

Introduction

The MicroClock evaluation board is designed to support the 5X1503/5L1503 devices in a convenient way to verify a MicroClock part on a PCB board solution. The PCB board solution gives users the ability to evaluate MicroClock devices 5X1503 and 5L1503 after a configuration has been verified and programmed through a MicroClock development kit. The IDT [Timing Commander™](#) GUI is available to the devices for configuration and frequency validation through a MicroClock development kit in USB interface. A development kit is needed to work with the evaluation board for programming configurations.

Table 1. MicroClock 5X1503/5L1503 Family of Products

Product	Description	Package
5X1503	1.8V integrated with an internal 52MHz crystal (standard 5X1503).	10-DFN
5L1503	1.8V using an external crystal (standard 5L1503).	10-DFN
5X1503L	1.8V integrated with an internal 52MHz crystal, low output swing at channel 1.	10-DFN
5L1503L	1.8V using an external crystal, low output swing at channel 1.	10-DFN
5X1503S	1.8V integrated with an internal 52MHz crystal. (support spread spectrum clock).	10-DFN
5L1503S	1.8V using an external crystal. (support Spread spectrum clock).	10-DFN

For details of product operation, refer to the product datasheet.

Evaluation Board Overview

The evaluation board, soldered with a MicroClock part with all of the necessary components and connections, allows testing the functionality of the configuration. Once a configuration has been verified, users can plug in an evaluation board to a MicroClock Development Kit for final programming (see [Figure 1](#)). A MicroClock development Kit is shown in [Figure 2](#). Please see a development kit user guide for more details.

Figure 1. Evaluation Board Overview (5X1503 integrated with 52MHz crystal evaluation board shown in below)

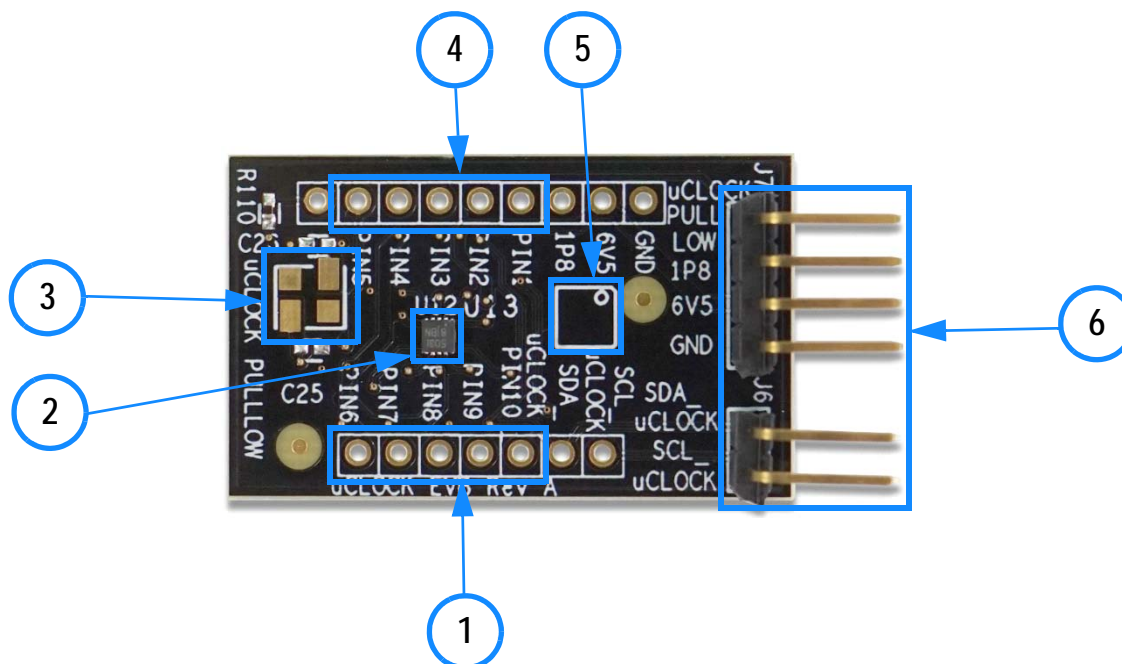
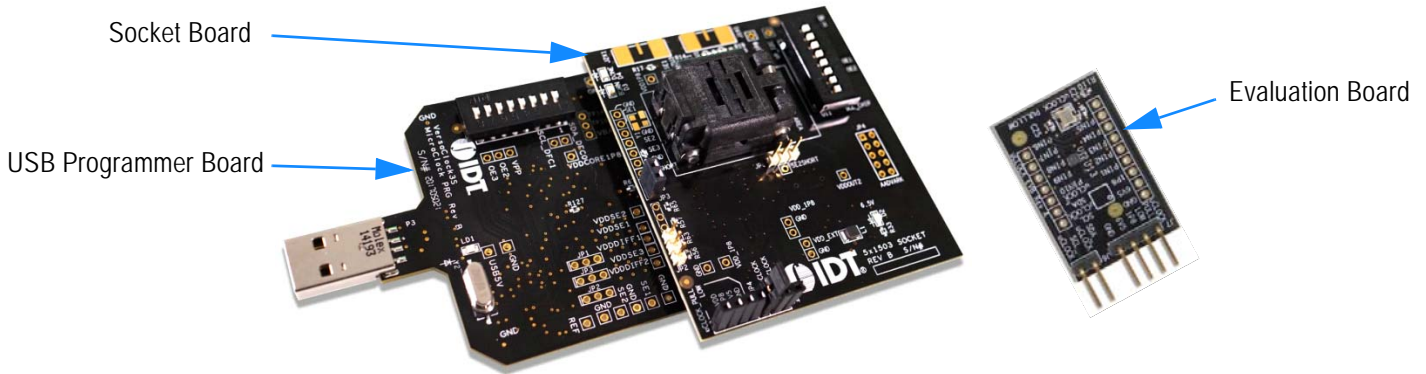


Table 2. Evaluation Board Descriptions

Label Number	Label Name	Description
1	Test Points	Test points for Pin 6, Pin 7, Pin 8, Pin 9, and Pin 10 (in order of appearance from left to right).
2	MicroClock Device	MicroClock device soldered on evaluation board (5X1503 integrated with 52MHz crystal).
3	External crystal	The footprint of external crystal supports: 5L1503 / 5L1503L / 5L1503S (default frequency of crystal is 25MHz). 5X1503 / 5X1503L / 5X1503S (no external crystal populated).
4	Test Points	Test points for Pin 5, Pin 4, Pin 3, Pin 2, and Pin 1 (in order of appearance from left to right).
5	Part Indication	Indication for device orientation.
6	Headers for Connector	A connector split in 2 and 4 headers as connection between socket and evaluation boards.

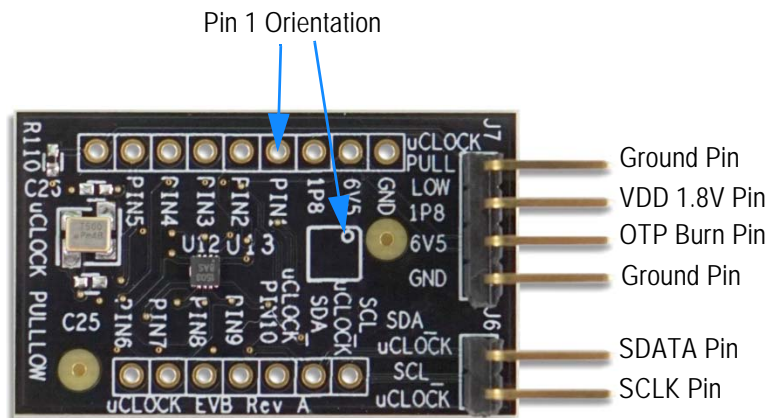
Figure 2. Development Kit Boards



The socket board for all MicroClock products, combined with a USB programmer board, is used for the purpose of validation and measurement on all outputs. The development kit offers two ways to program a configuration to either a blank part in the socket or a blank part soldered on an evaluation board for validation. Blank parts can drop into the socket of the socket board for programming on different MicroClock family devices. The evaluation board is another option for configuration programming so it can be brought over to any system board for clocking support. Note that blank parts can only be burnt once through the socket board. The socket board is bundled with a USB programmer board. The following description and images are restricted to the socket board.

On the footprint of the socket board, a pin orientation identifies the position of Pin 1 as shown in Figure 3. The dot of the blank part printed on the board is represented to be the pin1 orientation.

Figure 3. Evaluation Board (pin position)

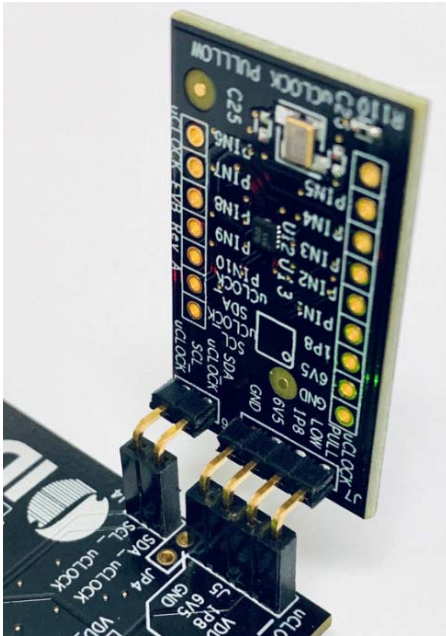


Programming Steps

Refer to the [5x1503 Family Development Kit User Guide](#) for programming details.

Connection with a MicroClock Development Kit

Figure 4. Connection between a Socket Board from the Development Kit and the Evaluation Board



Schematics

Evaluation board schematic is shown below.

Figure 5. Development Kit Evaluation Board Schematic

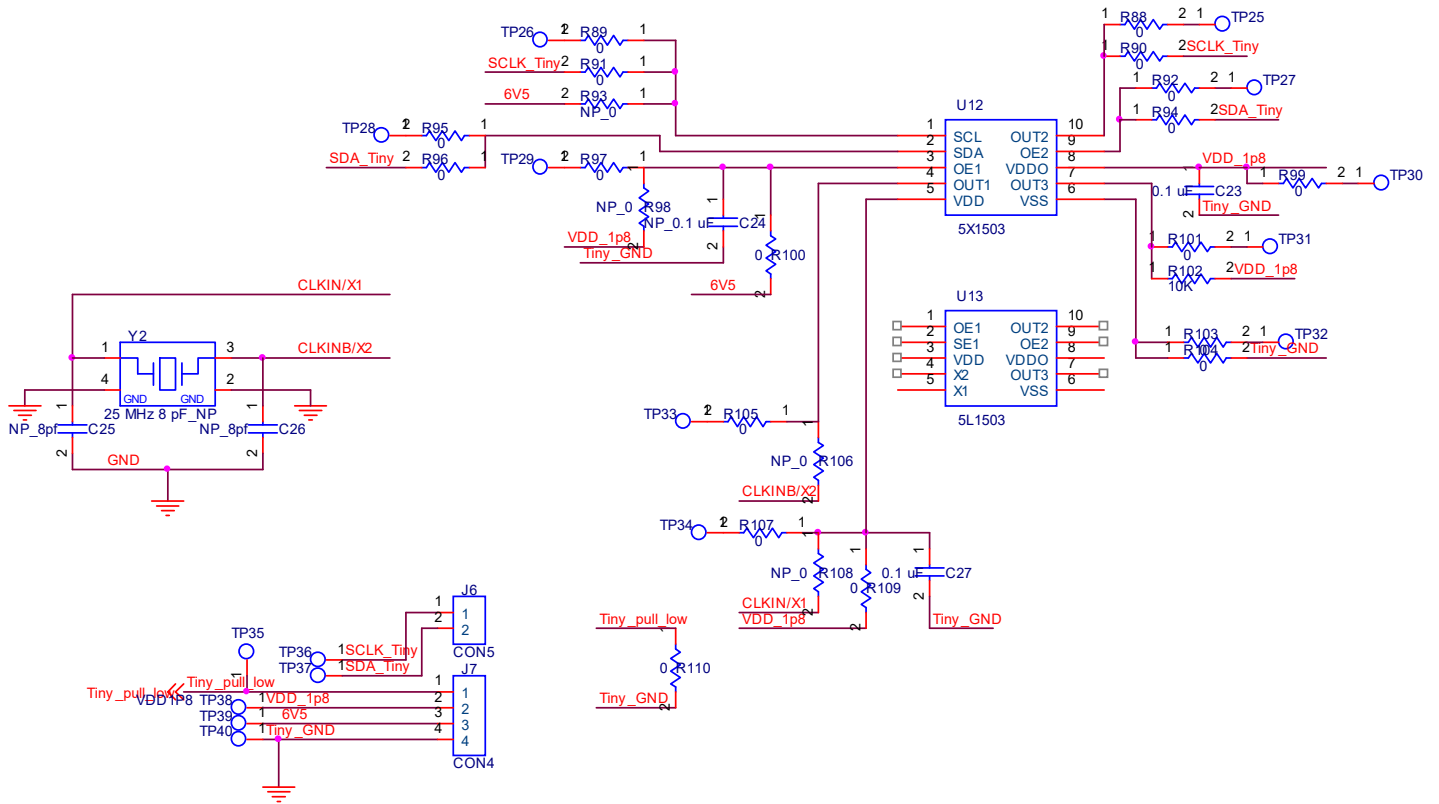


Figure 6. 5X1503 Evaluation Board (board without a crystal)

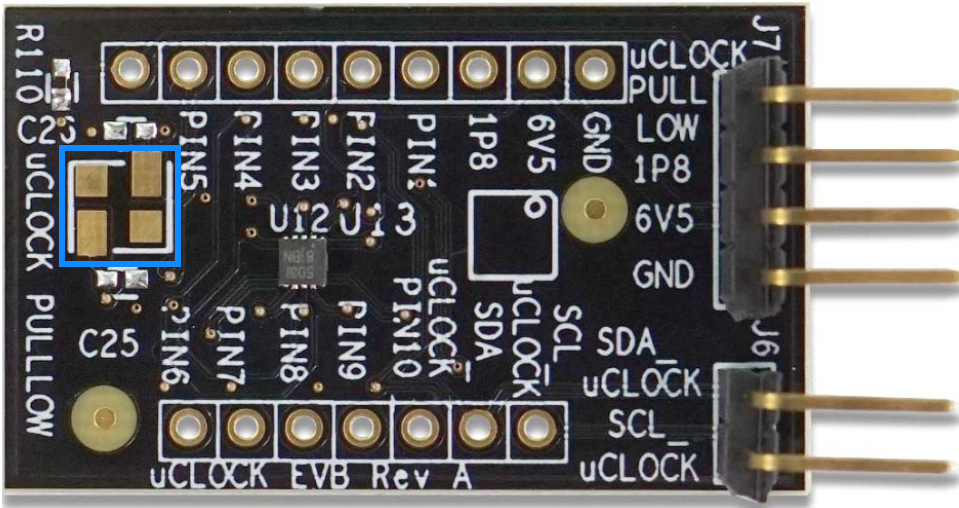
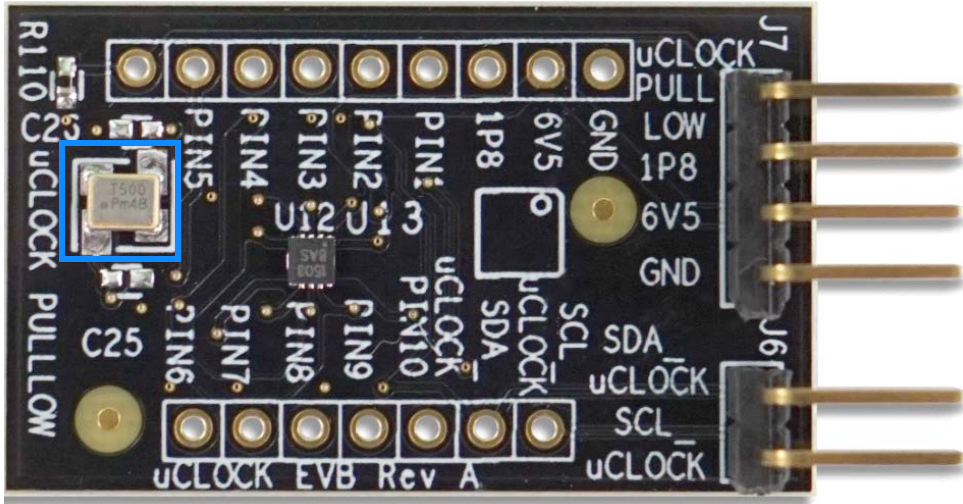


Figure 7. 5L1503 Evaluation Board (board populated with a 25MHz crystal)



Ordering Information

Orderable Part Number	Description
DEV5L1503	Development Kit for the 5L1503
DEV5X1503	Development Kit for the 5X1503.
EVB5L1503	5L1503 series tiny evaluation board.
EVB5X1503	5X1503 series tiny valuation board.

Revision History

Revision Date	Description of Change
July 10, 2019	Initial release.

IMPORTANT NOTICE AND DISCLAIMER

RENESAS ELECTRONICS CORPORATION AND ITS SUBSIDIARIES (“RENESAS”) PROVIDES TECHNICAL SPECIFICATIONS AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for developers skilled in the art designing with Renesas products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. Renesas grants you permission to use these resources only for development of an application that uses Renesas products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Renesas intellectual property or to any third party intellectual property. Renesas disclaims responsibility for, and you will fully indemnify Renesas and its representatives against, any claims, damages, costs, losses, or liabilities arising out of your use of these resources. Renesas' products are provided only subject to Renesas' Terms and Conditions of Sale or other applicable terms agreed to in writing. No use of any Renesas resources expands or otherwise alters any applicable warranties or warranty disclaimers for these products.

(Rev.1.0 Mar 2020)

Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Contact Information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit:
www.renesas.com/contact/

Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners.