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Epson Toyocom Announces RX-4575LC Real Time Clock Module with Chattering-Free*[1] Input Detection Port

Epson Toyocom Corporation, the leader in quartz devices, today announced the development of a new real time clock module with a built-in crystal unit. The RX-4575LC contains a feature that generates an interrupt signal when an external input signal is detected. Samples will begin shipping in June 2006.

As more features are packed into small electronic devices, the main CPU and controller chips in these devices are running out of I/O ports, forcing designers to choose between a variety of signals. Epson Toyocom developed a multi-function real time clock module with two chattering-free inputs to relieve this kind of hardware resource shortage. The addition of these inputs simplifies the circuit design process by removing the need for an external chattering elimination circuit, and by enabling I/O ports to detect different kinds of signals.

Input detection port features

- Input signal detection: Select and use either hardware interrupt signal generation or serial-based software monitoring, depending on the system
- Pull-up and pull-down resistance built into each port: Can be disconnected as required
- Variable chattering absorption time: Set input signal detection responsiveness to a high level of accuracy
- Time-out after signal detection: A power-saving feature that automatically disconnects built-in resistance after input signal detection

Main specifications

Item	RX-4575LC specifications
Operating power-supply voltage	1.6V to 5.5V
Standby current consumption	0.35 μA (Typ.) / 3V
Chattering free variable rate	8 ms, 31 ms, 62 ms, 125 ms
Pull-up/down resistance	60 kΩ (Typ.) / 3V
Dimensions	3.6 × 2.8 × 1.2 mm (12-pin VSOJ)

- Three-line serial interface
- Built-in 32.768 kHz crystal unit: $5 \pm 23 \times 10^{-6}$ frequency stability
- Automatic leap year correction, full calendar clock
- Day, hour, minute alarm 12-bit timer interrupt function
- Two input detection terminals
- Two interrupt output terminals
- OE-enabled 32.768 kHz CMOS output

Glossary

(*1) Chattering-free:

A circuit that can ignore the chattering phenomenon by using a filter circuit designed to eliminate short signals under a certain length of time on the input of a switch signal is called a "chattering-free input circuit."

The operation of a push-button switch generates a phenomenon called "chattering." This is when an electrical signal occurs many times due to repeated electrical contact for very short lengths of time when a switch is turned on or off. An operation to generate one signal ends up generating multiple signals, causing errors when directly connected to an electric circuit. The chattering-free input circuit prevents this kind of trouble.