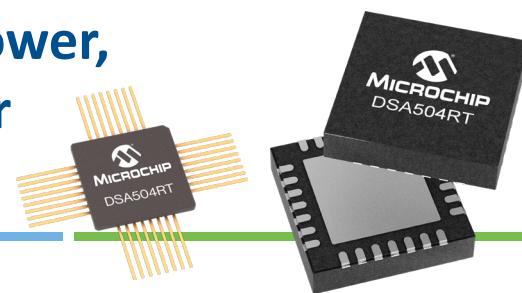
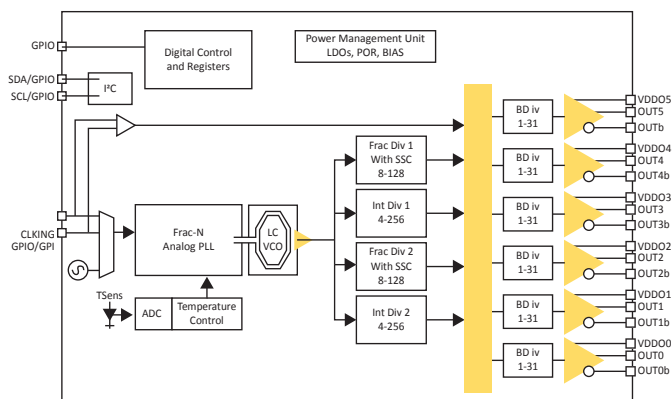


DSA504RT Radiation-Tolerant, Low-Power, Low-Jitter, Six-Output Clock Generator



Summary

The DSA504RT is a six-output programmable clock generator for aerospace and defense applications. It integrates a low-jitter Analog Phase Lock Loop (APLL), two fractional dividers with spread spectrum and two integer dividers to generate a wide range of frequencies that can be applied to any of the six outputs using a cross-point switch. The DSA504RT uses an external differential/single-ended clock as a reference for the synchronization of the outputs with the system's general clock. The outputs can be configured as six differential outputs—Low-Power, High-Speed, Current-Steering Logic (LP-HCSL); Low-Voltage, Positive Emitter-Coupled Logic (LVPECL); Low-Voltage Differential Signaling (LVDS) or 12 Low-Voltage, Complementary Metal Oxide Semiconductor (LVCMOS) outputs or a combination of differential and single-ended.



DSA504RT Functional Block Diagram

Features

- Six-output, any-frequency clock generator
 - Highly configurable outputs with separate supply and independent format selection LPHCSL, LVDS, LVPECL and LVCMOS
- Output frequency range:
 - LP-HCSL: 1 MHz–250 MHz (differential)
 - LVDS, LVPECL: 300 kHz–662 MHz (differential)
 - LVCMOS: 300 kHz–200 MHz (single ended)
- PCIe® Gen 1, Gen 2, Gen 3, Gen 4, Gen 5, Gen 6, SRIS-compliant output
- External clock reference frequency range:
 - External differential clock: 10 MHz–250 MHz
 - External LVCMOS clock: 10 MHz–200 MHz
- Exceptional stability over temperature ± 25 ppm

- I²C/SPI interfaces
- One-Time Programmable (OTP) configuration for autonomous startup

Operating Ranges

- Extended temperature range of -55°C to $+125^{\circ}\text{C}$
- Operating voltage range of 1.71V to 3.63V

Key Features for Space Environments

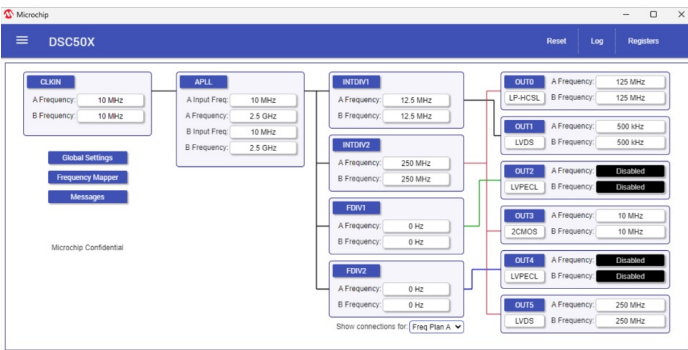
- Full-wafer-lot traceability
- Single-lot date code management
- 32-lead, CQFP32, hermetic, ceramic, flat package
- 28-lead, QFN28, 4 × 4 mm, high-reliability, plastic package
- Space-grade screening and qualification (QML and ESCC flows)
- Total-Ionizing Dose (TID) > 50 krad (Si)
- Single-event latch-up immune with a LET > 78 MeV.cm²/mg

Part Number	Output Frequency	Output Modes	Package	Temperature Range	Flow
DSA504RT-XJB-E	Single-ended, 300 kHz/200 MHz Differential, 300 kHz/662 MHz	LPHCSL LVDS LVPECL LVCMOS	CQFP32	25°C	Engineering samples
DSA504RT-XJB-MQ			CQFP32	$-55^{\circ}\text{C}/125^{\circ}\text{C}$	QML-Q equivalent
DSA504RT-XJB-SV			CQFP32	$-55^{\circ}\text{C}/125^{\circ}\text{C}$	QML-V equivalent
DSA504RT-ZXX-HP			VQFN28	$-55^{\circ}\text{C}/125^{\circ}\text{C}$	High-reliability plastic
DSA504RT-ZXX-SP			VQFN28	$-55^{\circ}\text{C}/125^{\circ}\text{C}$	QML-P equivalent

DSA504RT Development Tools

Start today and unlock the full potential of the DSA504RT solution with our ready-to-use evaluation tools.

Clock Configurator



The Timing GUI software is easy-to-use configuration tool that lets you customize oscillators and clock generators to fit with application needs. With just a few clicks, you can program parts to any combination of frequency.

DSA504RT Programmer

The DSA504RT Programmer is a hardware dongle that connects the device evaluation board to a host computer, enabling programming of the DSA504RT clock configuration.

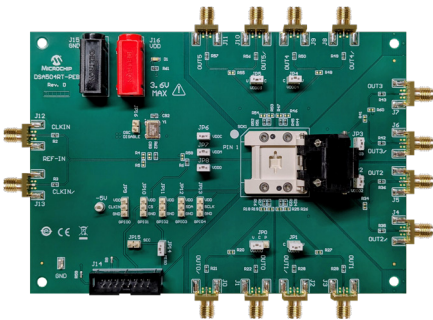
Used in combination with an intuitive GUI, it provides fast and flexible access to all key device parameters. It supports dynamic configuration and allows real-time adjustment of clock settings during evaluation and development.

The tool also enables programming of a permanent configuration into the device’s embedded OTP nonvolatile memory. It offers a simple and efficient way to configure, validate and finalize clock setups for system integration.

DSA504RT Evaluation Kits

DSA504RT evaluation kits are complete platforms for testing and configuring the DSA504RT. They feature evaluation boards with on-board socket for easy part swapping, full access to device configuration and seamless connectivity to the ClockWorks® device framework for configuration evaluation.

With an integrated OTP programmer and a DSA504RT sample included, these kits provide everything you need to accelerate evaluation and development.



DSA504RT Evaluation Board



DSA504RT Programmer

DSA504RT Tools Guide

Tool	Description	Part Number
DSA504RT Ceramic Evaluation Kit	Evaluation kit for the ceramic version of the DSA504RT Includes the DSA504RT programmer	DSA504RT-XJB-EK
DSA504RT Plastic Evaluation Kit	Evaluation kit for the plastic version of the DSA504RT	DSA504RT-ZXX-EK
DSA504RT Programmer	Allows DSA504RT clock synthesizer to a custom configuration for evaluation and enable nonvolatile memory configuration writing in OTP	DSA504RT-PRG
Clock Configurator	The configuration tool that lets you customize clock generators to fit your application needs	Download our timing GUI from DSA504RT product page

