RG3MxxB12
I3C/I2C/SMBus Basic 2:N Hub

The RG3MxxB12 is a Hub device that connects two Management Side Ports to four or eight Subordinate Side Ports. Each Management Side Port connects to an I3C/I2C/SMBus Controller, and each Subordinate Port connects to an I3C/I2C/SMBus Network. The connectivity and protocol are per-port configurable.

Each management port has access to the registers and resources using the on-chip target devices. One of the management ports is selected to connect to the Hub Network. The Hub Network can provide transparent and non-transparent bridging between the selected Management Port and the Subordinate Ports.

The RG3MxxB12 family consists of four devices:
- RG3M48B12 – 4 subordinate ports, pre-configured
- RG3M88B12 – 8 subordinate ports, pre-configured
- RG3M47B12 – 4 subordinate ports, user-configuration
- RG3M87B12 – 8 subordinate ports, user-configuration

**Features**

- 2:4 or 2:8 Hub device
- Supports I2C, I3C Basic, and SMBus protocol
- Up to 12.5MHz transfer rate
- Single 1.8V-3.3V power supply input; System input or on-chip regulated IO voltage supplies
- Two Management Port IO voltage domains; each port supports an independent IO voltage
- Selects two Management Ports using pin or in-band command; supports communication between the two Management Ports
- Two Subordinate Port IO voltage domains
- Each port supports 1.0V, 1.1V, 1.2V, and 1.8V push-pull IO levels
- Each port supports 1.0V, 1.1V, 1.2V, 1.8V, and 2.5V-3.3V open-drain IO levels
- Supports I3C dynamic address assignment, IBI, and Hot Join
- Supports both generic MIPI-I3C Basic Bus and JEDEC SPD Management Bus context
- Supports both MIPI I3C CCCs and JEDEC SPD Management Bus CCCs
- Supports Bus Reset function
- Supports Hub Cascading
- Supports I3C to I2C or SMBus bridging, SMBus clock stretching, SMBus-based management protocols (e.g., MCTP)
- Supports Level Shifting, Load isolation, IO re-driving, Drive Strength Programming and Calibration, and programmable on-chip pull-up resistors
- Programmable I²C, I3C bus addressing scheme
- 4 × 4 mm, 0.4mm pitch 28-pin VFQFPN (QFN) package

**Applications**

- Server boards
- Storage boards
- Industrial control boards
- PCs/notebooks
- Embedded automation
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.

(Disclaimer 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.

© 2023 Renesas Electronics Corporation. All rights reserved.