

## SC14443A, SC14444A, SC14445A

1.8 V Single Chip for DECT with RFPA, QSPI, EBI, GPU

This short datasheet is an addendum to the SC14443A, SC14444A, SC14445A datasheet.

The SC14443A, SC14444A, SC14445A are a family of digital CMOS ICs with fully integrated radio transceivers including RF Power Amplifier and baseband processors for DECT and DECT 6.0 CAT-iQ, Japanese and Korean DECT handsets and basestations.

### Key Features

- Complies with DECT ETS 300 175-2,3 & 8 and DECT 6.0 and Korean DECT (1.7 GHz)
- DCXO for 10.368/20.736, 12 MHz (USB only) XTAL
- Processing power
  - 82.944 MHz 16 bit CompactRISCTM CR16Cplus with up-to16 kB instruction and data cache
  - Four channel DMA controller
  - Dual \*) 82.944 MHz programmable Gen2DSP with MicroCode ROM and 2 kB MicroCode RAM
  - 82.944 MHz Graphics Processing Unit
  - DiP Processor for TDMA processing
  - MMU for Extended address range up to 128 MB
- 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
  - 16/2/2 kB Cache/Admin/Trace RAM
  - 24/32 kB, 24/32 kB Shared RAM1/2, ROM1/2
  - 2/16 kB, 96/96 kB MCRAM1/2, MCROM1/2
- Power management
  - 1.9-3.45 V Operation range
  - 1.8 V operating voltage with 1.8-3.45 V I/O
  - USB Charge control for 2xNiMH and Li-Ion (\*)
  - Dual DCDC converter (boost/buck, boost)
  - Ultra-low power mode (ULP) 32 kHz time base and low power CR16 Mode in off mode
  - Battery voltage comparator with interrupt
- Analog and Audio Interfaces
  - Full dual 8, 16, 32 kHz 16-bit audio CODEC
- Analog Front End to differential and single ended microphones and 28 Ohm loudspeaker
- CLASSD amplifier Stereo (2x8ohm)/Mono (4ohm) up-to 32/48 kHz
- 10-bit ADC for line interface, Battery volt, temp. sensor, headset detection, 4-wire resistive touch screen
- Opamps for caller-id, ringing, par. set detection
- Digital interfaces
  - 82.944 MHz External Bus Interface to mDDR or Static Memory and PSRAM
  - 41.472 MHz 16-bit wide I/O LCD/Camera bus USB 2.0 FS/LS MAC + PHY with DMA support and USB Battery Charging Specification V1.1.
  - 82.944 MHz.1.8-3.3V Quad SPI interface for serial FLASH with erase suspend/resume support for EEPROM function and CAT-iQ SUOTA
  - General purpose I/O 8 bit ports
  - Keyboard interface with debounce counter
  - Dual UART Full duplex 9600-230.4 kbaud
  - Dual SPI+™ interface 20.736 MHz (incl 9bits)
  - Dual ACCESS bus 100 kHz, 400 kHz, 1.152 MHz
  - PCM+ Interface, M/S, 12x8 bits, 48 kHz, I2S
- Three general purpose timers and watchdog 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 and Korean DECT
  - High PM, EU: 25.5 dBm, HPM, USA 23.5 dBm
  - Low Power Mode (LPM): 12 dBm
  - "Green" Mode (GPM): 4 dBm
  - Low Radiation Mode (LRM) : -35 dBm
  - Output power ramp and flatness control LLGA 206 pins package, to be replaced by LGA206

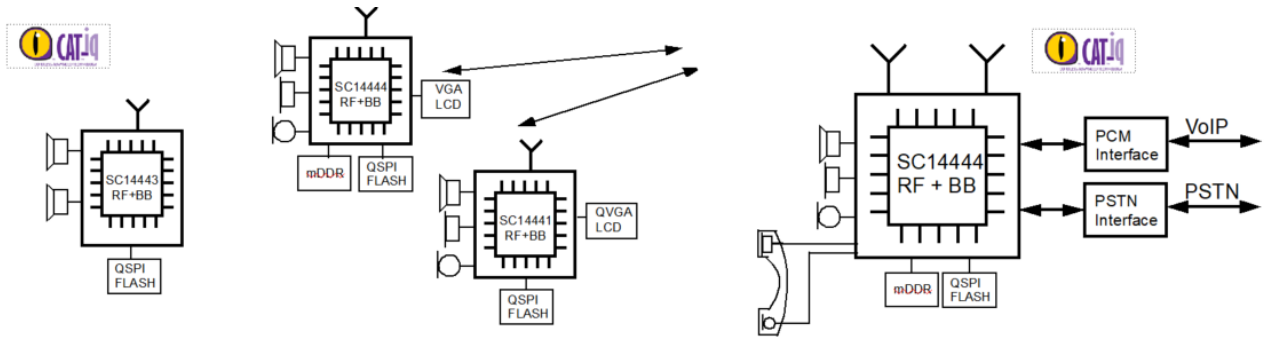


Figure 1. System diagram

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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 LLGA and LGA packages are qualified for MSL 4.

**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

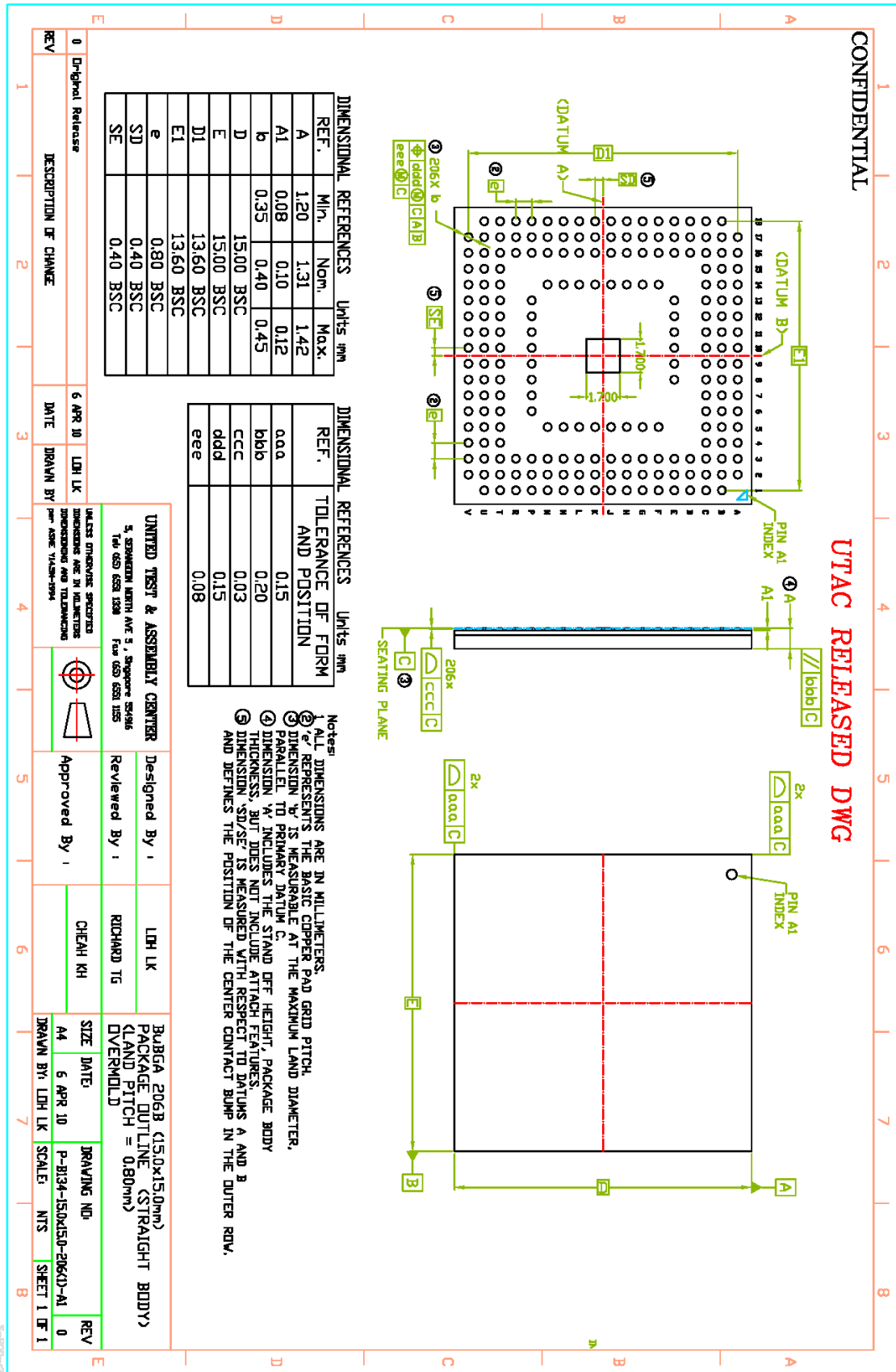


Figure 2. LLGA206 package outline drawing

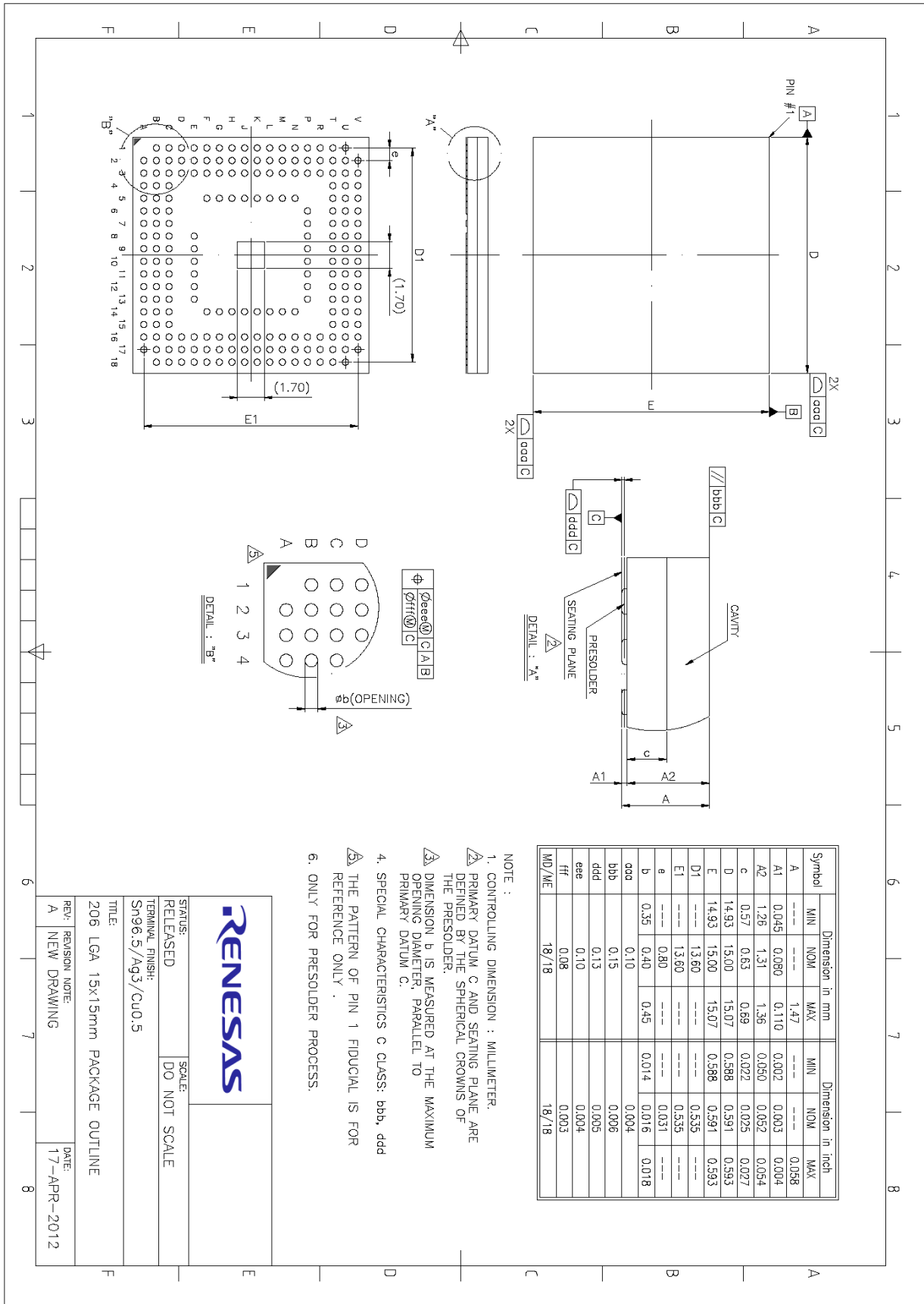


Figure 3. LGA206 package outline drawing

### 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
SC14445A76R100LVPT	LGA206 package	15 x 15	Tray	MOQ 1260

## 4. Revision History

Revision	Date	Description
01.00	June 26, 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.