



Product Change Notification / SYST-09JVL985

Date:

10-Jan-2023

Product Category:

Radiation Tolerant FPGAs

PCN Type:

Document Change

Notification Subject:

Data Sheet - RTG4 FPGA Datasheet

Affected CPNs:

[SYST-09JVL985_Affected_CPN_01102023.pdf](#)

[SYST-09JVL985_Affected_CPN_01102023.csv](#)

Notification Text:

SYST-09JVL985

Microchip has released a new Datasheet for the RTG4 FPGA Datasheet of devices. If you are using one of these devices please read the document located at [RTG4 FPGA Datasheet](#).

Notification Status: Final

Description of Change:• Added part number information to Introduction.

- Deleted SAR 114840 mention for Table 4-6. LVTTTL/LVCMOS 3.3V DC Voltage Specification (Applicable to MSIO I/O Bank Only).
- Updated I/O TRAMPIN specification to support 1 ms ramp rate, see Note 2 in Table 4-3. Input Capacitance (SAR 124543).
- Added Conditions column and corrected one LVCMOS25 reference to LVCMOS18, see Table 4-12. LVCMOS 2.5V DC Voltage Specification, Table 4-18. LVCMOS 1.8V DC Voltage Specification, Table 4-24. LVCMOS 1.5V Minimum and Maximum DC Input and Output Levels, and Table 4-30. LVCMOS 1.2V Minimum and Maximum DC Input and Output Levels (SAR 119841).
- Added SSTL15 at minimum half drive strength values to Table 4-56. DDR3 SSTL15 DC Voltage Specification (for DDRIO I/O Bank Only) (SAR 107543).
- Enhanced clock jitter specifications to distinguish between clock jitter on global nets within the FPGA versus external output clock jitter on global clocks that are propagated outside the FPGA through output buffers. The previous Table 17-12. Global Net Clock Period Jitter is now Table 6-4. Period Jitter for External Output Clocks. This update also added clock jitter formula tables for various clocking topologies. These specifications have been moved from section SerDes Electrical and Timing Characteristics to section Global Resource Characteristics (SAR 125941): – Table 6-2. Period Jitter for Global Clocks – Table 6-3. Period Jitter Formula for Global Clock – Table 6-4. Period Jitter for External Output Clocks – Table 6-5. Period Jitter Formula for External Output Clocks – Figure 6-1. Peak-to-Peak Jitter vs Effective Toggle Percentage – Figure 6-2. External Output Clock Period Jitter vs Effective Toggle Percentage

- Updated RT4G150 FCG/FC1657 device status to “Production” (SAR 120390).
- Updated list of RTG4™ FPGA Technical Briefs and Pin Descriptions.
- Corrected units from “Mbps” to “MHz” in Table 4-2. Maximum I/O Frequency Summary for Worst-Case Military Conditions.
- Updated Table 1-3. Operating Limits with in-flight programming information (SAR 120023) and table notes with RTG4 μPROM read cycle endurance (SAR 111814). • Clarified full amplitude range for VID in: – Note 3 under Table 4-69. LVDS25 DC Voltage Specification (Applicable to MSIO, MSIOD Banks, and SerDes REFCLK Input) (SAR 117013). – Note 5 under Table 4-73. LVDS33 DC Voltage Specification (Applicable to MSIO Banks and SerDes REFCLK Only) (SAR 119167). – Note 5 under Table 17-11. Worst-Case SerDes Transmit Jitter Per REFCLK I/O Standard (SAR 119167).
- Added “DEVRST_N pulse width” information to Table 11-1. DEVRST_N Characteristics (SAR 110457 and SAR 118784).
- Added “Loop Bandwidth” information and note 3 to Table 13-1. RTG4 FPGAs CCC/PLL Specification (SAR 87429).
- Updated “Max Output Clock Jitter (Peak-to-Peak Period Jitter)” column (SAR 116796) and added note (SAR 118045) in: – Table 13-2. Fabric PLL Output Clock Jitter Specification – Table 13-3. Maximum MSIO Input Buffer Jitter Added to Input Clocks Directly Driving Globals.
- Updated Max APB Clock Frequency to 53.75 MHz in Table 14-3. APB Configuration Interface Timing Characteristics (SAR 118080).
- Updated Table 17-12. RTG4 Global Network—Max Period Jitter along with table notes, examples, and graph (SAR 117259).
- Added footnote 3 to clarify the unit for TSWDSS in Table 18-1. SpaceWire Clock and Data Recovery Characteristics (SAR 120388).

Impacts to Data Sheet: None

Change Implementation Status: Complete

Date Document Changes Effective: 10 Jan 2023

NOTE: Please be advised that this is a change to the document only the product has not been changed.

Markings to Distinguish Revised from Unrevised Devices: N/A

Attachments:

[RTG4 FPGA Datasheet](#)

Please contact your local [Microchip sales office](#) with questions or concerns regarding this notification.

Terms and Conditions:

If you wish to [receive Microchip PCNs via email](#) please register for our PCN email service at our [PCN home page](#) select register then fill in the required fields. You will find instructions about registering for Microchips PCN email service in the [PCN FAQ](#) section.

If you wish to [change your PCN profile, including opt out](#), please go to the [PCN home page](#) select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.

Affected Catalog Part Numbers (CPN)

RT4G150-1CB1657MX528
RT4G150-1CB1657PROTO
RT4G150-1CB1657R
RT4G150-1CBG1657PROTO
RT4G150-1CG1657B
RT4G150-1CG1657BX130
RT4G150-1CG1657BX155
RT4G150-1CG1657BX259
RT4G150-1CG1657BX278
RT4G150-1CG1657BX3
RT4G150-1CG1657BX302
RT4G150-1CG1657BX323
RT4G150-1CG1657BX45
RT4G150-1CG1657BX477
RT4G150-1CG1657BX504
RT4G150-1CG1657BX507
RT4G150-1CG1657BX510
RT4G150-1CG1657BX517
RT4G150-1CG1657BX522
RT4G150-1CG1657BX54
RT4G150-1CG1657E
RT4G150-1CG1657EV269
RT4G150-1CG1657EX130
RT4G150-1CG1657EX155
RT4G150-1CG1657EX170
RT4G150-1CG1657EX257
RT4G150-1CG1657EX259
RT4G150-1CG1657EX3
RT4G150-1CG1657EX323
RT4G150-1CG1657EX444
RT4G150-1CG1657EX484
RT4G150-1CG1657EX512
RT4G150-1CG1657EX517
RT4G150-1CG1657EX54
RT4G150-1CG1657M
RT4G150-1CG1657MX528
RT4G150-1CG1657PROTO
RT4G150-1CG1657PROTOX542
RT4G150-1CG1657R
RT4G150-1CG1657V
RT4G150-1CG1657VX155
RT4G150-1CG1657VX259
RT4G150-1CG1657VX264
RT4G150-1CG1657VX269
RT4G150-1CG1657VX3
RT4G150-1CG1657VX323

RT4G150-1CG1657VX45
RT4G150-1CG1657VX507
RT4G150-1CG1657VX510
RT4G150-1CG1657VX512
RT4G150-1CG1657VX526
RT4G150-1CG1657VX533
RT4G150-1CG1657VX539
RT4G150-1CG1657VX54
RT4G150-1CG1657VX541
RT4G150-1CG2092B
RT4G150-1CG2092E
RT4G150-1CQ352B
RT4G150-1CQ352BX259
RT4G150-1CQ352BX3
RT4G150-1CQ352BX323
RT4G150-1CQ352BX54
RT4G150-1CQ352E
RT4G150-1CQ352EX259
RT4G150-1CQ352EX510
RT4G150-1CQ352EX512
RT4G150-1CQ352M
RT4G150-1CQ352PROTO
RT4G150-1CQ352PROTOX542
RT4G150-1CQ352R
RT4G150-1CQ352V
RT4G150-1CQ352VX130
RT4G150-1CQ352VX259
RT4G150-1CQ352VX512
RT4G150-1CQG352PROTO
RT4G150-1FC1657I
RT4G150-1FC1657M
RT4G150-1FC1657PROTO
RT4G150-1FCG1657ES
RT4G150-1FCG1657I
RT4G150-1FCG1657M
RT4G150-1FCG1657PROTO
RT4G150-1LG1657B
RT4G150-1LG1657E
RT4G150-1LG1657M
RT4G150-1LG1657PROTO
RT4G150-1LG1657R
RT4G150-1LG1657V
RT4G150-CB1657MS
RT4G150-CB1657PROTO
RT4G150-CB1657PROTOX463
RT4G150-CB1657R
RT4G150-CBG1657PROTO
RT4G150-CG1657B
RT4G150-CG1657BX230

RT4G150-CG1657BX257
RT4G150-CG1657BX259
RT4G150-CG1657BX3
RT4G150-CG1657BX323
RT4G150-CG1657BX464
RT4G150-CG1657BX477
RT4G150-CG1657BX512
RT4G150-CG1657BX54
RT4G150-CG1657E
RT4G150-CG1657EX130
RT4G150-CG1657EX230
RT4G150-CG1657EX259
RT4G150-CG1657EX264
RT4G150-CG1657EX3
RT4G150-CG1657EX444
RT4G150-CG1657EX477
RT4G150-CG1657EX510
RT4G150-CG1657EX512
RT4G150-CG1657EX517
RT4G150-CG1657EX519
RT4G150-CG1657EX54
RT4G150-CG1657M
RT4G150-CG1657PROTO
RT4G150-CG1657PROTOX463
RT4G150-CG1657PROTOX542
RT4G150-CG1657R
RT4G150-CG1657V
RT4G150-CG1657VX130
RT4G150-CG1657VX259
RT4G150-CG1657VX264
RT4G150-CG1657VX323
RT4G150-CG1657VX507
RT4G150-CG1657VX512
RT4G150-CG1657VX543
RT4G150-CQ352B
RT4G150-CQ352BX259
RT4G150-CQ352BX3
RT4G150-CQ352BX323
RT4G150-CQ352BX504
RT4G150-CQ352E
RT4G150-CQ352EX3
RT4G150-CQ352EX444
RT4G150-CQ352EX510
RT4G150-CQ352M
RT4G150-CQ352PROTO
RT4G150-CQ352PROTOX542
RT4G150-CQ352R
RT4G150-CQ352V
RT4G150-CQ352VX130

RT4G150-CQ352VX323
RT4G150-CQ352VX507
RT4G150-CQG352PROTO
RT4G150-FC1657
RT4G150-FC1657ES
RT4G150-FC1657I
RT4G150-FC1657M
RT4G150-FC1657PROTO
RT4G150-FC1657X523
RT4G150-FCG1657
RT4G150-FCG1657I
RT4G150-FCG1657M
RT4G150-FCG1657PROTO
RT4G150-LG1657B
RT4G150-LG1657BX464
RT4G150-LG1657E
RT4G150-LG1657ES
RT4G150-LG1657EX504
RT4G150-LG1657M
RT4G150-LG1657MS
RT4G150-LG1657PROTO
RT4G150-LG1657R
RT4G150L-1CB1657PROTO
RT4G150L-1CG1657B
RT4G150L-1CG1657E
RT4G150L-1CG1657PROTO
RT4G150L-1CG1657V
RT4G150L-1CQ352B
RT4G150L-1CQ352E
RT4G150L-1CQ352PROTO
RT4G150L-1FC1657M
RT4G150L-1FCG1657
RT4G150L-1FCG1657I
RT4G150L-1FCG1657M
RT4G150L-1LG1657B
RT4G150L-1LG1657E
RT4G150L-1LG1657PROTO
RT4G150L-1LG1657V
RT4G150L-CB1657PROTO
RT4G150L-CBG1657PROTO
RT4G150L-CG1657B
RT4G150L-CG1657E
RT4G150L-CG1657EX512
RT4G150L-CG1657M
RT4G150L-CG1657PROTO
RT4G150L-CG1657R
RT4G150L-CG1657V
RT4G150L-CQ352B
RT4G150L-CQ352BX512

RT4G150L-CQ352E
RT4G150L-CQ352EX259
RT4G150L-CQ352EX545
RT4G150L-CQ352M
RT4G150L-CQ352PROTO
RT4G150L-CQ352R
RT4G150L-CQ352V
RT4G150L-CQG352PROTO
RT4G150L-FC1657ES
RT4G150L-FC1657M
RT4G150L-FC1657PROTO
RT4G150L-FCG1657
RT4G150L-FCG1657ES
RT4G150L-FCG1657I
RT4G150L-FCG1657M
RT4G150L-FCG1657PROTO
RT4G150L-LG1657B
RT4G150L-LG1657E
RT4G150L-LG1657M
RT4G150L-LG1657PROTO
RT4G150L-LG1657R
RT4G150L-LG1657V