

RL78/G1D

Ultra-low Power Bluetooth® Smart Solution



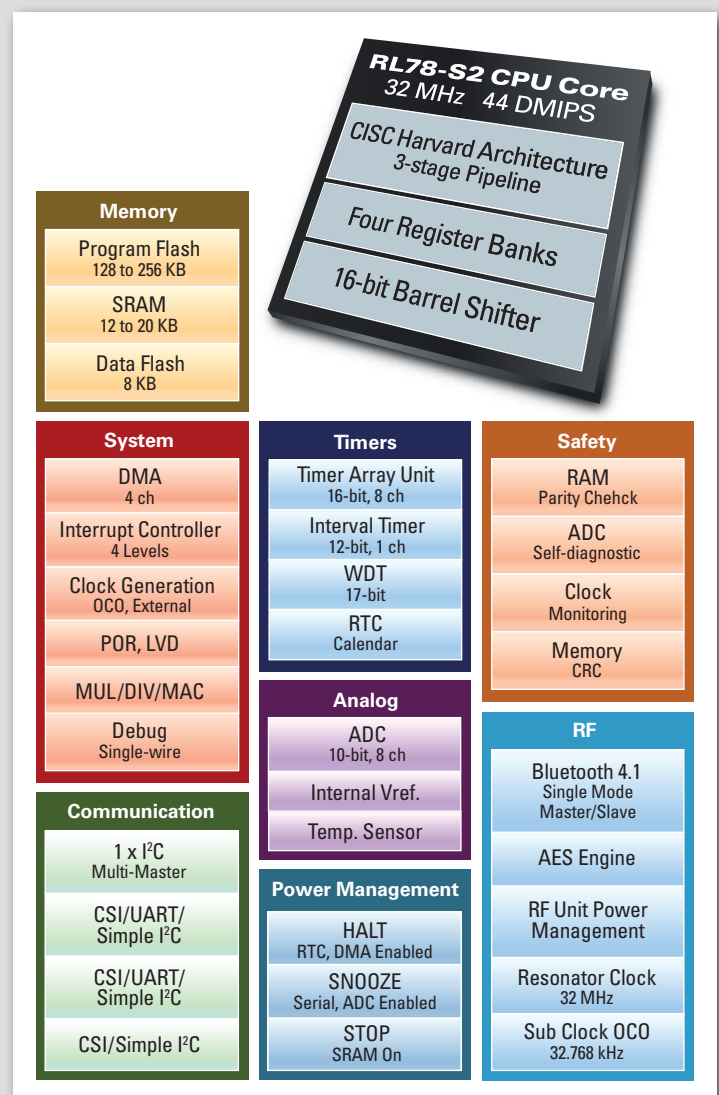
The RL78/G1D microcontroller supports Bluetooth v4.1 in embedded and modem (radio only) mode. RL78/G1D provides ultra-low power consumption – 4.3 mA RF transmit current / 3.5 mA RF receive current. Another salient feature of RL78/G1D is its ‘adaptable RF technology’ that makes a dynamic trade-off between current consumption and range of communication. It has a high level of integration which saves component cost and offers industry leading tool support to accelerate time to market. The firmware upgrade over the air (FOTA) feature makes it convenient to update applications in the field. RL78/G1D comes with a Bluetooth SIG qualified v4.2 stack and documented procedures to assist the customer with radio certification.



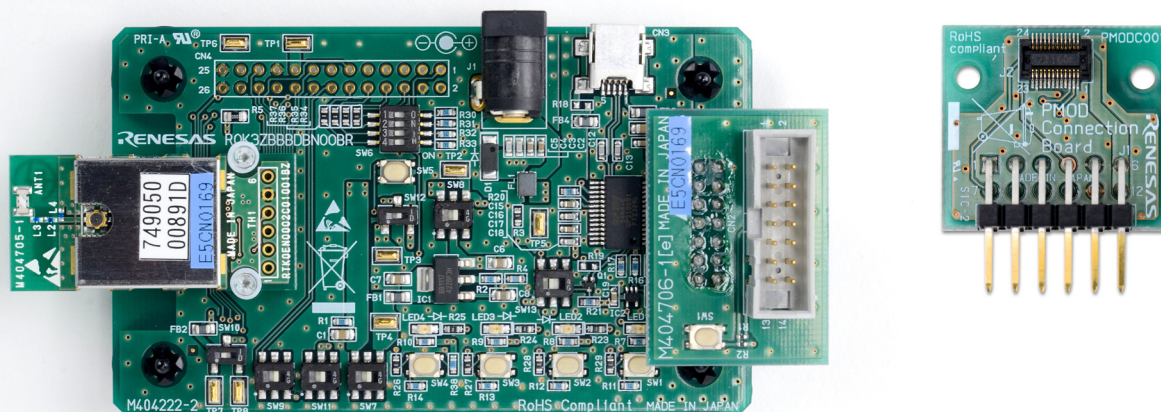
Key Features

- RL78-S2 CPU Core
 - » CISC architecture with 3-stage pipeline
 - » Maximum operation frequency: 32 MHz
- Memory
 - » 1.8 V Flash programming
 - » Program Flash: 128 KB, 192 KB, 256 KB
 - » SRAM: 12 KB, 16 KB, 20 KB
 - » Data Flash: 8 KB
- RF
 - » Bluetooth 4.1 single mode Master/Slave
 - » RF unit power management
 - » On-chip oscillator 32.768 kHz for RF
- Power management at 3 V (target)
 - » Transmission (MCU: STOP): 4.0 mA
 - » Reception (MCU: STOP): 3.5 mA
 - » Sleep (MCU: STOP, RF: DEEP_SLEEP): 2.3 µA
 - » Stop (MCU: STOP, RF: POWER_DOWN): 0.3 µA
- Timers
 - » High function timer array unit (TAU)
 - » Interval timer, watchdog timer, real-time clock
- Analog
 - » ADC converter 10-bit x 8 ch, conversion time 2.1 µs
 - » Internal reference voltage (1.45 V)
- Communication
 - » CSI x 2, UART x 2, I²C x 1, simple I²C x 2
- Package
 - » WQFN 6 x 6 mm, 48-pin, 0.4 mm pitch

Block Diagram



Evaluation Board and PMOD Adapter



Key Benefits of Renesas Bluetooth Smart Solution

- High Integration for low BOM cost
- Simple RF Design
- Ultra-low Power Consumption
- Adaptive RF Algorithm
- Certified Software Stack
- BT-SIG Profiles and Custom Profiles
- Over-the-air Firmware Update
- PC GUI for Evaluation
- W/W certified evaluation kit & PMOD
- Multiple Toolchains Support

Table of RL78/G1D Group

Pin Count	Package	Field of Application	Ordering Part Number	Code Flash Memory	Data Flash Memory	RAM
48	Plastic WQFN (6 x 6 mm)	Consumer	R5F11AGGANB	128 KB	8 KB	12 KB
		Industrial	R5F11AGGDNB			
		Consumer	R5F11AGHANB	192 KB	8 KB	16 KB
		Industrial	R5F11AGHDNB			
		Consumer	R5F11AGJANB	256 KB	8 KB	20 KB
		Industrial	R5F11AGJDNB			

Further information available at www.renesas.eu/rl78g1d



The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Renesas is under license. Other trademarks and trade names are those of their respective owners.

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

