DRIVING CIRCUIT DESIGN GUIDE

FOR BACKLIGHT AND DC-DC CONVERTER

Rev.1.1
2024-02-05

This document is applied for the Riverdi HB, IPS, 7.0" LVDS series:

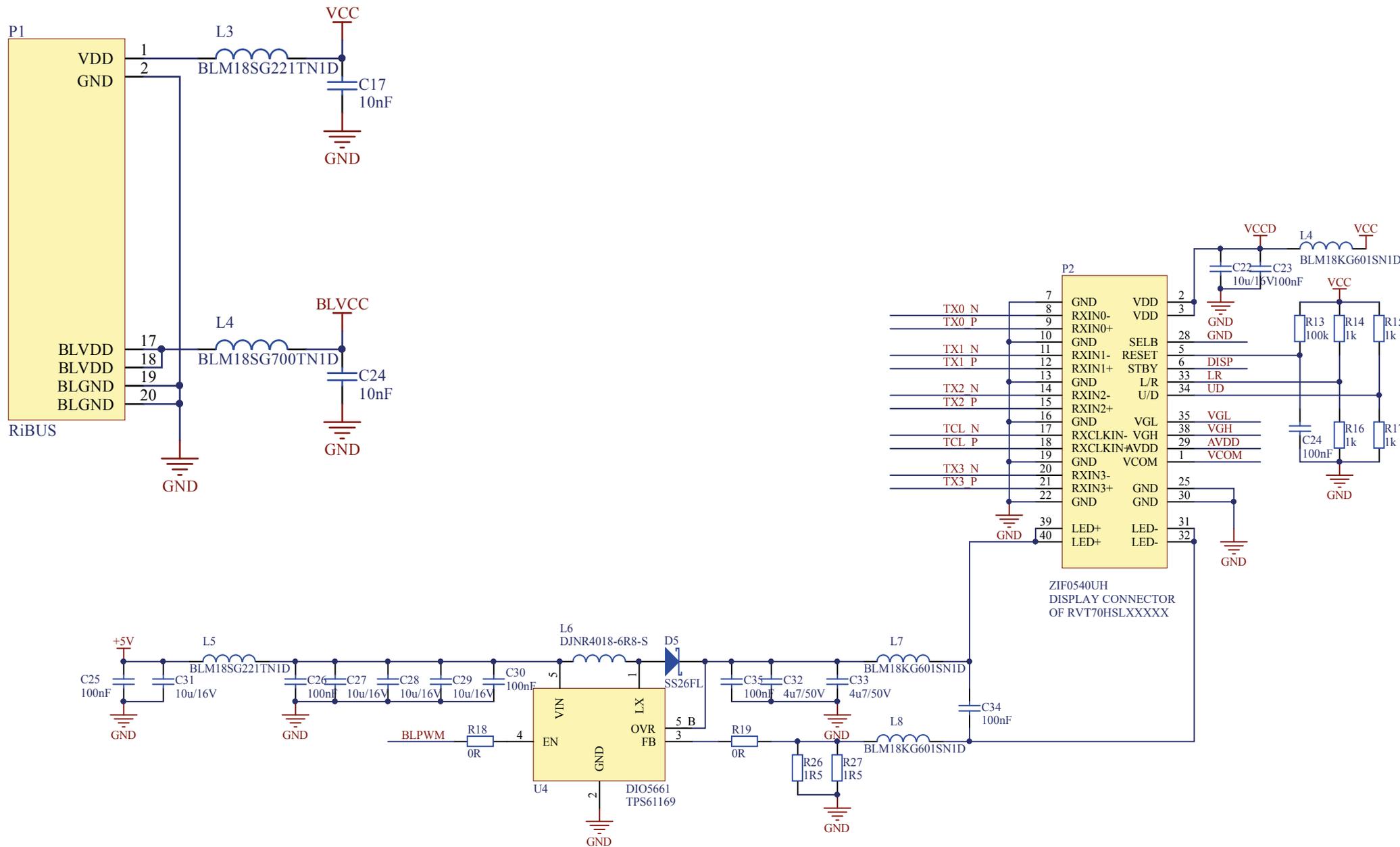| PRODUCT NAME	DESCRIPTION
RVT70HSLNWN00	HB, IPS, 7.0", 1024x600, 1000cd/m^2, LVDS, No touch panel,
RVT70HSLFWN00	HB, IPS, 7.0", 1024x600, 1000cd/m^2, LVDS, No touch panel, Metal frame
RVT70HSLNWC00-B	HB, IPS, 7.0", 1024x600, 850cd/m^2, LVDS, uxTouch, Optical bonding
RVT70HSLNWC00	HB, IPS, 7.0", 1024x600, 800cd/m^2, LVDS, uxTouch, Air bonding
RVT70HSLNWCA0	HB, IPS, 7.0", 1024x600, 800cd/m^2, LVDS, aTouch, Air bonding
RVT70HSLFWCA0	HB, IPS, 7.0", 1024x600, 800cd/m^2, LVDS, aTouch, Air bonding, Metal frame

BACKLIGHT DRIVING SCHEMATIC

1. REVISION RECORD

REV NO.	REV DATE	CONTENTS	REMARKS
1.0	2022-12-20	Initial Release	
1.1	2024-02-05	Change R7 value to 30.9k and change R4 value to 22k to have VGL voltage - 6V. Correct MIN and MAX values of VGL	

2. CONTENTS

4. DRIVING CIRCUIT OF VGH/VGL/ AVDD/VCOM

Riverdi HB, IPS, 7.0" LVDS series TFT require VGH, VGL, AVDD and VCOM voltages to drive the TFT glass driver properly.

Below tables are the VGH, VGL, VCOM, and AVDD specifications for Riverdi HB, IPS, 7.0" LVDS series.
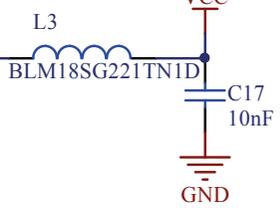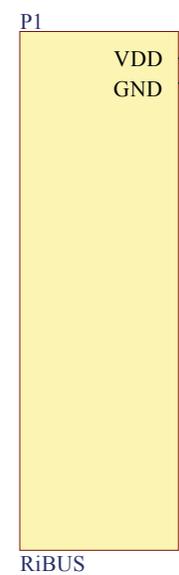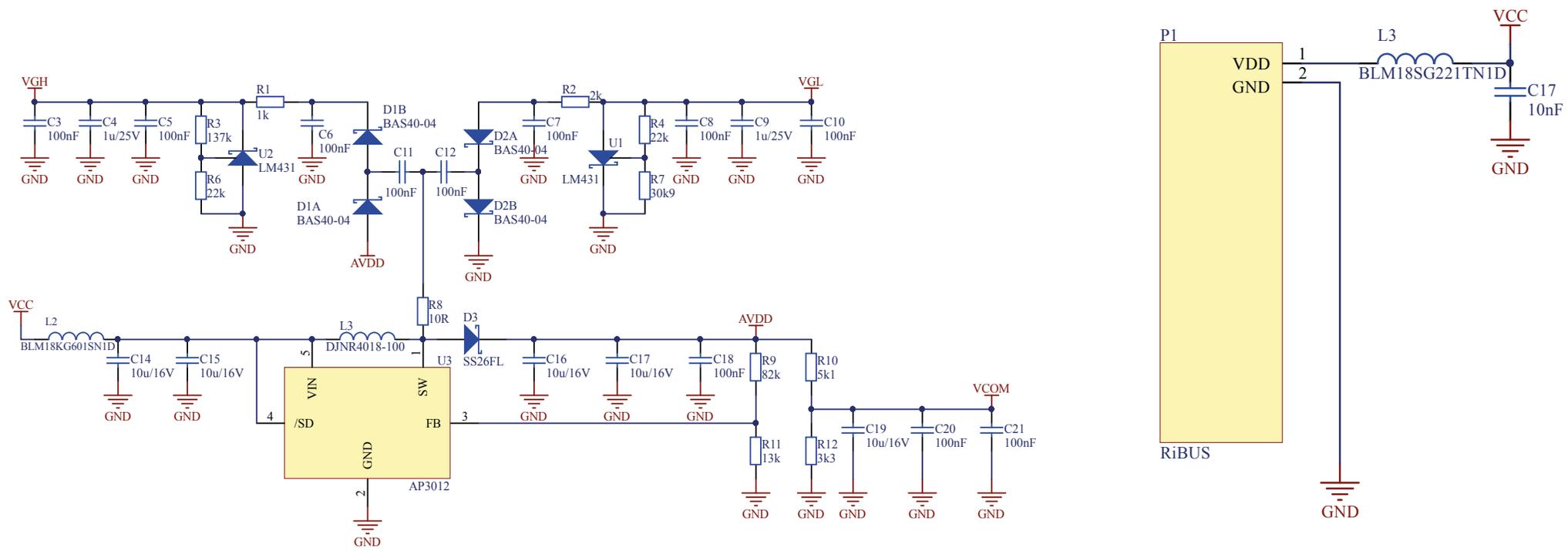
Absolute maximum ratings:

PARAMETER	SYMBOL	MIN	MAX	UNIT
Power for Circuit Driving	VDD	-0.3	3.96	V
	AVDD	-0.5	14.85	
	VGH	-0.3	40	
	VGL	-20.0	0.3	

Electrical specifications:

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	NOTE
Supply Voltage for Module	VGH	17	18	19	V	
	VGL	-5.4	-6.0	-6.6		
	AVDD	9.4	9.6	9.8		
	VCOM	3.6	3.8	4.0		
Current of Power Supply	IAVDD	-	35	45	mA	AVDD = 9.6V
	IGH	-	0.5	1	uA	VGH = 18V
	IGL	-	0.5	1	mA	VGL= -6V

The schematic of VGH, VGL, AVDD and VCOM circuit with AP3012KTR-E1 DC-DC converter.

VGH

C3 100nF
C4 1u/25V
C5 100nF
R3 137k
R1 1k
R6 22k
U2 LM431
C6 100nF
D1B BAS40-04
D1A BAS40-04
C11 100nF
C12 100nF
D2A BAS40-04
C7 100nF
R2 2k
U1 LM431
R4 22k
R7 30k9
D2B BAS40-04
C8 100nF
C9 1u/25V
VGL
C10 100nF

GND GND GND GND GND AVDD GND GND

P1
VDD   1
GND   2
L3
BLM18SG221TN1D
VCC
C17 10nF
GND

RiBUS

VCC
L2 BLM18KG601SN1D
C14 10u/16V
C15 10u/16V
R8 10R
L3 DJNR4018-100
U3
SW
VIN
/SD
GND
AP3012
D3 SS26FL
C16 10u/16V
C17 10u/16V
C18 100nF
AVDD
R9 82k
R10 5k1
R11 13k
R12 3k3
C19 10u/16V
C20 100nF
VCOM
C21 100nF
FB

GND GND GND GND GND GND GND GND GND GND GND GND

GND

Hi, I am here to help you! If you have any additional questions, please contact our support via email: contact@riverdi.com