

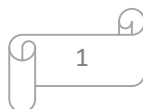
VGA/Audio to HDMI Converter

ZY5621

Data Sheet

V1.0

Release Date : Oct-25-2019



Section 1 Introduction

1.1 Overview

The ZY5621 is a VGA/Audio to HDMI converter chip, it is compliant with the HDMI 1.4/DVI 1.0 specifications. ZY5621 is also an advanced high-speed converter that integrates MCU and VGA EDID chips.

It also contains VGA input indicating and only Audio to HDMI functions. Further lower the cost of system manufacture, and simplify the routing on the system board.

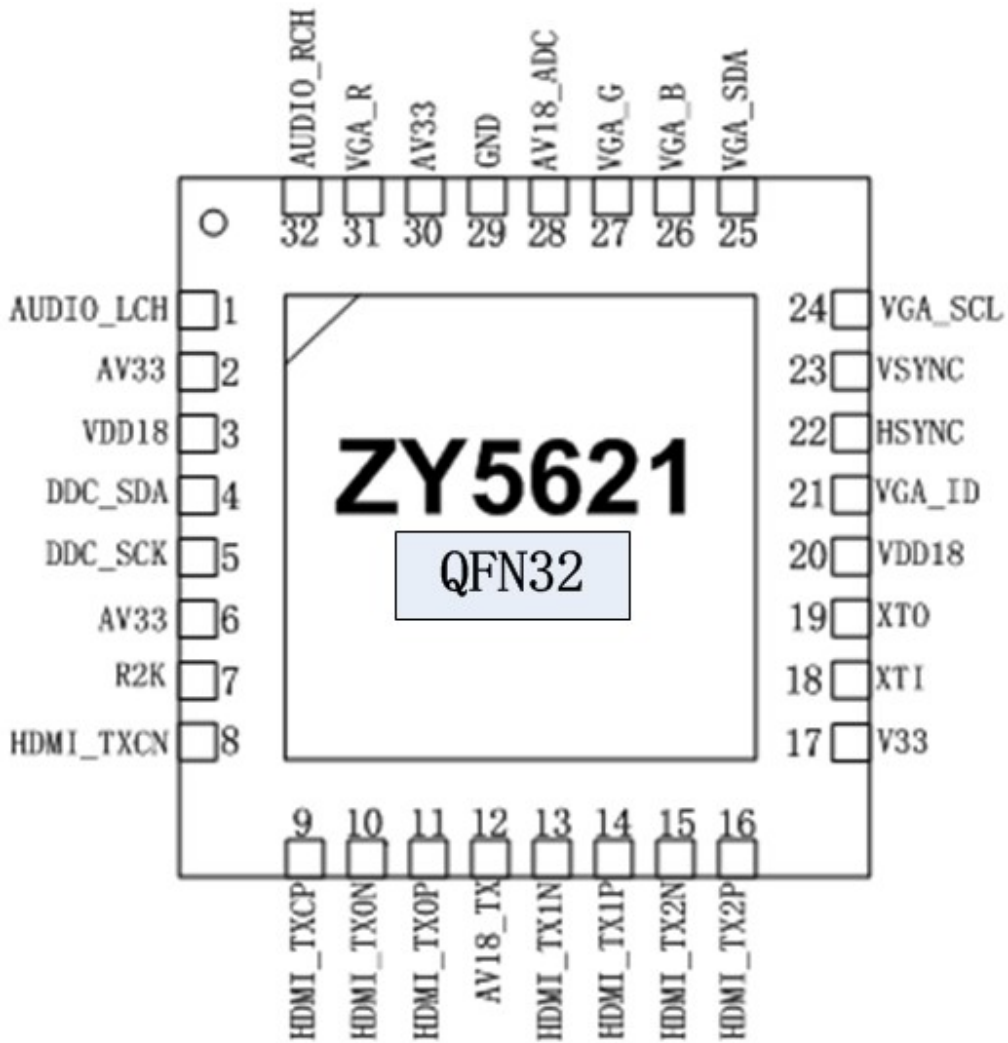
1.2 Features

- Internal MCU.
- Embedded VGA EDID chip.
- VGA Input Indicating.
- Support only Audio input to HDMI.
- VGA resolution support up to 1920x1200@60Hz.
- HDMI 1.4/DVI 1.0 compliant.
- Support Left/Right line audio input.
- ESD up to 6KV
- 5V-tolerant DDC interfaces
- Package
 - 5mmX5mm 32pin plastic QFN
 - PB-free and RoHS

Section 2 Overview

2.1 Pin Diagram

ZY5621 Pin Diagram



2.2 Pin Description

Table 2-1 HDMI ports

Pin Num	Name	In/Out	Description
8	HDMI_TXCN	IN	Negative terminal of Differential Clock Output Pair of HDMI
9	HDMI_TXCP	IN	Positive terminal of Differential Clock Output Pair of HDMI
10	HDMI_TX0N	IN	Negative terminal of Differential DATA Output Pair0 of HDMI
11	HDMI_TX0P	IN	Positive terminal of Differential DATA Output Pair0 of HDMI
13	HDMI_TX1N	IN	Negative terminal of Differential DATA Output Pair1 of HDMI
14	HDMI_TX1P	IN	Positive terminal of Differential DATA Output Pair1 of HDMI
15	HDMI_TX2N	IN	Negative terminal of Differential DATA Output Pair2 of HDMI
16	HDMI_TX2P	IN	Positive terminal of Differential DATA Output Pair2 of HDMI
4	DDC_SDA	INOUT	DDC SDA signal of HDMI TX
5	DDC_SCL	IN	DDC SCL signal of HDMI TX
7	R2K	INOUT	Default 2K resistor to GND

Table 2-2 Analog input Ports

Pin Num	Name	In/Out	Description
32	AUDIO_RCH	IN	Line audio Right channel input.
1	AUDIO_LCH	IN	Line audio Left channel input.
26	VGA_B	IN	Analog Blue/U input.
27	VGA_G	IN	Analog Green/Y input.
31	VGA_R	IN	Analog Red/V input.

Table 2-3 System Pins

Pin Num	Name	In/Out	Description
18	XTI	INPUT	Xtal input
19	XTO	OUTPUT	Xtal output
21	VGA_ID	OUTPUT	VGA input Indicating. 1:VGA in 0:no input

Table 2-4 Power Pins

Pin Num	Name	In/Out	Description
17	V33	POWER	Noise 3.3V Power input
3,20	VDD18	POWER	1.8v Core Power input
12	AV18_TX	POWER	1.8v HDMI TX power input
2,6,30	AV33	POWER	3.3v Aanalog power output
28	AV18_ADC	POWER	1.8v ADC power input

2.3 Electrical Characteristics

Absolute Maximum Conditions

Symbol	Parameter	Min	Typ	Max	Units
V _{cc33}	3.3V Supply Voltage	-0.3		4.0	V
V _I	Output Voltage	DDC_SDA* DDC_SCL* VGA_SDA* VGA_SCL	-0.3	5.5	V
		Others	-0.3	4.0	V
V _o	Output Voltage	-0.3		V _{cc33} +0.3	V
T _{STG}	Storage Temperature	-40		150	°C

Normal Operating Conditions

Symbol	Parameter	Min	Typ	Max	Units
V _{cc3v}	3.3V Supply Voltage	2.97	3.3	3.63	V
V _{CCN}	Supply Voltage Noise	-0.3		110	mVp-p
T _A	Ambient Temperature(with power supply)	-20	25	80	°C

DC Digital IO Specifications

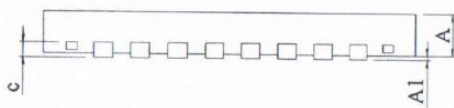
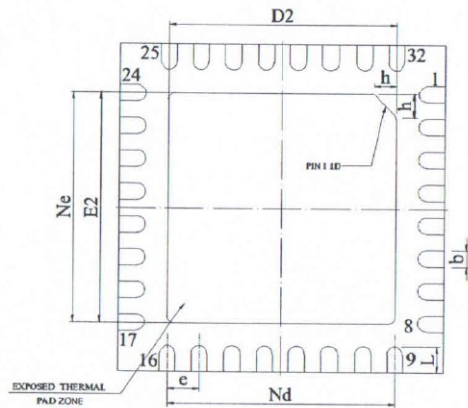
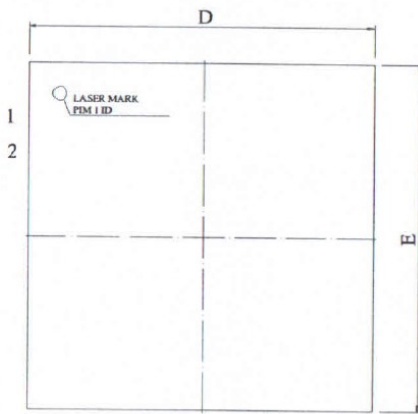
Symbol	Parameter	Min	Typ	Max	Units
V _{IH}	High-level Output Voltage	2.2	-	-	V
V _{IL}	Low-level Output Voltage	-	-	0.8	V
V _{OH}	High-level Output Voltage	2.4	-	-	V
V _{OL}	High-level Output Voltage	-	-	0.4	V

DC Analog Signal Specifications

Symbol	Parameter	Condition	Min	Typ	Max	Units
I _{CCD}	Supply Current (25 °C Ambient TX are Active R _{R2K} =2K ohm)	1080p@60Hz 1.8V	-	-	240	mA
I _{CCA}	Supply Current (25 °C Ambient TX are Active R _{R2K} =2K ohm)	1080p@60Hz 3.3V	-	-	120	mA

2.4 Package

QFN32



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.65	0.75	0.85
A1	—	0.02	0.05
b	0.20	0.25	0.30
c	0.18	0.20	0.25
D	4.90	5.00	5.10
D2	3.40	3.50	3.60
e	0.50BSC		
Ne	3.50BSC		
Nd	3.50BSC		
F	4.90	5.00	5.10
E2	3.40	3.50	3.60
L	0.35	0.40	0.45
h	0.25	0.30	0.35