LogiCoA™ Power Solutions

Synchronous Buck Converter Evaluation Board

LogiCoA001-EVK-001

(12 V to 5 V, 5 A)

Introduction

LogiCoA™ is a power solution that implements analog-digital hybrid control for a switching power supply. This quick start guide describes the necessary procedures for operating and evaluating the LogiCoA™ power solutions synchronous buck converter evaluation board, LogiCoA001-EVK-001. The details are described in the LogiCoA001-EVK-001 Evaluation Board User's Guide [1].

1. EVK Appearance

Figures 1-1 and 1-2 show the appearance of this EVK.

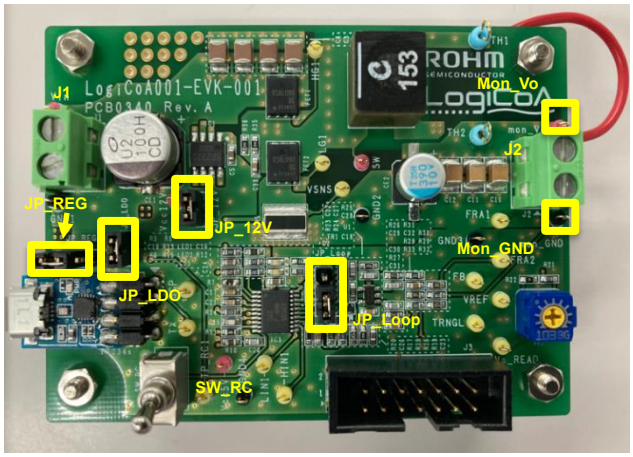

Figure 1-1. LogiCoA001-EVK-001(Top View)

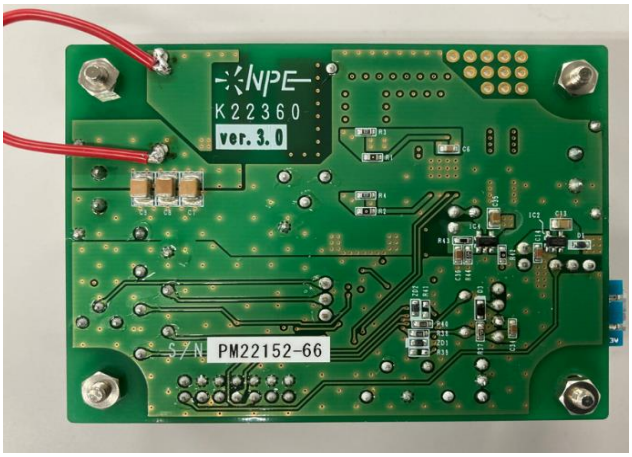

Figure 1-2. LogiCoA001-EVK-001(Bottom View)

2. Operation Procedure

1. Short the jumper JP_LDO, jumper JP_12V, pins 2 and 3 of jumper JP_Loop, and open jumper JP_REG on the EVK.
2. Turn the SW_RC to connect pin 1 and pin 2 on EVK. (Turn the switch to the upper side in the board direction of Figure 1-1)
3. Turn off the DC power supply and connect the GND pin to pin 2 of J1 on the EVK.
4. Connect the DC power supply's VCC pin to pin 1 of J1 on the EVK.
5. Connect the load between pin 1 and pin 2 of J2 on the EVK. When an electric load is used, turn off the output before connecting to the board.
6. Connect the voltmeter to the mon_Vo pin and mon_GND pin on the EVK.
7. Turn on the DC power supply. Check if the measured value of the voltmeter is 5V.
8. If an electric load is used, turn on the electric load.

Note: This EVK does not support hot plugging protection. Do not perform hot plugging on this board.

3. Serial Communication

In this EVK, modification of power supply control parameters and acquisition of operation logs can be done through serial communication via the on-board USB-UART conversion module from an external Windows PC. (Operation logging function has not been implemented as of the date this document was released) The LogiCoA™ Solution Buck Converter Communication GUI (Excel file) for this EVK is available from our website [2].

For details on serial communication and communication commands, refer to Serial Communication of RMOS and GUI Developing Manual [3].

4. Updating the LogiCoA™ Microcontroller Program

This EVK is capable of updating the programs included in the LogiCoA™ microcontroller ML62Q2035. In this case, use the following:

① Integrated Development Environment LAPIS Development Tools LEXIDE-Ω

② RMOS project file (file used for reading to LEXIDE-Ω)

③ Windows PC (Windows 10 64 bit or Windows 11 64 bit)

④ On-chip emulator EASE1000 V2

The Integrated Development Environment LAPIS Development Tools LEXIDE-Ω is software developed based on Eclipse, an open-source integrated development environment. Install and use on the PC. Refer to the documentation included with the on-chip emulator EASE1000 V2 for details.

The "RMOS Project File" (LogiCoA™ Solutions Buck Converter Reference Program) for this EVK can be downloaded from our website [4] with a program for power control.

The "EASE1000 V2 on-chip emulator" can be purchased from electronic components distributors.

For information on how to develop and update the program, refer to Operating System for Switching Power Control MCU "RMOS" [5].

5. References

[1] 66UG090E Rev.002 LogiCoA001-EVK-001 Evaluation Board User's Guide

[2] LogiCoA™ Solutions Buck Converter GUI (Excel file)

[3] 66AN149E Rev.001 Serial communication of RMOS and GUI developing manual

[4] LogiCoA™ Solution Buck Converter Reference Program

[5] 66AN147E, Rev.001 Operating System for Switching Power Control MCU "RMOS"

Revision history

Date	Revision Number	Description
24.Dec.2024	001	New Release

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