

## FEATURES AND BENEFITS

- Proactive Power Saving further reduces system power during suspend and sleep modes
- Performance-Power Balancing minimizes power consumption based on performance requirements
- Dynamic Frequency Control allows active switching between up to four pre-programmed frequencies
- Configurable OE pin function as OE, PD#, PPS or DFC control function
- Configurable PLL bandwidth minimizes jitter peaking
- Spread spectrum technology attenuates system EMI
- Integrated tunable crystal load caps for optimized frequency accuracy

The 5P35021 and 5P35023 are the latest addition to the VersaClock® programmable devices. This family of highly integrated, space efficient low power clock generators is targeted for consumer, computation, automotive and industrial applications

The VersaClock 3S devices provide three single-ended LVCMOS outputs and two differential outputs that support, LVPECL, LVDS, LP-HCSL and single-ended LVCMOS.

A low power 32.768 KHz output is provided with less than 2  $\mu$ A current consumption for use as a system RTC reference clock. This output can be powered by coin cell batteries making it ideal for battery powered applications.

The 5P35023 features several innovations allowing for power and performance optimization based on system requirements:

- Proactive Power Saving (PPS)
- Performance-Power Balancing (PPB)
- Overshoot Reduction Technology (ORT)
- Extremely low-power digitally-controlled oscillator (DCO)

	5P35021	5P35023
Maximum Frequency	160 MHz (single-ended), 500 MHz (differential)	160 MHz (single-ended), 500 MHz (differential)
Performance	PLL1: < 3 ps rms jitter 12 KHz to 20 MHz PLL2: PCIe® Gen 1/2/3 PLL3: 2 mA Idd	PLL1: < 3 ps rms jitter 12 KHz to 20 MHz PLL2: PCIe Gen 1/2/3 PLL3: 2 mA Idd
Features	DFC, PPS, 32.768 KHz DCO	DFC, PPS, 32.768 KHz DCO
Max Number of Outputs	2 differential + 1 single ended	2 differential + 3 single ended + REF
Output Types	LVC MOS/LVPECL/LVDS/LPHCSL	LVC MOS/LVPECL/LVDS/LPHCSL
Package	20-QFN	24-QFN

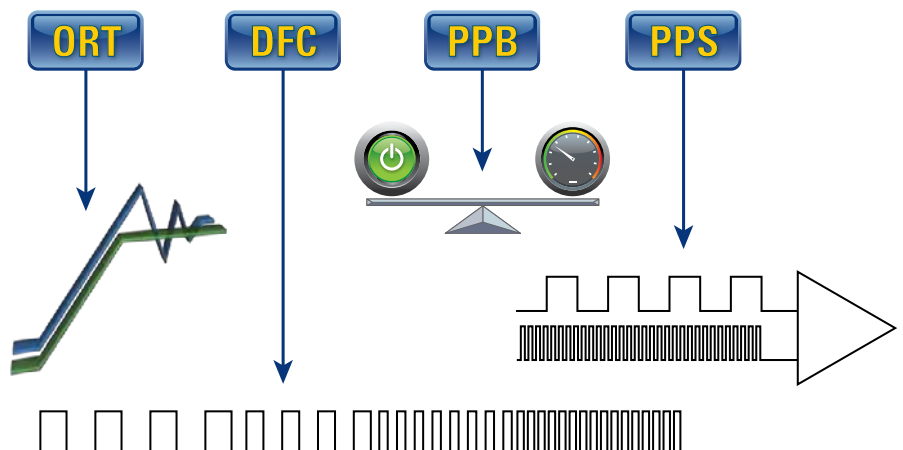
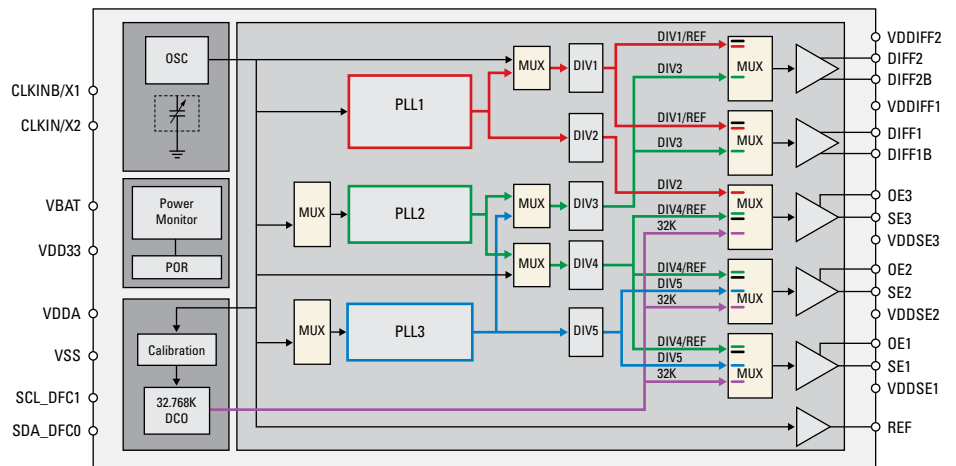
## RECOMMENDED APPLICATIONS

- Handheld consumer
- Smart devices
- Computation
- Surveillance / NVR / IP CAM
- Embedded systems
- Industrial and automation
- ADAS
- Infotainment
- UHD TV
- Home entertainment
- Smart meters
- MFPs and copiers
- Drones

## KEY SPECIFICATIONS

- Power saving LPHCSL outputs meet PCIe Gen2 and Gen3 requirements
- Scalable PLL power consumption down to 2mA
- Wide temp range meets industrial and automotive needs
- Differential clocks < 3 ps rms jitter (12 KHz to 20 MHz)

## 5P35023 Block Diagram



To request samples, download documentation, or learn more, visit: [idt.com/go/versaclock](http://idt.com/go/versaclock)