ROHM USB Type-C Power Delivery

Evaluation Board Manual

BM92A15MWV-EVK-001

Ver.1.00

Date:03-Mar,2017

Introduction

This board is dedicated to receiving power with USB Type-C Power Delivery and requests the maximum voltage from the voltage profile (PDO) that the power supply side has.
If you want to check the operation of Power Delivery, please prepare power supply capable USB Type-C Power Delivery device and USB Type-C dedicated cable.
Please use selling separately "BM92A21MWV-EVK-001" for power supply capable USB Type-C Power Delivery device.
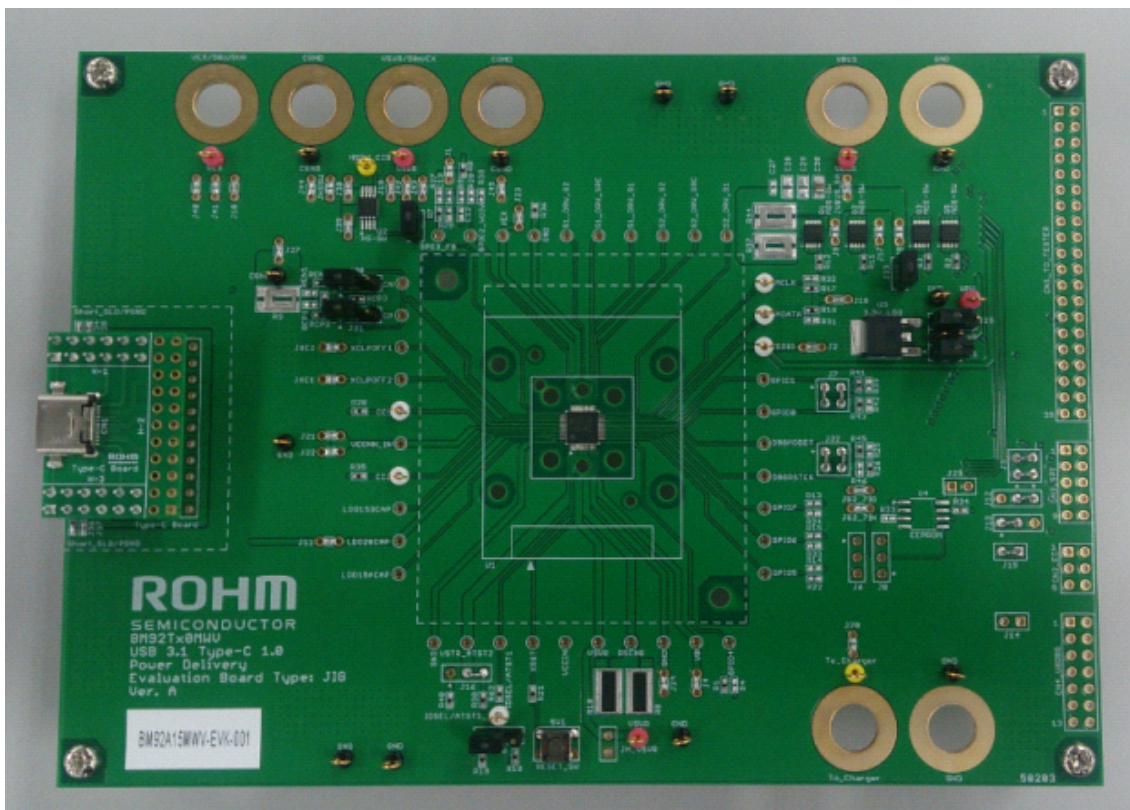

Figure1. Evaluation Board Photo
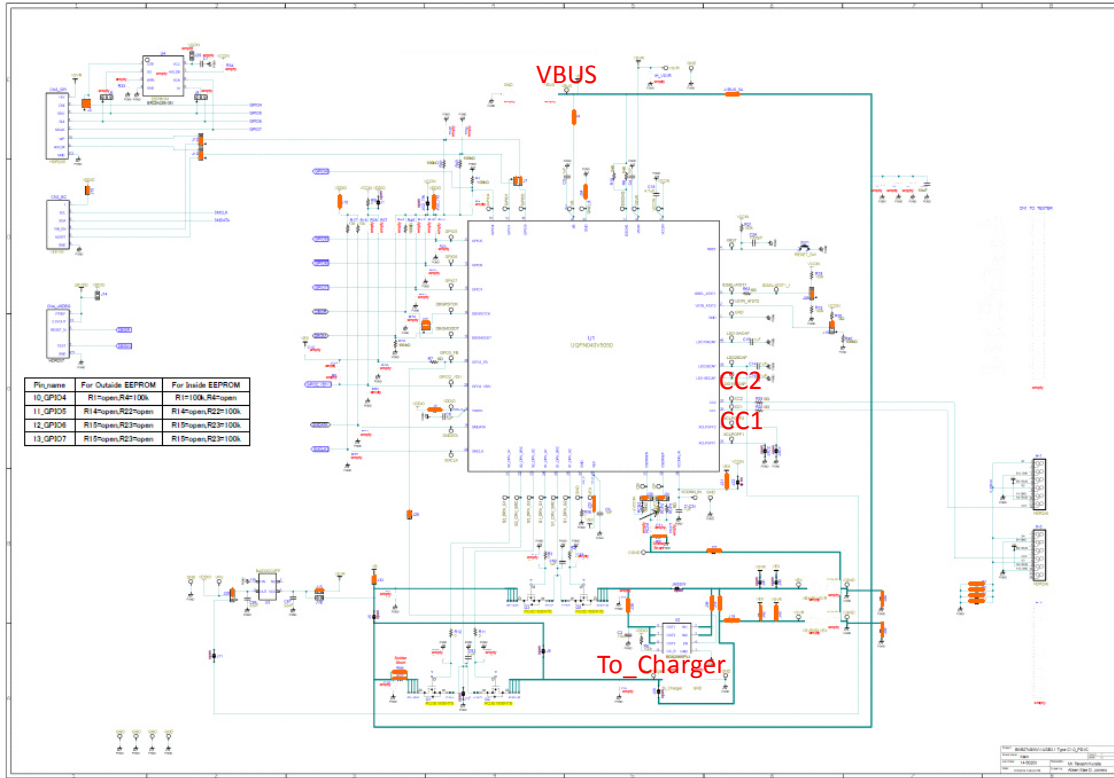
Evaluation Board Circuit and Pin Explanation
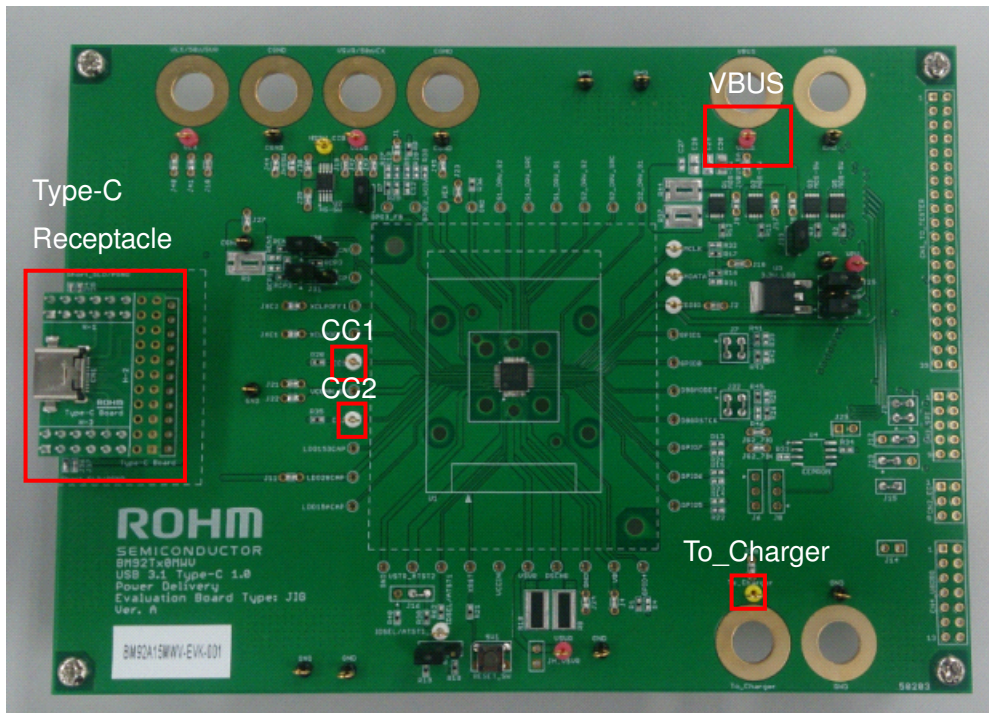

Figure2. Evaluation Board Circuit

Figure3. Evaluation Board Photo

・VBUS pin：VBUS voltage input pin. You can monitor the VBUS voltage supplied from the Source side.

・CC1,CC2 pin：You can monitor the communication waveform (BMC waveform) with USB Power Delivery.

・To_Charger pin：The pin at the end of the FET on the VBUS Line. In an actual system, a current load will be drawn from this pin.

How to use and evaluate

1. This board is compatible with Dead Battery, so it can be operated without power supply. As shown in the picture below, you can check the Power Delivery operation by simply connecting a USB Power Delivery device capable of supplying power with Type-C dedicated cable.
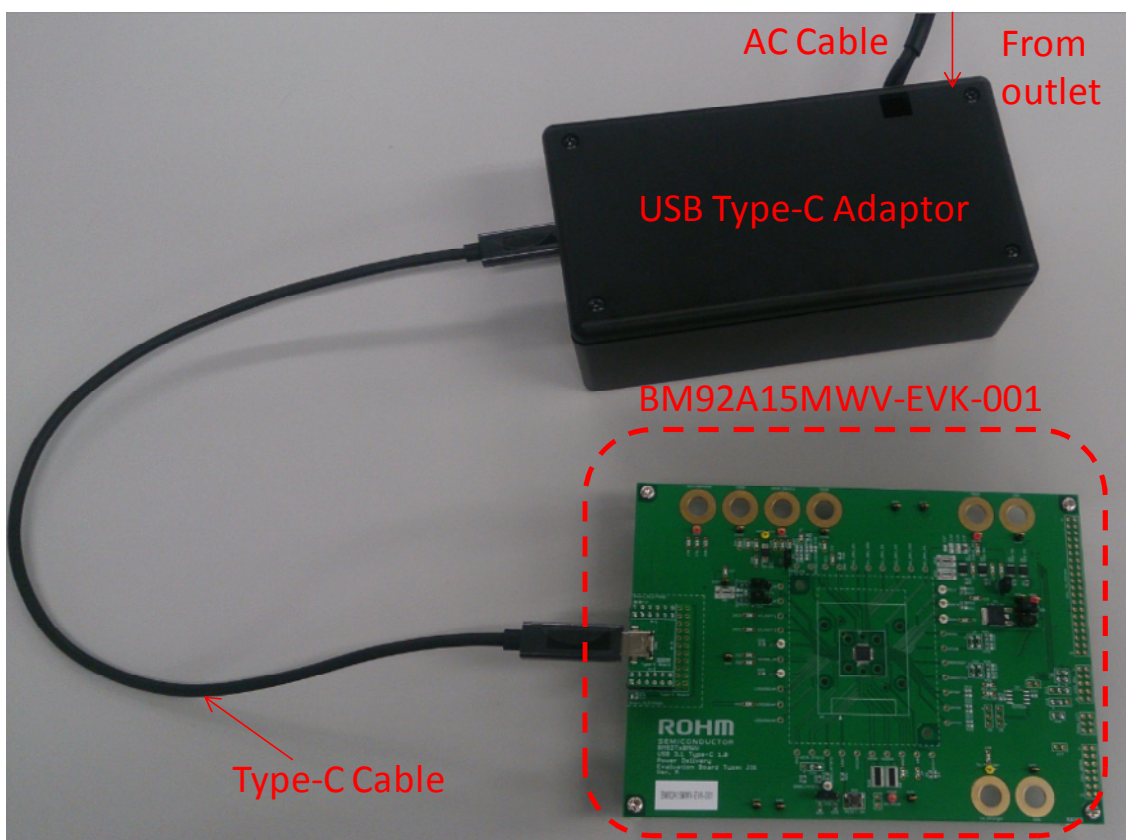

Figure4.　Device connection photo using Type-C cable

Power Delivery Operating Waveform

When connecting this board (Sink side) and power supply device (Source side) using Type-C dedicated cable, the Source side detects the Sink side and outputs 5V voltage to the VBUS pin. After outputting 5V voltage on the Source side, it communicates with the Type-C controller IC in the dedicated cable to acquire cable information.

After communicating with the cable on the Source side, the Source side transmits its own power profile information to the Sink side. (Source Capability)

The Sink side requests an appropriate voltage from the power profile to the Source side. (Request)

In response to the Sink side voltage request, if the Source side is able to deal with it, notifies the Sink side that it acknowledged. (Accept)

The Source side outputs the requested voltage to the VBUS pin.

After outputting the required voltage, the Source side notifies the Sink side that the requested voltage has been output. (PS_RDY)

After confirming the requested voltage, the Sink side turns on the FET switch on the VBUS line.
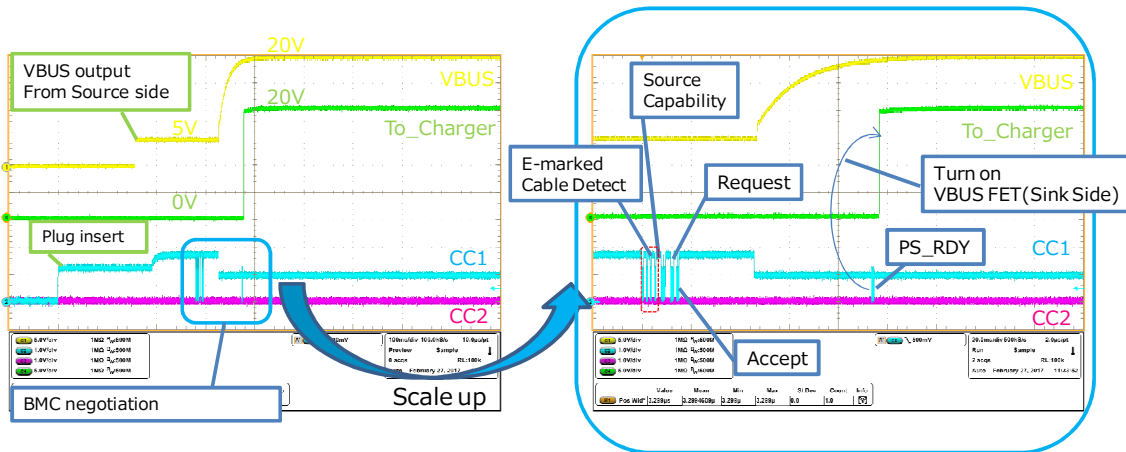
・20V negotiation waveform

Figure5. Power Delivery negotiation waveform
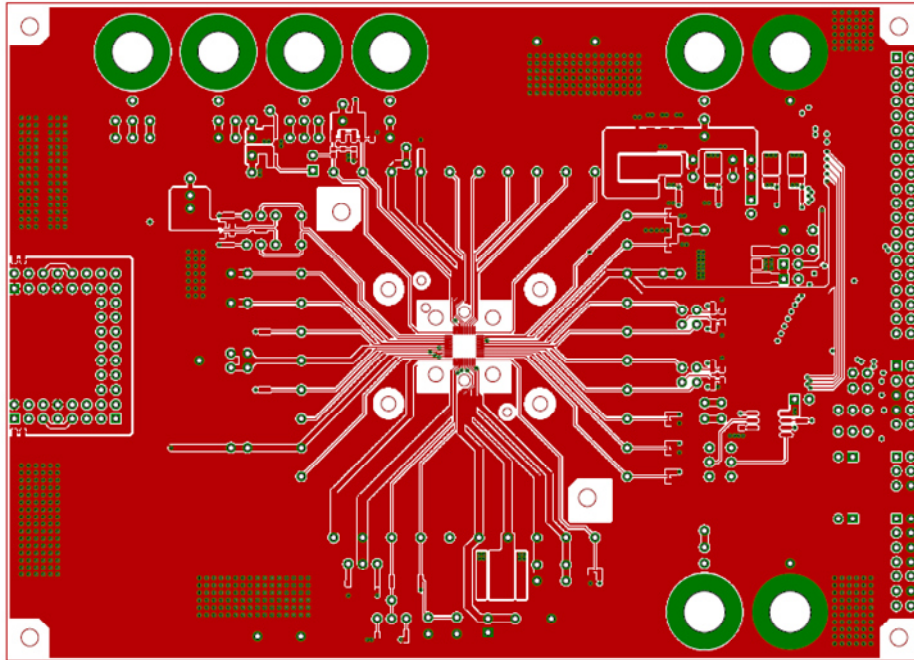
Evaluation Board Layout
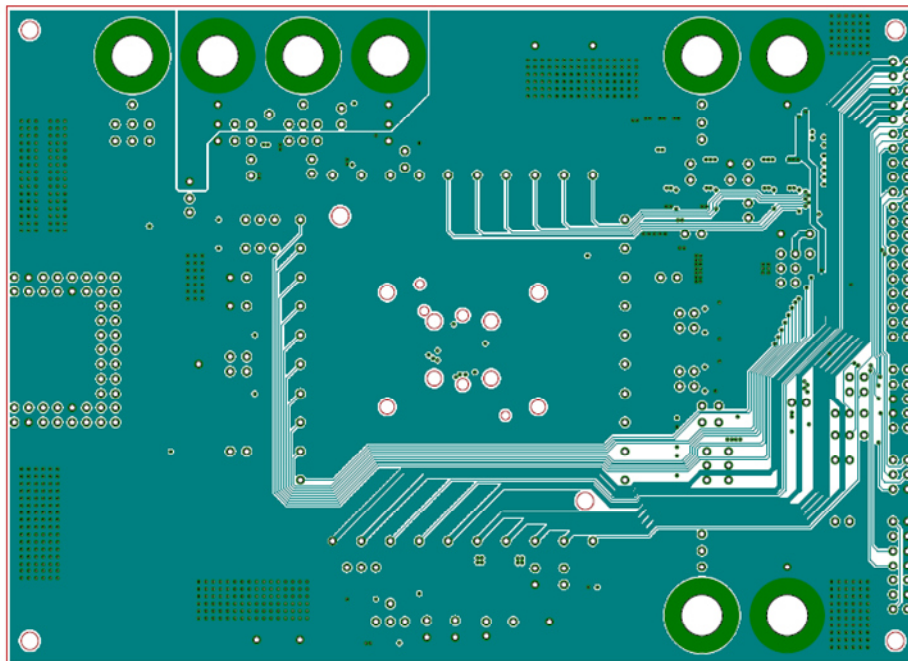

Figure6. Top Layer Layout
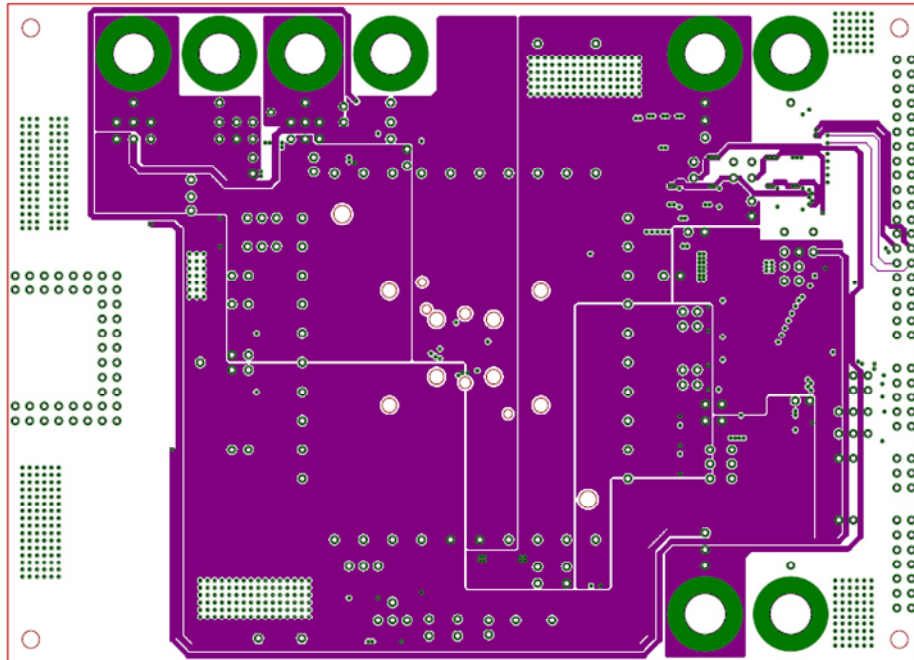

Figure7. Second Layer Layout
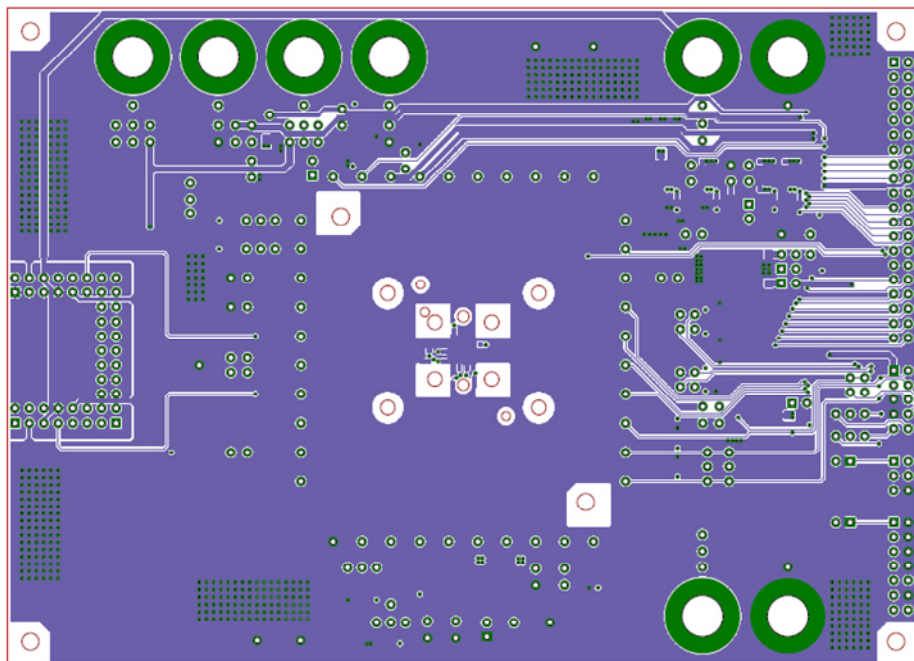
Figure8. Third Layer Layout

Figure9. Bottom Layer Layout

N o t e s

1) The information contained herein is subject to change without notice.

2) Before you use our Products, please contact our sales representative and verify the latest specifications :

3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Poducts beyond the rating specified by ROHM.

4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.

6) The Products specified in this document are not designed to be radiation tolerant.

7) For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative : transportation equipment (i.e. cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, servers, solar cells, and power transmission systems.

8) Do not use our Products in applications requiring extremely high reliability, such as aerospace equipment, nuclear power control systems, and submarine repeaters.

9) ROHM shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.

10) ROHM has used reasonable care to ensure the accuracy of the information contained in this document. However, ROHM does not warrants that such information is error-free, and ROHM shall have no responsibility for any damages arising from any inaccuracy or misprint of such information.

11) Please use the Products in accordance with any applicable environmental laws and regulations, such as the RoHS Directive. For more details, including RoHS compatibility, please contact a ROHM sales office. ROHM shall have no responsibility for any damages or losses resulting non-compliance with any applicable laws or regulations.

12) When providing our Products and technologies contained in this document to other countries, you must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the US Export Administration Regulations and the Foreign Exchange and Foreign Trade Act.

13) This document, in part or in whole, may not be reprinted or reproduced without prior consent of ROHM.

Thank you for your accessing to ROHM product informations.
More detail product informations and catalogs are available, please contact us.

ROHM Customer Support System

http://www.rohm.com/contact/

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Interface Development Tools *category:*

Click to view products by ROHM *manufacturer:*

Other Similar products are found below :

DP130SSEVM ISO3086TEVM-436 ADP5585CP-EVALZ CHA2066-99F AS8650-DB MLX80104 TESTINTERFACE I2C-CPEV/NOPB ISO35TEVM-434 416100120-3 XR18910ILEVB XR21B1421IL28-0A-EVB EVAL-ADM2491EEBZ MAXREFDES23DB# MAX9286COAXEVKIT# MAX3100EVKIT MAX13235EEVKIT XR21B1424IV64-0A-EVB CMOD232+ MAX13042EEVKIT+ MAX14838EVKIT# MAXCAM705OV635AAA# MAX9205EVKIT DS100BR111AEVK/NOPB DC241C MAX9286RCARH3DB# DC1794A SN65HVS885EVM EVB81112-A1 DFR0257 XR22404CG28EVB ZLR964122L ZLR88822L EVK-U23-01S EVK-W262U-00 DC196A-B DC196A-A DC327A OM13585UL MAX16972AGEEVKIT# MARS1-DEMO3-ADAPTER-GEVB MAX7315EVKIT+ PIM511 PIM536 PIM517 DEV-17512 STR-FUSB3307MPX-PPS-GEVK MAXREFDES177# EVAL-ADM2567EEBZ EVAL-ADN4654EBZ MAX2202XEVKIT#