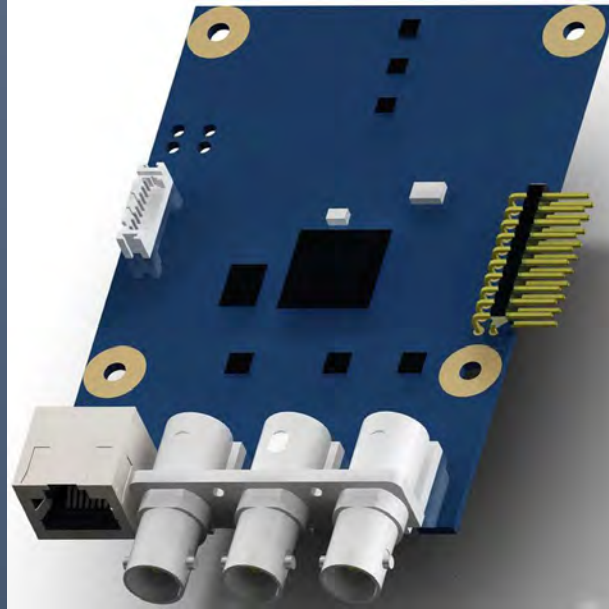


Data Sheet

2018



SDI Receiver Board

3G/HD/SD-SDI

Model Name : SCV-S2H

3G/HD/SD-SDI TO HDMI 1.4 CONVERTER FOR VENUS2 PRO

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Revision History

PCB Version	Rev. date	Revision Details
ES1	Nov. 2016	Engineering Sample
PP	Dec. 2016	Initial version issued
MP	Jan, 2017	Mass production released

1. Spec Summary

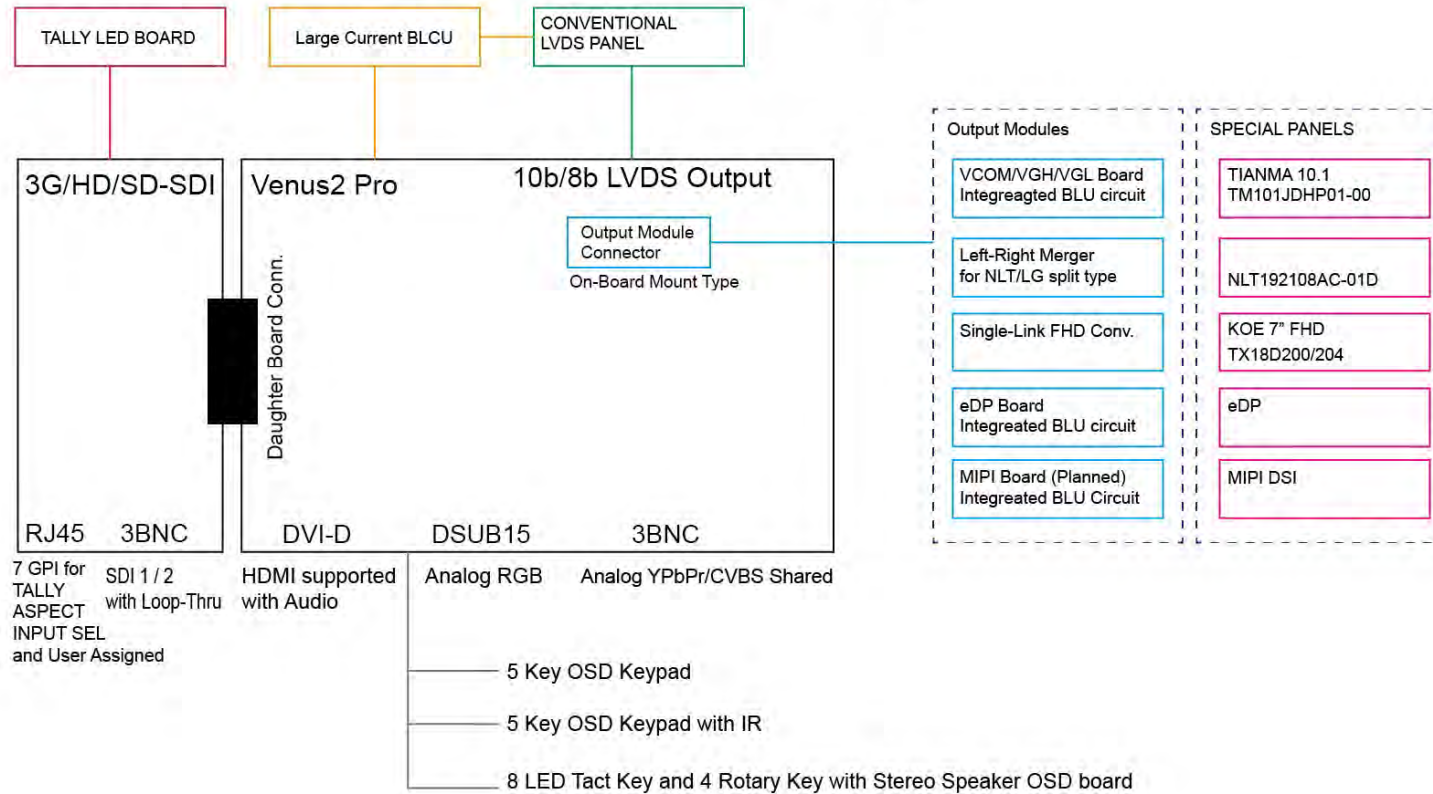
- **Broadcast grade video processing**
- Integrated Waveform monitor(WFM) for luminance monitoring
- Integrated Vector Scope(VS) for color phase monitoring
- Integrated Audio Level Meter for Embedded audio level monitoring
- Integrated Time Code display for Embedded Time Code from SDI ANC
- Integrated Userbit display for Embedded Userbit from SDI ANC
- Cable free connection to Venus2 Pro edition AD Board
- Automatic rate detection 3G/HD/SD-SDI
- Two 3G/HD/SD-SDI inputs and one monitored output
- Broadcast standard high quality CANARE BNC connectors
- Auxiliary RJ45 for 7 GPI(General Purpose Input) with contact closure circuit
- Integrated Tally LED driver for Recording Indicator

2. General Description

SCV-S2H is designed for broadcast industry with full support of SMPTE 259M-2008. It enables Venus2 Pro's as full broadcast grade displays. Two of 3H/HD/SD-SDI input ports are sufficient for standard broadcast monitor as well as monitored-out SDI output. Integrated Waveform monitor analyzes luminance map of input signal just like traditional waveform monitor. Integrated VectorScope analyzes Chroma channel of SDI input stream for Chroma phase monitoring with 100% and 75% marker as well as six-primaries(R/G/B/C/M/Y). Integrated Timecode extracts and displays embedded LTC/VITC1/VITC2 from SDI ANC. Integrated Userbit which is typically used for storing recording date, can be displayed. Integrated LED driver supports Large Red Tally for recording indicator for many applications. Famous RJ45 GPI input port enables remote feature control such as Tally, Input Source Change, Marker and etc. without RS232 connection.

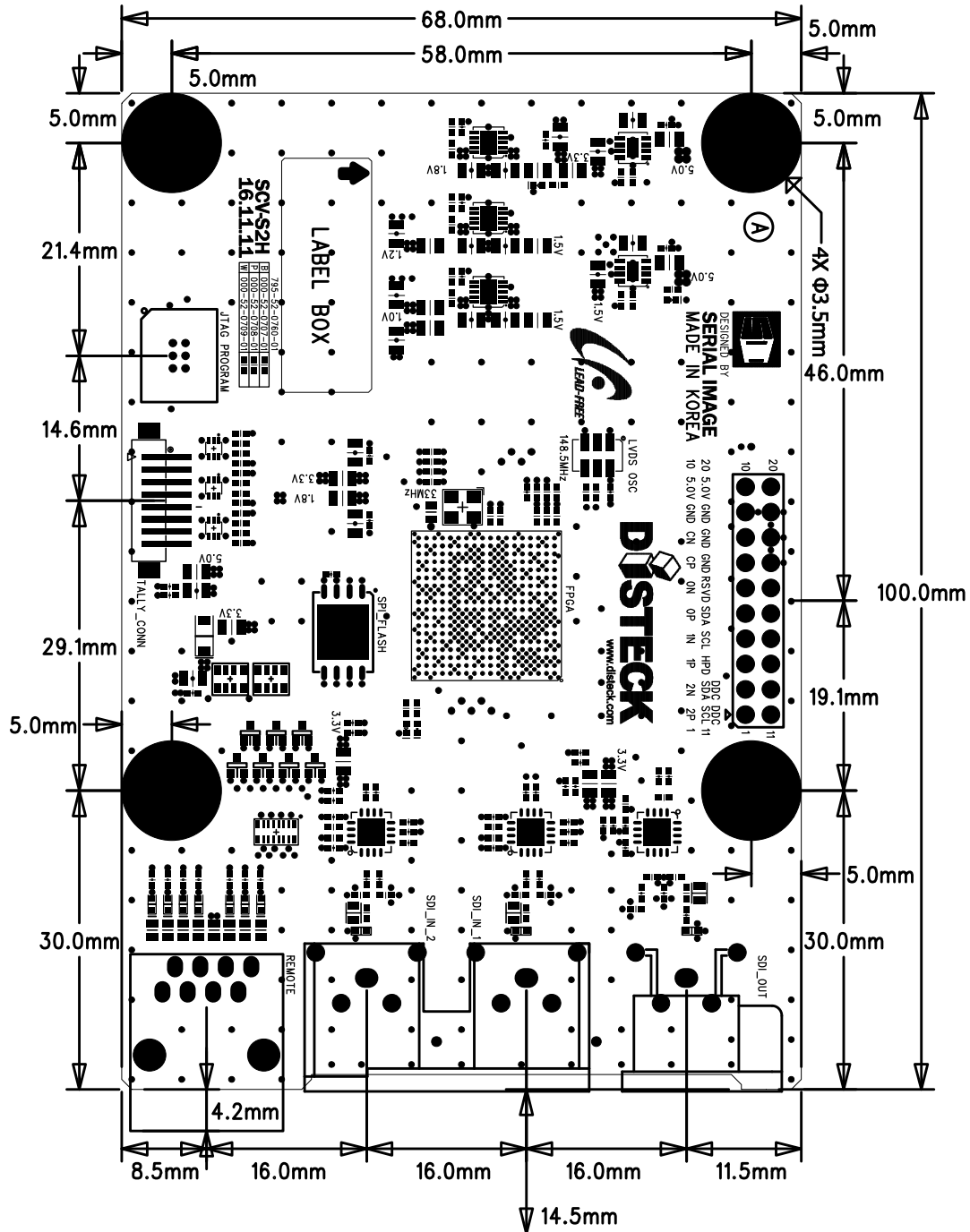
3. Block Diagram

Venus2 Pro LCD and Module Connection Diagram

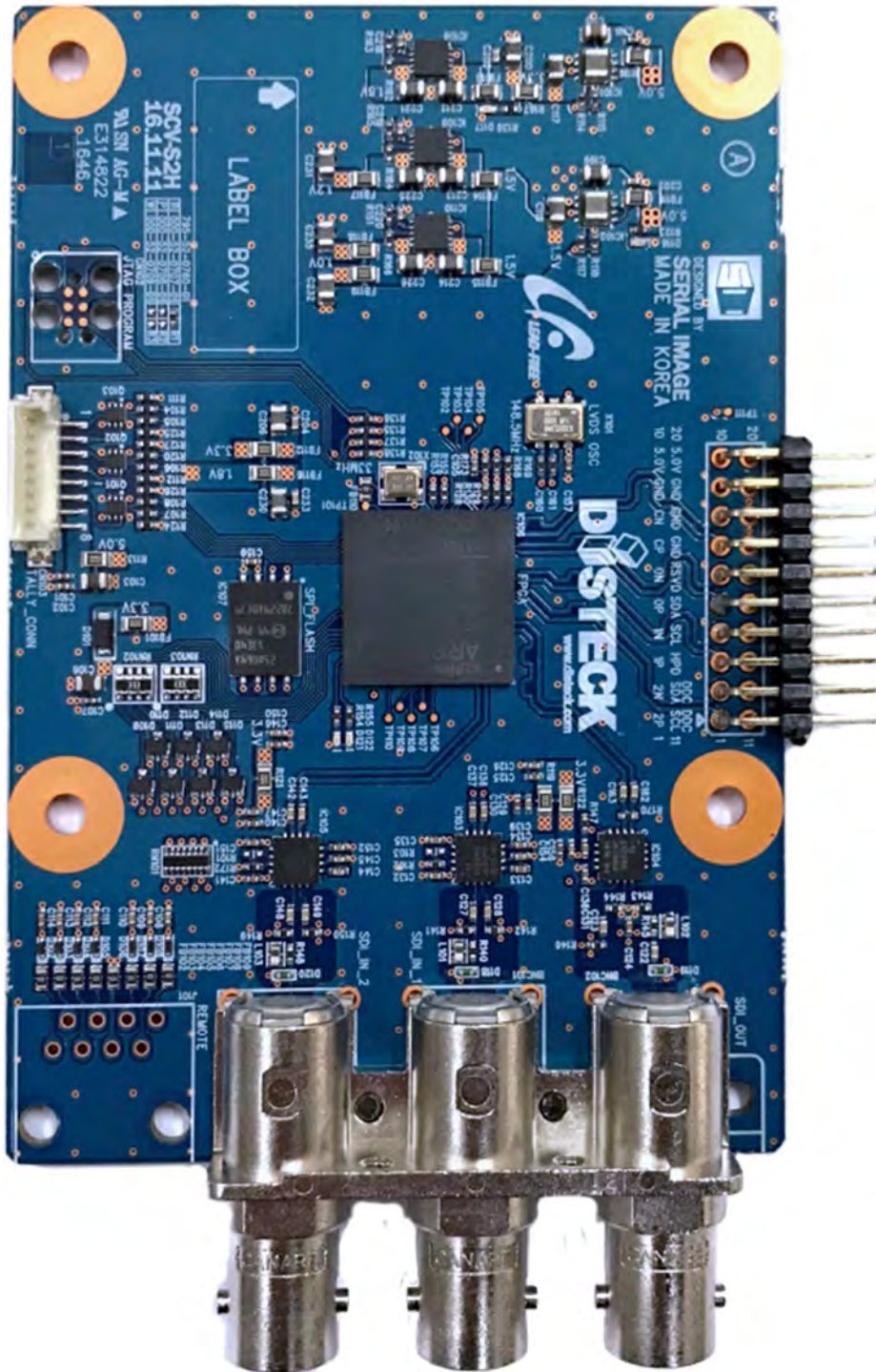


4. Dimension and Picture

4.1 Dimension (155 x 100 mm)



4.2 Picture



5. Connectors and Pin information

5.1 Connector Information

CONN	Class	Direction	Service
BNC101	SDI	Input/Output	2 of 3G/HD/SD-SDI Input 1 of 3G/HD/SD-SDI Monitored Output Automatic Rate Detection
J101	Control	Input	GPI(General Purpose input) for Tally and etc.
CN101	HDMI	Output	HDMI 1.4 20pin Connector
CN102	Update	Input/Output	Firmware update port (JTAG)
CN103	Tally	Output	Red/Green/Blue Tally LED Driver

5.2 Mating Part Number Information

CONN	Service	Description	Direction	Board Side (Wafer)	Mating (Housing)
BNC101-A	SDI IN	3G/HD/SD-SDI	Right Angle	Standard BNC	Standard BNC
BNC101-B	SDI IN	3G/HD/SD-SDI	Right Angle	Standard BNC	Standard BNC
BNC101-C	SDI OUT	Monitored Output	Right Angle	Standard BNC	Standard BNC
J101	GPI	7 GPI ports (Not Ethernet)	Right Angle	Standard RJ45	Standard RJ45
CN101	HDMI	HDMI 1.4	Right Angle Or Straight	2.54mm Pitch Male Pin Header	2.54mm Pitch Female Pin Header
CN102	JTAG	Programming Port For FPGA	Contact	Tag-o-Connect TC2030-MCP-FP	Tag-o-Connect TCP2030
CN103	Tally	Tally for Red/Green/Blue	Straight	Hirose DF13C-8P-1.25V	Hirose DF13C-8P-1.25C

5.3 Pin Information Detail

5.3.1 BNC101

Pin No.	Function	Pin No	Function	Pin No	Function
A	SDI IN A	B	SDI IN B	C	SDI OUT

- Internally terminated with 75ohm
- ESD protected by ultra-low capacitance diode.
- SDI OUT outputs current active channel.

Monitored Output Explanation

- If SDI1 is shown in display, SDI OUT outputs SDI1.
- If SDI2 is shown in display, SDI OUT outputs SDI2.

Equalization and Cable Driver

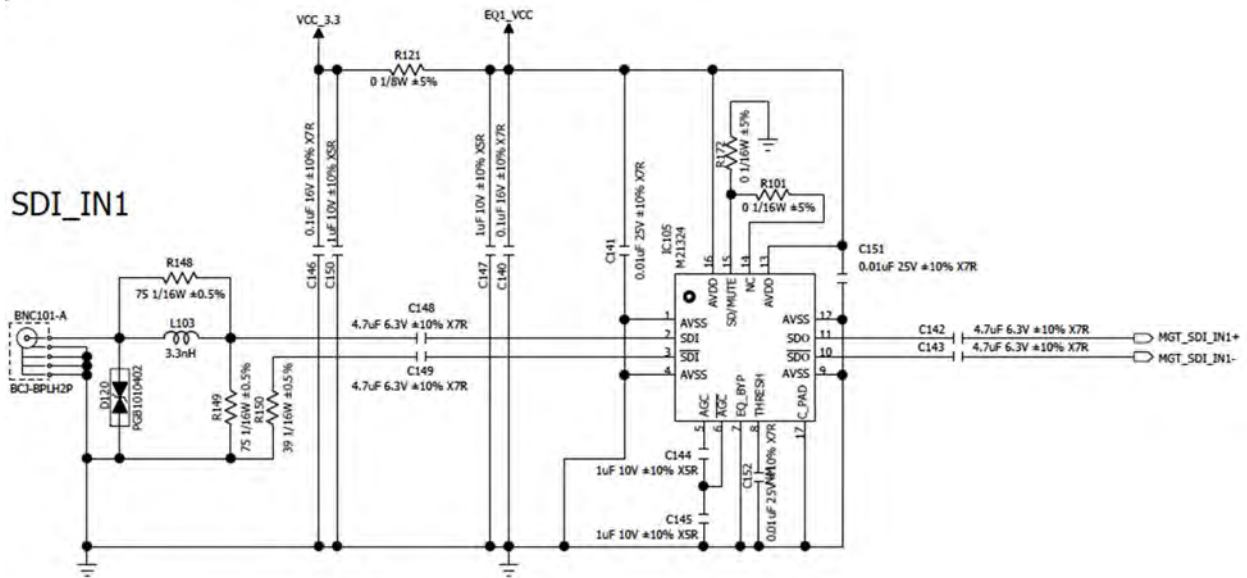
Broadcast grade SEMTECH or MINDSPEED EQ(Equalizer) IC used for Input

Broadcast grade SEMTECH or MINDSPEED CD(Cable Driver) IC used for Output

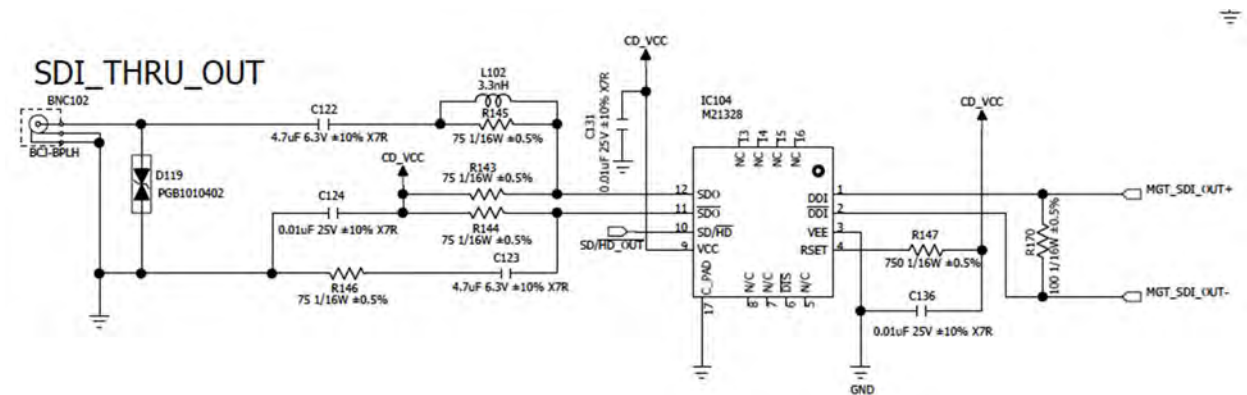
ESD Protection

SDI Input and Output ports are protected with ultra-low capacitance ESD diodes.

Equivalent Circuit Diagram for Input



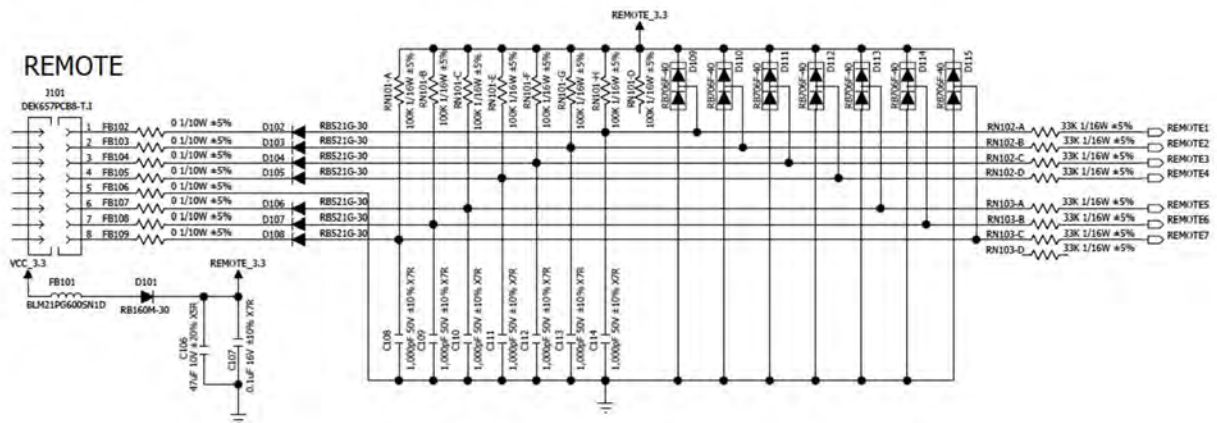
Equivalent Circuit Diagram for Output



5.3.1 J101 RJ45 Jack for Remote Control

- Contact closure circuit (Dry Contact Recommended)
- Excessive voltage leakage protected
- Internally pulled-up with 33K ohm to VCC3.3V
- Chattering protected with 1000pF capacitor
- Internally ESD protected

Equivalent Circuit Diagram



5.3.2 CN101 HDMI Output

Pin No.	Function	Pin No.	Function	Pin No.	Function	Pin No.	Function	Pin No.	Function
1	Data2 +	5	Data0 +	9	GND	13	HotPlug Detect	17	GND
2	Data2 -	6	Data0 -	10	DC +5V	14	MCU SCL	18	GND
3	Data1 +	7	Clock +	11	DDC SCL	15	MCU SDA	19	GND
4	Data1 -	8	Clock -	12	DDC SDA	16	Reserved	20	DC +5V

HPD(Pin 13) is pulled down with 10Kohm resistor.

Pin 16 is for internal use only. (Test Point for debugging purpose.)

5.3.3 CN102 JTAG Port

Internal Use Only

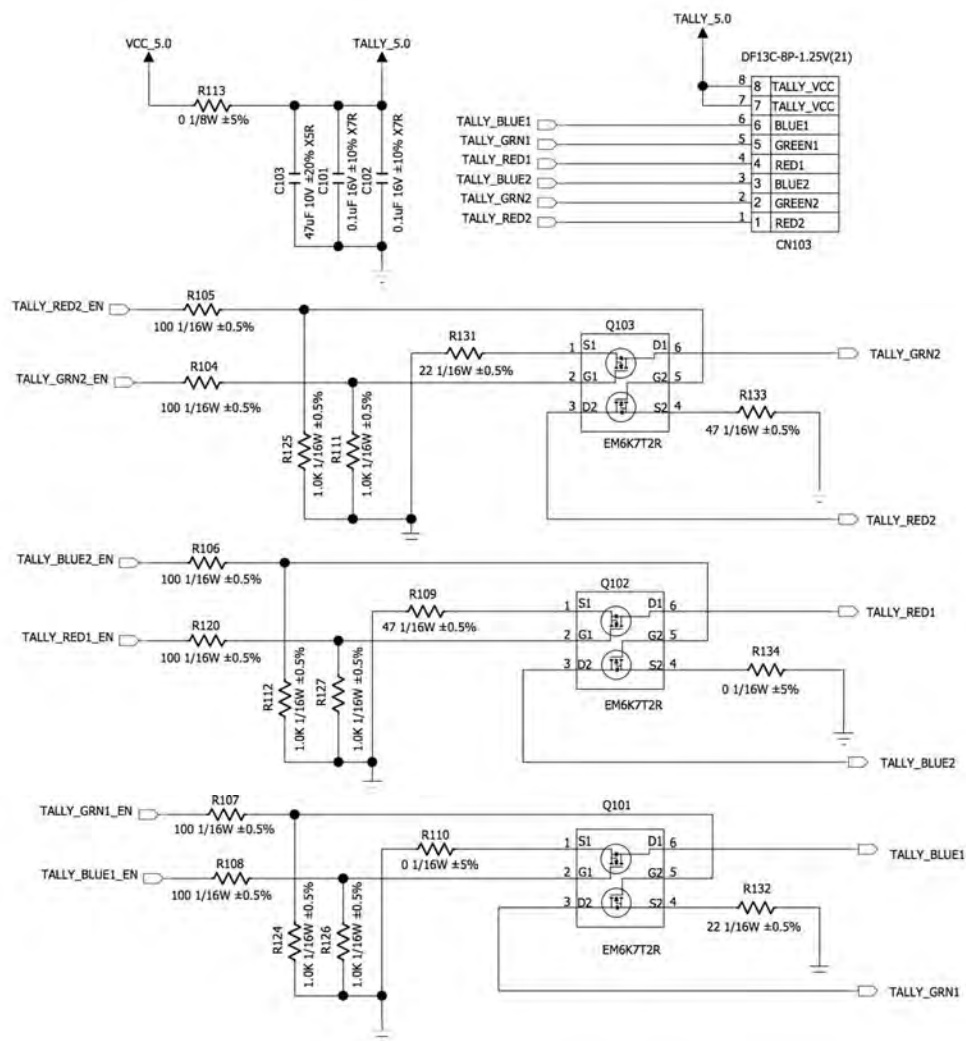
5.3.4 CN103 Tally Connector

Pin No.	Function	Pin No.	Function
1	Red2	5	Green1
2	Green2	6	Blue1
3	Blue2	7	Vcc5
4	Red1	8	Vcc5

- Grouped with RGB for Left/Right Tally separation.
- Each groups can be joined together for unity Tally.

Equivalent Circuit Diagram

TALLY



6. Electronic Characteristics

6.1 Operating Range

Symbol	Description	Min	Typ.	Max	Unit
Vcc5	Voltage for Board	+4.0	+5.0	+6.0	Vrms (DC)

6.2 Power Consumption

Test Condition

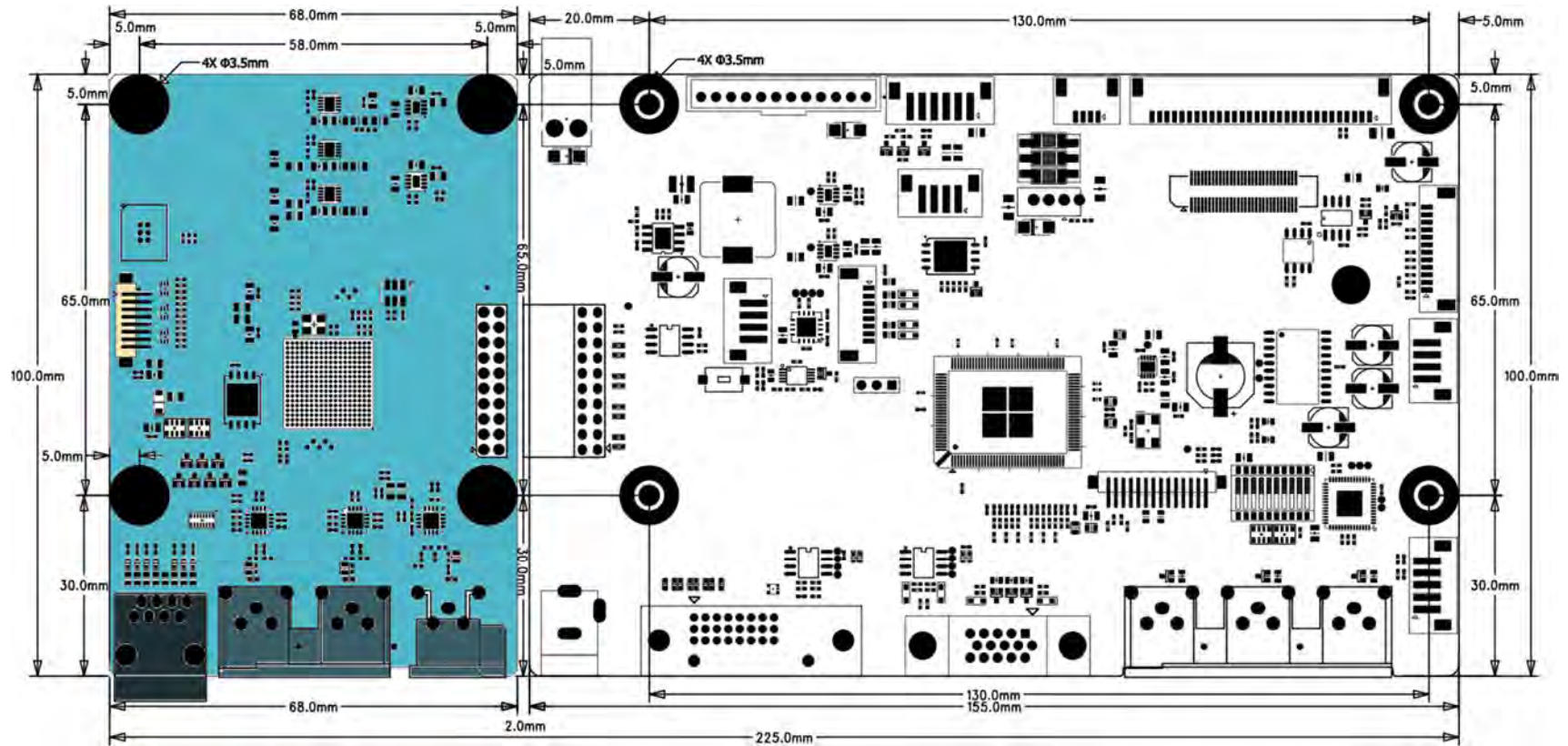
DC12.0V, Ta=25°C, Input Port = DVI, LCD Panel = LG Display LM240WU8
 Video Format = HD-SDI 1080/60i

Power Consumption

Max 2.05 W (0.17A @ DC12V) – SCV-S2H Board Only
 Max 5.00 W with Venus2 Pro(2.95W) and SCV-S2H Board

7. Mechanical Data

7.1 Mating with SCV-S2H SDI Input Module



8. Miscellaneous Data

8.1 Operating Temperature

Recommended

0 ~ 45 °C

Absolute

-10 ~ 60 °C

8.2 Storage Temperature

Non-operational

-20 ~ 60 °C (Non-condensing)

8.3 Packaging

8.3.1 Packing

Packed with anti-static PE bag with sealing.

8.3.2 Carton Structure

TBD

8.3.3 Boxing

TBD

8.3.4 Palette

TBD

8.4 Electrostatic Discharge Caution



The board has limited built-in ESD protection.

The board has limited built-in ESD protection.

The board should be placed in conductive foam during storage or handling to prevent electrostatic damage to the board.

9. Ordering Information

9.1 Input Module

Order Code	Description	Status
SCV-S2H	3G/HD/SD-SDI to HDMI 1.4 Converter	AVAILABLE
SCV-4K2H	Quad 3G-SDI to HDMI 2.0 Converter	UNDER DEV.
SCV-O2H	Optical SFP Receiver to HDMI 1.4 Converter	PLANNED