise/fall time of input signal.
 - 7) Specification change in connection to user bus
User bus of MKY36 is 5V tolerant and able to connect with 5V range microcontroller.
(Note that you should be aware of leak current in connecting.)
 - 8) Specification change in timing of connection to user bus
MKY36 does not have pins of #DAE, #DAEA, ACK that exist on MKY33. (Refer to AC characteristics.)
 - 9) Change in method of setting communication mode and baud rate
MKY36 does not have pins of FH, BPS0, BPS1 that exist on MKY33.
 - 10) Change in method of setting interrupt signal control to be software-dependent.
MKY36 does not have pins of SCANW, SCANR, DREQ that exist on MKY33.
Instead of those, MKY36 has pins of #INT0, #INT1.
 - 11) Specification change in CHK1/CHK2 signals
Signals of CHK1 and CHK2 are logic-inversed and respectively corresponded to #CHK1L and #CHK2L.
#SCANL pin is added in MKY36.
 - 12) Reduced power consumption
Average of operating voltage of MKY36 is 29mA. (MKY33: 40mA)
4. Differences in software
- 1) Specification change in timing of access to user bus
MKY36 accesses to user bus faster than MKY33 does. (Refer to AC characteristics.)
 - 2) Specification change in SCR register
SCR register address in MKY36 is 580H which is different from that is in MKY33 (100H).
MKY36 supports single-scanning.
 - 3) BCR register added to support existing functions
MKY36 has BCR register instead of FH, BPS0, BPS1 pins that exist on MKY33.
 - 4) SSR register added
MKY36 has SSR register to store the status of scanning.
 - 5) C1CR, C2CR register added
MKY36 has C1CR, C2CR registers to store counts of Check-1, Check-2 occurrence.
 - 6) INT0R, INT1R register added
MKY36 has INT0R, INT1R registers to control interrupt trigger signal function, in which was controlled by #INT0, #INT1 pins existed on MKY33.
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7) HPR register added

MKY36 has data hazard protection function that does not exist on MKY33.

8) CCR register added

MKY36 has CCR register to check that MKY36 is correctly connected to the user CPU.

ASCII character string of "MKY36" can be read when it is correctly connected.

9) Function of detecting Di data transition added

5. Contact us

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