PRODUCT SUMMARY

CX20524 Mixed Signal Device for GSM and GPRS Applications

Applications

- GSM handsets and modules (850/900/1800/1900 MHz)
- GPRS handsets and modules (850/900/1800/1900 MHz)

Features

- Supports multi-slot GPRS up to Class 12
- ΣΔ Analog-to-Digital Converters (ADCs) for digitization of baseband receive signal
- Receive path PGA for AGC of received signal
- GMSK Digital Modulator
- Digital-to-Analog Converters (DACs) for analog conversion of the GMSK modulator output
- Transmit power ramping and power level control
- Low noise voiceband ADC for direct interface to handset and headset microphone
- Low noise voiceband DAC for direct interface to handset and headset speaker
- Auxiliary 8-bit ADC for monitoring system signals
- 3 V/1.8 V SIM card interface
- Temperature sensor
- High speed asynchronous serial ports for interface to Skyworks Baseband Processor device
- Low speed asynchronous serial port for power management functions
- Voltage regulators for both internal (fixed voltage) and system (programmable voltage) needs
- Low power operation
- Control circuit for multi-chemistry advanced battery charger
- Power-On Reset (POR) generation
- Over current-limiting
- Power On/Off control inputs
- CX20524-12: 160-pin FPBGA 12 mm x 12 mm package
- CX20524-13: 180-pin FPBGA 10 mm x 10 mm package

Description

The CX20524 Mixed Signal Device (MSD) is a highly integrated device designed for use in multi-band Global System for Mobile communications (GSM) and General Packet Radio Service (GPRS) handsets. The MSD includes all the power management, voice-band, mixed signal, and radio control functions required in a GSM/GPRS handset and module.

In the receive path, the MSD digitizes the baseband In-Phase/Quadrature (I/Q) inputs. Digital samples are then sent to the Baseband Processor (BP) via the Rx serial interface. The receive path features a programmable gain amplifier (PGA) for Automatic Gain Control (AGC) of the receive signal.

In the transmit path, bursts of digital data are input to the MSD over the control port. A Gaussian Minimum-Shift Keying (GMSK) modulator generates modulated I and Q waveforms from the input data. The I and Q waveforms are converted into analog waveforms and output from the MSD.

The CX20524 generates an analog signal to control the handset Power Amplifier (PA) output level.

The device voiceband Codec section provides an interface to a 32 Ω handset speaker and microphone. Line In/Out signals are also available to interface with audio accessories, such as a headset or car kit.

The MSD is designed to operate directly from a single cell, 3.6 V Li Ion battery with no external regulation required. The MSD integrates all necessary Low Drop Out (LDO) voltage regulators that generate the required device and system power supplies from battery input.

An integrated SIM interface circuit allows direct interface to 3.0 V and 1.8 V SIM cards with no external components.

An integrated battery charger control circuit provides charging capabilities for multi-chemistry batteries.

The CX20524-12 is packaged in a compact, 160-pin (12 mm x 12 mm) Fine Pitch Ball Grid Array (FPBGA), shown in Figure 2.

The CX20524-13 is packaged in a compact, 180 pin 10 mm x 10 mm, 0.5 mm pitch, Fine Pitch Ball Grid Array (FPBGA), shown in Figure 3.

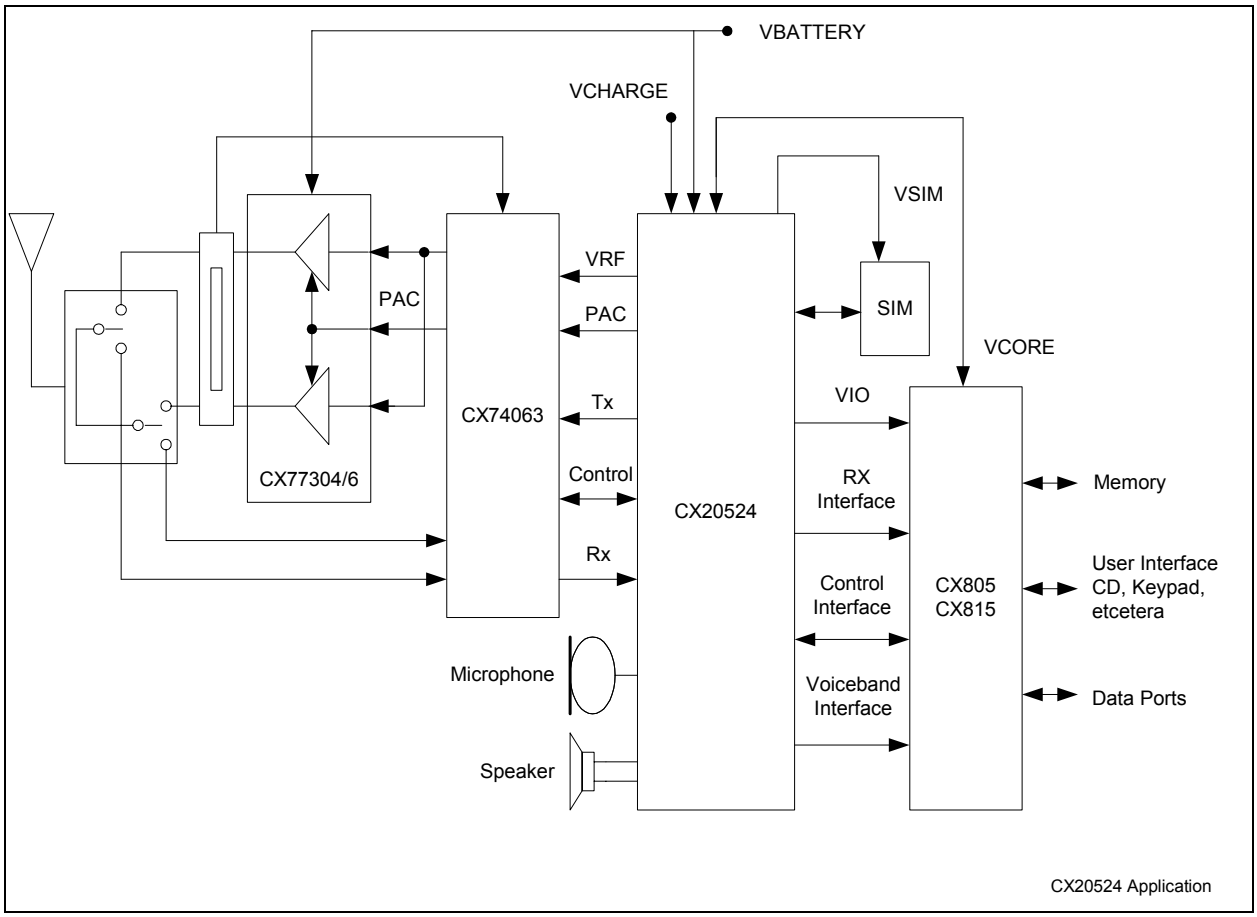
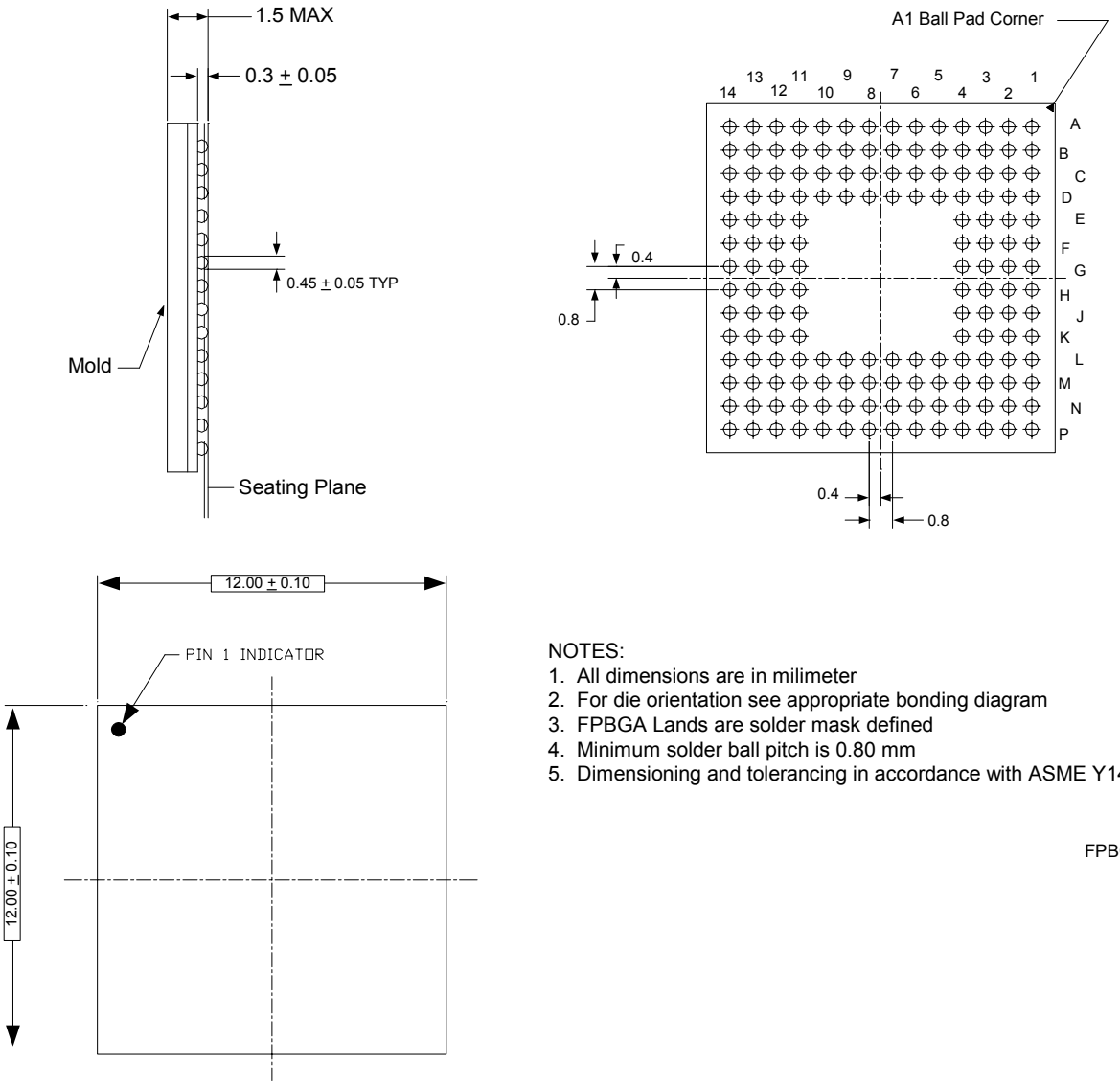


Figure 1. Typical CX20524 Application in a Handset Design

12 x 12 FPBGA - 160 Balls/ 0.80 mm Ball Pitch

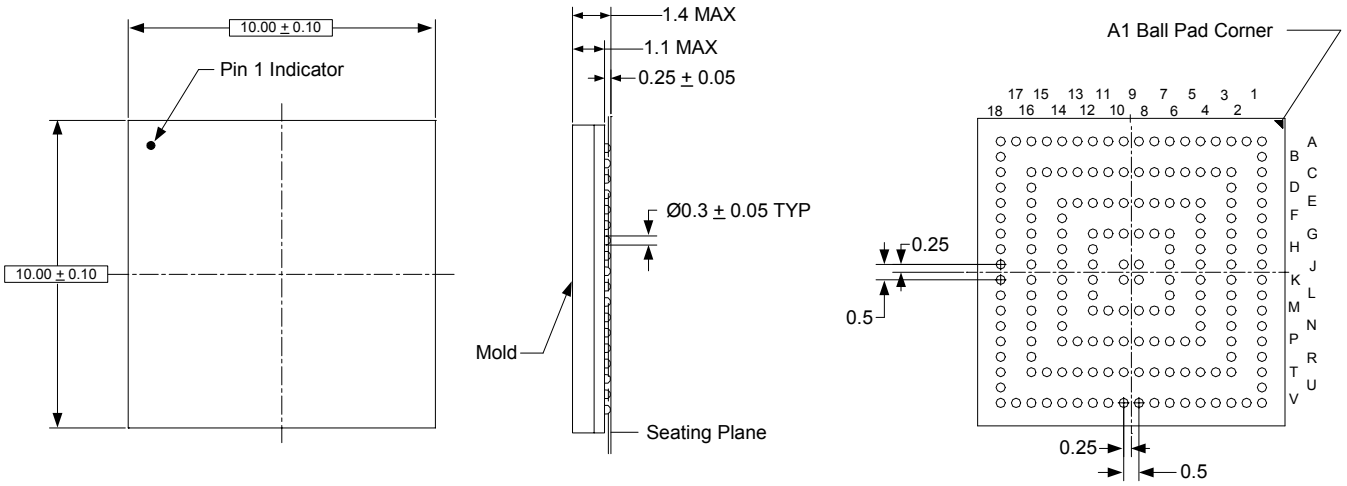


NOTES:
1. All dimensions are in milimeter
2. For die orientation see appropriate bonding diagram
3. FPBGA Lands are solder mask defined
4. Minimum solder ball pitch is 0.80 mm
5. Dimensioning and tolerancing in accordance with ASME Y14.5M-1994

FPBGA1212

Figure 2. CX20524-12 Package Description

10 x 10 FPBGA - 180 Balls/ 0.50 mm Pitch



NOTES:
1. All dimensions are in milimeter
2. For die orientation see appropriate bonding diagram
3. FPBGA Lands are solder mask defined
4. Minimum solder pitch is 0.50 mm
5. Dimensioning and tolerancing in accordance with ASME Y14.5 M - 1994

FPBGA_1010

Figure 3. CX20524-13 Package Description