

Data Sheet

CV8788 HDMI1.3 Transmitter

Data Sheet

February 2017

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General Description

The CV8788 device is a high quality HDMI transmitter with multi-format audio input. The CV8788 device supports video signals up to 1080p60 and UXGA resolution.

The device contains a 24 Bits audio ADC, So CV8788 can accept three format audio signal: Digital audio S/PDIF and I2S, analog stereo Line in.

Features

Video Processing

- Automatic format detection
- Support 480i/p, 576i/p, 720p25/30/50/60, 1080i50/60, 1080p24/25/30/50/60
- Support VESA mode from VGA to UXGA
- Support SDR and DDR data rate
- Support BT601/BT1120/BT656

- Support 8-bit/16-bit/24-bit input

Analog audio Front-end

- Advance Multi-bit $\Delta\Sigma$ Architecture
- 24-bit Conversion
- Supports Audio Sample Rates Up to 108Khz
- Low-Latency Digital Filter

Digital audio interface

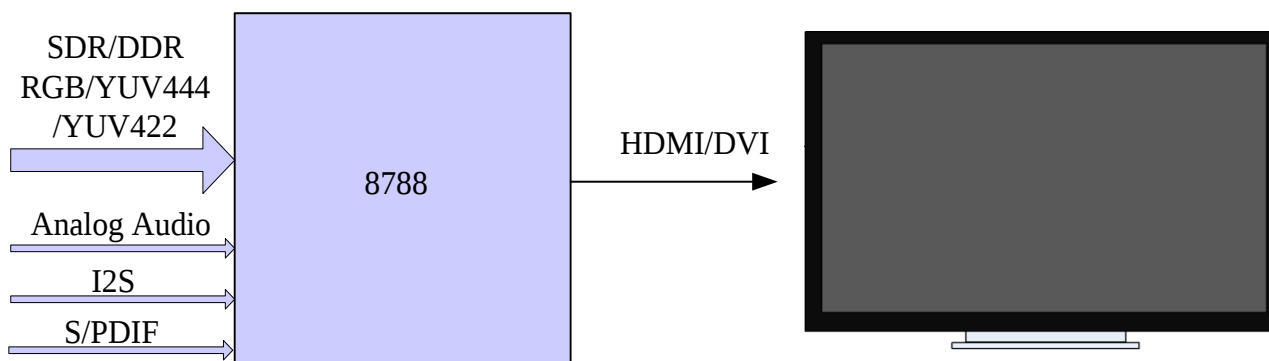
- Four I2S inputs with sample rate of 32~192Khz
- S/PDIF interface supporting PCM, Dolby Digital, DTS digital audio at up to 192Khz frame rate
- Compatible with IEC 60958 and IEC 61937

HDMI Transmitter

- HDMI 1.3/DVI 1.0 compliant transmitter up to 170Mhz, supporting 1080p and UXGA.
- Monitor detection

Packaging

- 88 pin plastic QFN, Size 8mmX8mm.



Pin Diagram

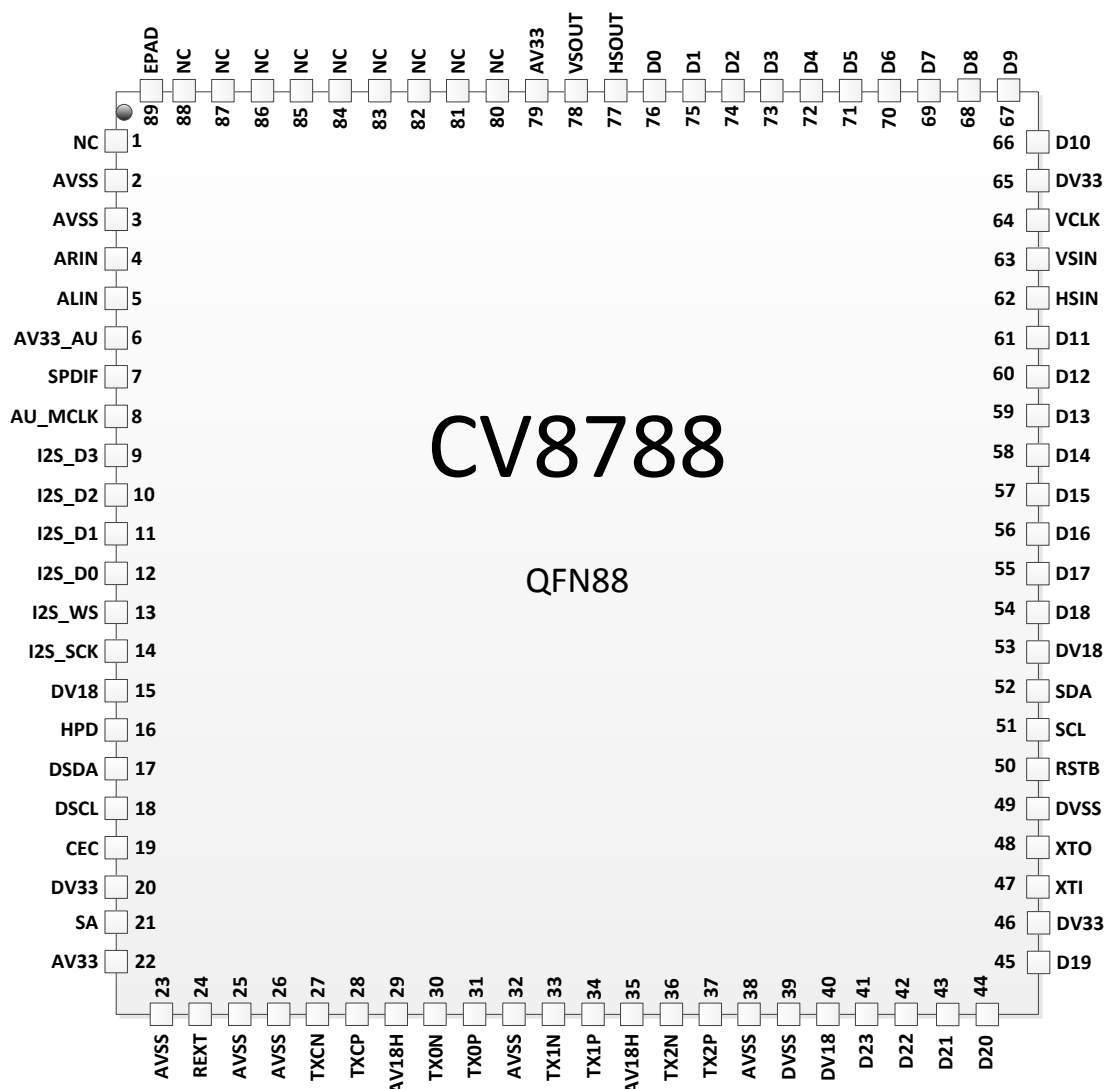


Fig1. 8788 pin diagram

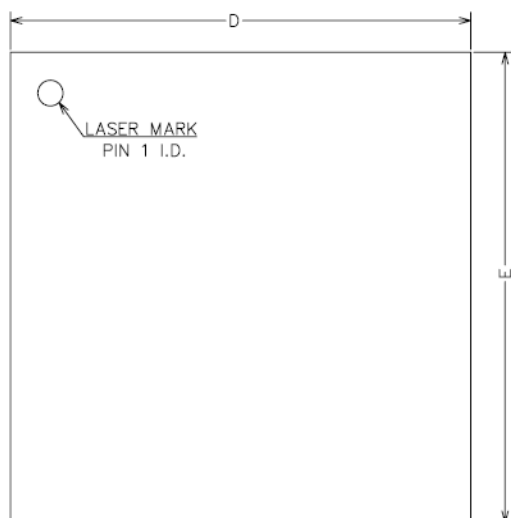
Pin Description

PIN	Signal Name	Type	Dir	Description
2, 3	AVSS	Ground	P/G	Audio ADC Ground
4	ARIN	Analog	Input	Line Input for Left Channel.
5	ALIN	Analog	Input	Line Input for Right Channel.
6	AV33_AU	Power		Audio ADC 3.3V power supply
7	SPDIF	Schmitt	Input	S/PDIF Audio Input.
8	AU_MCLK	Schmitt	Input/ Output	Audio Master Clock.
9, 10, 11, 12	I2S_D	Schmitt	Input/ Output	I2S Serial Data.
13	I2S_WS	Schmitt	Input/ Output	I2S Word Select.
14	I2S_SCK	Schmitt	Input/ Output	I2S Serial Clock.
15	DV18	Power	P/G	Digital power 1.8V
16	HPD	Schmitt 5-V tolerant	Inpput	Hot Plug Detect Input.
17	DSDA	Schmitt Open-drain 5-V tolerant	Input/ Output	DDC I2C Bus Data.
18	DSCL	Schmitt 5-V tolerant	Input/ Output	DDC I2C Bus Clock.
19	CEC	Schmitt 5-V tolerant	Input	CEC
20	DV33	Power	P/G	Digital IO power 3.3V
21	SA	Schmitt	Input/ Output	I2S ADDRESS Select.
22	AV33	Power	P/G	Analog Power 3.3V

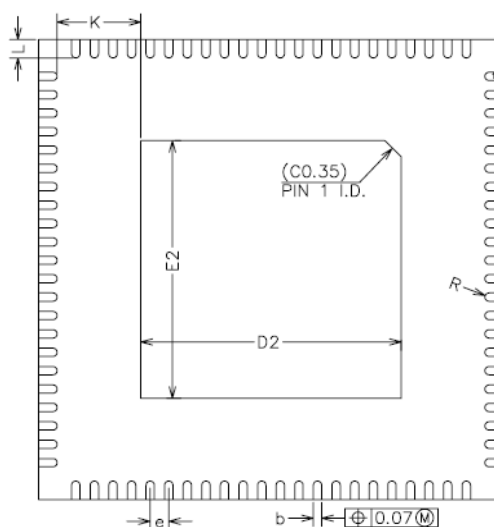
23	AVSS	Ground	P/G	Analog Ground
24	REXT	Analog	Input	Voltage Swing Adjust. A resistor is connected from this signal to GROUND. This resistor determines the amplitude of the voltage swing.
25, 26	AVSS	Power	P/G	Analog Ground
27	TXCN	TMDS	Output	TMDS output clock pair.
28	TXCP	TMDS	Output	
29	AV18H			HDMI TX 1.8V Power
30	TX0N	TMDS	Output	TMDS output data0 pairs.
31	TX0P	TMDS	Output	
32	AVSS	Ground	P/G	Analog Ground
33	TX1N	TMDS	Output	TMDS output data1 pairs.
34	TX1P	TMDS	Output	
35	AV18H	Power	P/G	HDMI TX 1.8V Power
36	TX2N	TMDS	Output	TMDS output data1 pairs.
37	TX2P	TMDS	Output	
38	AVSS	Ground	P/G	Analog Ground
39	DVSS	Power	P/G	Ground
40	DV18	Power	P/G	Digital power 1.8V
41, 42, 43, 44, 45, 54, 55, 56, 57, 58, 59, 60, 61, 66, 67, 68, 69, 70, 71,	D	Schmitt	Input/ Output	Digital Video data IO

72, 73, 74, 75, 76				
46	DV33	Power	P/G	Ground
47	XTI			Crystal Input.
48	XT0			Crystal Output.
49	DVSS	Ground	P/G	Ground
50	RSTB	Schmitt	Input	Reset signal(active LOW)
51	SCL	Schmitt	Input	Serial Port Data Clock
52	SDA	Schmitt Open drain	Input/ Output	Serial Port Data I/O
53	VD18	Power	P/G	Digital Power 1.8V
62	HSIN	Schmitt 5-V tolerant	Input	Horizontal Sync Input
63	VSIN	Schmitt 5-V tolerant	Input	Vertical Sync Input
64	VCLK	Schmitt	Input	Video pixel clock Input
65	DV33	Power	P/G	Digital I/O power 3.3V
77	HSOUT	Schmitt	Output	Horizontal Sync Output
78	VSOUT	Schmitt	Output	Vertical Sync Output
79	AV33	Power	P/G	Analog 3.3V
80, 81, 82, 83, 84, 85, 86, 87, 88, 1	NC			
89	EPAD	Ground	P/G	EPAD, Connect to Ground

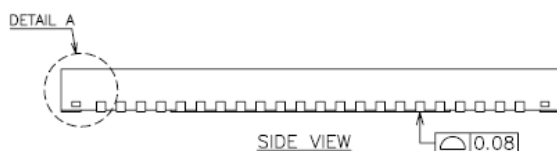
Packaging



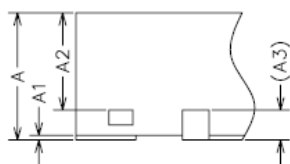
TOP VIEW



BOTTOM VIEW



SIDE VIEW



DETAIL A

COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.80	0.85	0.90
A1	0.00	0.02	0.05
A2	0.60	0.65	0.70
A3	0.20REF		
b	0.13	0.18	0.23
D	9.90	10.00	10.10
E	9.90	10.00	10.10
D2	5.50	5.60	5.70
E2	5.50	5.60	5.70
e	0.30	0.40	0.50
K	1.60	—	—
L	0.35	0.40	0.45
R	0.08	—	—