**June 23, 2011**

# Product Specifications of the RL78/G14 MCUs

| Group name | RL78/G14 | | | | |
|---|---|---|---|---|---|
| Pin count | 30-pin | 32-pin | 36-pin | 40-pin | 44-pin |
| Part no. | R5F104A | R5F104B | R5F104C | R5F104E | R5F104F |
| Flash ROM (Bytes) | 16 K to 128 K | | | 16 K to 192 K | 16 K to 256 K |
| Data flash (Bytes) | 4 K to 8 K | | | | |
| RAM (Bytes) | 2.5 K to 16 K | | | 2.5 K to 20 K | 2.5 K to 24 K |
| System clock | External main system clock: 1 MHz to 20 MHz<br>Internal oscillation: 64/48/32/24/16/12/8/4/1 MHz<br>Internal oscillation clock: 15 KHz | | | External main system clock: 1 MHz to 20 MHz<br>External subsystem clock: 32.768 KHz<br>Internal oscillation: 64/48/32/24/16/12/8/4/1 MHz<br>Internal oscillation clock: 15 KHz | |
| CPU | RL78 CPU w/ multiplier/divider, MAC instruction | | | | |
| I/O | 26 | 28 | 32 | 36 | 40 |
| Timer (Note 1) | 16-bit: 8 ch<br>12-bit: 1 ch | | | | |
| 10-bit A/D | 8 ch | | | 9 ch | 10 ch |
| 8-bit D/A (Note 2) | 2 ch | | | | |
| Comparator (Note 3) | 2 ch | | | | |
| Serial I/F | CSI | 3 ch | | 4 ch | | |
| | UART | 3 ch | | 3 ch | | |
| | Simple $I^2C$ (Note 4) | 3 ch | | 4 ch | | |

| | | | | |
|---|---|---|---|---|
| I$^2$C bus | 1 ch | | | |
| Ext. interrupt | 6 ch | | 7 ch | |
| DTC | 28 to 34 sources | | 29 to 35 sources | |
| ELC | Event input: 20 to 25 ch, Event trigger output: 7 to 8 ch | Event input: 20 to 25 ch, Event trigger output: 7 to 9 ch | Event input: 20 to 26 ch, Event trigger output: 7 to 9 ch | |
| Other peripherals | Low voltage detector (LVD), power-on reset (POR), safety functions | | Low voltage detector (LVD), power-on reset(POR), key return, real-time clock, safety functions | |
| Power supply voltage | 1.6 V to 5.5 V | | | |
| Operating ambient temperature | −40℃ to 85℃, −40℃ to 105℃(in planning) | | | |

| Group name | RL78/G14 | | | | |
|---|---|---|---|---|---|
| Pin count | 48-pin | 52-pin | 64-pin | 80-pin | 100-pin |
| Part no. | R5F104G | R5F104J | R5F104L | R5F104M | R5F104P |
| Flash ROM (Bytes) | 16 K to 256 K | 32 K to 256 K | | 96 K to 256 K | |
| Data flash (Bytes) | 4 K to 8 K | | | 8 K | |
| RAM (Bytes) | 2.5 K to 24 K | 4 K to 24 K | | 12 K to 24 K | |
| System clock | External main system clock: 1 MHz to 20 MHz<br>External subsystem clock: 32.768 KHz<br>Internal oscillation: 64/48/32/24/16/12/8/4/1 MHz<br>Internal oscillation clock: 15 KHz | | | | |
| CPU | RL78 CPUw/ multiplier/divider, MAC instruction | | | | |
| I/O | 44 | 48 | 58 | 74 | 94 |

| | | | | | |
|---|---|---|---|---|---|
| Timer | 16-bit: 8 ch<br>12-bit: 1 ch | | | 16-bit: 12 ch<br>12-bit: 1 ch | |
| 10-bit A/D | 10 ch | 12 ch | | 17 ch | 20 ch |
| 8-bit D/A | 2 ch | | | | |
| Comparator | 2 ch | | | | |
| Serial I/F | CSI | 5 ch | | 6 ch | 8 ch |
| | UART | 3 ch | | 3 ch | 4 ch |
| | Simple I2C | 5 ch | | 6 ch | 8 ch |
| | I2C bus | 1 ch | | | 2 ch |
| Ext. interrupt | 10 ch | 12 ch | 13 ch | | |
| DTC | 30 to 36 sources | | 31 to 37 sources | 39 sources | |
| ELC | Event input: 20 to 26 ch,<br>Event trigger output: 7 to 9 ch | | | | |
| Other peripherals | Low voltage detector (LVD), power-on reset (POR), key return, real-time clock, safety functions | | | | |
| Power supply voltage | 1.6 V to 5.5 V | | | | |
| Operating ambient temperature | −40℃ to 85℃, −40℃ to 105℃ (in planning) | | | | |

(Note 1) 12-bit timer is only for interval timer.

(Note 2) Under 64 KB flash ROM products are not supported.

(Note 3) Under 64 KB flash ROM products are not supported.

(Note 4) Maximum value when used by itself. For example, UART and simplified I2C cannot be used when R5F104A is used with CSI × 3 ch.