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
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

<table>
<thead>
<tr>
<th>Pin Count</th>
<th>Package</th>
<th>Field of Application</th>
<th>Ordering Part Number</th>
<th>Code Flash Memory</th>
<th>Data Flash Memory</th>
<th>RAM</th>
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Further information available at www.renesas.eu/rl78g1d

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