
Bluetooth® 4.2 Stereo Audio SoC

Features

- Qualified for Bluetooth v4.2 specifications
- HFP 1.6, HSP 1.2, A2DP 1.3, SPP 1.2, and AVRCP 1.6
- Bluetooth Low Energy (BLE):
 - Generic Access Service
 - Device Information Service
 - Proprietary Services for data communication
 - Apple Service Notification Center (ANCS)
- 24-bit, 96 kHz high resolution audio
- I²S digital audio (IS2064GM only), MIC, analog audio, Aux-in
- 2 MIC (IS2062GM) and 1 MIC (IS2064GM) inputs
- UART, GPIOs, and LEDs
- Firmware upgrade
- Battery charging

Baseband Features

- 16 MHz main clock input
- Flash memory
- EEPROM
- Connects two hosts with HFP or A2DP profiles simultaneously
- Adaptive Frequency Hopping (AFH)

RF Features

- Class 2 output power (+2 dBm typical)
- Receive sensitivity: -90 dBm (2 Mbps EDR)
- Supports Bluetooth (BDR/EDR/BLE) specification (FW dependent)
- Combined Tx/Rx RF terminal simplifies external matching and reduces external antenna switches
- Tx/Rx RF switch for Class 2 or Class 3 application
- Integrated synthesizer requires no external voltage-controlled oscillator (VCO), varactor diode, resonator or loop filter
- Crystal oscillator with built-in digital trimming compensates for temperature or process variations

DSP Audio Processing

- 32-bit DSP core
- 64 kb/s A-Law, μ -Law PCM format, or Continuous Variable Slope Delta (CVSD) Modulation for Synchronous Connection-Oriented (SCO) channel operation

- 8 kHz or 16 kHz noise suppression
- 8 kHz or 16 kHz echo cancellation
- Packet loss concealment (PLC)
- Supports Serial Copy Management System (SCMS-T) content protection

Audio Codec

- SBC and optional AAC decoding
- 20-bit digital-to-analog (DAC) with 98 dB SNR
- 16-bit analog-to-digital (ADC) with 92 dB SNR
- Up to 24-bit or 96 kHz on I²S digital audio

Peripherals

- High-speed HCI-UART interface (supports up to 921,600 bps)
- Lithium-ion and lithium-polymer battery charger (up to 350 mA)
- Integrated 3V and 1.8V configurable switching regulator and low-dropout (LDO) regulator
- ADC for battery monitor and voltage sense
- ADC for charger thermal protection
- Under Voltage Protection (UVP)
- LED drivers

Operating Condition

- Operating voltage: 3.2V to 4.2V
- Temperature range: -20°C to +70°C

Package

- IS2062: 7 mm x 7 mm, LGA-56 package
- IS2064: 8 mm x 8 mm, LGA-68 package
- 0.4 mm pitch

Applications

- Sound bars and subwoofers
- Speaker phones
- Headsets and headphones

IS2062/64

Description

The IS2062/64 is a SoC qualified for Bluetooth v4.2 with Enhanced Data Rate (EDR). It integrates a 32-bit DSP co-processor and a codec dedicated for voice and audio applications. Continuously Variable Slope Delta (CVSD) encoding/decoding, and 8K/16K noise reduction and echo cancellation are implemented for voice applications. Sub-band coding (SBC) and AAC Low-Complexity (AAC-LC) decoding functions are used for

audio applications. The IS2062/64 features a 20-bit audio DAC in addition to an I²S digital audio interface that supports 24-bit or 96 kHz data formats. System optimizations include an integrated battery voltage sensor, battery charger, switching regulator, and LDO.

Figure 1 illustrates a typical block diagram of the IS2062/64 SoC. Figure 2 illustrates the IS2062 package dimensions and Figure 3 illustrates the IS2064 package dimensions.

FIGURE 1: IS2062/64 MODULE BLOCK DIAGRAM

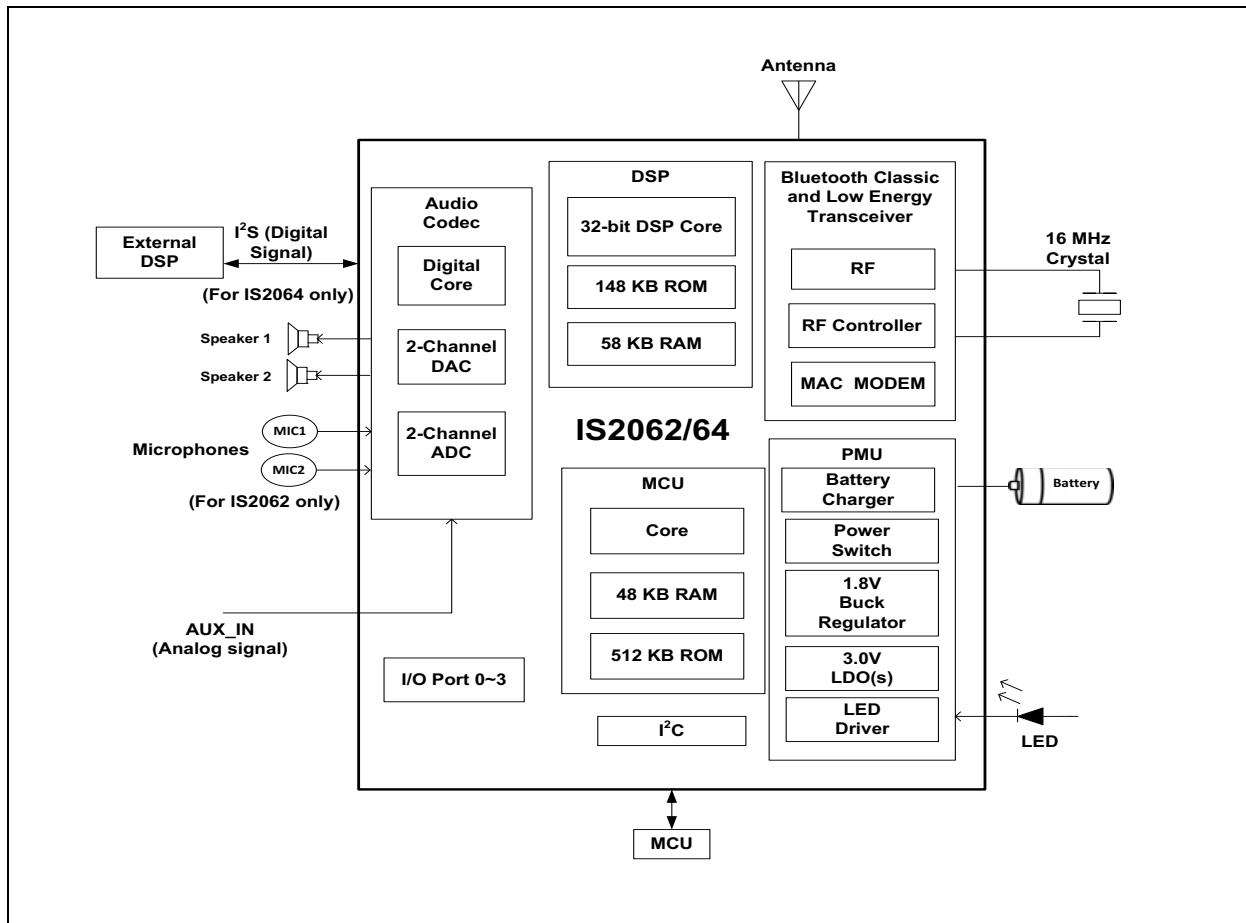
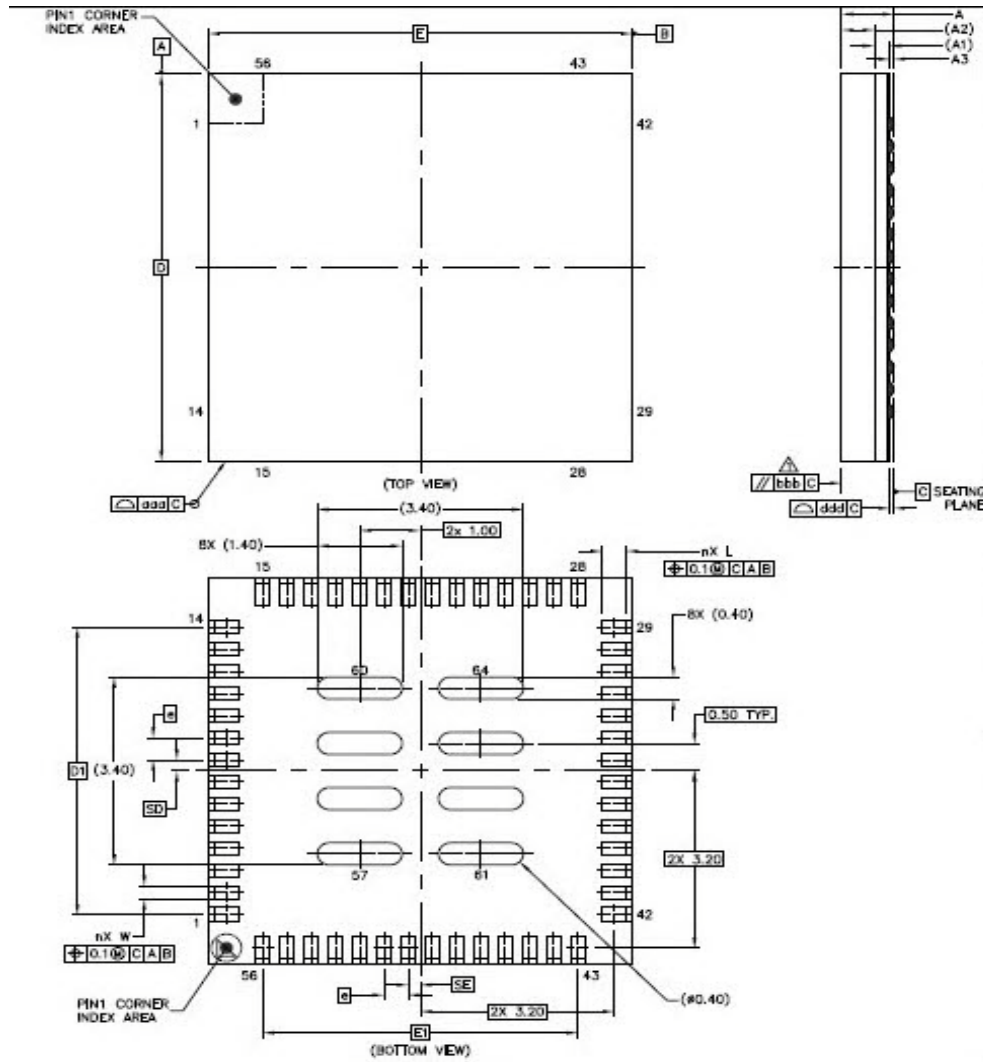


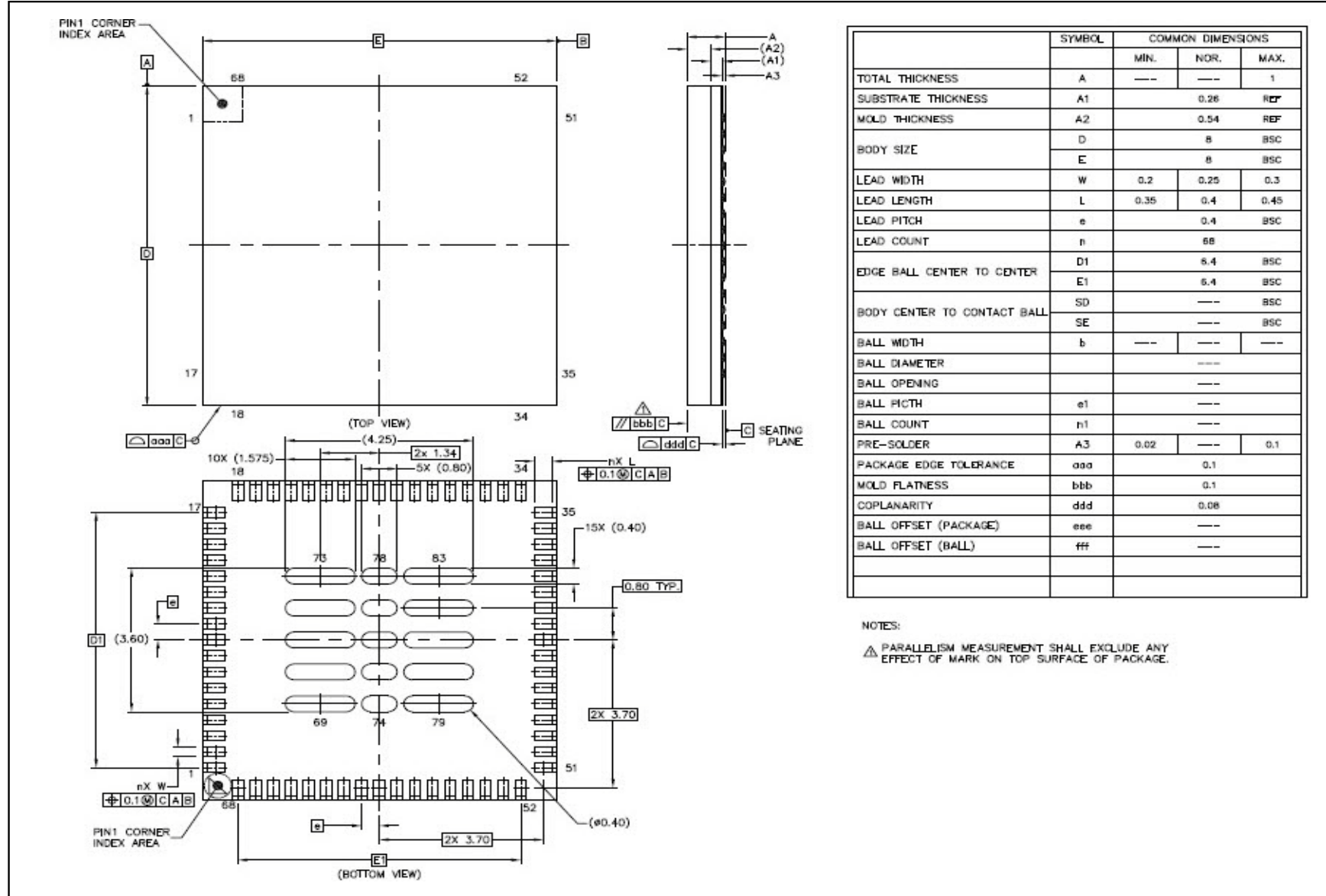
FIGURE 2: IS2062 DIMENSIONS



	SYMBOL	COMMON DIMENSIONS		
		MIN.	NOR.	MAX.
TOTAL THICKNESS	A	---	---	1
SUBSTRATE THICKNESS	A1	0.26		REF
MOLD THICKNESS	A2	0.54		REF
PRE-SOLDER	A3	0.02	---	1
BODY SIZE	D	7		BSC
	E	7		BSC
LEAD WIDTH	W	0.2	0.25	0.3
LEAD LENGTH	L	0.35	0.4	0.45
LEAD PITCH	e	0.4		BSC
LEAD COUNT	n	56		
EDGE BALL CENTER TO CENTER	D1	5.2		BSC
	E1	5.2		BSC
BODY CENTER TO CONTACT BALL	SD	0.2		BSC
	SE	0.2		BSC
BALL WIDTH	b	---	---	---
BALL DIAMETER		---		
BALL OPENING		---		
BALL PITCH	e1	---		
BALL COUNT	n1	---		
PRE-SOLDER		---	---	---
PACKAGE EDGE TOLERANCE	ooo	0.1		
MOLD FLATNESS	bbb	0.1		
COPLANARITY	ddd	0.08		
BALL OFFSET (PACKAGE)	eee	---		
BALL OFFSET (BALL)	fff	---		

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 ▲ PARALLELISM MEASUREMENT SHALL EXCLUDE ANY EFFECT OF MARK ON TOP SURFACE OF PACKAGE.

FIGURE 3: IS2064 DIMENSIONS



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