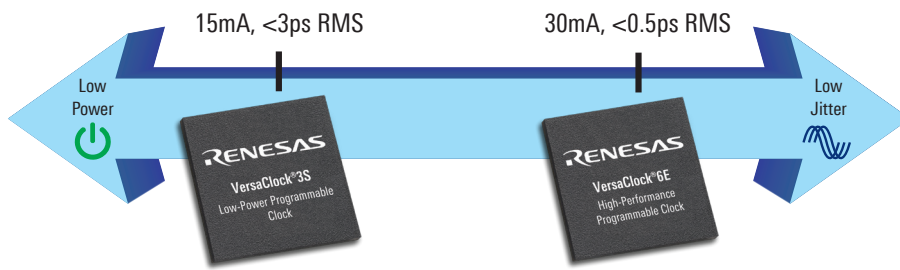


# VERSACLOCK® FAMILY OVERVIEW

Renesas' VersaClock® family offers an industry leading portfolio of more than 20 programmable clock generators that offer greater versatility in consumer, data communications, telecommunications, and networking applications.

VersaClock devices offer a combination of low power, flexibility and performance for a wide range of applications. These features make them ideal candidates for simplifying system design by replacing multiple discrete timing components and reducing bill of materials (BOM).

The VersaClock product family supports operating voltages from 1.8 to 3.3 V, differential (LVPECL/HCSL/LVDS/LP-HCSL) and LVCMOS output types, up to 3 PLLs and multiple fractional dividers to accurately generate virtually any frequency. Products satisfy system requirements from oscillator replacement to PCIe® Gen1 to Gen5 and to communications applications, while consuming very little power.



## Ease of use

- Online configuration tool
- Two week delivery for custom factory programmed samples
- Timing Commander™ software to configure, program, and monitor sophisticated timing devices
- Complete development tool kit with samples

## Flexibility

- I<sup>2</sup>C configuration for instant customization
- Configurable output types
- One-time programmable (OTP) memory

## Applications

- Computing
  - Servers
  - PCIe Gen1/2/3/4, Gen5 (non-SSC)
  - Embedded systems
  - USB 3.0/Thunderbolt™/RapidIO®
- Consumer
  - Smart devices
  - Set top boxes
- Communications
  - Broadcast video
  - Gigabit ethernet
- Industrial
- Medical
- Automotive

Key Specifications	VersaClock 3S	VersaClock 6E
Core Power (mA)	15	30
RMS Phase Jitter (ps) (12k to 20M)	1.5	0.5
Output Frequency Range (Mhz)	1 to 500	0.001 to 350
Architecture	2 Fractional PLL 1 Integer Low Power PLL DCO	1 PLL with 4 Fractional Output Dividers
Package Size	3 x 3 mm 20-QFN 4 x 4 mm 24-QFN	4 x 4 mm 24-LGA 4 x 4 mm 24-QFN 5 x 5 mm 40-QFN 6 x 6 mm 48-QFN
VDD	1.8   2.5   3.3V Supported by different product options	1.8   2.5   3.3V

# VERSACLOCK® FAMILY OVERVIEW

## VersaClock Family Selector Guide

### VersaClock 3S Family

Part Number	# of Outputs <sup>†</sup>	VDD Core	VDD IO	Output Frequency	Output Types	Package
5P35021**	2 Universal Pairs <sup>†</sup> 1 LVCMOS	3.3V	1.8, 2.5, 3.3V (LVCMOS) 2.5, 3V (LVPECL, LVDS, LPHCSL)	LVCMOS: 1 to 160 MHz Differential: 1 to 500 MHz	LVCMOS LVPECL LVDS LPHCSL	3 x 3 mm 20-QFN
5P35023**	2 Universal Pairs <sup>†</sup> 3 LVCMOS					4 x 4 mm 24-QFN 4 x 4 mm 24-WFQFN** (Wettable Flank)
5L35021	2 LPHCL Pairs 1 LVCMOS	1.8V	1.8V	1 to 125 MHz	LVCMOS LPHCSL	3 x 3 mm 20-QFN
5L35023	2 LPHCL Pairs 3 LVCMOS					4 x 4 mm 24-QFN

### VersaClock 6E Family

Part Number	# of Outputs <sup>†</sup>	VDD Core VDD IO	Output Types Frequency	Output Types	Package
5P49V60**	4 Universal Pairs <sup>†</sup>	1.8 to 3.3V	LVCMOS: 0.001 to 200 Mhz Differential: 0.001 to 350 Mhz	LVCMOS LVPECL LVDS HCSL	4 x 4 mm 24-WFQFN (Wettable Flank)
5P49V6965					4 x 4 mm 24-QFN
5P49V6967	3 Universal Pairs <sup>†</sup> 4 LPHCSL Pairs			LVCMOS LVPECL LVDS HCSL LP-HCSL	5 x 5 mm 40-QFN
5P49V6968	3 Universal Pairs <sup>†</sup> 8 LPHCSL Pairs				6 x 6 mm 48-QFN

### VersaClock with Integrated Crystal

Part Number	# of Outputs <sup>†</sup>	VDD Core	VDD IO	Output Frequency	Output types	Package
5X35023	2 Universal Pairs <sup>†</sup> 3 LVCMOS	3.3	1.8, 2.5, 3.3V (LVCMOS) 2.5, 3.3 (LVPECL, LVDS, LPHCSL)	LVCMS: 1 to 160 MHz Differential: 1 to 500 MHz	LVCMS, LVPECL LVDS, LPHCSL	4 x 4 mm 24-QFN
5P49V6975	4 Universal Pairs <sup>†</sup>	1.8 to 3.3V		LVCMS: 0.001 to 200 MHz Differential: 0.001 to 350 MHz	LVCMS, LVPECL LVDS, HCSL	4 x 4 mm 24-LGA

<sup>†</sup>Configurable to differential or LVCMOS

\*\*AEC-Q100 qualified

<sup>†</sup>All devices have one reference output

To request samples, download documentation or learn more visit: [renesas.com/versaclock](https://renesas.com/versaclock)



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