SC14448A

1.8V Single Chips for DECT with RFPA and QSPI

This short datasheet is an addendum to the SC14448A datasheet.

.The SC14448A is a family of digital CMOS ICs with fully integrated radio transceivers including RF Power Amplifier and baseband processors for DECT & DECT 6.0 CAT-iQ handsets and basestations. The program memory and data storage resided in a low cost, low pin count Quad SPI (QSPI) Serial FLASH.

Key Features

- Complies with DECT ETS 300 175-2,3 & 8 and DECT 6.0
- 10.368/20.736 MHz XTAL digital controlled oscillator with low power modes
- Processing power
  - 82.944 MHz 16 bit CompactRISCTM CR16Cplus with 16 kB instruction and data cache
  - Four channel DMA controller with (non-) blocking mode
  - 82.944 MHz Programmable Gen2DSP with Micro Code ROM
  - Dedicated Instruction Processor (DiP) supporting CAT-iQ slot formats and new fast FP search instructions (1.25 kB DIP RAM)
- Development/Debug support
  - Serial Debug interface, Nexus Class-1 compliant
  - Performance Timer for Gen2DSP and CR16C
  - Instruction/Data/Event Trace unit
  - Gen2DSP debugger with 2 ch MCROM patching
- Memories
  - 16 kB + 4k non-shared/cache RAM
    13 kB shared RAM
  - 48 kB Gen2DSP ROM
- Power management
  - 1.9-3.45 V Operation range
  - 1.8 V operating voltage with 1.8-3.45 V I/O
  - Charge control for 2xNiMH batteries and Li-Ion
  - Dual output Voltage tripled up-to 4.5 V
  - DCDC converter buck operation
  - Three matched current sources for white LEDs
  - Enhanced new battery detection
  - Battery voltage comparator with interrupt
- Analog and Audio Interfaces
  - Single 8, 16, 32 kHz 16-bit linear audio CODEC
  - Analog Front End to differential and single microphones and 28 Ω loudspeaker
  - CLASSD amplifier 0.5 W 2.5 V (4 Ω)
  - 10 bit ADC for line interface, Battery voltage, temperature sensor, headset detection
  - Opamps for caller-id, ringing, parallel set detection
- Digital interfaces
  - 82.944MHz.1.8-3.3V Quad SPI interface for serial FLASH with erase suspend/resume support for EEPROM function
  - 4+2 general purpose I/O 8 bit ports
  - Keyboard interface with debounce counter
  - Dual UART Full duplex 9600-230.4 kbaud
  - SPI+™ interface 20.736 MHz (Master/Slave)
  - Dual ACCESS bus 100 kHz, 400 kHz, 1.152 MHz
  - PCM+ Interface M/S, 12 x 8 bits, 48 kHz, I2S
- Three general purpose timers and enhanced watch dog timer
- Radio transceiver
  - Integrated 1.9 GHz/1,7 GHz CMOS transceiver
  - <70 µs RF PLL lock time
  - Four digital output ports (including two for fast antenna diversity switching)
  - -96 dBm receiver sensitivity
- Integrated 1.9 GHz PA for DECT
  - High Power Mode EU (HPM): 25.5 dBm
  - High Power Mode USA (HPM): 23.5 dBm
  - Low Power Mode (LPM) 12 dBm
  - "Green" Mode (GPM): 4 dBm
  - Low Radiation Mode (LRM) : -35 dBm
- QFN88 package

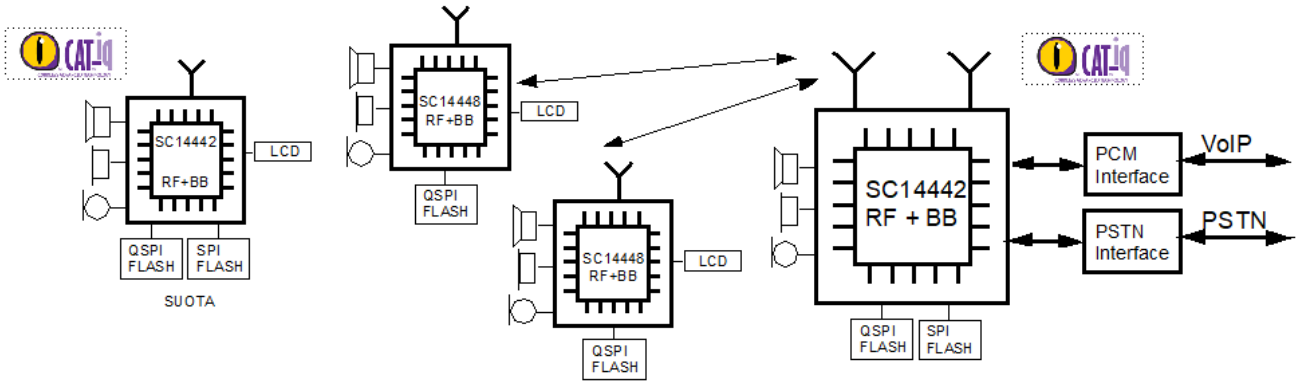

Figure 1. System diagram

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1. Moisture Sensitivity Level

The MSL is an indicator for the maximum allowable time period (floor lifetime) in which a moisture sensitive plastic device, once removed from the dry bag, can be exposed to an environment with a maximum temperature of 30 °C and a maximum relative humidity of 60% RH. before the solder reflow process.

All QFN packages are qualified for MSL 3.

Table 1. MSL classification

MSL level	Floor lifetime
MSL 4	72 hours
MSL 3	168 hours
MSL 2A	4 weeks
MSL 2	1 year
MSL 1	Unlimited at 30 °C/85% RH

1.1 Soldering Information

Refer to the IPC/JEDEC standard J-STD-020 for relevant soldering information. This document can be downloaded from http://www.jedec.org.

2. Package Outline Drawings

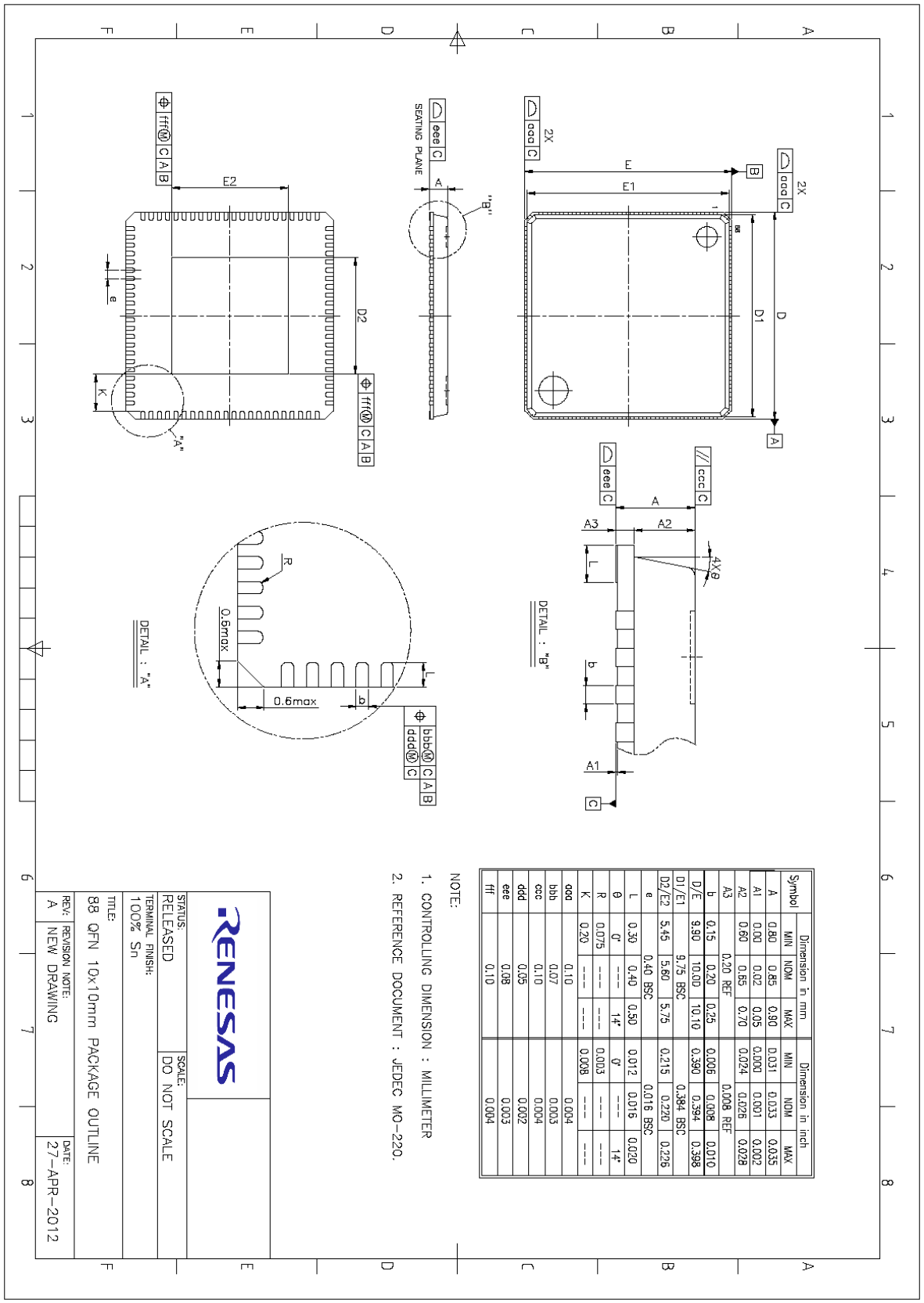

Figure 2. QFN88 package outline drawing

3. Ordering Information

The ordering number consists of the part number followed by a suffix indicating the packing method. For details and availability, please consult your Renesas local sales representative.

Table 2. Ordering information

Part number	Package	Size (mm)	Shipment form	Pack quantity
SC14448A33R100QNCX	QFN88 package	10 x 10	Tape and Reel	MOQ 3000

4. Revision History

Revision	Date	Description
01.00	June 27, 2024	First release.

RoHS Compliance

Renesas Electronics' suppliers certify that its products are in compliance with the requirements of Directive 2011/65/EU of the European Parliament on the restriction of the use of certain hazardous substances in electrical and electronic equipment. RoHS certificates from our suppliers are available on request.