RENESAS

Renesas Flash Programmer
Sample Circuit for Programming by Using a PC's Serial Port

MCU Tool Product Marketing Department,
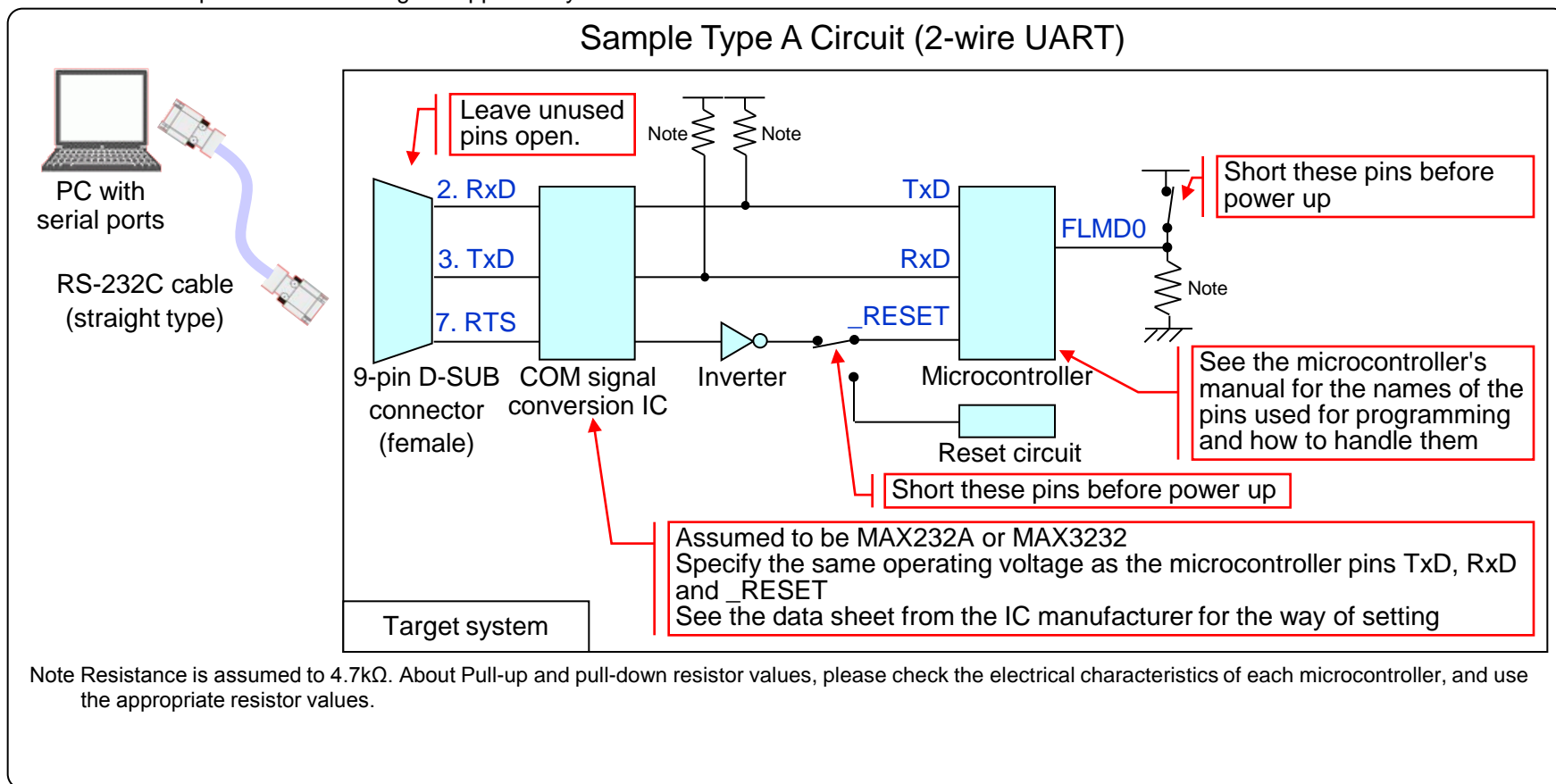MCU Software Division, MCU Business Unit
Renesas Electronics Corporation

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This document describes sample circuits for programming the flash memory of a microcontroller by using Renesas Flash Programmer connected to a PC serial port. A sample circuit for each type is shown below. A list of the microcontroller models and types that can be used with Renesas Flash Programmer is available from "Renesas Flash Programmer target devices list" on the following website: http://www.renesas.com/rfp

Note: An operation check has been conducted for the sample circuit. However, there might be timing differences due to the characteristics of the target system and PC. The user is responsible for evaluating the circuit and determining whether the circuit can be applied to the user system. Renesas is not responsible concerning the applicability of the circuit.

Sample Type A Circuit (2-wire UART)

Leave unused pins open.

PC with serial ports

RS-232C cable (straight type)

9-pin D-SUB connector (female)

COM signal conversion IC

Inverter

Microcontroller

Short these pins before power up

FLMD0

See the microcontroller's manual for the names of the pins used for programming and how to handle them

Reset circuit

Short these pins before power up

Assumed to be MAX232A or MAX3232
Specify the same operating voltage as the microcontroller pins TxD, RxD and _RESET
See the data sheet from the IC manufacturer for the way of setting

Target system

Note Resistance is assumed to 4.7kΩ. About Pull-up and pull-down resistor values, please check the electrical characteristics of each microcontroller, and use the appropriate resistor values.

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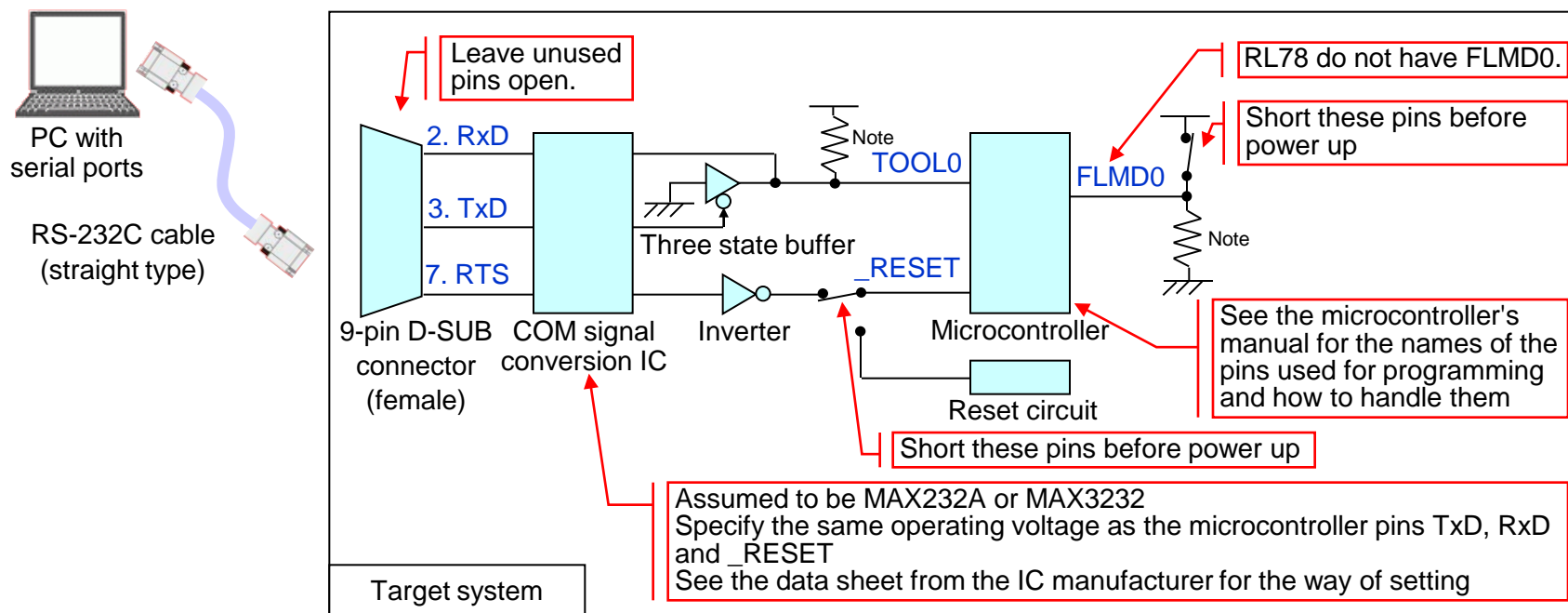
Sample Type B Circuit (1-wire UART)

- PC with serial ports
- RS-232C cable (straight type)
- 9-pin D-SUB connector (female)
- COM signal conversion IC
- Inverter
- Microcontroller
- Three state buffer
- Reset circuit
- TOOL0
- _RESET
- FLMD0

Leave unused pins open.

2. RxD
3. TxD
7. RTS

RL78 do not have FLMD0.

Short these pins before power up

See the microcontroller's manual for the names of the pins used for programming and how to handle them

Short these pins before power up

Assumed to be MAX232A or MAX3232
Specify the same operating voltage as the microcontroller pins TxD, RxD and _RESET
See the data sheet from the IC manufacturer for the way of setting

Target system

Note Resistance is assumed to 4.7kΩ. About Pull-up and pull-down resistor values, please check the electrical characteristics of each microcontroller, and use the appropriate resistor values.

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Note: An operation check has been conducted for the sample circuit. However, there might be timing differences due to the characteristics of the target system and PC. The user is responsible for evaluating the circuit and determining whether the circuit can be applied to the user system. Renesas is not responsible concerning the applicability of the circuit.

Sample Type C Circuit (2-wire UART)

PC with serial ports

RS-232C cable (straight type)

Leave unused pins open.

Note1   Note1

2. RxD   TxD

Note2 MD0   Note1

3. TxD   RxD

Note2 MD1   Note1

Note2 _RESET   Note1

9-pin D-SUB connector (female)

COM signal conversion IC

Microcontroller

Reset circuit

See the microcontroller's manual for the names of the pins used for programming and how to handle them

Assumed to be MAX232A or MAX3232
Specify the same operating voltage as the microcontroller pins TxD, RxD and _RESET
See the data sheet from the IC manufacturer for the way of setting

Target system

Note1 Resistance is assumed to 4.7kΩ. About Pull-up and pull-down resistor values, please check the electrical characteristics of each microcontroller, and use the appropriate resistor values.

Note2 Please set each microcontroller will be entry to the boot mode before power up the target system.
*This circuit example, assume RX62T Group

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