

# CXD2834ER/ CXD2834R

## Second Generation DVB-T2/T/C Demodulator IC with Substantially Improved Functionality and Performance and Designed for Ease of Use



Two years have now passed since the development of the CXD2820R, the world's first demodulator IC for DVB-T2\*1. Sony has now developed two successor products: the CXD2834ER and the CXD2834R. As the de facto standard of DVB-T2 demodulator ICs, the CXD2820R was the demodulator of choice for most customers, it contributed greatly to extending DVB-T2 broadcasting across the world and became the IC to obtain certification by passing the greatest number of receiver specifications. The CXD2834ER and the CXD2834R introduced in this article retain compatibility with the CXD2820R while they have been significantly upgraded both in performance and functionality in response to demands regarding the original chip and have passed all major receiver specifications and obtained certification.

\*1: DVB-T2: Digital Video Broadcasting - Terrestrial 2

- The expanding area of DVB-T2 use
- Meets all major receiver specifications
- Major improvement in performance
- Reduced printed circuit board and BOM costs
- Compatibility with CXD2820R
- Tuner IC chipset that supports all the world's broadcasting standards

### The Expanding Area of DVB-T2 Use

Since the first "DVB-T2" standard terrestrial broadcasts commenced in the UK in 2009, the standard has been adopted in Finland, Sweden and Italy. Germany, Austria and other EU countries, eastern Europe, Africa, South-East Asia, South Asia, Central America and other countries around the world are considering adoption of DVB-T2. (See figure 1.)

### Meets All Major Receiver Specifications

The CXD2834ER and the CXD2834R comply with the NorDig standard, which is used as reference by many receiver specifications and obtained certification. Both ICs will also easily comply with the more stringent specifications in the NorDig standard that will be introduced from 2012.

They also comply with the DTG 7.0 in the UK and the specifications of most European e-Books. The current product, the CXD2820R is the de facto standard of DVB-

T2 demodulator ICs and has been certified by most receiver specifications. Sony is now using its experiences to help customers that use our ICs to obtain certification for their products. (See figure 2.)

### Major Improvement in Performance

The CXD2834ER and the CXD2834R come with much improved multipath performance caused by reflected wave. (See figure 4.)

They also have reduced acquisition time and provide quick switching between channels. (See table 1.)

### Reduced Printed Circuit Board and BOM Costs

The CXD2834ER is provided in a compact package (48-pin VQFN, 7 mm × 7 mm) that will reduce the mounting area. The CXD2834R is provided in a 10 mm × 10 mm 64-pin LQFP package. When combined with a Sony silicon tuner IC (CXD2831WR), the area occupied by the tuner on the board can be minimized. Both ICs can run on 3.3 V and 1.2 V power supplies and select either 20.5 MHz or 41 MHz X'tal with a tolerance of up to ±100 ppm.

### Compatibility with CXD2820R

The CXD2834R shares the same printed circuit board and pin assignment as the CXD2820R.

The 2.5-V power supply pin on the

CXD2820R has been replaced with an unused pin (NC pin) that is not electrically connected to simplify replacement. This further facilitates migration from the CXD2820R.

### Tuner IC Chipset that Supports All the World's Broadcasting Standards

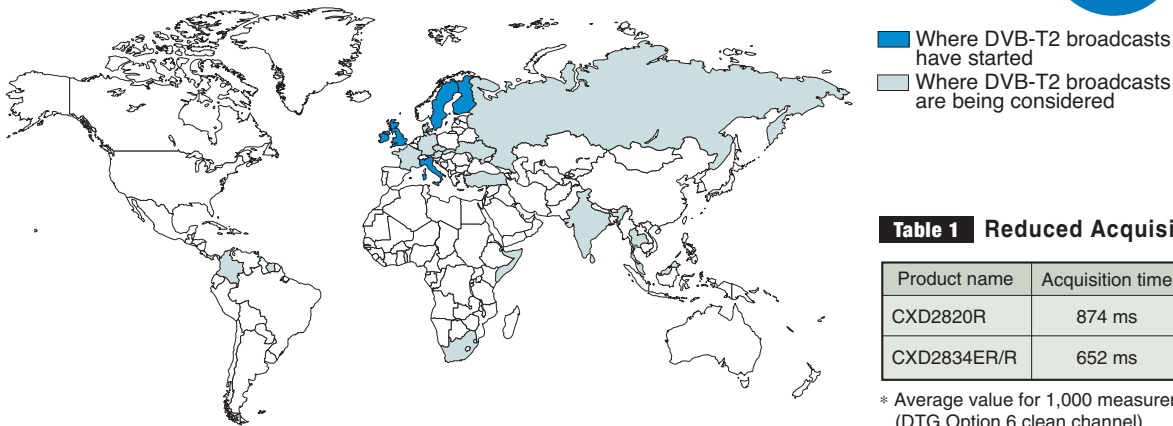
Sony is the only manufacturer to develop IC chipsets that support all the world's broadcasting systems.

Since the CXD2834ER shares the package and pin assignment with demodulator ICs for other markets (CXD2840ER, CXD2836ER, CXD2835ER, CXD2828ER and CXD2817ER) that were developed during the same time period, they are mutually replaceable. (See figures 3 and 5.) Also, a shared software interface will minimize man-hours spent on examination and development.

### V O I C E

In our work on the successor to the CXD2820R, which had become the de facto standard demodulator for digital TV, we considered what other improvements we could build into the new chip to improve user satisfaction. With the expanding area of DVB-T2 broadcasting and a greater variety of reception environments, our goal was to develop the best possible product backed by solid support so that users would come to regard Sony semiconductors as the best solution in DVB-T2 broadcasting.

**Figure 1** The Expanding Area of DVB-T2 Use



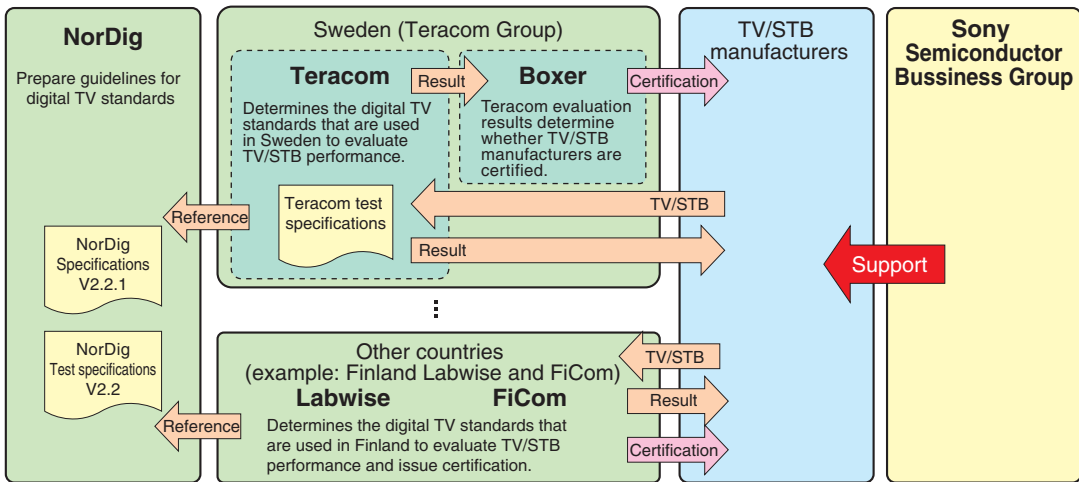
**Table 1** Reduced Acquisition Time

Product name	Acquisition time
CXD2820R	874 ms
CXD2834ER/R	652 ms

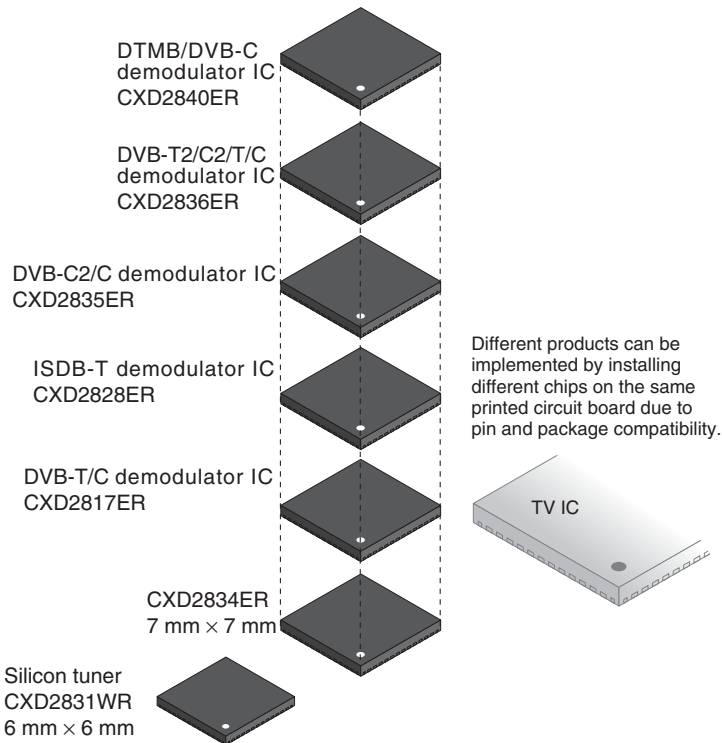
Approx. 200 ms faster

\* Average value for 1,000 measurements (DTG Option 6 clean channel)

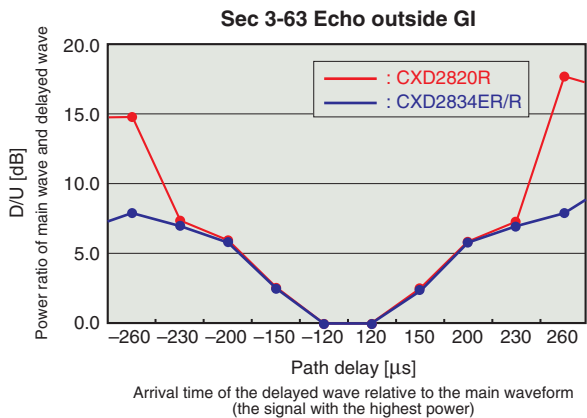
**Figure 2** The Certification Process



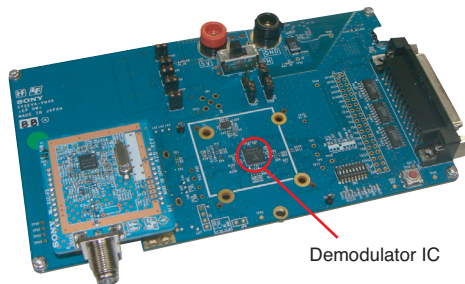
**Figure 3** Pin and Package Compatibility



**Figure 4** Multipath Performance (CR2/3, GI1/32, PP4)



**Figure 5** Example of Mounting ICs Supporting All Broadcasting Systems on the Same Board



**Sony evaluation board**  
A demodulator IC supporting all broadcasting systems can be mounted on a single board.