

RC38312A104

FemtoClock3 Family Custom Configuration

General Description

This document details the custom configuration that is programmed into the one time programmable (OTP) memory of the RC38312A104. Please refer to the device datasheet for further information about the device.

Configuration List

Configuration Name	Configuration Index
default	config_0

Output Frequency Overview

Output	OUT0	OUT1	OUT2	OUT3	OUT4	OUT5
Freq	-	-	-	-	-	-

Output	OUT6	OUT7	OUT8	OUT9	OUT10	OUT11
Freq	-	-	-	-	-	-

Note: Frequencies shown in parentheses indicates that the output is in disabled state by default.

Configuration Selection Overview: Static Multi Config

Config Slot	Config Selection 1	Config Selection 0	Config Index
slot_0	not assigned Low	not assigned Low	config_0
slot_1	not assigned Low	not assigned High	config_0
slot_2	not assigned High	not assigned Low	config_0
slot_3	not assigned High	not assigned High	config_0

Serial Interface Configuration

Config Index	Serial Port Configuration
config_0	I2C (1-byte address), 7-bit address: 0 0 0 1 A2 A1 A0

I2C Address Selection Bits

Config Index	I2C Address Bit A2	I2C Address Bit A1	I2C Address Bit A0
config_0	0	SDO (PIN E7)	nCS (PIN D5)

GPIO Startup Configuration

Pin Number	GPIO	Function Description
F8	GPIO0	NOT_USED
E8	GPIO1	NOT_USED
D8	GPIO2	EEPROM_ADDR0
D7	GPIO3	EEPROM_ADDR1
D6	GPIO4	EEPROM_ADDR2

VDD Pins

Property	Value
VDD_VCO	1.8V
VDDXO_DCD	1.8V
VDD_FAN	1.8V
VDD_REP	1.8V
VDD_DIG	1.8V
VDD_CLK	1.8V
VDD_FOD0	1.8V
VDD_FOD1	1.8V
VDD_FOD2	1.8V
VDDO0	1.8V
VDDO1	1.8V
VDDO2	1.8V
VDDO3	1.8V
VDDO4	1.8V
VDDO5	1.8V
VDDO6	1.8V
VDDO7	1.8V
VDDO8	1.8V
VDDO9	1.8V
VDDO10	1.8V
VDDO11	1.8V

default (config_0) General Overview

Property	Value
Serial Interface	I2C (1-byte address), 7-bit address: 0 0 0 1 A2 A1 A0
Operation Mode DPLL0	Synthesizer
Operation Mode DPLL1	Synthesizer
Operation Mode DPLL2	Synthesizer
External EEPROM Load	Enabled
XIN	54MHz
Crystal CL	8pF
VCO Frequency	10GHz
CLKIN0	DISABLED
CLKIN1	DISABLED
CLKIN2	DISABLED
CLKIN3	DISABLED
APLL Loop BW	~1.6177MHz
DPLL0 Lock BW	~63.5208Hz
DPLL0 Acquire BW	~9.147kHz
DPLL1 Lock BW	~63.5208Hz
DPLL1 Acquire BW	~9.147kHz
DPLL2 Lock BW	~63.5208Hz
DPLL2 Acquire BW	~9.147kHz

Note: This dash code has TOP.GLOBAL.DEVICE_CNFG.i2c_addr_sel set to 0x3, meaning that bit 0 of the I2C address comes from pin nCS and bit 1 from pin SDO.

The nCS and SDO pins have an internal pull up. Example: If both nCS and SDO are left floating, the resulting I2C address will be 0x0B at device power up.

default (config_0) GPIO Settings

Pin Number	GPIO	Function Description	Internal PU	Internal PD	Output Drive Strength
F8	GPIO0	General purpose input (input)	Enable	Disable	N/A
E8	GPIO1	APLL lock (from frequency-based lock detect) (output)	Enable	Disable	CMOS Output mode and power supply of 1.8V.
D8	GPIO2	General purpose input (input)	Enable	Disable	N/A
D7	GPIO3	General purpose input (input)	Enable	Disable	N/A
D6	GPIO4	General purpose input (input)	Enable	Disable	N/A

default (config_0) Output Overview

Output	IOD Mux Selection	Frequency	Status	Output Type	Output Boost
OUT0	VCO/N	-	disabled	powered down (hi-z)	-
OUT1	VCO/N	-	disabled	powered down (hi-z)	-
OUT2	VCO/N	-	disabled	powered down (hi-z)	-
OUT3	VCO/N	-	disabled	powered down (hi-z)	-
OUT4	VCO/N	-	disabled	powered down (hi-z)	-
OUT5	VCO/N	-	disabled	powered down (hi-z)	-
OUT6	VCO/N	-	disabled	powered down (hi-z)	-
OUT7	VCO/N	-	disabled	powered down (hi-z)	-
OUT8	VCO/N	-	disabled	powered down (hi-z)	-
OUT9	VCO/N	-	disabled	powered down (hi-z)	-
OUT10	VCO/N	-	disabled	powered down (hi-z)	-
OUT11	VCO/N	-	disabled	powered down (hi-z)	-

Note: All VDDOs need to ramp before or at the same time as other cores power rails.

default (config_0) External EEPROM Settings

Property	Value
Part Number	R1EX24064ASA
Address Size	2-byte address
I2C Speed	400kHz
Length	8KB
EEPROM Load Pins	SCL_SCLK, SDA_SDIO
7-bit Address	1 0 1 0 A2 A1 A0
EEPROM Address Bit A2	GPIO4 (PIN D6)
EEPROM Address Bit A1	GPIO3 (PIN D7)
EEPROM Address Bit A0	GPIO2 (PIN D8)

Ordering Info

Part Number	Carrier Type
RC38312A104GBB#BC0	Tray
RC38312A104GBB#HC0	Tape and Reel

Notes:

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.