SONY

Combined DVB-T2/DVB-T/DVB-C Demodulator

CXD2837ER

Description

The CXD2837ER is a combined DVB-T2, DVB-T and DVB-C demodulator that conforms to the ETSI EN 302-755 v1.3.1 (second generation Terrestrial), ETSI EN 300-744 V1.6.1 (Terrestrial) and ETSI EN 300-429 v1.2.1 (Cable) standards. The CXD2837ER demodulator offers class-leading performance, optimized BOM requiring no external memory and low processor overhead.

Features

- Features DVB-T2
  - Complies with DTG D-BOOK 7.0 V2.0, NorDig-Unified Test Specification ver2.2.1 and targeting upcoming Digital Europe Ebook requirements
  - Supports 5 MHz, 6 MHz, 7 MHz, 8 MHz and 1.7 MHz BW
  - Supports all DVB-T2 modes, including
    - Single and multiple-PLPs
    - T2-Lite profile
    - SISO and MISO transmission
  - Simple API
    - Fully-automatic acquisition
    - Fully-automatic L1-signalling decoding
    - Automatic guard-interval detection
    - Automatically-calculated constant-rate TS output (using L1 signalling and ISSY)
  - Frequency offset detection range up to +/-600 kHz allows acquisition and performance optimization via tuner frequency offset compensation
  - Stream processor for automatic common-PLP and data-PLP combination
  - Null-packet insertion
  - Improved performance for multipath channel (outside the guard interval)

- Features DVB-T
  - Complies with all European standards for static and portable equipment including NorDig-Unified Test Specification ver2.2.1 DTG D-BOOK 7.0 V2.0, IEC 62216 and targeting upcoming Digital Europe Ebook requirements
  - Smart Auto Acquisition controller with fast 2k/8k acquisition, low processor overhead and re-acquisition mode
  - Frequency offset detection range up to +/-600 kHz allows acquisition and performance optimization via tuner frequency offset compensation
  - Advanced channel corrector for low multipath loss and enhanced Doppler performance
  - Improved CNR performance

- Features DVB-C
  - Complies with NorDig-Unified Test specification Ver2.2.1
  - Wide symbol range, 1.8 to 7.2 Msym/s
  - Integrated matched filter 0.15 roll-off factor
  - Frequency offset detection range up to ±500 kHz allows acquisition and performance optimization via tuner frequency offset compensation
  - Excellent equalization for cancellation of reflections at larger delays
  - Improved performance against large continuous wave interference

- General Features
  - Single, 41 MHz or 20.5 MHz crystal with tolerance up to ±100 ppm. (Targeting support for crystal sharing with Sony SiTuner or other Sony Analogue/Digital demodulator)
  - High performance ADC
  - RF power level monitor ADC
  - Low IF and high IF (36 MHz) mode input
  - Fast 400 kHz I^2C compatible bus interface
  - Quiet I^2C interface for dedicated tuner control
  - Programmable I^2C addresses allowing up to four devices to be connected in a single system
  - Automatic IF AGC and optional programmable RF AGC/GPIO functions
  - Configurable parallel and serial MPEG-2 TS outputs with smoothing buffer
  - Simple API
  - 3.3 V, 1.1 V supplies
  - Temperature range -20 °C to +85 °C
  - 48 pin VQFN 7 mm x 7 mm package
  - Supplied with full reference design, including software driver, printed circuit board schematic/layouts and documentation

Applications

- Set Top Boxes
- IDTV with Digital only or Hybrid Tuner Support
- PC TV
- PVRs and recordable Blu-ray™/DVD players
- Professional equipment

Contents

1. Block Diagram

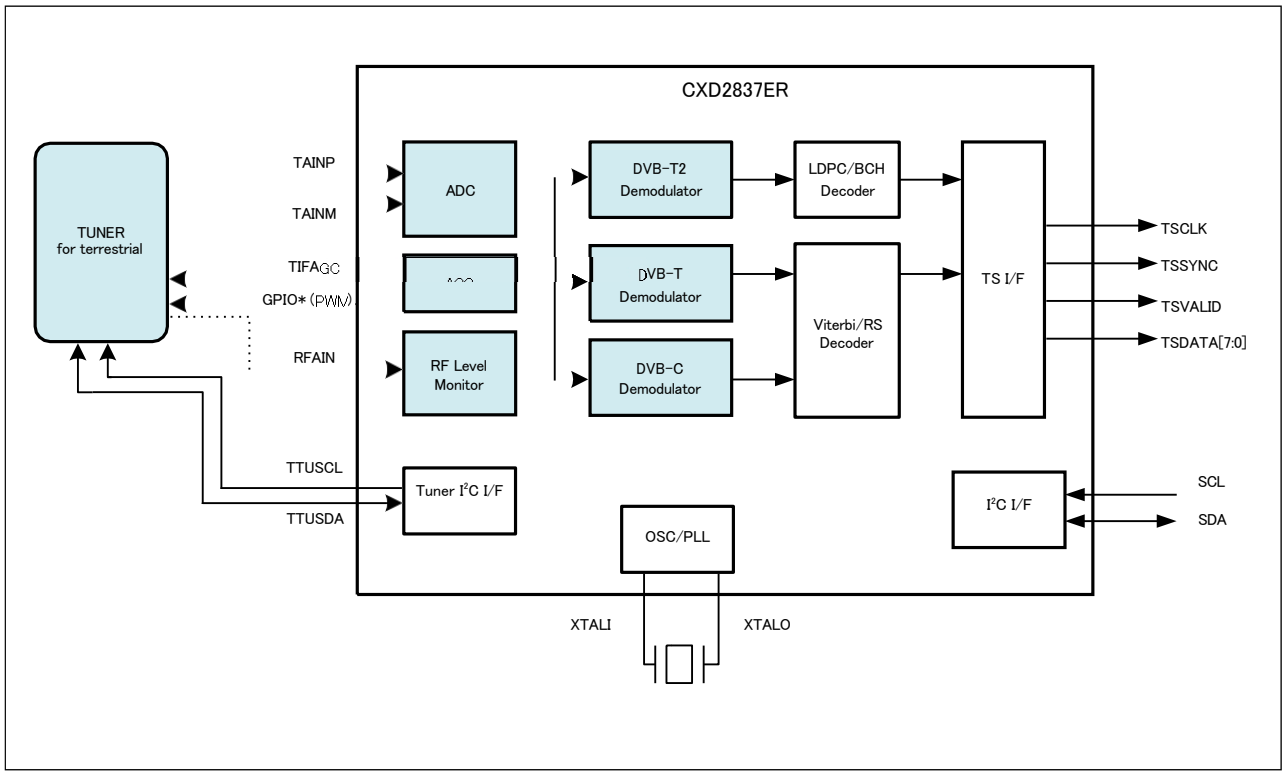


Fig.1. Block Diagram

2. Pin Layout

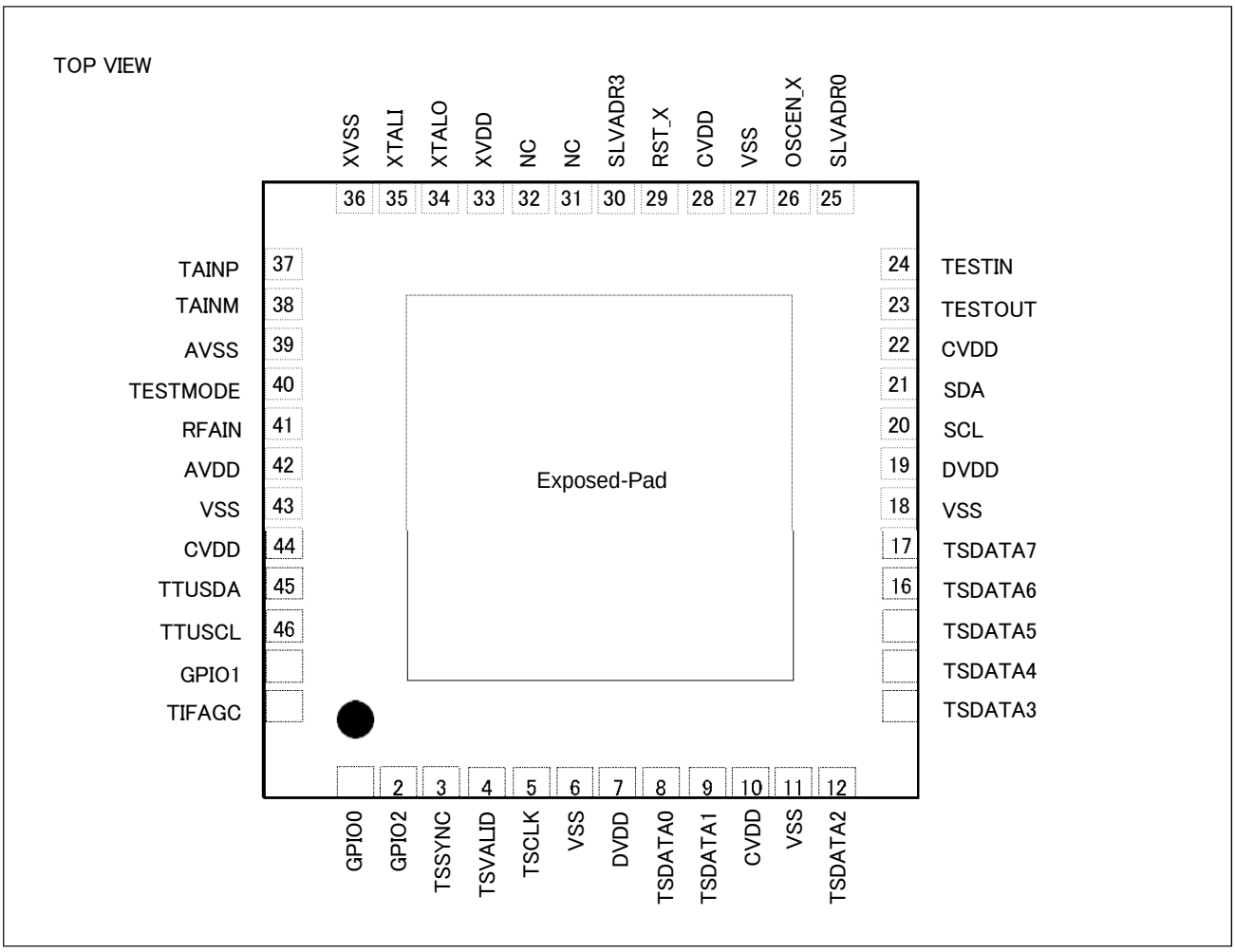
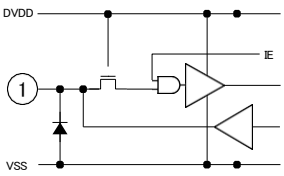
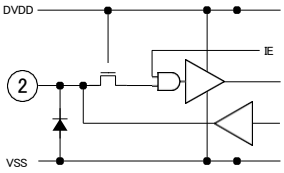
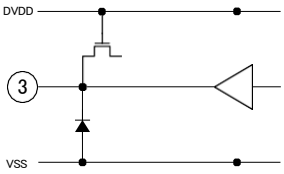
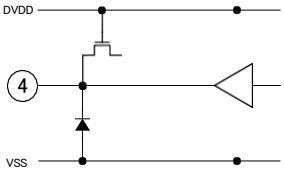
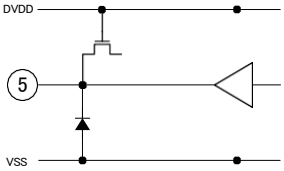
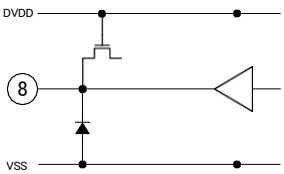


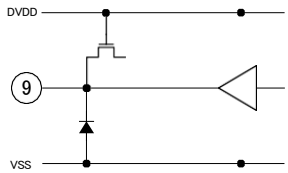
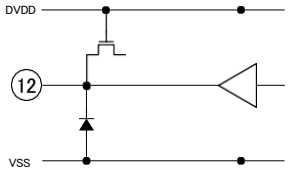
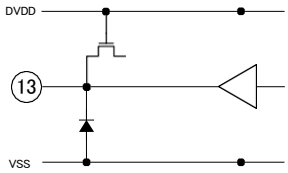
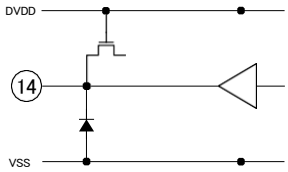
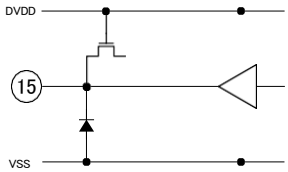
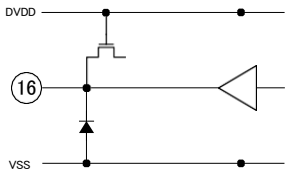
Fig.2. Pin Layout

NOTE1) Exposed-Pad must be connected to the quiet ground level.

3. Pin Description

Table.1. Pin Description

Name	No.	I/O	Function	Equivalent Circuit	Note
GPIO0	1	IO	General purpose I/O		5 V tolerant / Input Enable (default: disable)
GPIO2 (TSERR)	2	IO	General purpose I/O TS error flag		5 V tolerant / Input Enable (default: disable) Selectable output current for TSERR
TSSYNC	3	O	TS sync flag		5 V tolerant / Selectable output current
TSVALID	4	O	TS valid flag		5 V tolerant / Selectable output current
TSCLK	5	O	TS clock output		5 V tolerant / Selectable output current
VSS	6	n/a	Digital ground	n/a	
DVDD	7	n/a	3.3 V digital power supply	n/a	
TSDATA0	8	O	TS parallel data 0 / TS serial data		5 V tolerant / Selectable output current It can be used as serial data or parallel data 0.

Name	No.	I/O	Function	Equivalent Circuit	Note
TSDATA1	9	O	TS parallel data 1		5 V tolerant / Selectable output current
CVDD	10	n/a	1.1 V digital power supply	n/a	
VSS	11	n/a	Digital ground	n/a	
TSDATA2	12	O	TS parallel data 2		5 V tolerant / Selectable output current
TSDATA3	13	O	TS parallel data 3		5 V tolerant / Selectable output current
TSDATA4	14	O	TS parallel data 4		5 V tolerant / Selectable output current
TSDATA5	15	O	TS parallel data 5		5 V tolerant / Selectable output current
TSDATA6	16	O	TS parallel data 6		5 V tolerant / Selectable output current