

March 11, 2008

Epson Toyocom Develops New High-Stability Real-Time Clock Modules

Epson Toyocom Corporation (“Epson Toyocom”), the leader in crystal devices, has announced the commercial development of a pair of real-time clock modules^(*1) featuring the industry's most accurate clock^{*}. The RX-4801SA and RX-8801SA boast an accuracy rating of ± 5 seconds/month within an operating temperature range from 0°C to +40°C, and an accuracy rating of ± 9 seconds/month at a range as wide as -40°C to +85°C.

Clocks that maintain high accuracy even in harsh operating environments subject to large temperature swings are needed in many applications, including in equipment and systems such as corporate server infrastructure, bank ATMs, utility meters, surveillance cameras and security systems.

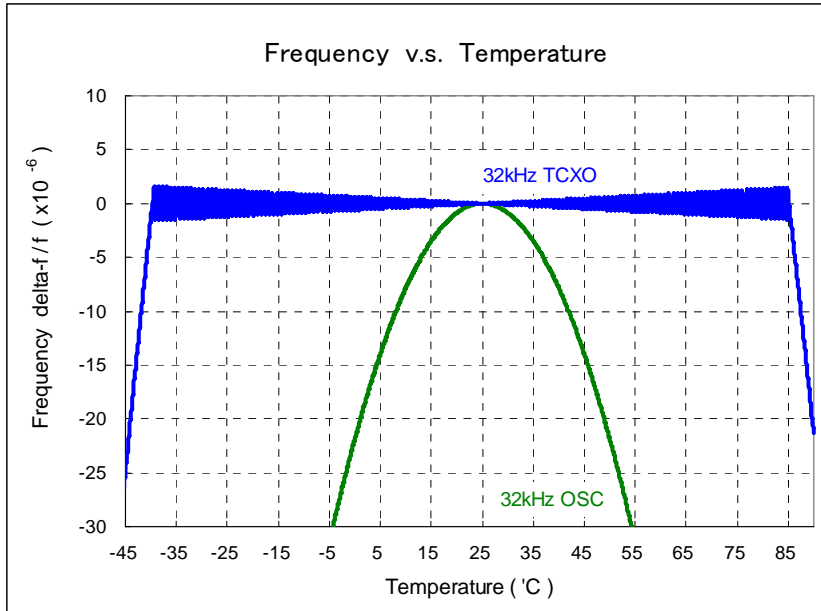
Achieving high-accuracy clock functions in challenging temperature environments could be difficult with conventional real-time clock modules. Epson Toyocom's new modules alleviate the customer's burden by maintaining highly accurate clock functions over a wide range of temperatures without the need for compensating circuits or other additional engineering.

The superb accuracy of the new modules is enabled by a built-in 32-kHz TCXO circuit^(*2) boasting a frequency stability of $\pm 1.9 \times 10^{-6}$ over an operating temperature range of 0°C to +40°C and a frequency stability of $\pm 3.4 \times 10^{-6}$ over an operating temperature range of -40°C to +85°C.

The RX-4801SA supports a 4-wire serial interface, while the RX-8801SA is I²C-bus^(*3) interface compliant. Each is available in two versions (UA & UB) having different accuracy specifications.

Epson Toyocom plans to fill out the lineup with small-package versions.

Frequency/Temperature Coefficient of the New Real-Time Clock Modules Vs. Conventional Modules



* For a real-time clock module, as of March 11, 2008, according to research by Epson Toyocom.

Main Specifications

Item	RX-4801SA specifications	RX-8801SA specifications
Clock power supply voltage	1.6V to 5.5V	
Temperature compensated voltage	2.2V to 5.5V	
Standby current consumption	0.8 μ A (Typ.) / 3V	
Frequency stability	UA	$\pm 1.9 \times 10^{-6}$ @ 0°C to +40°C ($\leq \pm 5$ sec/month) $\pm 3.4 \times 10^{-6}$ @ -40°C to +85°C ($\leq \pm 9$ sec/month)
	UB	$\pm 3.8 \times 10^{-6}$ @ 0°C to +50°C ($\leq \pm 10$ sec/month) $\pm 5.0 \times 10^{-6}$ @ -40°C to +85°C ($\leq \pm 13.2$ sec/month)
Interface	4-wire serial	I ² C-bus
External dimensions	10.1 × 7.4 × 3.2 t mm (14-pin SOP)	

- Built-in 32.768-kHz crystal unit and TCXO circuit provide excellent frequency stability.
- Automatic leap year correction, full calendar and clock functions, and day, hour, and minute alarms
- 32.768-kHz output enable (CMOS output)

(*1) Real-time clock module

A module with a built-in crystal unit and clock and calendar functions. With the crystal unit and functions compactly integrated in a single package, real-time clock modules realize high clock accuracy while being extremely space efficient.

(*2) 32-kHz TCXO (temperature-compensated crystal oscillator) circuit

A temperature-compensated oscillation circuit with a 32.768 kHz crystal unit. TCXOs offer vastly superior frequency stability to ordinary 32-kHz oscillators even in extreme temperatures.

(*3) I²C-bus is a trademark of NXP Semiconductors.