*True Low Power*™ Platform for 8-/16-bit Applications

# RL78 Microcontrollers

Renesas Electronics Singapore
sg.renesas.com

# RL78 – True Low Power Microcontroller Platform

RL78 microcontrollers (MCUs) from Renesas Electronics are an advanced family of general-purpose and application-specific MCUs, combining true low power and high performance operation. The RL78 is designed specifically for ultra-low-power applications. The innovative Snooze mode allows serial communication and ADC operation in standby, which makes it best-in-class for battery powered designs.

## Why RL78

- World's best-in-class performance for an equivalent MCU family
- Scalability of physical size including smart pin layout
- System cost saving features
- Wide voltage operation
- Wide temperature operation
- On-chip security features

An extensive ecosystem and more details on the RL78 can be found at **sg.renesas.com/RL78**

### True Low Power

- 66µA/MHz operation
- 0.57µA (RTC & LVD)
- Unique "Snooze" mode

### Extensive Ecosystem

- Advanced development tools
- Third-party support
- Online resources
- Online training: Renesas Interactive

### Broad Scalability

- 10 to 128 pins
- 1KB to 512KB Flash
- Pin compatibility
- Peripheral I/O redirection capability

### High Quality & Safety

- Flash memory with ECC
- Safety support included IEC 60730
- High temperature support: -40°C to 105°C

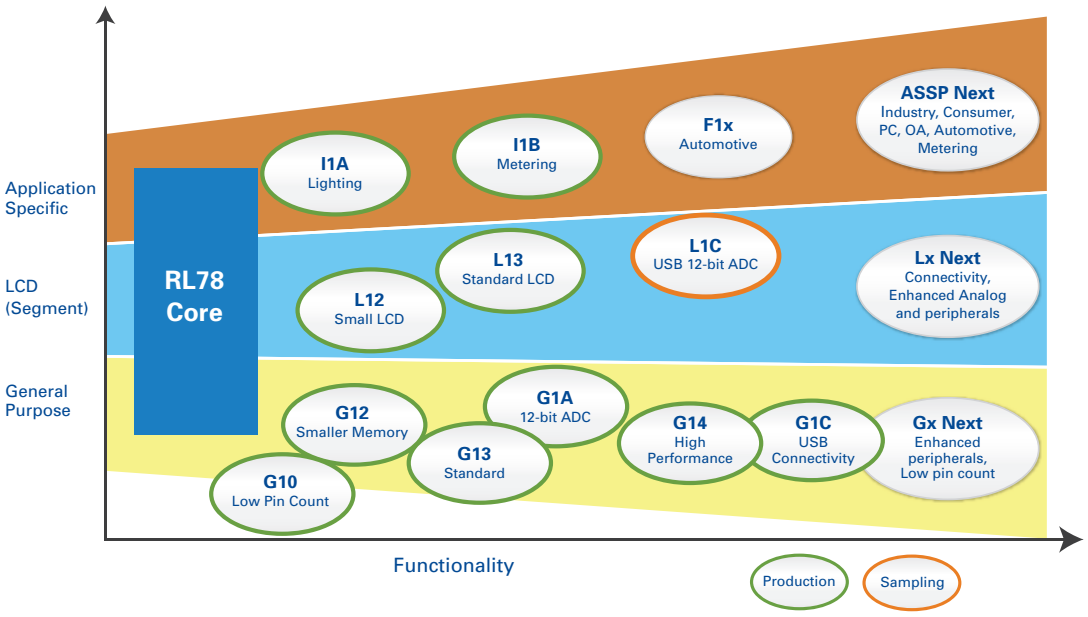
### System Cost Reduction

- 32/64MHz (+/- 1%) OCO
- On-chip low voltage detection circuit
- Data flash with BGO

### High Efficiency

- Up to 1.39 DMIPS/MHz
- 1.6V to 5.5V operation
- DMA/DTC/ELC

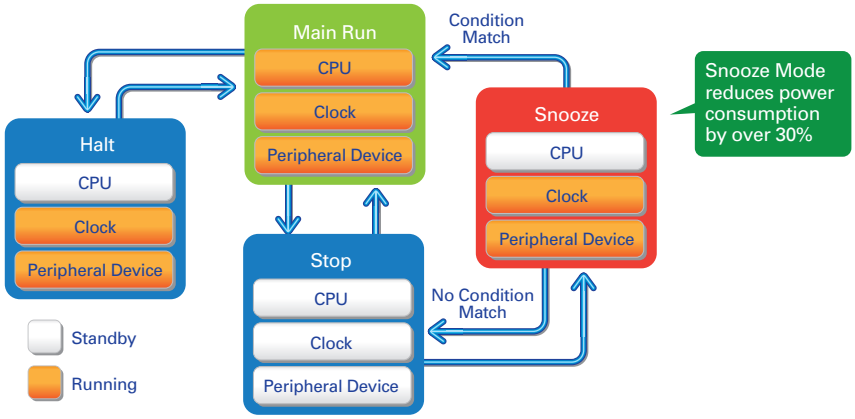
## RL78 Roadmap



# RL78 Low Power Modes

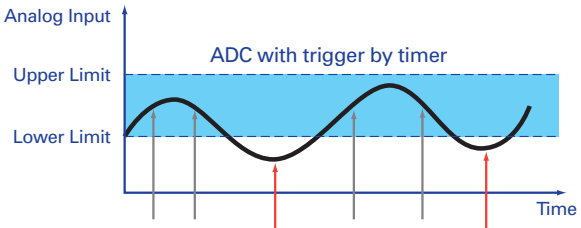
## RL78 offers multiple power saving modes

- RL78's three low power modes maximize battery life by disabling idle CPU features




### Snooze Mode

- No need to wake up CPU for receiving data
- The unique Snooze Mode allows some peripherals; i.e., ADC and UART operation, while in standby modes
- Achieve 1/10 of the power consumption; snooze mode uses 0.5mA vs. 5mA in run mode (ADC)



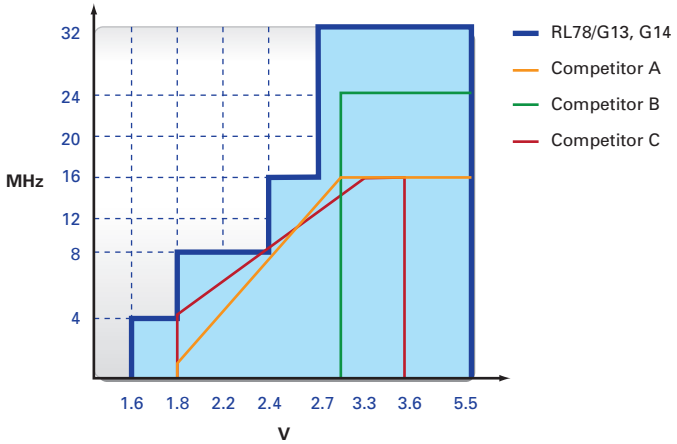

Snooze Mode ADC conversion example

ADC values out of range: Wakes up the CPU and processes the results

### Standby Modes

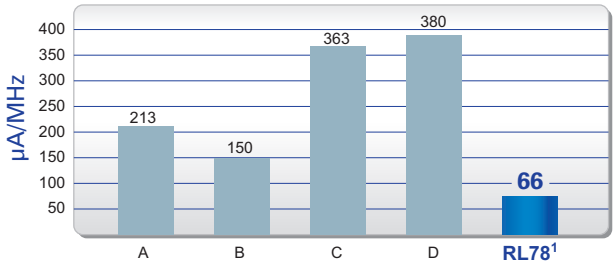
- Halt mode disables CPU operation, saving as much as 80% of total MCU current, while allowing fast CPU enable time
- Stop mode achieves lowest power consumption by disabling CPU functions

### RL78 Wide Operating Voltage

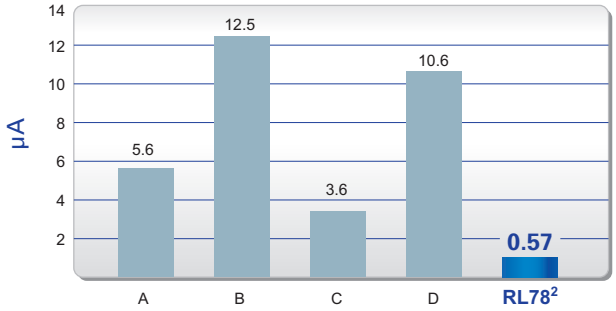



### Power Consumption Values

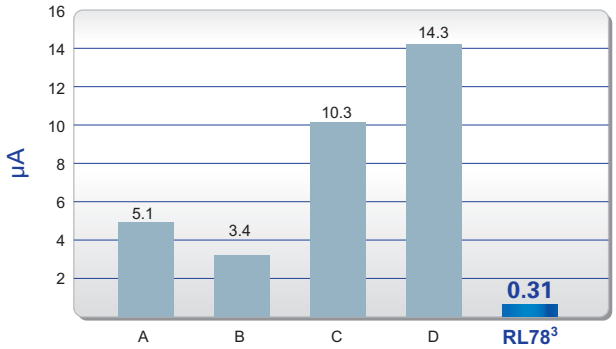
#### Run Mode




#### Halt Mode: RTC + LVD



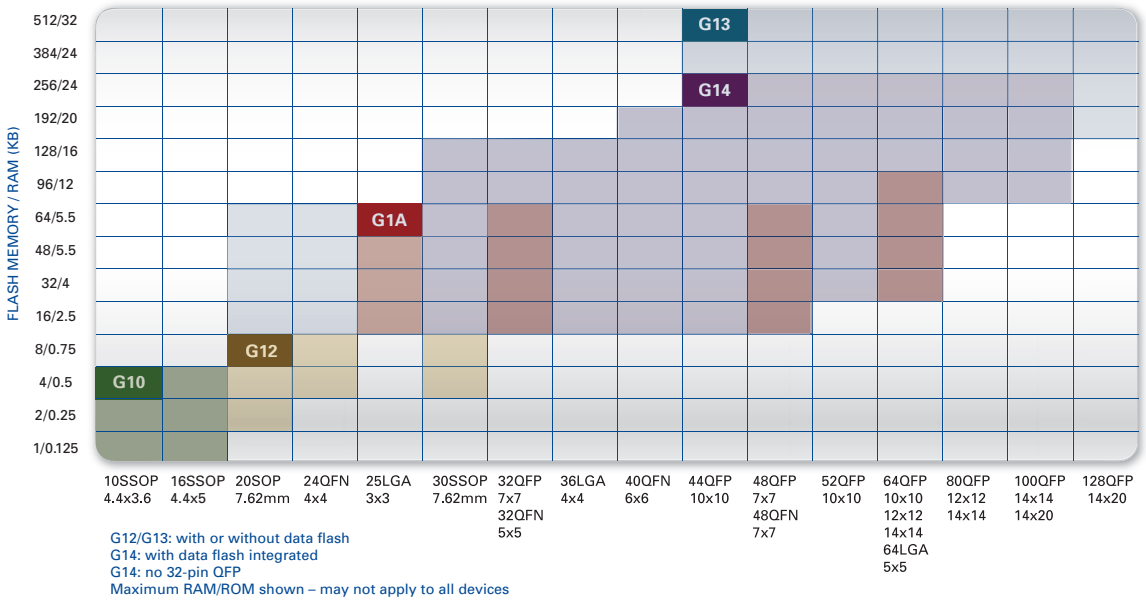

#### Stop Mode: LVD




Note:
1: At 32MHz (NOP instructions)
2: 0.49µA (RTC only)
3: 0.23µA (all stopped, RAM retained) & LVD only 0.08µA

# RL78 General Purpose (G Series) Lineup

## Packages available down to 3x3mm

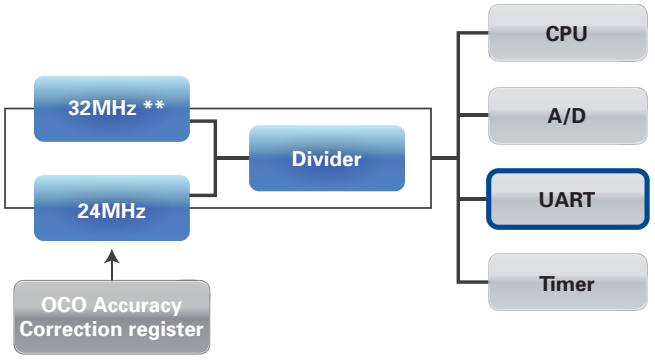



G12/G13: with or without data flash
G14: with data flash integrated
G14: no 32-pin QFP
Maximum RAM/ROM shown – may not apply to all devices

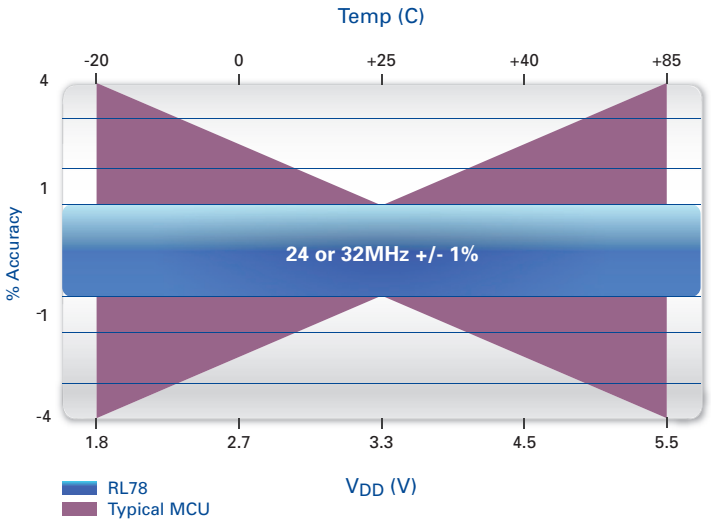
# RL78 Reduces System Cost

## High-accuracy On-chip Oscillator

- **+/-1% accuracy over temperature and voltage (-20 to 85ºC) *****
- **+/- 1.5% accuracy over temperature and voltage (-40 to 85ºC) *****
- Two pre-set frequencies:
  24MHz and 32MHz *
  16MHz, 12MHz, 8MHz, 4MHz, 3MHz, 2MHz,
  1MHz using divider
- Improved accuracy with correction register




* RL78/G13
** On-chip Oscillator
*** RL78/G10 2% (-20 to 85ºC), 3% (-40 to 85ºC)



# RL78 Applications

RL78 offers system designers key advantages for next-generation designs, reducing system power, enhancing integration and providing a cost-effective platform approach.

## Industrial Automation

- The RL78 offers an extensive range of small packages
- RL78 has standard and extended temperature range devices from -40°C to +85°C

## Consumer

- Integrated USB 2.0 LS/FS module, host and peripheral capability
- RL78 MCUs offer a full calendar function
- RL78 has an integrated temperature sensor

## White Goods

- RL78 offers integrated safety compliance for white goods (IEC 60730)
- RL78 offers high temperature support
- RL78's integrated peripherals make it the ideal choice for cost-sensitive white goods

## Lighting

- RL78/I1A offers dedicated DALI and Power Factor control
- RL78's free windows based Applilet software makes it easy for designers to turn around a lighting design with little design experience
- RL78/IA integrates high resolution PWM timers

## Home Automation

- For long battery life, RL78 offers class-leading low power, including the unique Snooze mode
- Integrated LCD driver with up to 8 commons and 35 segments
- Battery operation down to 1.6V

## Power Tools

- Renesas is renowned for high-quality long-life MCUs
- RL78 is available in multiple packages and scalable for the platform design approach

## Medical

- When a small package MCU with long product life is required, RL78 is your first choice
- Renesas has provided solutions for Tier-one medical manufacturers and is part of the Continua Alliance

## Metering

- RL78's low power modes make the MCU ideal to meet industry power consumption requirements
- RL78 is analog rich, ideal for smart metering applications
- Renesas has 30 years of experience providing high quality and long product life MCUs for metering applications

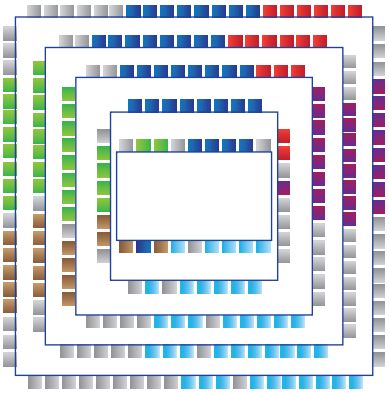
## Motor Control

- RL78/G14 family features integrated motor control timers
- RL78's on-chip oscillators with 1% accuracy provide an integrated low-cost solution for timing critical applications

# Compatibility

## RL78 MCUs offer full pin compatibility

- I/O and peripheral pins scale up
- Easily add additional I/O and functionality by migrating to a larger pin count
- Keep peripheral pin PCB layout in the same order/position as pin count is increased
- Software code can be reused across the full RL78 family from 10 pins to 128 pins



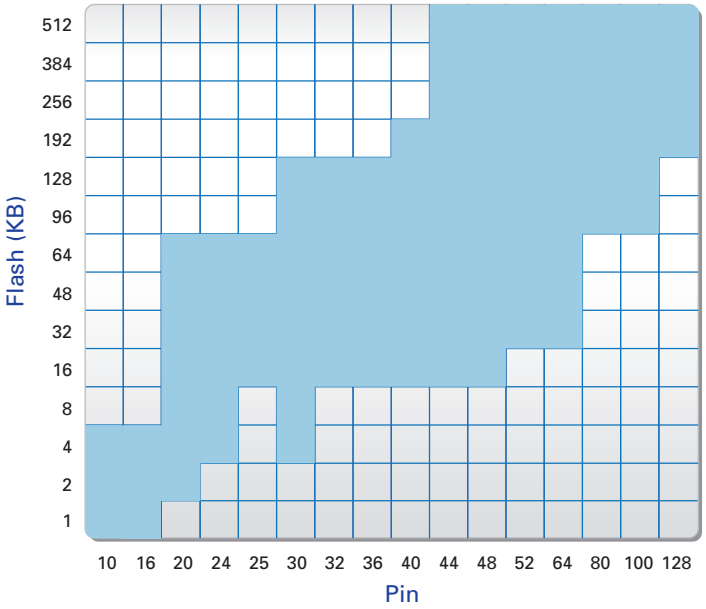
P0 P2
P1 P5
P7
System Pins

The color-coded pins of the RL78/Gxx Series, as shown in the example, show actual I/O port commonality from a 20-pin SSOP up through 80-pin QFP package version.

# Scalability

## RL78 offers an unprecedented lineup

- Over 300 devices
- Available in 10- to 128-pin packages & 1KB to 512KB Flash

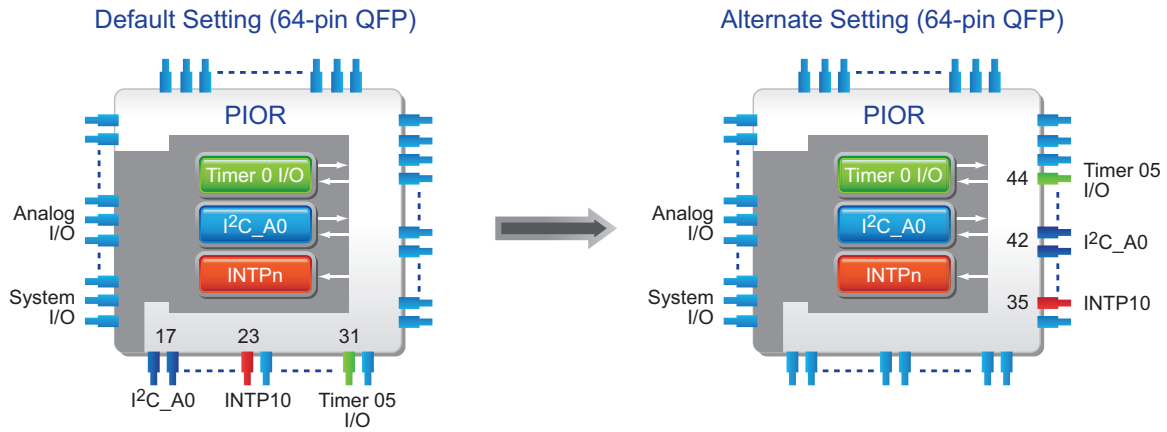



# Flexibility

## Peripheral I/O Redirection (PIOR) capability remaps functions to alternate ports

- Due to layout or peripheral pin sharing constraint, there may be conflicts for existing peripheral I/O pin assignments
- Optimize peripheral pin functionality by easing function bottlenecks on a pin

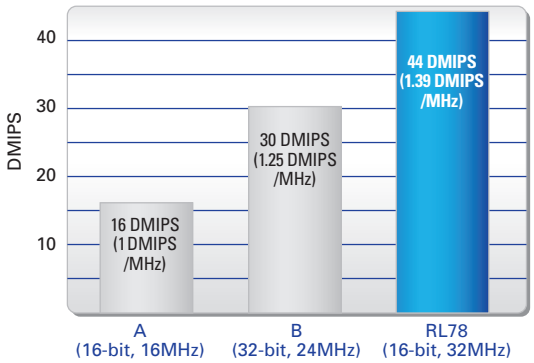
PIOR capability can help ease a bottleneck, as shown in this example, by remapping to alternate pins



# High Efficiency

## RL78/G14 offers up to 44 DMIPS performance at 32MHz

- Unrivaled power consumption/performance ratio (1/3 that of competitors)
- Higher DMIPS rating and lower power consumption than a popular 32-bit competitor technology
- RL78 offers widest operating voltage in its class from1.6V to 5.5V
- 85% instructions executed in one or two clock cycles

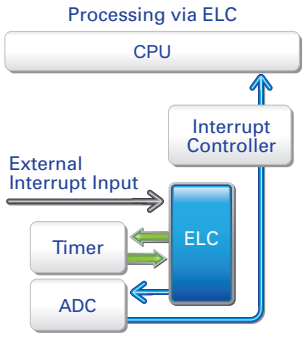



# Advanced Features

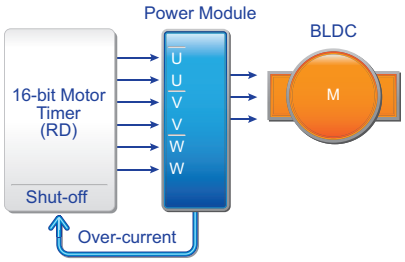
## Event Link Controller (ELC)

- ELC reduces interrupt processing
- ELC improves real time function and reduces program size by using less interrupts

Improved overall performance as ELC independently controls the operation reducing CPU overhead




## Specialized Motor Timers




- Integrated motor control timer functions
- Timer RD supports 4 modes of operation: Timer Mode, Reset Synchronous PWM Mode, Complementary PWM Mode and PWM3 Mode
- Security shut-off function for over current or high impedance detection

# Safety Features

## Hardware for IEC/UL 60730 compliance

### CRC

**Two types of CRC hardware**

- Flash Memory
- Serial Interface

### RAM

**Parity / Write Protection**

- Parity: Internal reset when parity error generated on Read or Write
- Write Protection: Select from: ~128B/~256B/~512B

### SFR

**Write Protection**

- Write protection for: Port setting, interrupt setting, clock setting, LVI setting
- RAM parity setting

### CPU

**Illegal memory access detection**

- Illegal memory access: generates “internal reset”
- Trap instruction “FF” instruction generates “internal reset”

### Clock

**Stop Detection / Frequency check**

- Stop detection: possible to detect by WWDT
- Frequency check: possible to check by timer function

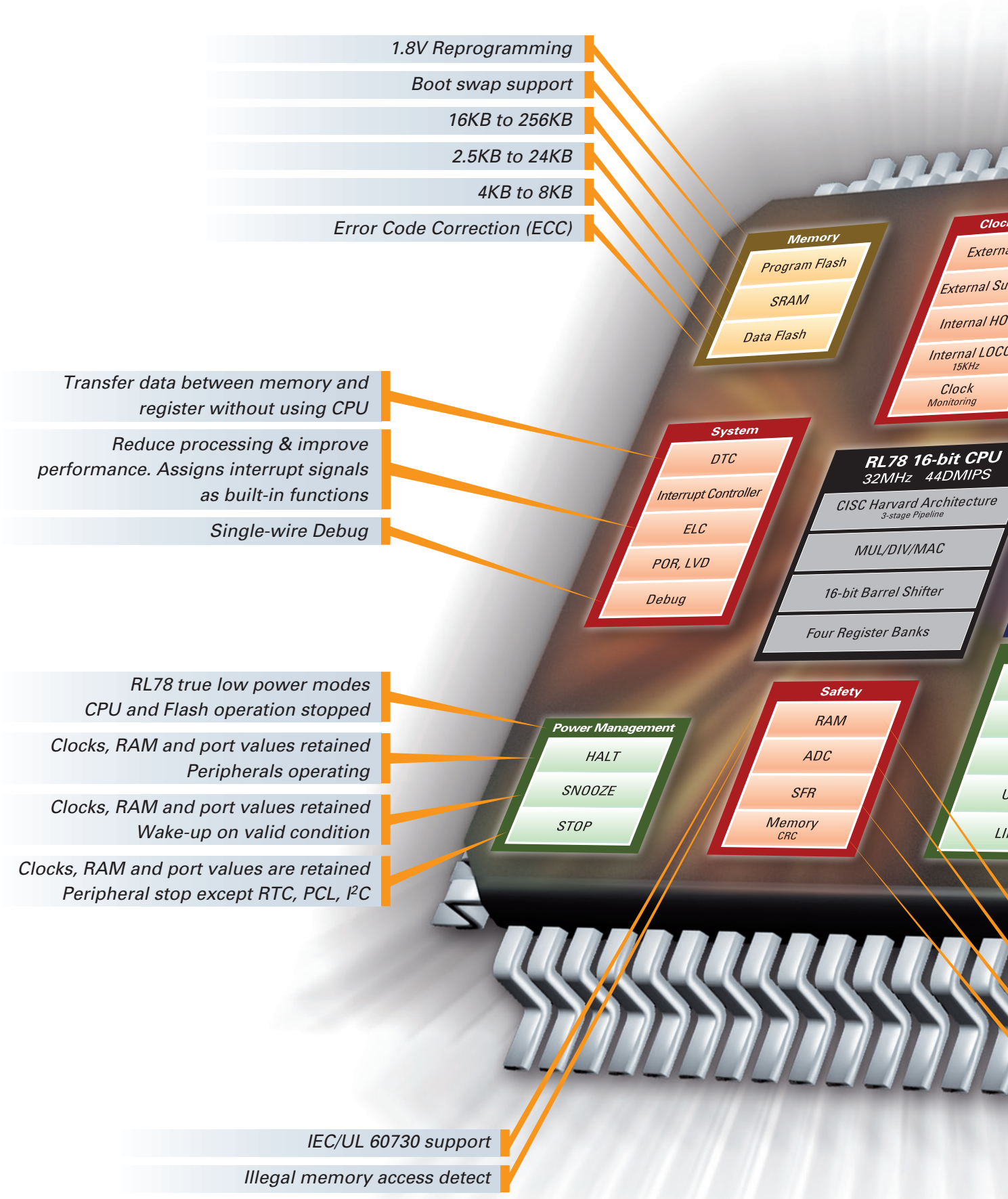
### ADC

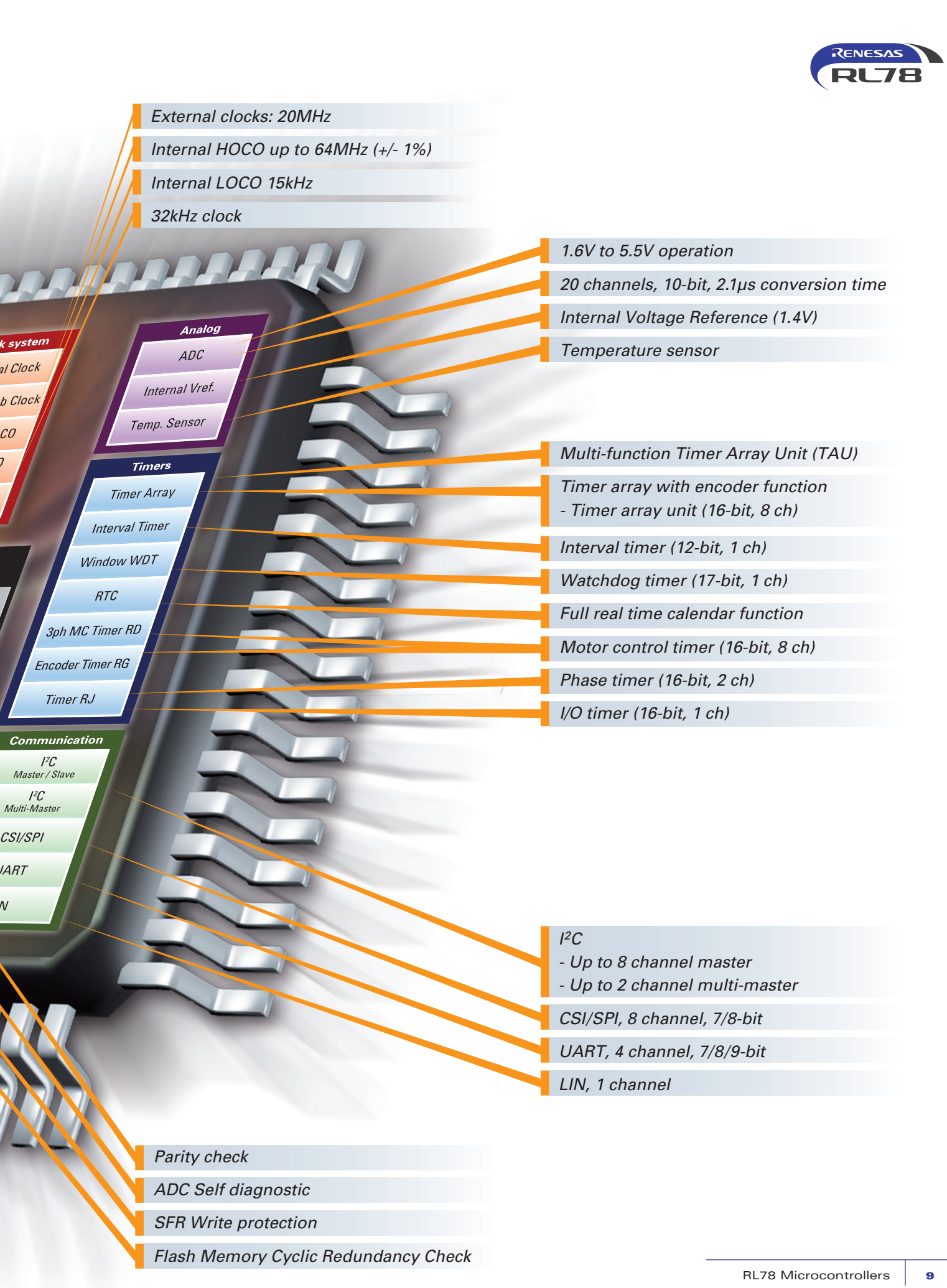
**Multiple input signal selectable**

- ADC measurement sources:
  - External ADC input pins
  - External / Internal AVref sources
  - Internal Vref (1.4 V typ)
  - Temperature sensor

# RL78 Peripherals

## RL78/G14

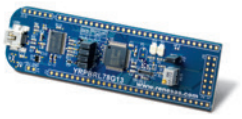



External clocks: 20MHz
Internal HOCO up to 64MHz (+/- 1%)
Internal LOCO 15kHz
32kHz clock
1.6V to 5.5V operation
20 channels, 10-bit, 2.1µs conversion time
Internal Voltage Reference (1.4V)
Temperature sensor
Analog
ADC
Internal Vref.
Temp. Sensor
Timers
Timer Array
Interval Timer
Window WDT
RTC
3ph MC Timer RD
Encoder Timer RG
Timer RJ
Multi-function Timer Array Unit (TAU)
Timer array with encoder function
- Timer array unit (16-bit, 8 ch)
Interval timer (12-bit, 1 ch)
Watchdog timer (17-bit, 1 ch)
Full real time calendar function
Motor control timer (16-bit, 8 ch)
Phase timer (16-bit, 2 ch)
I/O timer (16-bit, 1 ch)
Communication
I²C
Master / Slave
I²C
Multi-Master
I²C
- Up to 8 channel master
- Up to 2 channel multi-master
CSI/SPI, 8 channel, 7/8-bit
UART, 4 channel, 7/8/9-bit
LIN, 1 channel
Parity check
ADC Self diagnostic
SFR Write protection
Flash Memory Cyclic Redundancy Check

# RL78 Development Tools

## Extensive Renesas Development Ecosystem

Explore → Evaluate → Develop → Manufacture



Renesas Promotion Board

Renesas Starter Kit

Emulators: E1 (OCD), IECUBE (Full ICE)

Programmer PG-FP5, Renesas Factory

**Compiler**

IAR SYSTEMS

IAR Embedded Workbench (EWRL78)
Full C and C++ support,
MISRA C compliance checker

**Renesas CubeSuite +**

CubeSuite+

Includes CA78K0R compiler, code generator, E1/IECUBE debug plug-in support

**Renesas e² studio**

IAR & GNU build phase plug-in support, E1/IECUBE debug phase plug-in support

**Real Time OS**

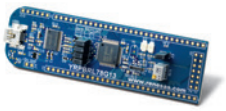
Micriμm — μC/OS-II and μC/OS-III

CMX SYSTEMS — RTX

freeRTOS

SEGGER — embOS

## Development Tools and Kits



### RL78/G14 RPB Board

**Order No: YRPBRL78G14**

- Demo the high performance of RL78
- Evaluate and measure the low power modes
- PC software included (GUI, drivers)
- IAR KickStart included (16KB code limited)
- Applilet device code generator

### RL78 Starter Kits

- Allows full system development
- LCD Panel for diagnostic connection
- Program using E1 on-chip debugger
- Trial C/C++ Compiler included
- Trial CubeSuite+ IDE included
- Applilet device code generator
- Sample peripheral code

**Order No:**

For G13: R0K50100LS000BE
For G14: R0K50104PS000BE
For G1C: R0K5010JGS000BE
For L12: R0K5010RLS000BE
For L13: R0K5010WMS000BE
For L1C: R0K50110PS000BE

### IECUBE Full in-circuit emulator

**Order No: QB-RL78xxx[1]**

- USB 2.0 interface
- Trace functions
- Time measurement
- Break functions
- Real-time RAM monitor function

### RL78/L12 RPB Board

**Order No: YRPBRL78L12**

- Demo the high performance of RL78 LCD MCU
- Evaluate & measure the low power modes
- PC software included (GUI, drivers)
- e² studio IDE and KPIT GNU compiler included
- Sample code and documentation provided

### E1 on-chip debugging emulator

**Order No: R0E000010KCE00**

- Universal Renesas on-chip debugger
- Debugger or Flash programmer interface
- Single wire connection to RL78 device
- Assembler and C source stepping
- Software and hardware breakpoints

### RL78/G14 Renesas Demo Kit (RDK)

**Order No: YRDKRL78G14**

- RL78 MCU board with integrated debugger (USB powered)
- Sample projects exercising peripherals using sensors, display, audio speaker and on-board Wi-Fi module
- IAR Embedded Work Bench for RL78 (16KB KickStart edition) including compiler and powerful debugger

1: For complete part number, refer to Renesas web site.

# RL78 Development Tools

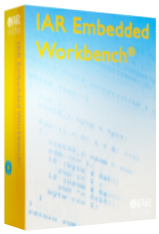
## Software Development Tools

### CubeSuite+

- Integrated development environment for RL78
- Includes C compiler and code generation tools
- Provides variety of tools under a consistent GUI for enhanced ease of use
- Supports other Renesas MCU family

### IAR Embedded Workbench

- Integrated development environment and optimized C++ compiler for RL78
- Project management tools and editor
- Configuration files for all RL78 devices
- Emulator debugger support
- Run-time libraries




### e² studio

#### e² studio

- Based on the popular Eclipse open-source environment
- Complete IDE supports free GNU and IAR compilers
- Powerful project management
- Download free at: sg.renesas.com/e2studio

### Third-party RTOS Support

- Free of charge RTOS for download to deploy RL78 designs
- Commercial versions available as OpenRTOS

- Fast context switching time
- Nested interrupts

- µC/OS-II™ & µC/OS-III™ RTOS
- Highly efficient and ideal for safety-critical designs

- Priority controlled RTOS based on zero interrupt latency
- Optimized for minimum memory consumption in both RAM and ROM

# RL78 with LCD Drive

## RL78/L12 & RL78/L13 Series

The latest devices from the RL78 platform offer an integrated LCD drive. The first member in the family with an integrated LCD drive to be released is the RL78/L12.

- More segment drive for a smaller package:
  - RL78/L12 can drive 35 segment x 8 or 39 segment x 4
  - RL78/L13 can drive 47 segment x 8 com / 51 seg x 4 com
- **Low power LCD drive, only 0.68µA @ 3V with capacitor split method**
- Flexible control method: Split capacitors, capacitive charge pump or external split resistor
- Selectable functions (Seg or I/O) for every segment pin
- Drive for both A waveform and B waveform panel

| Flash Memory/RAM (Byte) | 32 pin | 44 pin | 48 pin | 52 pin | 64 pin | 80 pin |
|---|---|---|---|---|---|---|
| 128K | | | | | 8K | 8K |
| 96K | | | | | 8K | 6K |
| 64K | | | | | 6K | 4K |
| 48K | | | | | 2K | 2K |
| 32K | 1.5K | 1.5K | 1.5K | 1.5K | 1.5K | 1.5K |
| 16K | 1K | 1K | 1K | 1K | 1K | 1K |
| 8K | 1K | 1K | 1K | 1K | | |
| Package | 7x7 QFP | 10x10 QFP | 7x7 QFP | 10x10 QFP | 10x10 QFP | 12x12 QFP |
| | | | | | 12x12 QFP | 14x14 QFP |
| | | | | | 8x8 QFN | |

## RL78/L1x Applications

### Home Automation

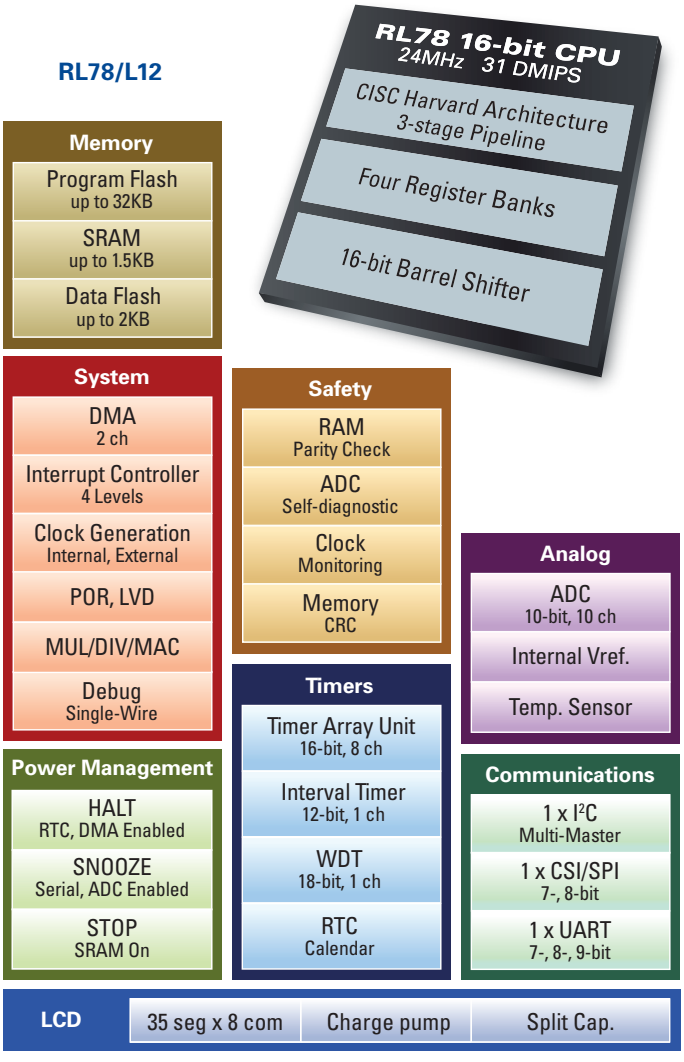
- For long battery life and operation down to 1.6V, the RL78 is the top choice

### Metering

- RL78 is analog rich, ideal for smart metering applications. Renesas has three decades of metering experience

### Medical

- RL78 offers true low power consumption and rich features that are ideal for portable healthcare devices. Renesas Electronics is also an active member of the Continua Alliance.



# RL78 with USB

## RL78/G1C Series

As the RL78 platform expands another new series of devices, the RL78/G1C adds USB connectivity. Renesas is one of the pioneers of USB, bringing the first USB 2.0 and USB 3.0 ASSPs to market. There are multiple devices in the new RL78/G1C family, adding USB 2.0 host and peripheral connectivity. New variants are planned that offer further memory expansion.

**USB Battery Charging (BC1.2) Compliance**

- RL78/G1C allows currents up to 1.5A to be used during charging

**USB Compatibility**

- Support USB standard class driver (Host/Peripheral)
- Support class: CDC/HID/MSC/PHD/etc.

**Low Power & Low Cost**

- Use low power and small size flash process (130µm)
- Ultra-low-power/Run operation and standby

**Compact & Small**

- Cover Low Pin Count (LPC) area: 32-pin to 48-pin
- Cover Small package: Body size (Min. 5x5mm), Thinness (Min. 0.75mm)

**Wide Lineup**

- Up to 2 USB configurable modules
  - Dual host configuration
  - 1 x Host and 1 x peripheral configuration
  - Single peripheral configuration
- Memory variation: 32KB to 128KB
- PKG variation: LQFP/QFN

| Byte | 32 pin | 48 pin |
|---|---|---|
| 32K Flash | 5.5K 5.5K | 5.5K 5.5K |
| PKG | QFP 7x7<br>QFN 5x5 | QFP 7x7<br>QFN 7x7 |

2 x Host
or 1 x Host/Function

1 x only Function

**All devices have 2 x 1K Data Flash**

## RL78/G1C Applications

**Industrial**

- Vending, printers and industrial meters – RL78/G1C offers USB 2.0 host/peripheral LS/FS and offers 1% accuracy OCO

**Consumer**

- DVD player, scanners and portable devices
- USB Battery charger – RL78/G1C offers high-speed battery charging
  - 1.5A BC1.2 compliance
  - 1.0A/2.1A MFi compliance

# RL78 with Low Pin Count

## RL78/G10 Series

The RL78/G10 series consists of small, highly-integrated 10- and 16-pin SSOP packaged MCUs, optimized for space-constrained, low-cost applications. Development is quick and easy with cost-effective, professional development tools and on-chip debugging capabilities.

**Low pin count in small, cost-saving packages**

- 10-pin 4.4x3.6mm SSOP, 16-pin 4.4x5.0mm SSOP

**8, 14 I/Os available (10-, 16-pin)**

- All pins other than the $V_{DD}$/$V_{SS}$ pin can be used for I/Os

**Small Flash memory size**

- 1-4KB flash memory

**Serial communications**

- I²C, CSI/SPI, UART

| Flash Memory (KB) | RL78/G10 Ram (Byte) | |
|---|---|---|
| | 10-pin SSOP 4.4x3.6 | 16-pin SSOP 4.4x5.0 |
| 4 | 512* | 512* |
| 2 | 256 | 256* |
| 1 | 128 | 128* |

**Timer functions**

- Multi-function Timer Array Unit, Up to 3 PWM outputs, Clock Output/Buzzer Output, Watchdog

**System cost reduction with integrated features**

- 20MHz on-chip oscillator +/- 2%
- 15kHz low-speed on-chip oscillator
- SPOR for Low Voltage Reset
- SHA-1 library available

**Power management**

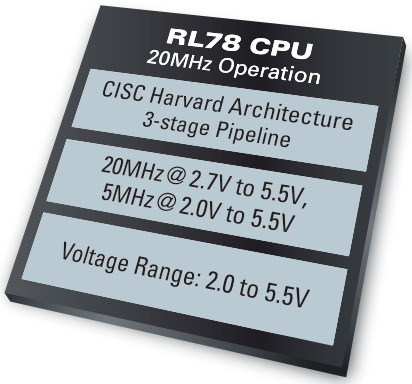
- Run: as low as 46µA/MHz**
- Stop: 0.56µA (RAM retained) w/SPOR

* Under development

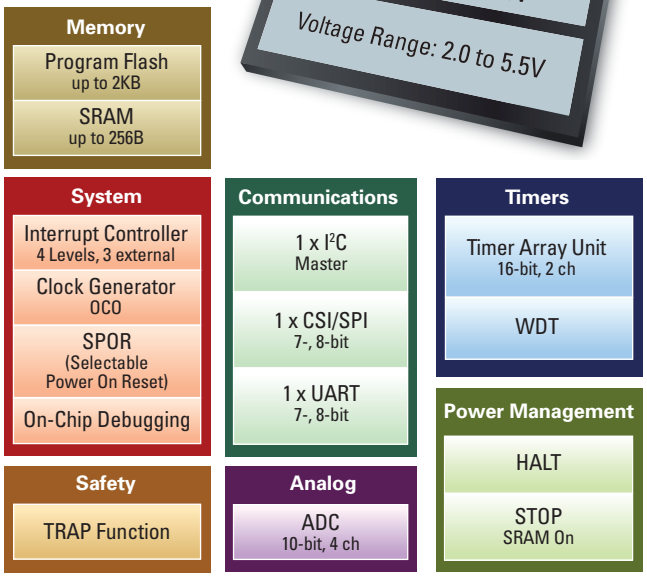
** Basic power consumption (NOP operation)

## RL78/G10 Applications

- Consumer/Small Appliances
- Healthcare
- Industrial
- Charger, Discrete replacement




**RL78/G10**
(10-pin)




# RL78 Device Selector Table

| Device | | Memory | | Interfaces | | | | Peripherals | | | | | | | | Miscellaneous | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | Part Number | Flash and Data Flash (Byte) | RAM (Byte) | I/O/Pins | CSI/ UARTs (LIN)/ I²C | CAN | USB | Special Timers | PWMs | Clock Speed (MHz) | Internal Oscillator(s) | LCD Control | A/D / D/A-Con-verter | DMA | Supply Voltage (V) | Packages |
| RL78/G10 | R5F10Y14 | 1K | 128 | 8 | Up to 1 serial channel: 1 x UART, 1 x CSI, 1 x I²C | – | – | WDT | 1 | 20 | 20MHz 15kHz | – | 4x 10-bit/- | – | 2.0 – 5.5 | 10-pin SSOP 4.4 x 3.6 |
| | R5F10Y16 | 2K | 256 | | | | | | | | | | | | | |
| | R5F10Y17* | 4K | 512 | | | | | | | | | | | | | |
| | R5F10Y44* | 1K | 128 | 14 | Up to 2 serial channel: 1 x UART, 2 x CSI, 1 x I2C and 1 x Multi-Master I2C | – | – | Interval timer x 1ch (15kHz), WDT | 3 | 20 | 20MHz 15kHz | – | 7x 10-bit/- | – | 2.0 – 5.5 | 16-pin SSOP 4.4 x 5.0 |
| | R5F10Y46* | 2K | 256 | | | | | | | | | | | | | |
| | R5F10Y47* | 4K | 512 | | | | | | | | | | | | | |
| RL78/G1C | R5F10JBC | 32K + 2K | 5.5K | 22 | Up to 2 serial channel: 1 x UART, 2 x CSI, 2 x I²C and 1 x Multi-Master I²C | – | 2 | Interval timer x 1ch (15kHz) RTC with calender, WDT | 3 | 24 | 24MHz 15kHz | – | 8x 10-bit/- | 2 | 2.4 – 5.5 | 32-pin, 7x7 LQFP 5x5 WQFN |
| | R5F10KBC | 32K + 2K | 5.5K | | | | 1 | | | | | | | | | |
| | R5F10JGC | 32K + 2K | 5.5K | 38 | | – | 2 | Interval timer x 1ch (15kHz /32.768kHz) RTC w/cal., WDT | 3 | 24 | 24MHz 15kHz | – | 8x 10-bit/- | 2 | 2.4 – 5.5 | 48-pin, 7x7 LQFP 7x7 WQFN |
| | R5F10KGC | 32K + 2K | 5.5K | | | | 1 | | | | | | | | | |
| RL78/G12 | R5F10266 | 2K + 2K | 256 | 18 | Up to 2 serial channel: 1 x UART, 2 x CSI, 2 x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) WDT | 4 | 24 | 24MHz 15kHz | – | 11x 10-bit/- | 2ch | 1.8 – 5.5 | 20-pin SSOP |
| | R5F10267 | 4K + 2K | 512 | | | | | | | | | | | | | |
| | R5F10268 | 8K + 2K | 768 | | | | | | | | | | | | | |
| | R5F10269 | 12K + 2K | 1K | | | | | | | | | | | | | |
| | R5F1026A | 16K + 2K | 1.5K | | | | | | | | | | | | | |
| | R5F10366 | 2K | 256 | 18 | Up to 2 serial channel: 1 x UART, 2 x CSI, 2 x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) WDT | 4 | 24 | 24MHz 15kHz | – | 11x 10-bit/- | 2ch | 1.8 – 5.5 | 20-pin SSOP |
| | R5F10367 | 4K | 512 | | | | | | | | | | | | | |
| | R5F10368 | 8K | 768 | | | | | | | | | | | | | |
| | R5F10369 | 12K | 1K | | | | | | | | | | | | | |
| | R5F1036A | 16K | 1.5K | | | | | | | | | | | | | |
| | R5F10277 | 4K + 2K | 512 | 22 | Up to 2 serial channel: 1 x UART, 2 x CSI, 2 x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) WDT | 4 | 24 | 24MHz 15kHz | – | 11x 10-bit/- | 2ch | 1.8 – 5.5 | 24-pin 4x4 WQFN |
| | R5F10278 | 8K + 2K | 768 | | | | | | | | | | | | | |
| | R5F10279 | 12K + 2K | 1K | | | | | | | | | | | | | |
| | R5F1027A | 16K + 2K | 1.5K | | | | | | | | | | | | | |
| | R5F10377 | 4K | 512 | 22 | Up to 2 serial channel: 1 x UART, 2 x CSI, 2 x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) WDT | 4 | 24 | 24MHz 15kHz | – | 11x 10-bit/- | 2ch | 1.8 – 5.5 | 24-pin 4x4 WQFN |
| | R5F10378 | 8K | 768 | | | | | | | | | | | | | |
| | R5F10379 | 12K | 1K | | | | | | | | | | | | | |
| | R5F1037A | 16K | 1.5K | | | | | | | | | | | | | |

| Device | | Memory | | Interfaces | | | | Peripherals | | | | | | | Miscellaneous | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | Part Number | Flash and Data Flash (Byte) | RAM (Byte) | I/O/Pins | CSI/ UARTs (LIN)/ I²C | CAN | USB | Special Timers | PWMs | Clock Speed (MHz) | Internal Oscillator(s) | LCD Control | A/D / D/A-Converter | DMA | Supply Voltage (V) | Packages |
| RL78/G12 | R5F102A7 | 4K + 2K | 512 | 26 | Up to 3 serial channel: 3 x UART, 3 x CSI, 3 x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) WDT | 4 | 24 | 24MHz 15kHz | – | 8x 10-bit/- | 2ch | 1.8 – 5.5 | 30-pin SSOP |
| | R5F102A8 | 8K + 2K | 768 | | | | | | | | | | | | | |
| | R5F102A9 | 12K + 2K | 1K | | | | | | | | | | | | | |
| | R5F102AA | 16K + 2K | 2K | | | | | | | | | | | | | |
| | R5F103A7 | 4K | 512 | 26 | Up to 3 serial channel: 3 x UART, 3 x CSI, 3 x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) WDT | 4 | 24 | 24MHz 15kHz | – | 8x 10-bit/- | 2ch | 1.8 – 5.5 | 30-pin SSOP |
| | R5F103A8 | 8K | 768 | | | | | | | | | | | | | |
| | R5F103A9 | 12K | 1K | | | | | | | | | | | | | |
| | R5F103AA | 16K | 2K | | | | | | | | | | | | | |
| RL78/G13 | R5F1006A | 16K + 4K | 2K | 16 | Up to 2 serial channel: 2x UART, 2 x CSI, 2 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 2 | 32 | 32MHz 15kHz | – | 6x 10-bit/- | 2ch | 1.6 – 5.5 | 20-pin SSOP |
| | R5F1006C | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F1006D | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F1006E | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F1016A | 16K | 2K | 16 | Up to 2 serial channel: 2x UART, 2 x CSI, 2 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 2 | 32 | 32MHz 15kHz | – | 6x 10-bit/- | 2ch | 1.6 – 5.5 | 20-pin SSOP |
| | R5F1016C | 32K | 2K | | | | | | | | | | | | | |
| | R5F1016D | 48K | 3K | | | | | | | | | | | | | |
| | R5F1016E | 64K | 4K | | | | | | | | | | | | | |
| | R5F1007A | 16K + 4K | 2K | 20 | Up to 2 serial channel: 2x UART, 2 x CSI, 2 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 6x 10-bit/- | 2ch | 1.6 – 5.5 | 24-pin 4x4 WQFN |
| | R5F1007C | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F1007D | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F1007E | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F1017A | 16K | 2K | 20 | Up to 2 serial channel: 2x UART, 2 x CSI, 2 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 6x 10-bit/- | 2ch | 1.6 – 5.5 | 24-pin 4x4 WQFN |
| | R5F1017C | 32K | 2K | | | | | | | | | | | | | |
| | R5F1017D | 48K | 3K | | | | | | | | | | | | | |
| | R5F1017E | 64K | 4K | | | | | | | | | | | | | |
| | R5F1008A | 16K + 4K | 2K | 21 | Up to 2 serial channel: 2x UART, 2 x CSI, 2 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 6x 10-bit/- | 2ch | 1.6 – 5.5 | 25-pin 3 x 3 FLGA |
| | R5F1008C | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F1008D | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F1008E | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F1018A | 16K | 2K | 21 | Up to 2 serial channel: 2x UART, 2 x CSI, 2 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 6x 10-bit/- | 2ch | 1.6 – 5.5 | 25-pin 3 x 3 FLGA |
| | R5F1018C | 32K | 2K | | | | | | | | | | | | | |
| | R5F1018D | 48K | 3K | | | | | | | | | | | | | |
| | R5F1018E | 64K | 4K | | | | | | | | | | | | | |
| | R5F100AA | 16K + 4K | 2K | 26 | Up to 3 serial channel: 3x UART, 3 x CSI, 3 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 8x 10-bit/- | 2ch | 1.6 – 5.5 | 30-pin SSOP |
| | R5F100AC | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F100AD | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F100AE | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F100AF | 96K + 8K | 8K | | | | | | | | | | | | | |
| | R5F100AG | 128K + 8K | 12K | | | | | | | | | | | | | |
| | R5F100BA | 16K + 4K | 2K | 26 | Up to 3 serial channel: 3x UART, 3 x CSI, 3 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 8x 10-bit/- | 2ch | 1.6 – 5.5 | 30-pin SSOP |
| | R5F100BC | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F100BD | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F100BE | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F100BF | 96K + 8K | 8K | | | | | | | | | | | | | |
| | R5F100BG | 128K + 8K | 12K | | | | | | | | | | | | | |
| | R5F101BA | 16K | 2K | 28 | Up to 3 serial channel: 3x UART, 3 x CSI, 3 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 8x 10-bit/- | 2ch | 1.6 – 5.5 | 32-pin 5x5 QFN |
| | R5F101BC | 32K | 2K | | | | | | | | | | | | | |
| | R5F101BD | 48K | 3K | | | | | | | | | | | | | |
| | R5F101BE | 64K | 4K | | | | | | | | | | | | | |
| | R5F101BF | 96K | 8K | | | | | | | | | | | | | |
| | R5F101BG | 128K | 12K | | | | | | | | | | | | | |
| | R5F100CA | 16K + 4K | 2K | 28 | Up to 3 serial channel: 3x UART, 3 x CSI, 3 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 8x 10-bit/- | 2ch | 1.6 – 5.5 | 32-pin 5x5 QFN |
| | R5F100CC | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F100CD | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F100CE | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F100CF | 96K + 8K | 8K | | | | | | | | | | | | | |
| | R5F100CG | 128K + 8K | 12K | | | | | | | | | | | | | |
| | R5F101CA | 16K | 2K | 32 | Up to 4 serial channel: 3x UART, 4 x CSI, 4 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 8x 10-bit/- | 2ch | 1.6 – 5.5 | 36-pin 4x4 FLGA |
| | R5F101CC | 32K | 2K | | | | | | | | | | | | | |
| | R5F101CD | 48K | 3K | | | | | | | | | | | | | |
| | R5F101CE | 64K | 4K | | | | | | | | | | | | | |
| | R5F101CF | 96K | 8K | | | | | | | | | | | | | |
| | R5F101CG | 128K | 12K | | | | | | | | | | | | | |
| | R5F101CA | 16 | 2K | 32 | Up to 4 serial channel: 3x UART, 4 x CSI, 4 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 8x 10-bit/- | 2ch | 1.6 – 5.5 | 36-pin 4x4 FLGA |
| | R5F101CC | 32 | 2K | | | | | | | | | | | | | |
| | R5F101CD | 48 | 3K | | | | | | | | | | | | | |
| | R5F101CE | 64 | 4K | | | | | | | | | | | | | |
| | R5F101CF | 96 | 8K | | | | | | | | | | | | | |
| | R5F101CG | 128 | 12K | | | | | | | | | | | | | |

| Device | | Memory | | Interfaces | | | | Peripherals | | | | | | | Miscellaneous | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | Part Number | Flash and Data Flash (Byte) | RAM (Byte) | I/O/Pins | CSI/ UARTs (LIN)/ I²C | CAN | USB | Special Timers | PWMs | Clock Speed (MHz) | Internal Oscillator(s) | LCD Control | A/D / D/A-Converter | DMA | Supply Voltage (V) | Packages |
| RL78/G13 | R5F100EA | 16K + 4K | 2K | 36 | Up to 4 serial channel: 3x UART, 4 x CSI, 4 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 9x 10-bit/- | 2ch | 1.6 – 5.5 | 40-pin 6 x 6 WQFN |
| | R5F100EC | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F100ED | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F100EE | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F100EF | 96K + 8K | 8K | | | | | | | | | | | | | |
| | R5F100EG | 128K + 8K | 12K | | | | | | | | | | | | | |
| | R5F100EH | 192K + 8K | 16K | | | | | | | | | | | | | |
| | R5F101EA | 16K | 2K | 36 | Up to 4 serial channel: 3x UART, 4 x CSI, 4 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 3 | 32 | 32MHz 15kHz | – | 9x 10-bit/- | 2ch | 1.6 – 5.5 | 40-pin 6 x 6 WQFN |
| | R5F101EC | 32K | 2K | | | | | | | | | | | | | |
| | R5F101ED | 48K | 3K | | | | | | | | | | | | | |
| | R5F101EE | 64K | 4K | | | | | | | | | | | | | |
| | R5F101EF | 96K | 8K | | | | | | | | | | | | | |
| | R5F101EG | 128K | 12K | | | | | | | | | | | | | |
| | R5F101EH | 192K | 16K | | | | | | | | | | | | | |
| | R5F100FA | 16K + 4K | 2K | 40 | Up to 4 serial channel: 3x UART, 4 x CSI, 4 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 4 | 32 | 32MHz 15kHz | – | 10x 10-bit/- | 2ch | 1.6 – 5.5 | 44-pin 10x10 LQFP |
| | R5F100FC | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F100FD | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F100FE | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F100FF | 96K + 8K | 8K | | | | | | | | | | | | | |
| | R5F100FG | 128K + 8K | 12K | | | | | | | | | | | | | |
| | R5F100FH | 192K + 8K | 16K | | | | | | | | | | | | | |
| | R5F100FJ | 256K + 8K | 20K | | | | | | | | | | | | | |
| | R5F100FK | 384K + 8K | 24K | | | | | | | | | | | | | |
| | R5F100FL | 512K + 8K | 32K | | | | | | | | | | | | | |
| | R5F101FA | 16K | 2K | 40 | Up to 4 serial channel: 3x UART, 4 x CSI, 4 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 4 | 32 | 32MHz 15kHz | – | 10x 10-bit/- | 2ch | 1.6 – 5.5 | 44-pin 10x10 LQFP |
| | R5F101FC | 32K | 2K | | | | | | | | | | | | | |
| | R5F101FD | 48K | 3K | | | | | | | | | | | | | |
| | R5F101FE | 64K | 4K | | | | | | | | | | | | | |
| | R5F101FF | 96K | 8K | | | | | | | | | | | | | |
| | R5F101FG | 128K | 12K | | | | | | | | | | | | | |
| | R5F101FH | 192K | 16K | | | | | | | | | | | | | |
| | R5F101FJ | 256K | 20K | | | | | | | | | | | | | |
| | R5F101FK | 384K | 24K | | | | | | | | | | | | | |
| | R5F101FL | 512K | 32K | | | | | | | | | | | | | |
| | R5F100GA | 16K + 4K | 2K | 44 | Up to 5 serial channel: 3x UART, 5 x CSI, 5 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 4 | 32 | 32MHz 15kHz | – | 10x 10-bit/- | 2ch | 1.6 – 5.5 | 48-pin 7x7 LQFP 7x7 WQFN |
| | R5F100GC | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F100GD | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F100GE | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F100GF | 96K + 8K | 8K | | | | | | | | | | | | | |
| | R5F100GG | 128K + 8K | 12K | | | | | | | | | | | | | |
| | R5F100GH | 192K + 8K | 16K | | | | | | | | | | | | | |
| | R5F100GJ | 256K + 8K | 20K | | | | | | | | | | | | | |
| | R5F100GK | 384K + 8K | 24K | | | | | | | | | | | | | |
| | R5F100GL | 512K + 8K | 32K | | | | | | | | | | | | | |
| | R5F101GA | 16K | 2K | 44 | Up to 5 serial channel: 3x UART, 5 x CSI, 5 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 4 | 32 | 32MHz 15kHz | – | 10x 10-bit/- | 2ch | 1.6 – 5.5 | 48-pin 7x7 LQFP 7x7 WQFN |
| | R5F101GC | 32K | 2K | | | | | | | | | | | | | |
| | R5F101GD | 48K | 3K | | | | | | | | | | | | | |
| | R5F101GE | 64K | 4K | | | | | | | | | | | | | |
| | R5F101GF | 96K | 8K | | | | | | | | | | | | | |
| | R5F101GG | 128K | 12K | | | | | | | | | | | | | |
| | R5F101GH | 192K | 16K | | | | | | | | | | | | | |
| | R5F101GJ | 256K | 20K | | | | | | | | | | | | | |
| | R5F101GK | 384K | 24K | | | | | | | | | | | | | |
| | R5F101GL | 512K | 32K | | | | | | | | | | | | | |
| | R5F100JC | 32K + 4K | 2K | 48 | Up to 5 serial channel: 3x UART, 5 x CSI, 5 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 4 | 32 | 32MHz 15kHz | – | 12x 10-bit/- | 2ch | 1.6 – 5.5 | 52-pin 10x10 LQFP |
| | R5F100JD | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F100JE | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F100JF | 96K + 8K | 8K | | | | | | | | | | | | | |
| | R5F100JG | 128K + 8K | 12K | | | | | | | | | | | | | |
| | R5F100JH | 192K + 8K | 16K | | | | | | | | | | | | | |
| | R5F100JJ | 256K + 8K | 20K | | | | | | | | | | | | | |
| | R5F100JK | 384K + 8K | 24K | | | | | | | | | | | | | |
| | R5F100JL | 512K + 8K | 32K | | | | | | | | | | | | | |

| Device | | Memory | | Interfaces | | | | Peripherals | | | | | | | Miscellaneous | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | Part Number | Flash and Data Flash (Byte) | RAM (Byte) | I/O/Pins | CSI/ UARTs (LIN)/ I²C | CAN | USB | Special Timers | PWMs | Clock Speed (MHz) | Internal Oscillator(s) | LCD Control | A/D / D/A-Converter | DMA | Supply Voltage (V) | Packages |
| RL78/G13 | R5F101JC | 32K | 2K | 48 | Up to 5 serial channel: 3x UART, 5 x CSI, 5 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 4 | 32 | 32MHz 15kHz | – | 12x 10-bit/- | 2ch | 1.6 – 5.5 | 52-pin 10x10 LQFP |
| | R5F101JD | 48K | 3K | | | | | | | | | | | | | |
| | R5F101JE | 64K | 4K | | | | | | | | | | | | | |
| | R5F101JF | 96K | 8K | | | | | | | | | | | | | |
| | R5F101JG | 128K | 12K | | | | | | | | | | | | | |
| | R5F101JH | 192K | 16K | | | | | | | | | | | | | |
| | R5F101JJ | 256K | 20K | | | | | | | | | | | | | |
| | R5F101JK | 384K | 24K | | | | | | | | | | | | | |
| | R5F101JL | 512K | 32K | | | | | | | | | | | | | |
| | R5F100LC | 32K + 4K | 2K | 58 | Up to 6 serial channel: 3x UART, 6 x CSI, 6 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 7 | 32 | 32MHz 15kHz | – | 12x 10-bit/- | 2ch | 1.6 – 5.5 | 64-pin 7x7 LQFP 10x10 LQFP 12x12 LQFP 4x4 FBGA |
| | R5F100LD | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F100LE | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F100LF | 96K + 8K | 8K | | | | | | | | | | | | | |
| | R5F100LG | 128K + 8K | 12K | | | | | | | | | | | | | |
| | R5F100LH | 192K + 8K | 16K | | | | | | | | | | | | | |
| | R5F100LJ | 256K + 8K | 20K | | | | | | | | | | | | | |
| | R5F100LK | 384K + 8K | 24K | | | | | | | | | | | | | |
| | R5F100LL | 512K + 8K | 32K | | | | | | | | | | | | | |
| | R5F101LC | 32K | 2K | 58 | Up to 6 serial channel: 3x UART, 6 x CSI, 6 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 7 | 32 | 32MHz 15kHz | – | 12x 10-bit/- | 2ch | 1.6 – 5.5 | 64-pin 7x7 LQFP 10x10 LQFP 12x12 LQFP 4x4 FBGA |
| | R5F101LD | 48K | 3K | | | | | | | | | | | | | |
| | R5F101LE | 64K | 4K | | | | | | | | | | | | | |
| | R5F101LF | 96K | 8K | | | | | | | | | | | | | |
| | R5F101LG | 128K | 12K | | | | | | | | | | | | | |
| | R5F101LH | 192K | 16K | | | | | | | | | | | | | |
| | R5F101LJ | 256K | 20K | | | | | | | | | | | | | |
| | R5F101LK | 384K | 24K | | | | | | | | | | | | | |
| | R5F101LL | 512K | 32K | | | | | | | | | | | | | |
| | R5F100MF | 96K + 8K | 8K | 74 | Up to 8 serial channel: 4 x UART, 8 x CSI, 8 x SPI | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 10 | 32 | 32MHz 15kHz | – | 17x 10-bit/- | 2ch | 1.6 – 5.5 | 80-pin 12x12 LQFP 14x14 LQFP |
| | R5F100MG | 128K + 8K | 12K | | | | | | | | | | | | | |
| | R5F100MH | 192K + 8K | 16K | | | | | | | | | | | | | |
| | R5F100MJ | 256K + 8K | 20K | | | | | | | | | | | | | |
| | R5F100MK | 384K + 8K | 24K | | | | | | | | | | | | | |
| | R5F100ML | 512K + 8K | 32K | | | | | | | | | | | | | |
| | R5F101MF | 96K | 8K | 74 | Up to 8 serial channel: 4 x UART, 8 x CSI, 8 x SPI | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 10 | 32 | 32MHz 15kHz | – | 17x 10-bit/- | 2ch | 1.6 – 5.5 | 80-pin 12x12 LQFP 14x14 LQFP |
| | R5F101MG | 128K | 12K | | | | | | | | | | | | | |
| | R5F101MH | 192K | 16K | | | | | | | | | | | | | |
| | R5F101MJ | 256K | 20K | | | | | | | | | | | | | |
| | R5F101MK | 384K | 24K | | | | | | | | | | | | | |
| | R5F101ML | 512K | 32K | | | | | | | | | | | | | |
| | R5F100PF | 96K + 8K | 8K | 92 | Up to 8 serial channel: 4 x UART, 8 x CSI, 8 x SPI | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 12 | 32 | 32MHz 15kHz | – | 20x 10-bit/- | 2ch | 1.6 – 5.5 | 100-pin 12x12 LQFP 14x20 LQFP |
| | R5F100PG | 128K + 8K | 12K | | | | | | | | | | | | | |
| | R5F100PH | 192K + 8K | 16K | | | | | | | | | | | | | |
| | R5F100PJ | 256K + 8K | 20K | | | | | | | | | | | | | |
| | R5F100PK | 384K + 8K | 24K | | | | | | | | | | | | | |
| | R5F100PL | 512K + 8K | 32K | | | | | | | | | | | | | |
| | R5F101PF | 96K | 8K | 92 | Up to 8 serial channel: 4 x UART, 8 x CSI, 8 x SPI | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 12 | 32 | 32MHz 15kHz | – | 20x 10-bit/- | 2ch | 1.6 – 5.5 | 100-pin 12x12 LQFP 14x20 LQFP |
| | R5F101PG | 128K | 12K | | | | | | | | | | | | | |
| | R5F101PH | 192K | 16K | | | | | | | | | | | | | |
| | R5F101PJ | 256K | 20K | | | | | | | | | | | | | |
| | R5F101PK | 384K | 24K | | | | | | | | | | | | | |
| | R5F101PL | 512K | 32K | | | | | | | | | | | | | |
| | R5F100SH | 192K + 8K | 16K | 120 | Up to 8 serial channel: 4 x UART, 8 x CSI, 8 x SPI | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 16 | 32 | 32MHz 15kHz | – | 26x 10-bit/- | 2ch | 1.6 – 5.5 | 128-pin 14 x 20 LQFP |
| | R5F100SJ | 256K + 8K | 20K | | | | | | | | | | | | | |
| | R5F100SK | 384K + 8K | 24K | | | | | | | | | | | | | |
| | R5F100SL | 512K + 8K | 32K | | | | | | | | | | | | | |
| | R5F101SH | 192K | 16K | 120 | Up to 8 serial channel: 4 x UART, 8 x CSI, 8 x SPI | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 16 | 32 | 32MHz 15kHz | – | 26x 10-bit/- | 2ch | 1.6 – 5.5 | 128-pin 14 x 20 LQFP |
| | R5F101SJ | 256K | 20K | | | | | | | | | | | | | |
| | R5F101SK | 384K | 24K | | | | | | | | | | | | | |
| | R5F101SL | 512K | 32K | | | | | | | | | | | | | |
| RL78/G14 | R5F104AA | 16K + 4K | 2.5K | 26 | Up to 3 serial channel: 3 x UART, 3x CSI, 3x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender Watchdog Timer 3ph Motor Control Timer | 10 | 32 | 64MHz 15kHz | – | 8x 10-bit/ 1x 8-bit | DTC 31 sources | 1.6 – 5.5 | 30-pin SSOP |
| | R5F104AC | 32K + 4K | 4K | | | | | | | | | | | | | |
| | R5F104AD | 48K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104AE | 64K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104AF | 96K + 8K | 12K | | | | | | | | | | | | | |
| | R5F104AG | 128K + 8K | 16K | | | | | | | | | | | | | |
| | R5F104BA | 16K + 4K | 2.5K | 28 | Up to 3 serial channel: 3 x UART, 3x CSI, 3x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender Watchdog Timer 3ph Motor Control Timer | 10 | 32 | 64MHz 15kHz | – | 8x 10-bit/ 2x 8-bit | DTC 31 sources | 1.6 – 5.5 | 32-pin 5 x5 WQFN 7x7LQFP |
| | R5F104BC | 32K + 4K | 4K | | | | | | | | | | | | | |
| | R5F104BD | 48K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104BE | 64K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104BF | 96K + 8K | 12K | | | | | | | | | | | | | |
| | R5F104BG | 128K + 8K | 16K | | | | | | | | | | | | | |

| Device | | Memory | | Interfaces | | | | Peripherals | | | | | | | Miscellaneous | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | Part Number | Flash and Data Flash (Byte) | RAM (Byte) | I/O/Pins | CSI/ UARTs (LIN)/ I²C | CAN | USB | Special Timers | PWMs | Clock Speed (MHz) | Internal Oscillator(s) | LCD Control | A/D / D/A-Converter | DMA | Supply Voltage (V) | Packages |
| RL78/G14 | R5F104CA | 16K + 4K | 2.5K | 32 | Up to 4 serial channel: 3 x UART, 4x CSI, 4x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender Watchdog Timer 3ph Motor Control Timer | 10 | 32 | 64MHz 15kHz | – | 8x 10-bit/ 2x 8-bit | DTC 31 sources | 1.6 – 5.5 | 36-pin 4x4FLGA |
| | R5F104CC | 32K + 4K | 4K | | | | | | | | | | | | | |
| | R5F104CD | 48K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104CE | 64K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104CF | 96K + 8K | 12K | | | | | | | | | | | | | |
| | R5F104CG | 128K + 8K | 16K | | | | | | | | | | | | | |
| | R5F104EA | 16K + 4K | 2.5K | 36 | Up to 4 serial channel: 3 x UART, 4x CSI, 4x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender Watchdog Timer 3ph Motor Control Timer | 10 | 32 | 64MHz 15kHz | – | 9x 10-bit/ 2x 8-bit | DTC 31 sources | 1.6 – 5.5 | 40-pin 6x6WQFN |
| | R5F104EC | 32K + 4K | 4K | | | | | | | | | | | | | |
| | R5F104ED | 48K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104EE | 64K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104EF | 96K + 8K | 12K | | | | | | | | | | | | | |
| | R5F104EG | 128K + 8K | 16K | | | | | | | | | | | | | |
| | R5F104FG | 192K + 8K | 20K | | | | | | | | | | | | | |
| | R5F104FA | 16K + 4K | 2.5K | 40 | Up to 4 serial channel: 3 x UART, 4x CSI, 4x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender Watchdog Timer 3ph Motor Control Timer | 10 | 32 | 64MHz 15kHz | – | 10x 10-bit/ 2x 8-bit | DTC 31 sources | 1.6 – 5.5 | 44-pin 10x10 LQFP |
| | R5F104FC | 32K + 4K | 4K | | | | | | | | | | | | | |
| | R5F104FD | 48K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104FE | 64K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104FF | 96K + 8K | 12K | | | | | | | | | | | | | |
| | R5F104FG | 128K + 8K | 16K | | | | | | | | | | | | | |
| | R5F104FH | 192K + 8K | 20K | | | | | | | | | | | | | |
| | R5F104FJ | 256K + 8K | 24K | | | | | | | | | | | | | |
| | R5F104GA | 16K + 4K | 2.5K | 44 | Up to 5 serial channel: 3 x UART, 5x CSI, 5x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender Watchdog Timer 3ph Motor Control Timer | 10 | 32 | 64MHz 15kHz | – | 10x 10-bit/ 2x 8-bit | DTC 31 sources | 1.6 – 5.5 | 48-pin 7x7 LQFP 7x7 WQFN |
| | R5F104GC | 32K + 4K | 4K | | | | | | | | | | | | | |
| | R5F104GD | 48K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104GE | 64K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104GF | 96K + 8K | 12K | | | | | | | | | | | | | |
| | R5F104GG | 128K + 8K | 16K | | | | | | | | | | | | | |
| | R5F104GH | 192K + 8K | 20K | | | | | | | | | | | | | |
| | R5F104GJ | 256K + 8K | 24K | | | | | | | | | | | | | |
| | R5F104JC | 32K + 4K | 4K | 48 | Up to 5 serial channel: 3 x UART, 5x CSI, 5x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender Watchdog Timer 3ph Motor Control Timer | 10 | 32 | 64MHz 15kHz | – | 12x 10-bit/ 2x 8-bit | DTC 31 sources | 1.6 – 5.5 | 52-pin 10x10 LQFP |
| | R5F104JD | 48K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104JE | 64K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104JF | 96K + 8K | 12K | | | | | | | | | | | | | |
| | R5F104JG | 128K + 8K | 16K | | | | | | | | | | | | | |
| | R5F104JH | 192K + 8K | 20K | | | | | | | | | | | | | |
| | R5F104JJ | 256K + 8K | 24K | | | | | | | | | | | | | |
| | R5F104LC | 32K + 4K | 4K | 58 | Up to 6 serial channel: 3 x UART, 6x CSI, 6x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender Watchdog Timer 3ph Motor Control Timer | 10 | 32 | 64MHz 15kHz | – | 12x 10-bit/ 2x 8-bit | DTC 31 sources | 1.6 – 5.5 | 64-pin 10x10 LQFP 12x12 LQFP 14x14 LQFP 5x5 FLGA |
| | R5F104LD | 48K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104LE | 64K + 4K | 5.5K | | | | | | | | | | | | | |
| | R5F104LF | 96K + 8K | 12K | | | | | | | | | | | | | |
| | R5F104LG | 128K + 8K | 16K | | | | | | | | | | | | | |
| | R5F104LH | 192K + 8K | 20K | | | | | | | | | | | | | |
| | R5F104LJ | 256K + 8K | 24K | | | | | | | | | | | | | |
| | R5F104MF | 96K + 8K | 12K | 74 | Up to 8 serial channel: 4 x UART, 8x CSI, 8x I²C and 2 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender Watchdog Timer 3ph Motor Control Timer | 13 | 32 | 64MHz 15kHz | – | 17x 10-bit/ 2x 8-bit | DTC 39 sources | 1.6 – 5.5 | 80-pin 12x12 LQFP 14x14 LQFP |
| | R5F104MG | 128K + 8K | 16K | | | | | | | | | | | | | |
| | R5F104MH | 192K + 8K | 20K | | | | | | | | | | | | | |
| | R5F104MJ | 256K + 8K | 24K | | | | | | | | | | | | | |
| | R5F104PF | 96K + 8K | 12K | 92 | Up to 8 serial channel: 4 x UART, 8x CSI, 8x I²C and 2 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender Watchdog Timer 3ph Motor Control Timer | 13 | 32 | 64MHz 15kHz | – | 20x 10-bit/ 2x 8-bit | DTC 39 sources | 1.6 – 5.5 | 100-pin 14x14 LQFP 14x20 LQFP |
| | R5F104PG | 128K + 8K | 16K | | | | | | | | | | | | | |
| | R5F104PH | 192K + 8K | 20K | | | | | | | | | | | | | |
| | R5F104PJ | 256K + 8K | 24K | | | | | | | | | | | | | |
| RL78/G1A | R5F10E8A | 16K + 4K | 2K | 19 | Up to 2 serial channel: 2 x UART, 2 x CSI, 2 x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender Watchdog Timer | 1 | 32 | 32MHz 15kHz | – | 13x 12-bit/- | 2ch | 1.6 – 3.6 | 25-pin 3 x 3 FLGA |
| | R5F10E8C | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F10E8D | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F10E8E | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F10EBA | 16K + 4K | 2K | 26 | Up to 3 serial channel: 3 x UART, 3 x CSI, 3 x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender Watchdog Timer | 1 | 32 | 32MHz 15kHz | – | 18x 12-bit/- | 2ch | 1.6 – 3.6 | 32-pin 5 x 5 WQFN |
| | R5F10EBC | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F10EBD | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F10EBE | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F10EGA | 16K + 4K | 2K | 44 | Up to 5 serial channel: 3 x UART, 5 x CSI, 5 x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender Watchdog Timer | 3 | 32 | 32MHz 15kHz | – | 24x 12-bit/- | 2ch | 1.6 – 3.6 | 48-pin 7 x 7 LQFP 7 x7 WQFN |
| | R5F10EGC | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F10EGD | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F10EGE | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F10ELA | 16K + 4K | 2K | 56 | Up to 6 serial channel: 3 x UART, 6 x CSI, 6 x I²C and 1 x Multi-Master I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender Watchdog Timer | 6 | 32 | 32MHz 15kHz | – | 28x 12-bit/- | 2ch | 1.6 – 3.6 | 64-pin 10 x 10 LQFP 4 x 4 FBGA |
| | R5F10ELC | 32K + 4K | 2K | | | | | | | | | | | | | |
| | R5F10ELD | 48K + 4K | 3K | | | | | | | | | | | | | |
| | R5F10ELE | 64K + 4K | 4K | | | | | | | | | | | | | |

| Device | | Memory | | Interfaces | | | | Peripherals | | | | | | | Miscellaneous | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | Part Number | Flash and Data Flash (Byte) | RAM (Byte) | I/O/Pins | CSI/ UARTs (LIN)/ I²C | CAN | USB | Special Timers | PWMs | Clock Speed (MHz) | Internal Oscillator(s) | LCD Control | A/D / D/A-Con-verter | DMA | Supply Voltage (V) | Packages |
| RL78/I1A (ASSP) | R5F1076C | 32K + 4K | 2K | 16 | 1 x UART/ DMX512, 1 x UART/DALI, I²C | – | – | Interval timer x 1ch Watchdog 16-bit Burst Dimmer | 7 | 32 | 64MHz 15kHz | – | 6 /- | 2ch | 2.7 – 5.5 | 20-pin SSOP 6.1x6.5mm; 0.65 |
| | R5F107AE | 32K + 4K | 2K | 26 | 2 x UART/ DMX512, 1 x UART/DALI, I²C | – | – | Interval timer x 1ch Watchdog 16-bit Burst Dimmer | 13 | 32 | 64MHz 15kHz | – | 11 /- | 2ch | 2.7 – 5.5 | 30-pin SSOP 6.1x9.7mm; 0.65 |
| | R5F107AC | 64K + 4K | 4K | | | | | | | | | | | | | |
| | R5F107DE | 32K + 4K | 4K | 34 | 2 x UART/ DMX512, 1 x CSI, 1 x UART/DALI, I²C | – | – | Interval timer x 1ch Watchdog 16-bit Burst Dimmer | 15 | 32 | 64MHz 15kHz | – | 11 /- | 2ch | 2.7 – 5.5 | 38-pin SSOP 6.1x12.3mm; 0.65 |
| RL78/L12 | R5F10RB8 | 8K + 2K | 1K | 20 | Up to 2 serial channel: 1 x UART, 2x CSI, 1 x I²C | – | – | Interval timer x 1ch (15kHz) RTC with calender, WDT | 3 | 24 | 24MHz 15kHz | 35x8 | 4 x 10-bit | 2ch | 1.6 – 5.5 | 32-pin 7 x7 LQFP |
| | R5F10RBA | 16K + 2K | 1K | | | | | | | | | | | | | |
| | R5F10RBC | 32K + 2K | 1.5K | | | | | | | | | | | | | |
| | R5F10RF8 | 8K + 2K | 1K | 29 | Up to 2 serial channel: 1 x UART, 2x CSI, 1 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender, WDT | 4 | 24 | 24MHz 15kHz | 35x8 | 7 x 10-bit | 2ch | 1.6 – 5.5 | 44-pin 10 x 10 LQFP |
| | R5F10RFA | 16K + 2K | 1K | | | | | | | | | | | | | |
| | R5F10RFC | 32K + 2K | 1.5K | | | | | | | | | | | | | |
| | R5F10RG8 | 8K + 2K | 1K | 33 | Up to 2 serial channel: 1 x UART, 2x CSI, 1 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender, WDT | 5 | 24 | 24MHz 15kHz | 35x8 | 9 x 10-bit | 2ch | 1.6 – 5.5 | 48-pin 7 x 7 LQFP |
| | R5F10RGA | 16K + 2K | 1K | | | | | | | | | | | | | |
| | R5F10RGC | 32K + 2K | 1.5K | | | | | | | | | | | | | |
| | R5F10RJ8 | 8K + 2K | 1K | 37 | Up to 2 serial channel: 1 x UART, 2x CSI, 1 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender, WDT | 7 | 24 | 24MHz 15kHz | 35x8 | 10 x 10-bit | 2ch | 1.6 – 5.5 | 52-pin 10 x 10 LQFP |
| | R5F10RJA | 16K + 2K | 1K | | | | | | | | | | | | | |
| | R5F10RJC | 32K + 2K | 1.5K | | | | | | | | | | | | | |
| | R5F10RLA | 16K + 2K | 1K | 47 | Up to 2 serial channel: 1 x UART, 2x CSI, 1 x I²C | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender, WDT | 7 | 24 | 24MHz 15kHz | 35x8 | 10 x 10-bit | 2ch | 1.6 – 5.5 | 64-pin 8 x 8 WQFN 10 x 10 LQFP 12 x 12 LQFP |
| | R5F10RLC | 32K + 2K | 1.5K | | | | | | | | | | | | | |
| RL78/L13 | R5F10WLA | 16K+2K | 1K | 49 | Up to 3 serial channel: 2x UART/CSI/simple I²C, 1 x I²C Multi-Master, 1xUART | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 10 | 24 | 48MHz 15kHz | 48x8 | 12x 10-bit/ 2x 8-bit | 2ch | 1.6 – 5.5 | 64-pin LQFP 10x10 LQFP 12x12 |
| | R5F10WLC | 32K+2K | 1.5K | | | | | | | | | | | | | |
| | R5F10WLD | 48K+2K | 2K | | | | | | | | | | | | | |
| | R5F10WLE | 64K+2K | 4K | | | | | | | | | | | | | |
| | R5F10WLF | 96K+2K | 6K | | | | | | | | | | | | | |
| | R5F10WLG | 128K+2K | 8K | | | | | | | | | | | | | |
| | R5F10WMA | 16K+2K | 1K | 65 | Up to 4 serial channel: 2x UART/CSI/simple I²C, 1 x I²C Multi-Master, 2xUART | – | – | Interval timer x 1ch (15kHz/32.768kHz) RTC with calender WDT | 10 | 24 | 48MHz 15kHz | 48x8 | 12x 10-bit/ 2x 8-bit | 2ch | 1.6 – 5.5 | 80-pin LQFP 12x12 LQFP 14x14 |
| | R5F10WMC | 32K+2K | 1.5K | | | | | | | | | | | | | |
| | R5F10WMD | 48K+2K | 2K | | | | | | | | | | | | | |
| | R5F10WME | 64K+2K | 4K | | | | | | | | | | | | | |
| | R5F10WMF | 96K+2K | 6K | | | | | | | | | | | | | |
| | R5F10WMG | 128K+2K | 8K | | | | | | | | | | | | | |
| RL78/L1C | R5F110ME | 64K+8K | 8K | 59 | Up to 4 serial channel: 4 x UART/CSI/simple I2C and 1 x Multi-Master I2C | – | 1 | Interval timer x 1ch (15kHz/32.768kHz), RTC with calender, WDT | 13 | 24 | 48MHz 15kHz | 40x8 | 9x 12-bit/ 2x 8-bit | DTC 32 sources | 1.6 – 3.6 | 80-pin LQFP 12x12 |
| | R5F110MF | 96K+8K | 10K | | | | | | | | | | | | | |
| | R5F110MG | 128K+8K | 12K | | | | | | | | | | | | | |
| | R5F110MH | 192K+8K | 16K | | | | | | | | | | | | | |
| | R5F110MJ | 256K+8K | 16K | | | | | | | | | | | | | |
| | R5F110PE | 64K+8K | 8K | 77 | Up to 4 serial channel: 4 x UART/CSI/simple I2C and 1 x Multi-Master I2C | – | 1 | Interval timer x 1ch (15kHz/32.768kHz), RTC with calender, WDT | 13 | 24 | 48MHz 15kHz | 52x8 | 13x 12-bit/ 2x 8-bit | DTC 33 sources | 1.6 – 3.6 | 100-pin LQFP 14x14 |
| | R5F110PF | 96K+8K | 10K | | | | | | | | | | | | | |
| | R5F110PG | 128K+8K | 12K | | | | | | | | | | | | | |
| | R5F110PH | 192K+8K | 16K | | | | | | | | | | | | | |
| | R5F110PJ | 256K+8K | 16K | | | | | | | | | | | | | |
| | R5F111ME | 64K+8K | 8K | 63 | Up to 4 serial channel: 4 x UART/CSI/simple I2C and 1 x Multi-Master I2C | – | – | Interval timer x 1ch (15kHz/32.768kHz), RTC with calender, WDT | 13 | 24 | 48MHz 15kHz | 40x8 | 9x 12-bit/ 2x 8-bit | DTC 30 sources | 1.6 – 3.6 | 80-pin LQFP 12x12 |
| | R5F111MF | 96K+8K | 10K | | | | | | | | | | | | | |
| | R5F111MG | 128K+8K | 12K | | | | | | | | | | | | | |
| | R5F111MH | 192K+8K | 16K | | | | | | | | | | | | | |
| | R5F111MJ | 256K+8K | 16K | | | | | | | | | | | | | |
| | R5F111PE | 64K+8K | 8K | 81 | Up to 4 serial channel: 4 x UART/CSI/simple I2C and 1 x Multi-Master I2C | – | – | Interval timer x 1ch (15kHz/32.768kHz), RTC with calender, WDT | 13 | 24 | 48MHz 15kHz | 52x8 | 13x 12-bit/ 2x 8-bit | DTC 31 sources | 1.6 – 3.6 | 100-pin LQFP 14x14 |
| | R5F111PF | 96K+8K | 10K | | | | | | | | | | | | | |
| | R5F111PG | 128K+8K | 12K | | | | | | | | | | | | | |
| | R5F111PH | 192K+8K | 16K | | | | | | | | | | | | | |
| | R5F111PJ | 256K+8K | 16K | | | | | | | | | | | | | |

## Part Number Guide

Example shown here: RL78/G13 (20-pin), Part number R5F1006EASP#V0

R5 F 1 00 6 E □ A SP #V 0

- R5: Renesas MCU
- F: ROM Type (F = Flash)
- 1: RL78 Series
- 00: Product Group
- 6: Pin Count
- E: ROM Size (KB)
- □: Rev. (Optional)
- A: Temperature & Quality Grade
- SP: Package
- #V: Packaging, Material (Pb-free)
- 0: Production Level

**Product Group**

| | | |
|---|---|---|
| 00 | G13 | Data Flash |
| 01 | G13 | No Data Flash |
| 02 | G12 | Data Flash |
| 03 | G12 | No Data Flash |
| 04 | G14 | Data Flash |
| 07 | I1A | Data Flash |
| 0E | G1A | Data Flash |
| 0J | G1C | Data Flash |
| 0K | G1C | Data Flash |
| 0R | L12 | Data Flash |
| 0W | L13 | Data Flash |
| 0Y | G10 | No Data Flash |
| 10 | L1C | Data Flash |
| 11 | L1C | Data Flash |

**Pin Count**

| | |
|---|---|
| 1 | 10 |
| 6 | 20 |
| 7 | 24 |
| 8 | 25 |
| A | 30 |
| B | 32 |
| C | 36 |
| D | 38 |
| E | 40 |
| F | 44 |
| G | 48 |
| J | 52 |
| L | 64 |
| M | 80 |
| P | 100 |
| S | 128 |

**ROM Size (KB)**

| | |
|---|---|
| 4 | 1 |
| 6 | 2 |
| 7 | 4 |
| 8 | 8 |
| 9 | 12 |
| A | 16 |
| C | 32 |
| D | 48 |
| E | 64 |
| F | 96 |
| G | 128 |
| H | 192 |
| J | 256 |
| K | 384 |
| L | 512 |

**Temperature & Quality Grade**

| | | |
|---|---|---|
| A | -40°C to +85°C | (Consumer) |
| D | -40°C to +85°C | (Industrial) |
| G | -40°C to +105°C | (Industrial) |
| J | -40°C to +85°C | (Automotive) |
| K | -40°C to +125°C | (Automotive) |

**Package**

| | | | |
|---|---|---|---|
| SP | SSOP | FP | QFP |
| NA | QFN | FB | QFP 0.5mm |
| LA | LGA | FA | QFP 0.65mm |
| BG | BGA 0.4mm | FC | QFP 0.4mm |

**Packaging, Material (Pb-free)**

| | | | |
|---|---|---|---|
| #Y | Tray | – | Pre-MP |
| #V, #3 | Tray | Sn (Tin) only | MP |
| #U | Tray | SnCu and others | MP |
| #X, #5 | T&R | Sn (Tin) only | MP |
| #W | T&R | SnCu and others | MP |

**Production Level**

| | |
|---|---|
| W | WS (Working Sample) |
| E | ES (Engineering Sample) |
| C | CS (Consumer Sample) |
| 0 | MP (Mass Production) |

# Getting Started with RL78 MCUs is Easy!

Renesas Electronics has made embedded design with the RL78 microcontroller family as easy as possible.

An extensive ecosystem for RL78, including training, free evaluation boards (Renesas Promotion Boards), low-cost starter kits and multiple application notes, aid the embedded system designer to develop the world's lowest power designs.

### sg.renesas.com/RL78

- Keep up to date with the RL78 Family
- RL78 MCU search facility
- Full data & application notes
- Hardware and software guides and free downloads
- Sales and support information

Low Power

Scalable RL78

Efficient

### RL78 Promotion Board

- Learn about RL78 key features
- A complete GUI based control
- Software examples
- Development environment

Before purchasing or using any Renesas Electronics products listed herein, please refer to the latest product manual and/or data sheet in advance.


RENESAS

sg.renesas.com

Renesas Electronics Singapore Pte.Ltd. | Tel: +65 6213 0200
80 Bendemeer Road #06-02 Hyflux Innovation Centre, Singapore 339949.

Renesas Electronics Malaysia Sdn. Bhd. | Tel: +60 3 7955 9390
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, Petaling Jaya, 46050 Selangor, Malaysia.

Renesas Electronics Singapore Pte. Ltd. India Branch | Tel: +91 80 6720 8700
777C, 100 Feet Road, HAL II Stage, Indiranagar, Bangalore 560038, India


Find us on Facebook — facebook.com/RenesasSingapore

YouTube — youtube.com/RenesasPresents

MyRenesas — sg.renesas.com/MyRenesas/

RenesasRulz.com — RenesasRulz.com

Renesas Interactive — RenesasInteractive.com

© 2014 Renesas Electronics Singapore Pte. Ltd. All rights reserved. Printed in Singapore. Document no.: R01CP0048ES0100_RL78