
CH7102A HDMI to BT656 Converter with IIC Slave

FEATURES

- HDMI Receiver compliant with HDMI 1.4 specification
- Support ITU-R 601 or ITU-R 656 compatible YCbCr 4:2:2 output format with embedded syncs or discrete syncs. Support resolution up to 1280 x 720@60Hz or 1920x1080@30Hz for YCbCr 4:2:2 output
- On-chip Audio encoder which support 2 channel IIS/ S/PDIF audio output
- Optional HDCP 1.4 specification supported
- MCU embedded to handle the control logic
- Support device boot up by automatically loading firmware from on-chip flash
- Integrated EDID Buffer
- Crystal Free architecture
- HDMI input detection supported
- Support Auto Power Saving mode and low stand-by current
- Support RGB to YCC conversion in ITU-R BT.601 and 709 color space
- IIC slave interface and HDMI DDC interface are available for configuration and firmware update.
- Low power architecture
- RoHS compliant and Halogen free package
- Offered in 40-Pin QFN package (5 x 5 mm)

APPLICATION

- Car Infotainment Device
- Notebook/Ultrabook
- Tablet Device
- Handheld/Portable Device
- Digital Video Systems

GENERAL DESCRIPTION

Chrontel's CH7102A is a low-cost, low-power semiconductor device that consists of HDMI receiver, YCbCr 4:2:2 encoder and audio encoder, which can convert HDMI signals into 8 bit YCbCr 4:2:2 outputs with IIS or SPDIF audio output.

The HDMI Receiver integrated is compliant with HDMI 1.4b. With sophisticated MCU and the On-chip Flash, CH7102A supports auto-boot and programmable EDID ROM. Leveraging the firmware auto loaded from the embedded Flash, CH7102A can support HDMI input detection enter into Power saving mode automatically.

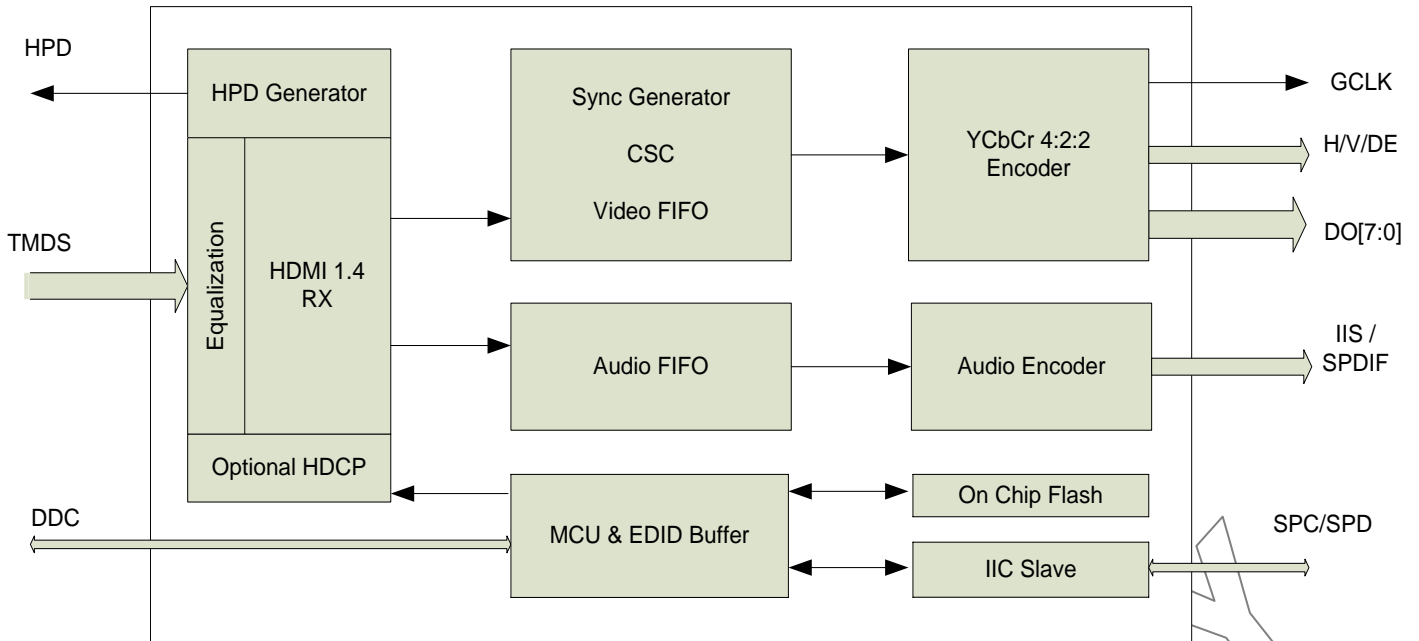


Figure 1: CH7102A Functional Block Diagram

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1.0 PIN-OUT

1.1 Package Diagram

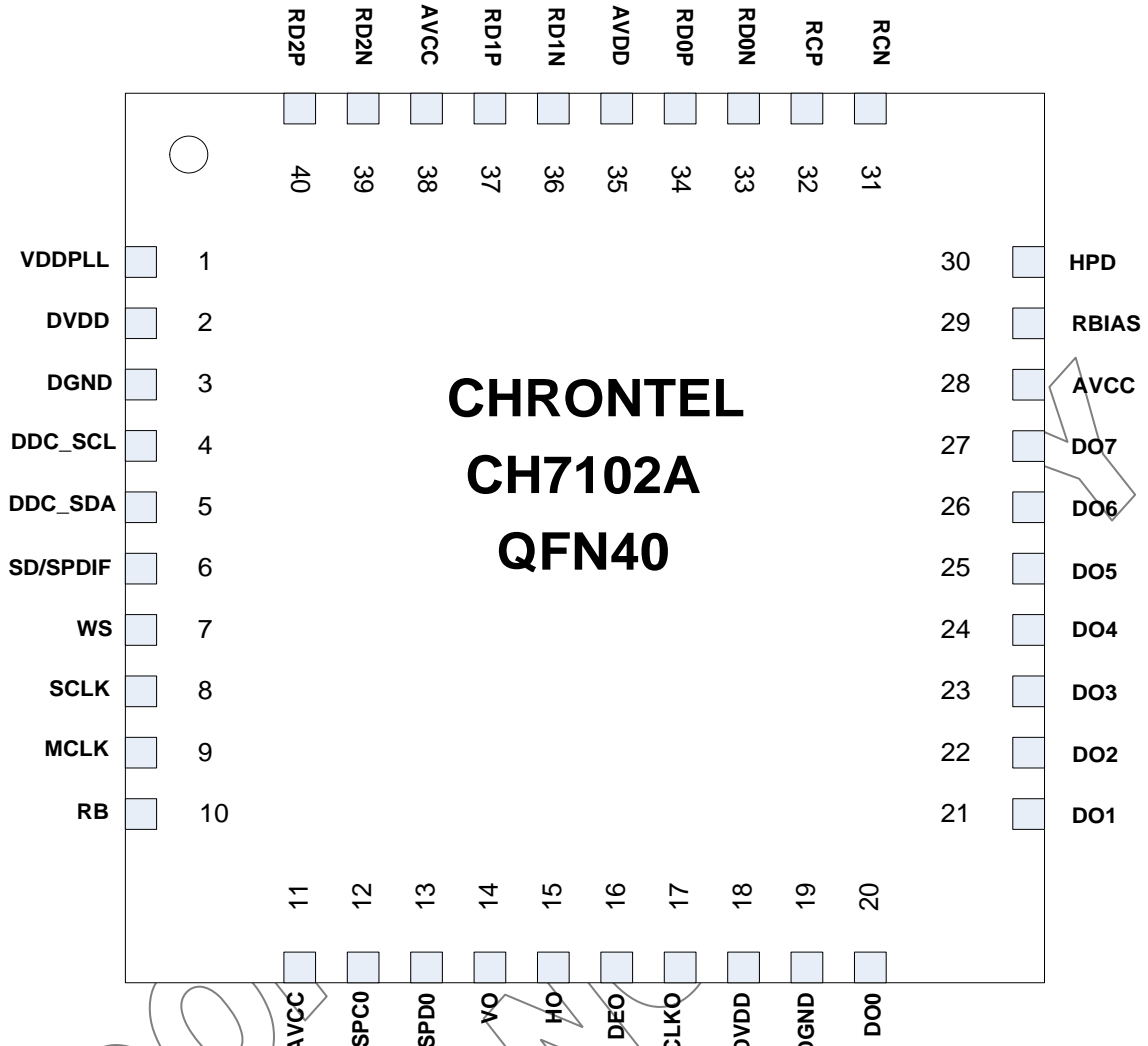


Figure 2: CH7102A 40-Pin QFN Pin Out

1.2 Pin Description

Table 1: Pin Name Descriptions

Pin #	Type	Symbol	Description
4	In	DDC_SCL	Serial Port Clock to HDMI/DVI Transmitter This pin functions as the clock bus of the serial port to HDMI or DVI DDC transmitter. This pin requires a pull-up 47 kΩ resistor to the desired voltage level.
5	In/out	DDC_SDA	Serial Port Data to HDMI/DVI Transmitter This pin functions as the data bus of the serial port to HDMI or DVI DDC transmitter. This pin requires a pull-up 47 kΩ resistor to the desired voltage level.
6	Out	SD/SPDIF	I2S Serial Data or SPDIF Output
7	Out	WS	I2S Word Select
8	Out	SCLK	I2S Continuous Serial Clock
9	Out	MCLK	I2S System Clock
10	In	RB	Chip Reset Low to 0V for reset. Typical High level is 3.3V
12	In	SPC0	Serial Port Clock Input This pin functions as the clock pin of the serial port. External pull-up 6.8 KΩ resistor is required
13	In/out	SPD0	Serial Port Data Input / Output This pin functions as the bi-directional data pin of the serial port. External pull-up 6.8 KΩ resistor is required
14	Out	VO	VSYNC Output of BT656
15	Out	HO	HSYNC Output of BT656
16	Out	DEO	Data Enable Output of BT656
17	Out	CLKO	Clock Output of BT656
20~27	Out	DO0~DO7	BT656 Data Output
29	In	RBIAS	Current Set Resistor Input This pin sets the DAC current. A 10 KΩ, 1% tolerance resistor should be connected between this pin and AVSS using short and wide traces
30	Out	HPD	HDMI Receiver Hot Plug output
31,32,33,34,36,37,39,40	In	RD [2:0] P/N RCP/N	HDMI TMDS Input HDMI differential clock and data input pairs
1	Power	VBDPLL	PLL Power Supply (1.2V)
2,18	Power	DVDD	Digital IO Power Supply (1.2V)
3,19	Power	DGND	Digital Ground
11,28,38	Power	AVCC	Analog Power Supply (3.3V)
35	Power	AVDD	HDMI Receiver Analog Power Supply (1.2V)
Pad	Power	GND	Power Supply Ground

2.0 PACKAGE DIMENSION

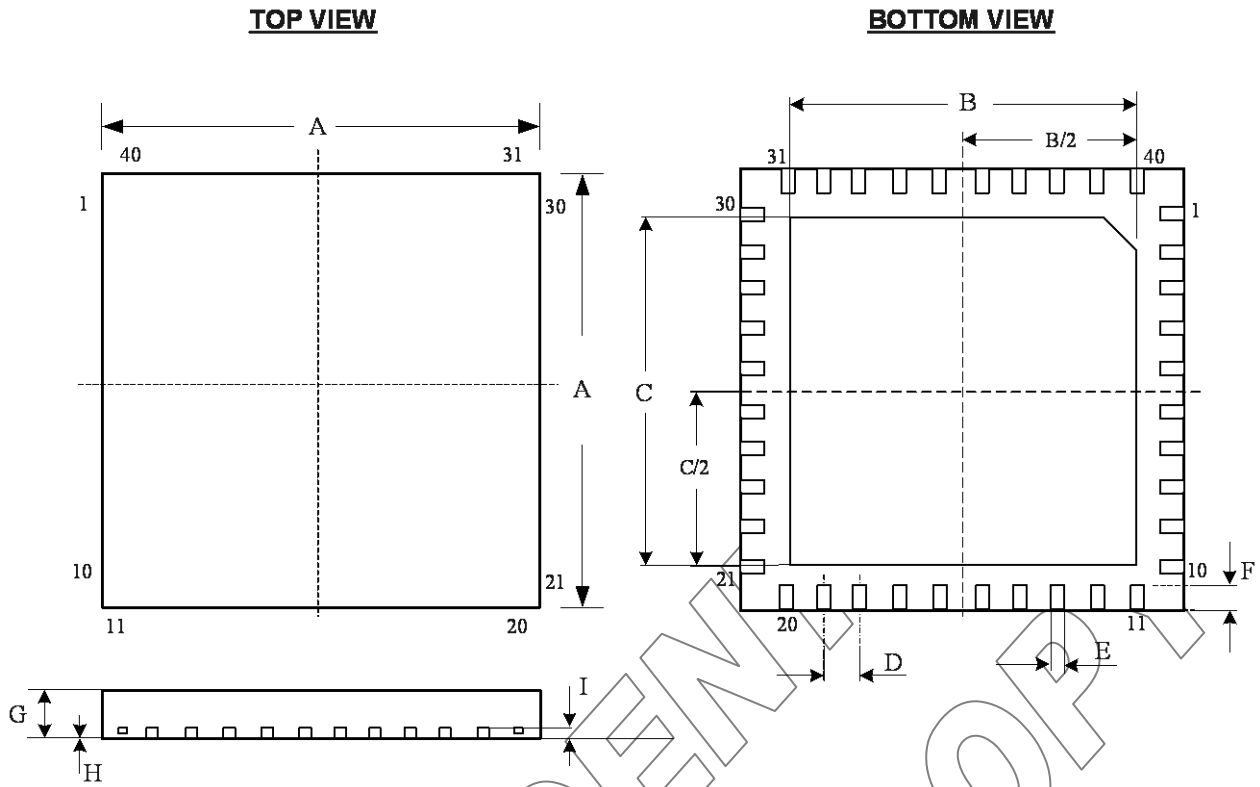


Figure 3: 40 Pin QFN Package

Table 2: Table of Dimensions

No. of Leads		SYMBOL								
40 (5 X 5 mm)		A	B	C	D	E	F	G	H	I
Milli-meters	MIN	4.90	3.20	3.20	0.4	0.15	0.35	0.80	0	0.203
	MAX	5.10	3.40	3.40		0.25	0.45	0.90	0.05	REF

Notes:

1. Conforms to JEDEC standard JESD-30 MO-220.

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ORDERING INFORMATION			
Part Number	Package Type	Operating Temperature Range	Minimum Order Quantity
CH7102A-BF	40 QFN, Lead-free	Commercial: 0 to 70°C	490/Tray
CH7102A-BFI	40 QFN, Lead-free	Industrial: -40 to 85°C	490/Tray

Chrontel

Chrontel International Limited

**129 Front Street, 5th floor,
Hamilton, Bermuda HM12**

**www.chrontel.com
E-mail: sales@chrontel.com**