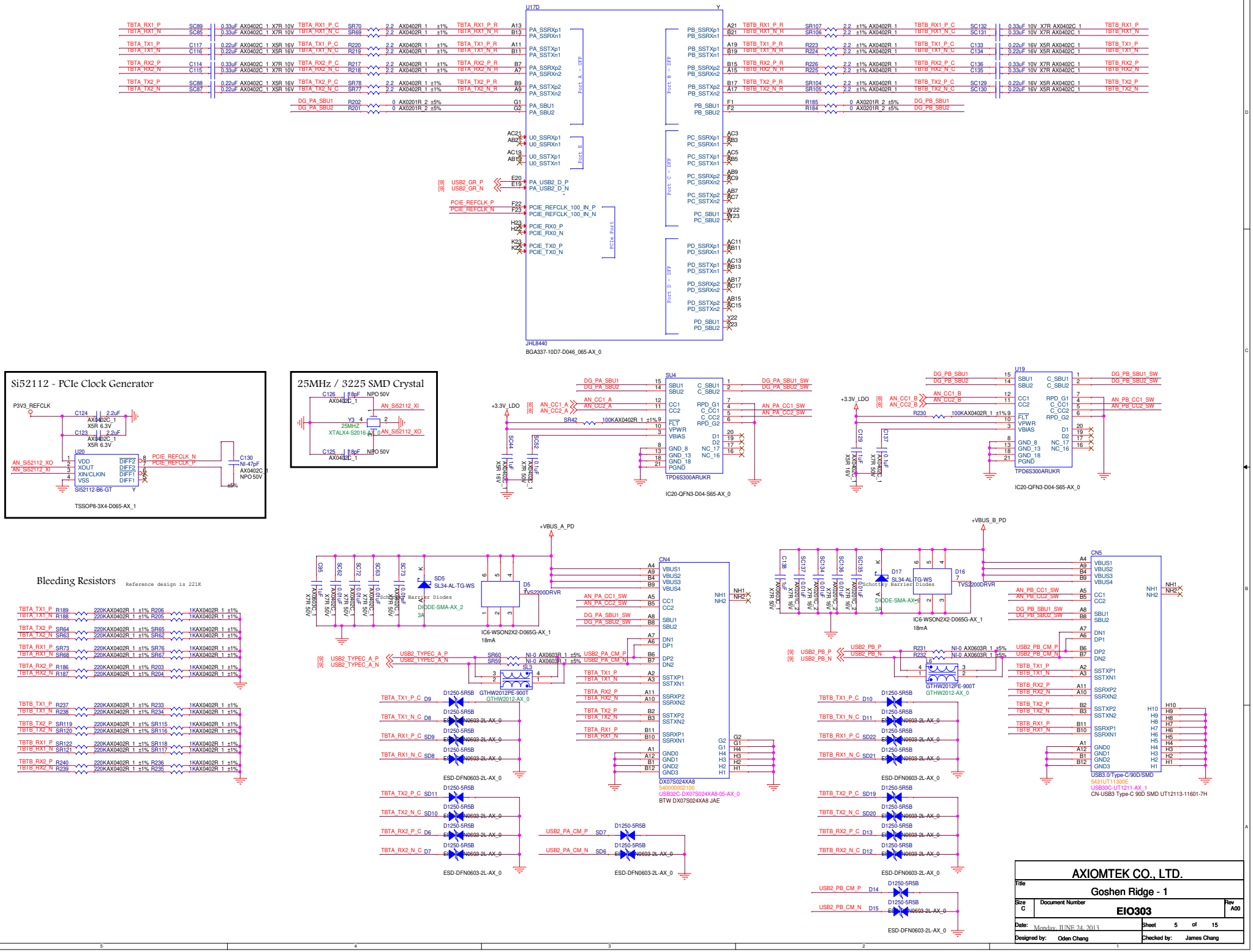
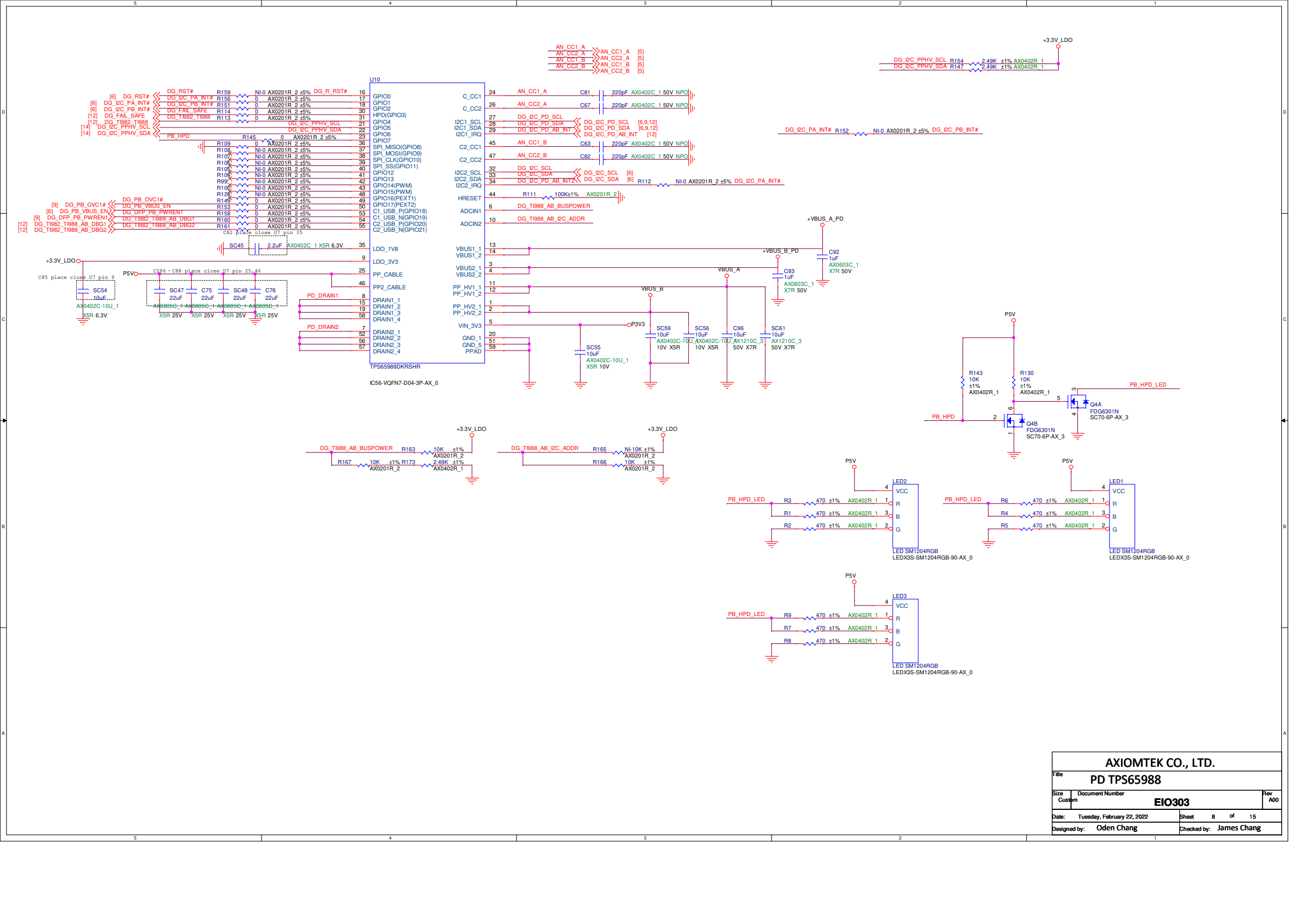

U17D
JHL8440
BGA337-10D7-D046_065-AX_0
Si52112 - PCIe Clock Generator
TSSOP8-3X4-D065-AX_1
25MHz / 3225 SMD Crystal
Bleeding Resistors
Reference design is 221K
IC6-WSON2X2-D065G-AX_1
IC20-QFN3-D04-S65-AX_0
TPD6S300ARUKR
ESD-DFN0603-2L-AX_0
DX07S024XA8
BTW DX07S024XA8 JAE
CN-USB3 Type-C 90D SMD UT12113-11601-7H
AXIOMTEK CO., LTD.
Goshen Ridge - 1
EIO303
Monday, JUNE 24, 2013
Oden Chang
James Chang


U10
TPS65988DKRSHR
IC56-VQFN7-D04-3P-AX_0
GPIO0
GPIO1
GPIO2
HPD(GPIO3)
GPIO4
GPIO5
GPIO6
GPIO7
SPI_MISO(GPIO8)
SPI_MOSI(GPIO9)
SPI_CLK(GPIO10)
SPI_SS(GPIO11)
GPIO12
GPIO13
GPIO14(PWM)
GPIO15(PWM)
GPIO16(PEXT1)
GPIO17(PEXT2)
C1_USB_P(GPIO18)
C1_USB_N(GPIO19)
C2_USB_P(GPIO20)
C2_USB_N(GPIO21)
LDO_1V8
LDO_3V3
PP_CABLE
PP2_CABLE
DRAIN1_1
DRAIN1_2
DRAIN1_3
DRAIN1_4
DRAIN2_1
DRAIN2_2
DRAIN2_3
DRAIN2_4
C_CC1
C_CC2
I2C1_SCL
I2C1_SDA
I2C1_IRQ
C2_CC1
C2_CC2
I2C2_SCL
I2C2_SDA
I2C2_IRQ
HRESET
ADCIN1
ADCIN2
VBUS1_1
VBUS1_2
VBUS2_1
VBUS2_2
PP_HV1_1
PP_HV1_2
PP_HV2_1
PP_HV2_2
VIN_3V3
GND_1
GND_5
PPAD
+3.3V_LDO
P5V
P3V3
+VBUS_A_PD
+VBUS_B_PD
VBUS_A
VBUS_B
PD_DRAIN1
PD_DRAIN2
DG_RST#
DG_I2C_PA_INT#
DG_I2C_PB_INT#
DG_FAIL_SAFE
DG_TI982_TI988
DG_I2C_PPHV_SCL
DG_I2C_PPHV_SDA
PB_HPD
DG_PB_OVC1#
DG_PB_VBUS_EN
DG_DFP_PB_PWREN1
DG_TI982_TI988_AB_DBG1
DG_TI982_TI988_AB_DBG2
DG_R_RST#
DG_I2C_PA_INT#
DG_I2C_PB_INT#
DG_I2C_PD_SCL
DG_I2C_PD_SDA
DG_I2C_PD_AB_INT
DG_I2C_SCL
DG_I2C_SDA
DG_I2C_PD_AB_INT2
DG_TI988_AB_BUSPOWER
DG_TI988_AB_I2C_ADDR
AN_CC1_A
AN_CC2_A
AN_CC1_B
AN_CC2_B
C82 place close U7 pin 35
C85 place close U7 pin 9
C86 ~ C88 place close U7 pin 25,46
SC45 2.2uF AX0402C_1 X5R 6.3V
SC54 10uF AX0402C-10U_1 X5R 6.3V
SC47 22uF X5R 25V
C75 22uF X5R 25V
SC48 22uF X5R 25V
C76 22uF X5R 25V
SC55 10uF AX0402C-10U_1 X5R 10V
SC59 10uF AX0402C-10U_1 10V X5R
SC56 10uF AX0402C-10U_1 10V X5R
C96 10uF AX1210C_3 50V X7R
SC61 10uF AX1210C_3 50V X7R
C92 1uF AX0603C_1 X7R 50V
C93 1uF AX0603C_1 X7R 50V
C81 220pF AX0402C_1 50V NPO
C67 220pF AX0402C_1 50V NPO
C63 220pF AX0402C_1 50V NPO
C82 220pF AX0402C_1 50V NPO
R111 100K±1% AX0201R_2
R112 NI-0 AX0201R_2 ±5%
R152 NI-0 AX0201R_2 ±5%
R154 2.49K ±1% AX0402R_1
R147 2.49K ±1% AX0402R_1
R143 10K ±1% AX0402R_1
R130 10K ±1% AX0402R_1
Q4A FDG6301N SC70-6P-AX_3
Q4B FDG6301N SC70-6P-AX_3
PB_HPD_LED
R163 10K ±1% AX0201R_2
R167 10K ±1% AX0201R_2
R173 2.49K ±1% AX0402R_1
R165 NI-10K ±1% AX0201R_2
R166 10K ±1% AX0201R_2
LED2
LED1
LED3
VCC
R
B
G
R3 470 ±1% AX0402R_1
R1 470 ±1% AX0402R_1
R2 470 ±1% AX0402R_1
R6 470 ±1% AX0402R_1
R4 470 ±1% AX0402R_1
R5 470 ±1% AX0402R_1
R9 470 ±1% AX0402R_1
R7 470 ±1% AX0402R_1
R8 470 ±1% AX0402R_1
LED SM1204RGB
LEDX3S-SM1204RGB-90-AX_0
AXIOMTEK CO., LTD.
Title
PD TPS65988
Size
Custom
Document Number
EIO303
Rev
A00
Date: Tuesday, February 22, 2022
Sheet 8 of 15
Designed by: Oden Chang
Checked by: James Chang

P20V -> VBUS_A (5V,9V,15V)

Max: 2.5A **Max: 3A**

U4 TPS55288RPMR

VIN, EN/UVLO, VCC, SCL, SDA, COMP, FSW, CDC, ILIM, MODE, AGND, DITH/SYNC

DR1H, BOOT1, SW1, DR1L, BOOT2, SW2_1, VOUT, VOUT_1, PGND, PGND_1, ISP, ISN, FB/*INT

Q1 NTMFS5C460NLT1G SO8-POWERPAK-5844-AX_1 78A

Q2 NTMFS5C460NLT1G SO8-POWERPAK-5844-AX_1

L2 4.7uH/9.5A 40ohm 9.5A

Vout:5~20V
45W(MAX)

VBUS_A

P1 SHORT PAD P2 SHORT PAD

S40 close to C1322

S1 SHORT SHORT_2

IC26-VQFN4X3-D05-S3-AX_0

P20V -> VBUS_B (5V)

Max: 0.775A **Max: 3A**

U7 MP2491CGQB-Z

IN, PGND, VCC, VSEL1, VSEL2, FB, PG, ILIM, EN, MODE, BST, SW, AGND

IC13-QFN25X3-D05_065-AX_0

L3 4.7uH/5.5A CHOKE_SRPG0603-AX_1 5.5A

VBUS_B

P4 NI-SHORT PAD

Figure 8: Output Adjust Configuration

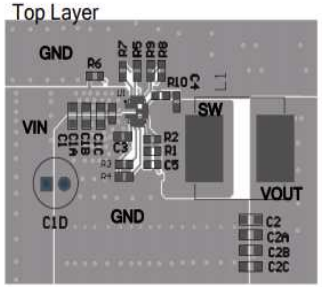
Table 2 shows details for the reference voltage setting.

Table 2: VSEL1, VSEL2 Truth Table

VSEL1	VSEL2	V_{REF}	V_{OUT}
0	0	2V	20V
VCC	0	1.5V	15V
0	VCC	0.9V	9V
1/2*VCC	0	1.2V	12V
VCC	VCC	0.5V	5V

There is a 20μs deglitch time for each VSEL pin logic voltage change.

Top Layer



P3V3 -> P1V3

Max: 0.06A **Max: 0.06A**

U6 GS7133TD_R IC10-TDFN3X3-D05-AX_2

P1V3(60mA)

LAYOUT NOTE: BOTTOM PAD USE 4 VIAs CONNECT TO GND

Vout=0.8 X ((R1+R2)/R2)
=0.8 X ((6.2K + 10K)/10K)
= 1.296V

Watt=(Vin-Vout) X Iout
=(3.3v-1.3V) X0.06A
= 0.12w (°C/W)

AXIOMTEK CO., LTD.	
Title	PWR_MP2491C
Size C	Document Number EIO303 Rev A00
Date: Monday, February 21, 2022	Sheet 14 of 15
Designed by: Oden Chang	Checked by: James Chang