

January 25, 2011

Key Features of Renesas Electronics' New R8C/3MQ Group MCUs

Item	Specifications				
Group name	R8C/3MQ				
Part no.	R5F213 MCQNNP	R5F213 MAQNNP	R5F213 M8QNNP	R5F213 M7QNNP	R5F213 M6QNNP
CPU	R8C CPU core				
Operating frequency / supply voltage	16 MHz/VCC = 2.7 to 3.6 V, 8 MHz/VCC = 2.2 to 3.6V, 4 MHz/VCC = 1.8 to 3.6 V				
Minimum instruction execution time	62.5 nsec (16 MHz)				
Number of fundamental instructions	89				
Operating ambient temperature	-20 to 85°C				
Flash memory / RAM	128 KB/7.5 KB	96 KB/7 KB	64 KB/6 KB	48 KB/4 KB	32 KB/2.5 KB
Data flash	1 KB × 4 blocks Background operation (BGO) function				
On-chip peripheral functions	Power supply voltage detection <ul style="list-style-type: none"> • Power-on reset • Voltage detection 2 (detection level of voltage detection 1 selectable) 				
	Watchdog timer: 14 bits × 1 channel (with prescaler)				
	DTC (Data Transfer Controller) × 1 channel				
	Timer RA: 8 bits × 1 channel (with 8-bit prescaler)				
	Timer RB: 8 bits × 1 channel (with 8-bit prescaler)				

Item	Specifications
	<p>Timer RC: 16 bits × 1 channel (with 4 capture/compare registers)</p> <p>Timer RE: 8 bits × 1 channel</p> <p>Serial interface (UART0) (Shared with clock synchronous serial I/O mode and clock asynchronous serial I/O) × 1 channel</p> <p>Synchronous serial communication unit (SSU) × 1 channel (shared with I²C bus)</p> <p>I²C bus (shared with SSU) × 1 channel</p> <p>I/O ports CMOS I/O ports: 18 (including XCIN and XCOU), selectable pull-up resistor (for some ports)</p>
Analog front end	<p>RF</p> <ul style="list-style-type: none"> • RF frequency: 2405 MHz to 2480 MHz • Reception sensitivity: -95 dBm • Transmission output level: -0 dBm <p>Baseband</p> <ul style="list-style-type: none"> • 127-byte transmit RAM, 127-byte receive RAM × 2 • Automatic ACK response function • 26-bit timer: Compare function in 3 channels
Clock generation circuits	<p>3 circuits:</p> <ul style="list-style-type: none"> • XIN clock oscillation circuit • XCIN clock oscillation circuit (32 kHz) • Low-speed on-chip oscillator • Oscillation stop detection: XIN clock oscillation stop detection function • Frequency divider circuit: Dividing selectable 1, 2, 4, 8, and 16

Item	Specifications
	<ul style="list-style-type: none"> • Low power consumption modes: Standard operating mode (high-speed clock, low-speed clock, low-speed on-chip oscillator), wait mode, stop mode
Encryption	Yes
Package	40-pin HWQFN (6.0 mm × 6.0 mm × 0.5 mm)