

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 MCGRAM1/2, 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

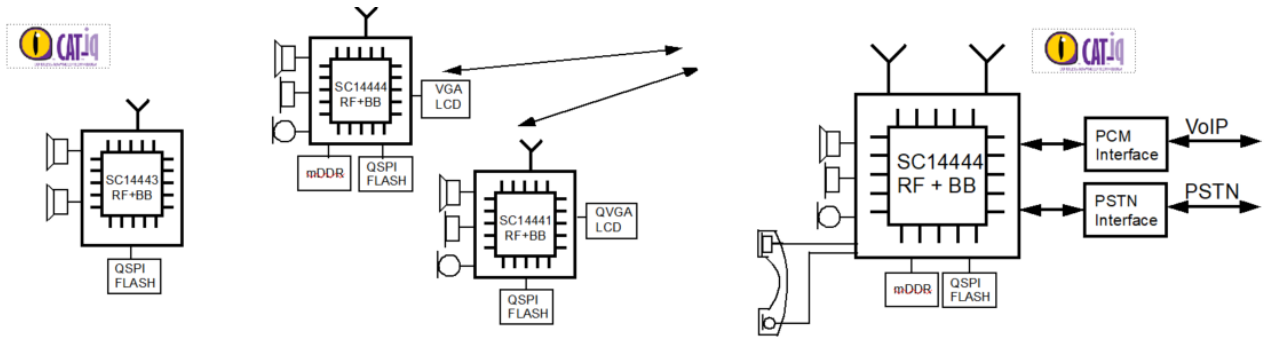


Figure 1. System diagram

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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

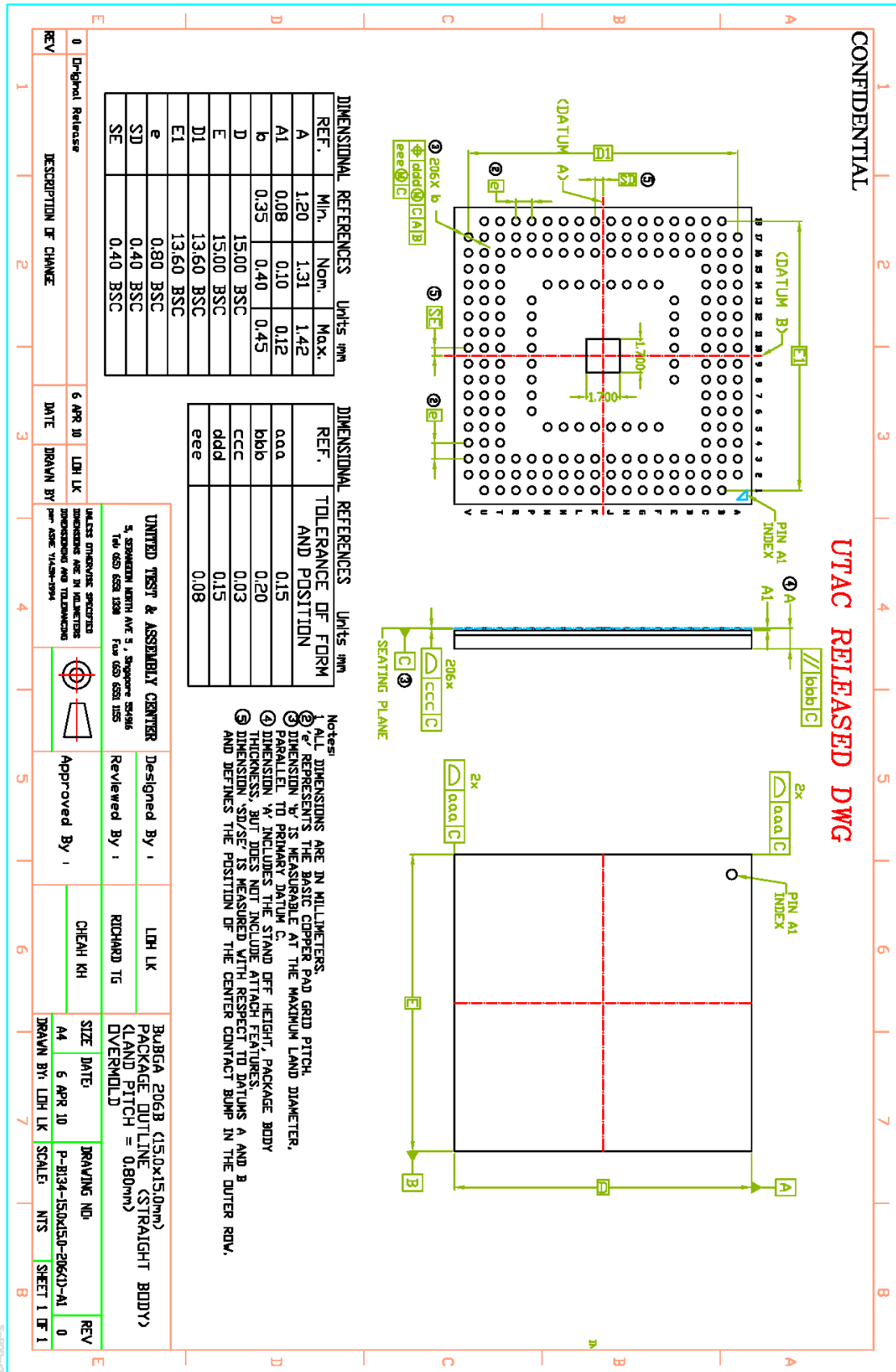


Figure 2. LLGA206 package outline drawing

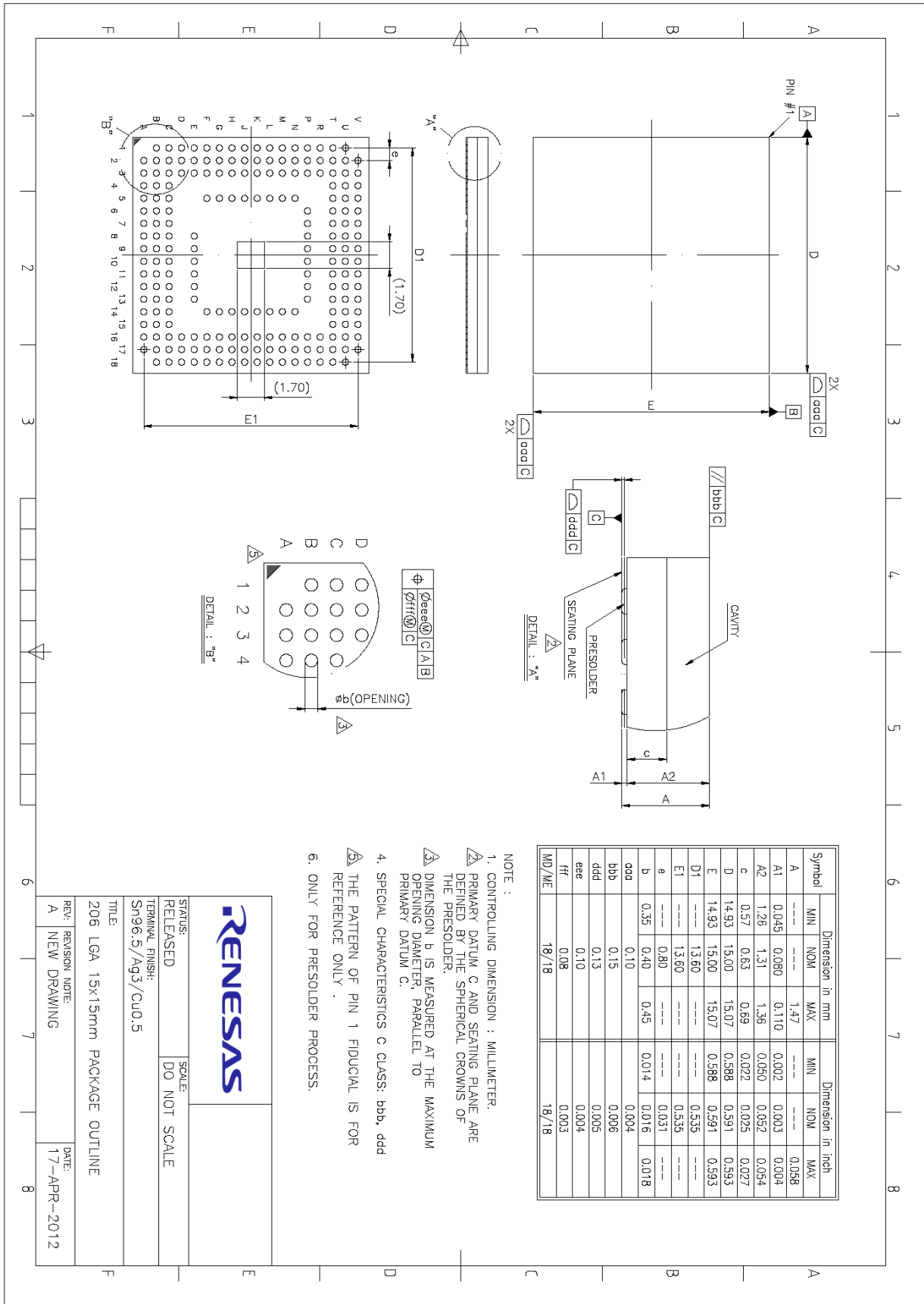


Figure 3. LGA206 package outline drawing

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.