**DA16200 Modules**

**Full Offload Highly Integrated Ultra Low Power Wi-Fi Modules**

- The fully integrated module consists of the DA16200 SoC, 4MB flash memory, RF components including crystal oscillator, RF lumped filter, and either a chip antenna or a connector for an external antenna
- Single power supply voltage (3.3V)
- 37 pins including GPIOs, JTAG, RTC control, UART, power input, and 32.768kHz crystal
- DA16200 module SKUs:
  - DA16200MOD-AAC4WA32 with on board chip antenna
  - DA16200MOD-AAE4WA32 with external antenna connector (u.FL)
- Dimensions
  - Both modules have the same dimensions
  - 13.8 mm x 22.1 mm x 3.3 mm

**Block Diagram (SOC)**

- UART
- SPI
- SDIO
- PC
- PWM
- PS
- GPIO
- ADC
- JTAG
- SWD
- Processor ARM Cortex-M4F
- FEM PA, LNA
- Integrated Radio 2.4 GHz 802.11n 1x1
- Encryption Engine (TLS, AES)
- ROM OTP 8 KB
- SRAM 512 KB
- eMMC/SD Host
-RTC
- External Flash Controller
- External Memory
- ANT

**Module Types**

<table>
<thead>
<tr>
<th>Country</th>
<th>On Board Chip Antenna</th>
<th>External Antenna Connector (u.FL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>US FCC</td>
<td>2AU49-DA16200MC</td>
<td>2AU49-DA16200ME</td>
</tr>
<tr>
<td>Canada IC</td>
<td>25650-DA16200MC</td>
<td>25650-DA16200ME</td>
</tr>
<tr>
<td>EU CE</td>
<td>CE &amp; RoHS Compliance</td>
<td>CE &amp; RoHS Compliance</td>
</tr>
<tr>
<td>South Korea KC</td>
<td>R-C-ici-DA16200M-C4WA3</td>
<td>R-C-ici-DA16200M-E4WA3</td>
</tr>
<tr>
<td>Japan TELEC</td>
<td>201-190886</td>
<td>201-190892</td>
</tr>
<tr>
<td>China SRRC</td>
<td>2020DP0489</td>
<td>2020DJ0161(M)</td>
</tr>
</tbody>
</table>
Low Power Wi-Fi Modules For Battery Powered IoT Applications

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultra Low Power</td>
<td>• Breakthrough VirtualZero™ technology</td>
</tr>
<tr>
<td></td>
<td>• Virtually no power consumption in sleep state</td>
</tr>
<tr>
<td></td>
<td>• Enables year-plus battery life</td>
</tr>
<tr>
<td></td>
<td>• Ultra low power sensor wake-up</td>
</tr>
<tr>
<td>Superior Range</td>
<td>• Industry leading output power and Rx sensitivity for max range</td>
</tr>
<tr>
<td>Highly Integrated SoC</td>
<td>• 802.11b/g/n radio PHY, BB/MAC, PA, LNA w/on chip SRAM</td>
</tr>
<tr>
<td></td>
<td>• Up to 72 Mbps, MCS0-7</td>
</tr>
<tr>
<td>Full Offload</td>
<td>• SoC runs full OS &amp; TCP/IP stack</td>
</tr>
<tr>
<td>Simple Setup &amp; Provisioning</td>
<td>• Automatically find &amp; configure new devices w/ smartphone app</td>
</tr>
<tr>
<td>Complete Software Stack</td>
<td>• Comprehensive networking software stack</td>
</tr>
<tr>
<td>Leading Security</td>
<td>• Secure boot • Secure debug • Secure asset storage</td>
</tr>
<tr>
<td></td>
<td>• Hardware accelerated • TLS • Digital certificates</td>
</tr>
<tr>
<td>OTA Firmware Update</td>
<td>• Enables field deployed device firmware updates</td>
</tr>
<tr>
<td>Multiple I/Os</td>
<td>• UART, SPI, SDIO, ADC, I²C, PWM, I²S, GPIOs, JTAG and SWD</td>
</tr>
<tr>
<td>eMMC/SD Expanded Memory</td>
<td>• Data logging, memory intensive applications</td>
</tr>
</tbody>
</table>

Leading Edge Low Power Technology

VirtualZero™

Three Sleep Modes
1. Unconnected (nanoamp)
2. Connected ultra low (microamp)
3. Connected ultra fast (microamp)

Ultra Fast Wake-up
Ultra Fast Return to Sleep
Extends battery life

> 1 Year Battery Life

Networking Capabilities

<table>
<thead>
<tr>
<th>Protocols</th>
<th>Complete software stack including TCP/UDP/IP, HTTP, HTTPs, DHCP client/server, DNS client/server, mDNS, DNS-SD, MQTT, CoAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provisioning</td>
<td>Included smartphone app for iOS &amp; Android; WPS 2.0</td>
</tr>
<tr>
<td>Sensors</td>
<td>ADC: 4-channel SAR 12-bit, I²C, SPI, PWM, I²S</td>
</tr>
</tbody>
</table>

Additional Features

Extended Range
> +20 dBm range booster mode
> -100 dBm Rx sensitivity

Highly Integrated SoC
+ No CPU or MCU required
+ Full offload
+ Runs network stack

VirtualZero™ Leading Edge Low Power Technology

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