



AppoTech
卓荣集成

CW6611D

Bluetooth Audio Player 4.2 SOC

Product Spec

[CW6611D-PS-EN]

Versions: 1.0.0

Release Date: 2016/9/23

Table of content

Table of content	II
1 Product Overview	1
1.1 General Description	1
1.2 Features.....	1
2 Pin Definitions	2
2.1 CW6611D	2
2.1.1 Package.....	2
2.1.2 Pin Assignment	2
2.1.3 Pin Description.....	2
3 Characteristics	5
3.1 PMU Parameters	5
3.2 CORE PLL Parameters.....	5
3.3 General purpose I/O Parameters	5
3.4 Audio ADDA Parameters	6
3.5 USB PHY Parameters	6
3.6 RF Analog Blocks	6
4 Package Outline Dimensions	8
4.1 SSOP28	8
Revision History.....	i

1 Product Overview

Bluetooth Audio Player 4.2 SOC

1.1 General Description

CW6611D is a highly integrated system on chip for Bluetooth v4.0 specification with Bluetooth Classic (BR/EDR) applications. This SOC complies with Bluetooth specifications and is backward-compatible with Bluetooth 3.0, 2.1, 2.0 or 1.2 systems.

This Bluetooth includes a data rate of 1M/2M/3Mbps RF with a performance of Tx: 0dBm, Rx:-80dBm, and full-duplex UART, SPI, SD, IIC (FM function) interface with EDR applications.

It also integrates a PLL, and a CODEC to enhance audio and voice quality.

In addition, to provide easy accessibility to other electronic products customers may use, this SOC supports Full speed USB 2.0 HOST/DEVICE controller, PHY, audio playback from SD, USB, and 26M crystal.

1.2 Features

- Supports Bluetooth v4.0 specification with Bluetooth Classic (BR/EDR) ; backward-compatible with BT v 3.0, 2.1, 2.0 or 1.2.
- SOC Supports following versions:
 - Hands Free v.1.6
 - Headset 1.2
 - A2DP v.1.3
 - AVCTP v.1.4
 - AVDTP v.1.3
 - AVRCP v.1.5
- Supports 26M crystal with internal crystal oscillator
- Supports MP3/SBC decoder;
- Supports one mono AUX;
- Six Channels 10-bit SARADC;
- Supports Audio record function from MIC to ADPCM/SD/USB
- Supports Audio playback from SD/USB
- Supports 16bit Mono DAC with >90dB SNR, embedded with two class A/B headphone amplifier
- 16bit Mono ADC with >90dB DR
- Supports full-duplex UART, SPI, SD interface;
- Supports IIC interface for FM function;
- 2 channels 16 levels Low Voltage Detector;
- Full speed USB 2.0 HOST/DEVICE controller/PHY
- Internal LDO regulator:1.35V to 1.2V, 4.2V to 3.3V
- Built-in buck converter, DC-DC: 4.2V to 1.35V
- Class 2 power level, RF Performance: Tx:0dBm, Rx: -80dBm;

2 Pin Definitions

2.1 CW6611D

2.1.1 Package

SSOP28

2.1.2 Pin Assignment

Figure 2-1 shows the pin assignments of SSOP28 package.

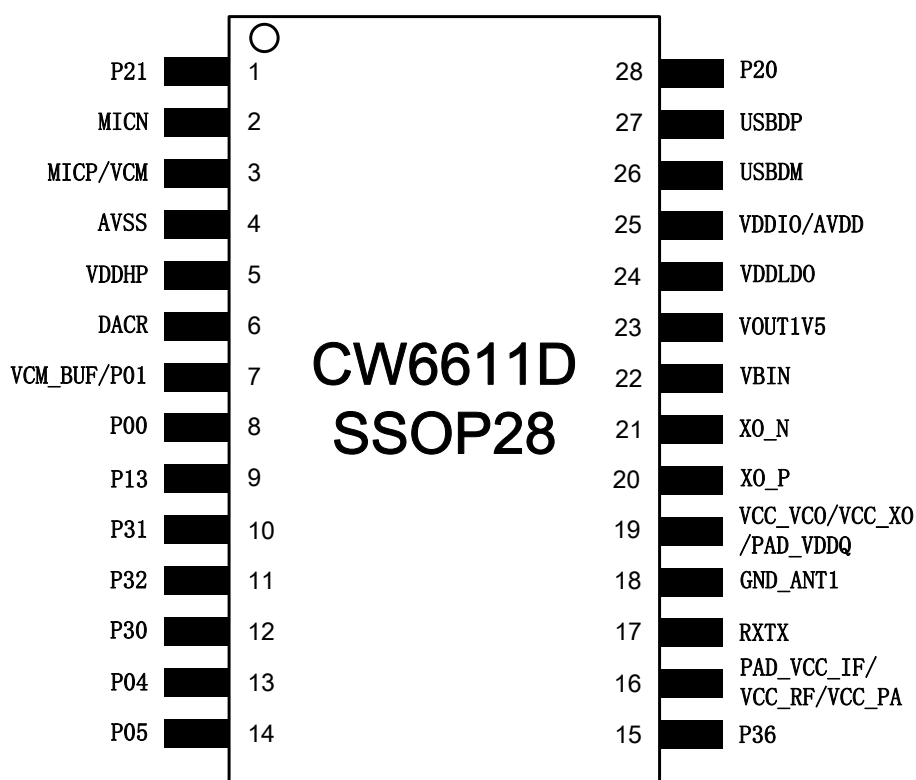


Figure 2-1 Pin Assignment of CW6611D

2.1.3 Pin Description

Table 2-1 shows the pin description of CW6611D.

Table 2-1 Pin Description of CW6611D

Pin No.SSOP28	Name	Type	Function
1	P21	I/O	GPIO AUXR2 ADC1 SDCLK EMIDAT1

Pin No.SSOP28	Name	Type	Function
			LCD_D1
2	MICN	A	MIC Negative input
3	MICP/VCM	A	MIC Positive input DAC VCM output
4	AVSS	GND	Analog GND
5	VDDHP	PWR	Headphone power
6	DACR	A	DAC right output GPIO input
7	P01/VCM_BUF	I/O	GPIO AUXR0 UARTTX1 PORT INT/WKUP0 SDDAT2 DAC VCM buffer
8	P00	I/O	GPIO AUXL0 UARTRX1 SDDAT1 SPI0DIN2
9	P13	I/O	GPIO ADC5
10	P31	I/O	GPIO SDCMD SPI0DIN3
11	P32	I/O	GPIO SDDAT0 SPI0DOUT3/DIN3
12	P30	I/O	GPIO ADC4 SDCLK SPI0CLK3
13	P04	I/O	GPIO SPI1DOUT/DIN1
14	P05	I/O	GPIO SPI1CLK
15	P36	I/O	GPIO
16	PAD_VCC_IF VCC_RF VCC_PA	PWR	Power VCC RF/PA Power VCC
17	RXTX	A	RF Rx and Tx pin
18	GND_ANT1	GND	RF GND
19	VCC_VCO	PWR	Power VCC

Pin No.SSOP28	Name	Type	Function
	VCC_XO/ PAD_VDDQ		Power VCC/VDDQ
20	XO_P	A	BT 26MHz XOSC Positive Pin
21	XO_N	A	BT 26MHz XOSC Negative Pin
22	BVIN	PWR	PMU Power input Pin 4.2V(typ)
23	VOUT1V5	PWR	VOUT 1.5V
24	VDDLDO	PWR	LDO power input 4.2V(typ)
25	VDDIO/AVDD	PWR	Power output VDDIO 3.3V
26	USBDM	I/O	USB Negative Input/output
27	USBDP	I/O	USB Positive Input/output
28	P20	I/O	GPIO

3 Characteristics

3.1 PMU Parameters

Table 3-1 PMU Parameters

Sym	Characteristics	Min	Typ	Max	Unit	Conditions
BVIN	Buck input voltage	2.8	4.2	4.6	V	
VDDLDO	VDDLDO input voltage	2.8	4.2	4.6	V	
VOUT1V5	Buck output voltage	1.15	1.35	1.6	V	
VDDCORE	1.2V output voltage	-	1.2	-	V	
VDDRTC	input voltage	2.2	4.2	4.6	V	
VDDHP	3.0V output voltage	2.8	3.0	3.3	V	
VCM	1.5V output voltage	-	1.35	-	V	
RVDD	output voltage	1.1	1.2	1.3	V	
VDDIO	3.3V output voltage	2.8	3.3	-	V	

3.2 CORE PLL Parameters

Table 3-2 PLL Parameters

Sym	Characteristics	Min	Typ	Max	Unit	Conditions
F _{I1}	Frequency input	-	32.768	-	KHz	Low frequency OSC
F _{I2}	Frequency input	1	12	15	MHz	High frequency OSC
F _{OUT1}	Frequency output	-	48	-	MHz	
T _{LOCK1}	PLL locked time	-	2	-	ms	Use low frequency OSC as input reference
T _{LOCK2}	PLL locked time	-	0.1	-	ms	Use high frequency OSC as input reference

3.3 General purpose I/O Parameters

Table 3-3 I/O Parameters

Symbol	Description	Min	Typ	Max	Units	Conditions
V _{IL}	Low-Level input voltage	-	-	30% * VDDIO	V	VDDIO = 3.3V
V _{IH}	High-level input voltage	70% * VDDIO	-	-	V	VDDIO = 3.3V
R _{PUP0}	Internal pull-up resistor 0	-	10	-	KΩ	
R _{PUP1}	Internal pull-up resistor 1	-	200	-	KΩ	
R _{PUP2}	Internal pull-up resistor 2	-	0.5	-	KΩ	
R _{PDN0}	Internal pull-down resistor 0	-	10	-	KΩ	
R _{PDN1}	Internal pull-down resistor 1	-	0.33	-	KΩ	
R _{PDN2}	Internal pull-down resistor 2	-	0.5	-	KΩ	
I _{LEVEL1}	Level1 current driving	8	-	-	mA	For PORT1

Symbol	Description	Min	Typ	Max	Units	Conditions
I _{LEVEL2}	Level2 current driving	24	-	-	mA	For Port1.1

3.4 Audio ADDA Parameters

Table 3-4 Audio DAC Parameters

Sym	Characteristics	Min	Typ	Max	Unit	Conditions
DAC SNR&DR		-	90	-	dB	48PIN
DAC SNR&DR		-	90	-	dB	28PIN & 20 PIN
DAC THD+N		-	-80	-	dB	10Kohm loading
PWR _{AB}	ClassAB AMP power output	-	-	16	mW	32ohm loading
V _{PP}	Maximum output voltage	-	-	2.6	V	10Kohm loading
ADC SNR/DR			93		dB	In Voice Band
ADC THD+N			89		dB	In Voice Band

3.5 USB PHY Parameters

Table 3-5 USB PHY Parameters

Sym	Characteristics	Min	Typ	Max	Unit	Conditions
RDM _{PUP}	DM pull-up resistor	-	120	-	KΩ	
RDP _{PUP}	DP pull-up resistor	-	1.5	-	KΩ	
RDM _{PDN}	DM pull-up resistor	-	15	-	KΩ	
RDP _{PDN}	DP pull-up resistor	-	15	-	KΩ	

3.6 RF Analog Blocks

Table 3-6 Frequency Synthesizer Parameters

Parameter	Condition	MIN	typ	max	Unit
Synthesizer					
Synthesizer settling time	Within +/- 25 KHz accuracy	-	70	-	us
Phase Noise	Fc=2.4GHz	ΔF=1 MHz	-	-110	dBc/Hz
		ΔF=2 MHz	-	-118	dBc/Hz
		ΔF≥3 MHz	-	-123	dBc/Hz
XTAL Oscillator					
Frequency range		-	26	-	MHz
Frequency Trimming Range	6 bits	-1	-	+1	kHz

Table 3-7 Receive path Parameters

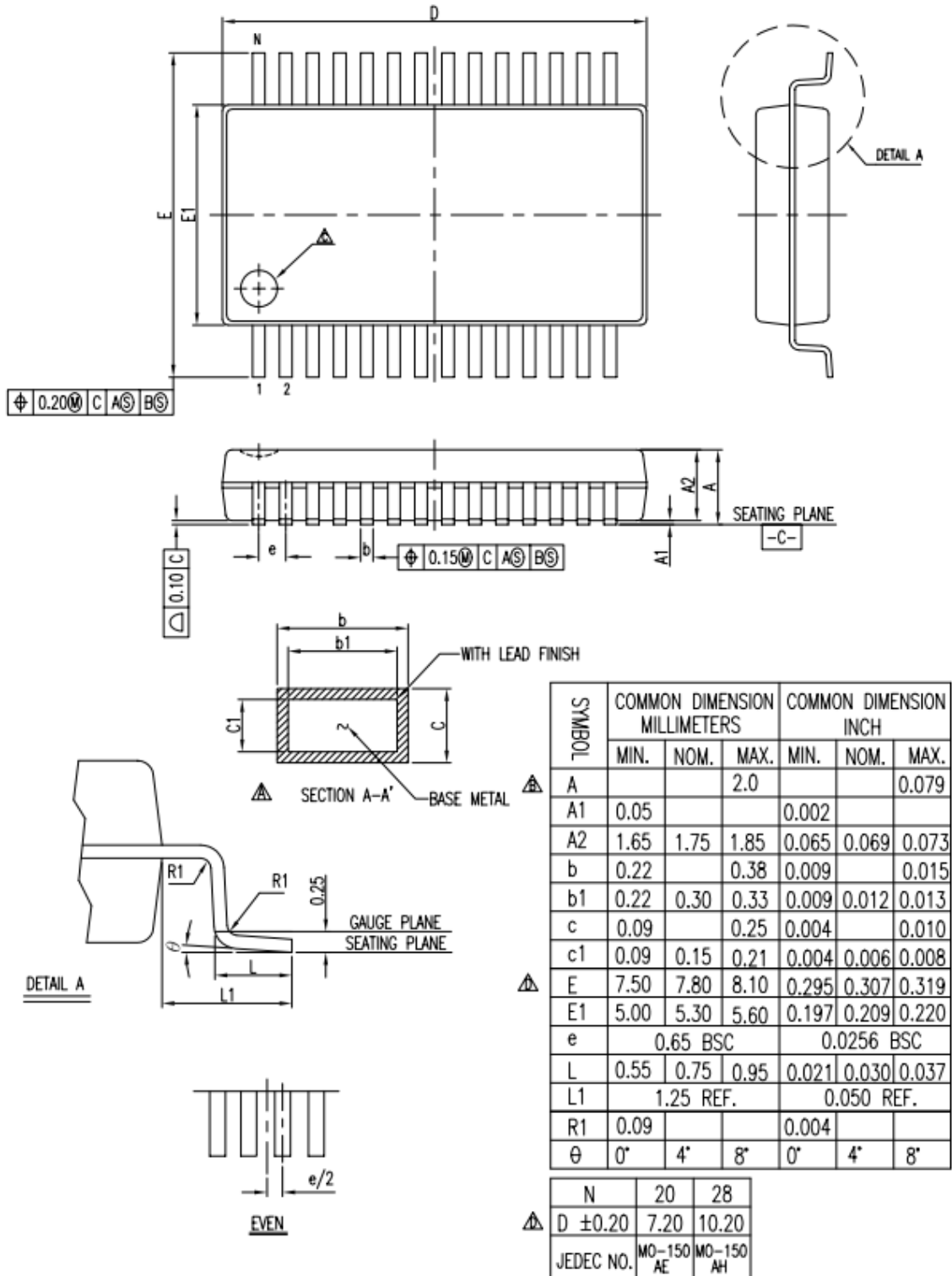
Parameter	Condition	MIN	typ	max	Unit
Receiver Channel					
Minimum Usable Signal	RX sensitivity	-	-80	-	dBm
LNA					
Gain	High Gain	-	25	-	dB
	Mid Gain	-	15	-	dB
	Low Gain	-	5	-	dB
Mixer					
Conversion Gain		-	0	-	dB
Ifamp					
Gain	5/9/12/15/18 dB	-	12	-	
Complex BPF					
Band pass -3 dB BW	Figure 1.	-	2	-	MHz
Image Rejection		-	30	-	dB
VGA					
Gain Range		-6	-	+68	dB
Gain Step		-	+1/+6	-	dB
ADMOD					
SNDR	Freq = +- BW	-	>50	-	dB

Table 3-8 Transmit path Parameters

Parameter	Condition	MIN	typ	max	Unit	
Transmit Channel						
Available output power		-2	0	1.5	dBm	
Side Band Suppression		-	-30	-	dBm	
LPF						
Low pass -3 dB BW	Figure 2.	-	1	-	MHz	
TXVGA						
Gain Step		-7	-	7	dB	
PA						
Gain Range	Set paPWR[2:0] of	GFSK	-12	-	4	dBm
	Control Register #16	DPSK	-15	-	1	dBm

4 Package Outline Dimensions

4.1 SSOP28



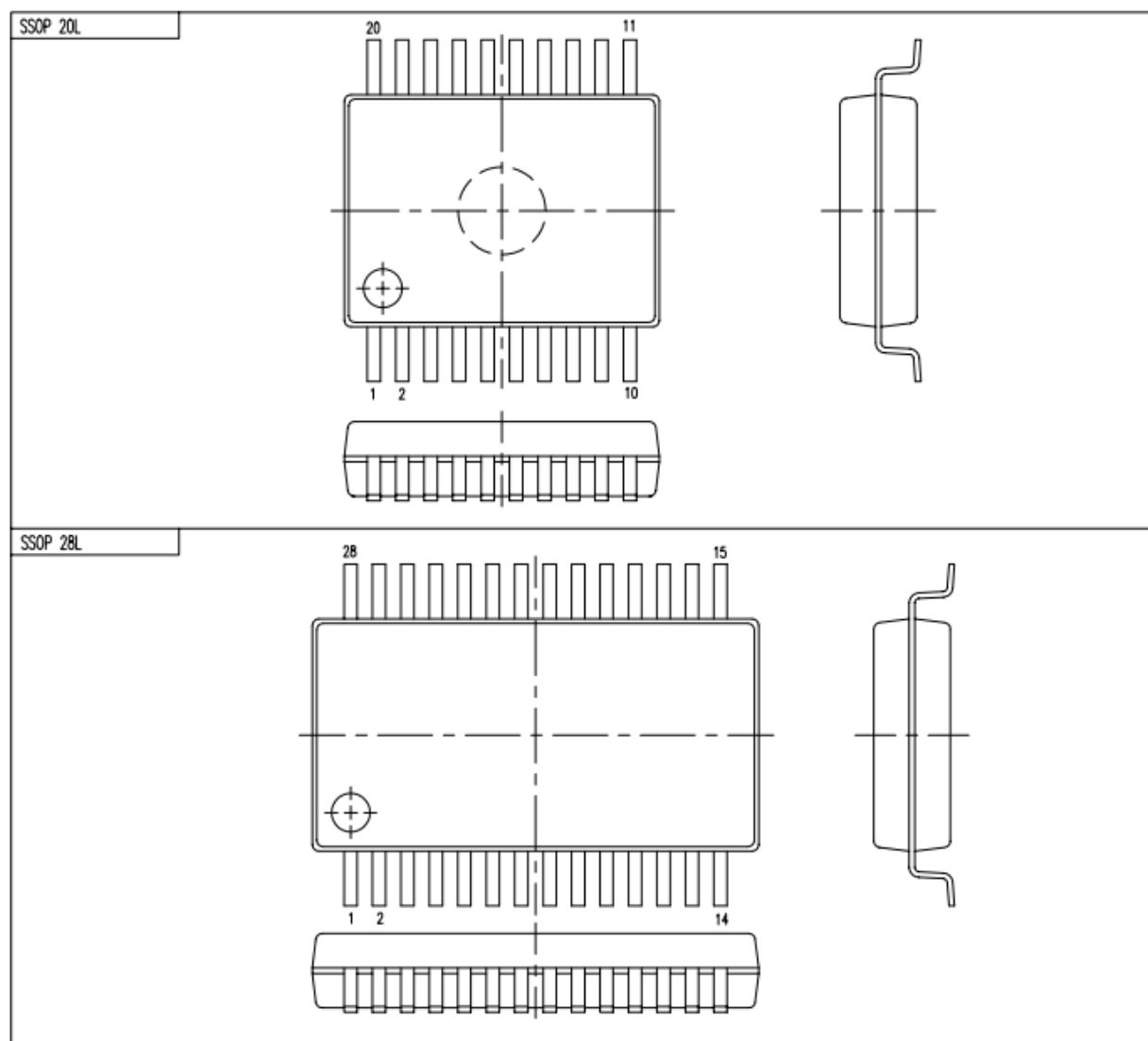


Figure 4-1 SSOP28 Package Outline Dimension

Revision History

Date	Version	Comments	Revised by
2016/9/23	0.0.1	Initial version	YX
2016/9/23	1.0.0	Released	YX