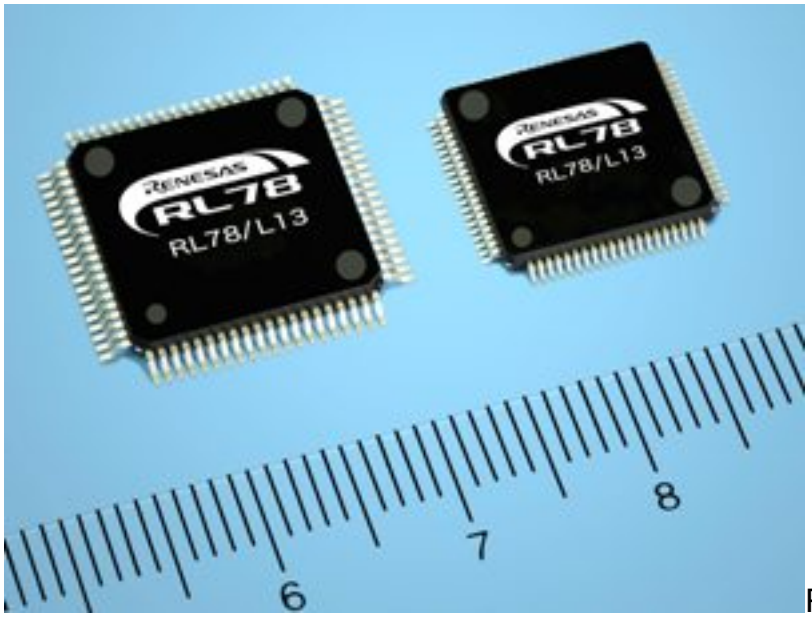
Microcontrollers with Industry’s Highest Segment Count LCD Controller



Renesas Electronics Corporation (TSE:6723), a premier supplier of advanced semiconductor solutions, today announced the RL78/L13 Group of low-power microcontrollers (MCUs) with on-chip LCD controller offering up-to 376 segment drive capability in an 80-pin package [Note 1]. These new MCUs are optimal for consumer, health and industrial equipment that are equipped with an LCD panel.

“As people become accustomed to easy and intuitive interaction with their electronics at work and at home, they increasingly look for greater functionality from their electronic devices and equipment,” said Ritesh Tyagi, senior director, Microcontroller Products & Solutions Marketing, Renesas Electronics America. “The RL78/L13 devices with on-chip LCD driver complement Renesas’ expanding RL78 MCU family, allowing more information to be displayed for greater convenience and to enable more intelligent decision making.”

LCD panels are widely used in both consumer and industrial equipment, including home appliances such as washing machines, stoves and microwave ovens, health equipment such as blood pressure monitors and blood glucose monitors, and portable test equipment and meters. Renesas has already released the RL78/L12 low-power MCUs that reduce [Note 2] power consumption by about 30% compared to earlier Renesas products as on-chip LCD driver MCUs. There is now, however, strong demand for an increase in the number of segments in on-chip LCD driver MCUs to support the large increases of information shown on LCD panels due to needs to display information such as power saving status ecological information and the additional information associated with advanced functionality.

At the same time, the Induction Heating (IH) method is beginning to be widely used in IH cooking equipment, and industrial equipment as well. In this IH heating

equipment, high-functionality timers are required to control the IH inverter circuit. Renesas is now releasing the RL78/L13 Group of MCUs to respond to these needs.

Key Features of the RL78/L13 Group of MCUs

(1) Achieves the industry's highest LCD display segment count and contributes to richer information displays using LCD panels

The new RL78/L13 MCUs can drive up to 376 segments [Note 3] achieving the industry's largest number of LCD segments in an 80-pin MCU. This allows even more information, such as numbers and symbols, to be displayed on the LCD panels included in home appliances and other equipment.

(2) Provides comparators and high-functionality timers to support system control for IH equipment

These new MCUs include comparators that are effective for zero cross detection [Note 4] in AC power supply waveforms and high-functionality timers that support variable pulse width modulation (PWM) control in real time and are thus optimal for IH heating control. These high-functionality timers include a forcible output stop function and can contribute to improved safety in end products.

(3) Provides a high-precision real-time clock (RTC) [Note 5] function that provides a perpetual high-precision RTC counter

Compared to the RTC provided in the RL78/L12 Group products, the RTC in the RL78/L13 products increases the correction resolution [Note 6] and thus increases the clock precision. Also, the RTC calendar register, which indicates the time and date, retains its value without being cleared by reset factors external to the MCU. These functions make these products optimal for systems such as measurement equipment and meters that require a permanent, high-precision RTC counter.

In addition, these new products inherit the superlative features of the RL78 Family, such as achieving the industry's lowest levels of power consumption, supporting the IEC 60730 standard, which is a required home appliance safety standard in Europe, and reducing total system costs by taking advantage of on-chip peripheral functions integrated on the MCU. These features allow users to increase end product functionality, reduce system costs, and improve safety.

Renesas continues to develop on-chip LCD drive MCUs that match market needs and continue to expend their product line.

Also, Renesas will be displaying new products at the Embedded Technology 2012 Exhibition to be held at PACIFICO YOKOHAMA from November 14 to November 16 this year.

The RL78/L13 Group of MCUs consists of 24 models in 64-pin and 80-pin packages and flash memory capacities from 16 KB to 128 KB.

Pricing and Availability
Samples of the RL78/L13 Group of MCUs are scheduled for availability beginning November 2012, and price varies depending on the pin-count, package and memory storage configurations. For example, samples of the R5F10WMGAFB MCU with 80-pin LQFP package (12mm square) with embedded 8 KB RAM is planned to be priced at US$1.70 per unit when ordered 10,000 units. Mass production of the RL78/L13 devices is scheduled to begin in February 2013 and is expected to reach a volume of 8,000,000 units per month for the total of the products of the group in August 2013. (Pricing and availability are subject to change without notice.)

[Note 1] The segment display method makes it possible to, for example, display a single seven part (segment) digit in a calculator display with fewer than seven signals by time division control of the on/off state of each segment.

[Note 2] When comparing current consumption in the LCD display state in HALT mode with the subsystem clock operating with the Renesas 78K0R/Lx3 MCUs.

[Note 3] This is the total number of segments with 8 columns × 47 segments for 80-pin package products.

[Note 4] Zero cross detection: Function that detects the passage of an AC voltage through the zero point (the zero cross point). This function can be used to suppress surge currents, back electromotive force, and switching noise in power supply circuits.

[Note 5] RTC: A function that provides clock and calendar functions and continuously counts the time.

[Note 6] The RTC in the RL78/L13 Group products includes a function to periodically correct time errors. The correction resolution expresses how finely this time error correction is divided. The higher the correction resolution, the higher precision correction it is possible to implement, which can lead to a higher precision RTC function.

Renesas Electronics Corporation
www.renesas.com [1]

Source URL (retrieved on *09/17/2014 - 2:15am*):
http://www.mdtmag.com/product-releases/2012/11/microcontrollers-industry%E2%80%99s-highest-segment-count-lcd-controller?qt-video_of_the_day=0

Links:
[1] http://www.renesas.com