

December 1, 2014

Product Specifications of the RX113 Group of MCUs

*Upper: Temperature range for the operation: -40 to +85°C

Lower: Temperature range for the operation -40 to +105°C

| Group name | | RX113 | | | |
|-------------------------------------|---------------|--|---|--------------|--------------|
| Part No.* | | R5F51138ADxx | R5F51137ADxx | R5F51136ADxx | R5F51135ADxx |
| | | R5F51138AGxx | R5F51137AGxx | R5F51136AGxx | R5F51135AGxx |
| Internal memory | Flash ROM | 512 KB | 384 KB | 256 KB | 128 KB |
| | RAM | 64 KB | | 32 KB | |
| | E2 data flash | 8 KB | | | |
| Power supply voltage | | 1.8 to 3.6 V | | | |
| Maximum operating frequency | | 32 MHz | | | |
| Temperature range for the operation | | -40 to +85°C or -40 to +105°C | | | |
| CPU core | | RX CPU <ul style="list-style-type: none"> • General registers: 32-bit x 16 • Multiplier: 32-bit multiplier • Divider: Yes • Multiply-accumulator: Yes (two types: memory-to-memory operations and register-to-register operations) | | | |
| On-chip peripheral functions | | Transfer functions | <ul style="list-style-type: none"> • Data transfer controller (DTCa) | | |

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| | <p style="text-align: center;">Timers</p> | <ul style="list-style-type: none"> • Multi-function timer pulse unit 2: 16 bits × 6 channels (MTU2a) • Port output enable 2 (POE2a) • Compare match timer (CMT): 16 bits × 2 channels × 2 units • Real-time clock (RTCA) • Independent watchdog timer (IWDTa): 14 bit × 1 channel • 8-bit timer (TMR): (8 bit × 2 channels) × 2 units |
| | <p style="text-align: center;">Communication functions</p> | <ul style="list-style-type: none"> • Serial communications interface (SC1e): 100-pin [7 channels], 64-pin [5 channels] • Serial communications interface (SC1f): 1 channel • I2C bus interface (RIIC): 1 channel • Serial peripheral interface (RSPI): 1 channel • USB 2.0 Full Speed (USBc): [1 channel, USB 2.0 Full Speed (12 Mbps), Low Speed (1.5 Mbps) H/F/OTG] • Serial sound interface (SSI): 1 channel • IrDA interface: 1 channel |
| | <p style="text-align: center;">Touch key functions</p> | <ul style="list-style-type: none"> • Capacitive Touch Sensing Unit (CTSUs) × 12 channels, 36 keys (max. input keys when configuring 12 ch in the 6 ch × 6 ch matrix state using mutual-capacitance.) <p>Self-capacitance and mutual capacitance are supported.</p> |
| | <p style="text-align: center;">Analog functions</p> | <ul style="list-style-type: none"> • 12-bit A/D converter (S12ADb): 100-pin [17 channels], 64-pin [11 channels] |

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| | | <ul style="list-style-type: none"> • 12-bit D/A converter: 2 channels (R12DAA) • Comparator: 2 channels (CMPBa) |
| | LCD controller/driver (LCDC) | <ul style="list-style-type: none"> • Internal voltage boosting method, capacitor split method, and external resistance division method are switchable. • Segment signal output × common signal output: 100-pin: 40 com. × 4 seg., 36 com. × 8 seg., 64-pin: 20 seg. × 4 com., 16 seg. × 8 com |
| | Safety functions | <ul style="list-style-type: none"> • Clock Frequency Accuracy Measurement Circuit (CAC) • Data Operation Circuit (DOC) • 14 bits Independent Watchdog Timer (IWDTa) • CRC Calculator (CRC) |
| | Clock generation circuit | <ul style="list-style-type: none"> • Main clock oscillator • Sub-clock oscillator • Low-speed on-chip oscillator (LOCO) • High-speed on-chip oscillator (HOCO) • Dedicated on-chip oscillator for the IWDT • USB-dedicated PLL frequency synthesizer • USB-dedicated PLL frequency synthesizer |
| | Others | <ul style="list-style-type: none"> • Event Link Controller (ELC) • Multi-function Pin Controller (MPC) • Power-on Reset Circuit (POR) • Voltage Detection Circuit (LVD) |

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| | | <ul style="list-style-type: none"> • Temperature Sensor (TEMPSA) |
| On-chip debugging function | Yes (with trace function) | |
| Low power consumption modes | 3 modes <ul style="list-style-type: none"> • Sleep mode • Deep sleep mode • Software standby mode | |
| Packages | <ul style="list-style-type: none"> • 100-pin LFQFP (PLQP0100KB-A) 14 × 14 mm, 0.50 mm pitch • 100-pin TFLGA (PTLG0100JA-A) 7 × 7 mm, 0.65 mm pitch • 64-pin LFQFP (PLQP0064KB-A) 10 × 10 mm, 0.50 mm pitch | |

(Remarks)

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