The CXD2820R is a demodulator LSI for high-definition television use conforming to the "DVB-T2" (Digital Video Broadcasting - Terrestrial 2) terrestrial digital broadcast standard adopted in the UK. This LSI is the world's first demodulator LSI for "DVB-T2", compatible with three standards ("DVB-T2", "DVB-T2" and "DVB-C") contributing to product miniaturization and reduction of components.

*1 Based on Sony research (as of February, 2010)
*2 Second generation terrestrial digital broadcast standard. This is the improved version of the first generation "DVB-T". Digital sound and video signals are transmitted using orthogonal frequency-division multiplexing (OFDM) digital modulation. Using a time interleaver and LDPC code (a kind of error correction system) improves the transmission efficiency by approximately 50% compared with "DVB-T".
*3 First generation terrestrial digital broadcast standard. This standard is adopted in various countries and regions around the world including Europe. Digital sound and video signals are transmitted using orthogonal frequency-division multiplexing (OFDM) digital modulation.
*4 Cable digital broadcast standard. This standard is adopted in various countries and regions around the world including Europe. Digital sound and video signals are transmitted using quadrature amplitude modulation (QAM) digital modulation.

Supports reception of "DVB-T2" broadcasts
- Supports 'DVB-T' and 'DVB-C' demodulation
- Supports multiple-PLP
- Low power consumption
- Compact 64-pin LQFP package

Supports Reception of the World's First "DVB-T2" Broadcasting
"DVB-T2" is a new terrestrial digital broadcast standard which improves on the current "DVB-T" terrestrial digital broadcast standard adopted in Europe and various other countries and regions around the world. "DVB-T2" significantly increases data transmission capacity compared to "DVB-T", and optimizes use of band frequencies to enhance the quality of high definition broadcasts. The first "DVB-T2" standard terrestrial digital broadcasts commenced in the UK in December, 2009. Start of broadcasting is planned for northern Europe in 2010.

Superb Reception Performance
Sony's proprietary reception algorithms and error correction circuits ensure high sensitivity reception, even within weak electric fields (CNR of 19.2 dB required for DTG109 transmit parameter broadcasts in the UK) and stable reception within multipath environments.

Supports Multiple-PLP
Multiple-PLP is a technology which multiplexes plural transport streams adopted in "DVB-T2" in a physical layer. The CXD2820R conforms to DTG400, DTG401, DTG402, DTG403, DTG404 and other parameters.

Low Power Consumption
The CXD2820R "DVB-T2" reception power consumption is around 300 mW (typ.) in ordinary reception environments and only about 700 mW (typ.) during LDPC decoder operating at maximum level.

Compact 64-Pin LQFP Package
The CXD2820R is provided in a 10 × 10 mm LQFP package.

Inclusion of "DVB-T" and "DVB-C" Functions
It is also compatible with the current "DVB-T" standard, as well as the "DVB-C" cable broadcast standard, providing flexibility for "DVB-T2" set designs, while contributing to miniaturization and a reduction in the number of components.

High Compatibility with the CXD2817R
The CXD2820R features high compatibility, in both hardware and software, with the current Sony "DVB-T/DVB-C" demodulator LSI (the CXD2817R). Since both the pin arrangement and the pin functions are designed as extensions to those of the CXD2817R, circuit board design and modification are easy. Also, the register functions and control specifications have high compatibility with the CXD2817R, making it possible to create a single driver that supports both LSIs.

Due to its being the world's first device to support "DVB-T2", which is the next generation standard after "DVB-T", which itself is most widely adopted broadcast standard worldwide, the CXD2820R is the subject of great interest and has already been adopted by many Sony customers. I strongly recommend that you use Sony's industry-leading demodulator LSIs.
**Multiple-PLP**

Multiple-PLP is a technology which implements the multiplexing of services (sound/video: PLP) adopted in “DVB-T2” in a physical layer. An error correction capability optimal for each service can be selected and the receiver’s power consumption can be minimized.

**Main Specifications**

<table>
<thead>
<tr>
<th>Item</th>
<th>CXD2817R</th>
<th>CXD2820R</th>
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<tbody>
<tr>
<td>Demodulation method</td>
<td>DVB-T</td>
<td>DVB-T</td>
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<td></td>
<td>DVB-C</td>
<td>DVB-C</td>
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<tr>
<td>External interface</td>
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<td>I²C, GPIO 3ch</td>
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<td>Size</td>
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<td>Package</td>
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<td>Supply voltage</td>
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<td>3.3 V/2.5 V/1.2 V</td>
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**Multipath Performance**

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<th>D-Book Evaluation Item</th>
<th>DTG104</th>
<th>DTG106</th>
<th>DTG109</th>
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<tr>
<td>C/N (dB) with 0 dB, 0.5 Gi echo</td>
<td>22.4</td>
<td>20.7</td>
<td>22.6</td>
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<tr>
<td>C/N (dB) with 0 dB, 0.95 Gi echo</td>
<td>22.3</td>
<td>20.7</td>
<td>22.5</td>
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<tr>
<td>Short delay echo profile</td>
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<td>19.1</td>
<td>20.8</td>
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**AWGN Performance**

BER vs. C/N on AWGN channel

**Figure 1** Block Diagram

**Figure 2** AWGN Performance

**Figure 3** Multiple-PLP

PLP (Physical Layer Pipe): The data stream unit handled by DVB-T2.