PROJECT COVER

Board Name	DUO_IOB
Board Version	V1.11
Designer	
Reviewed by	

12V0

POE Supply Section (U7 - MP8017GL)

U9 HD06-T
- VA1 1 AC1 — 4
- VA2 2 AC2 + 3

U8 HD06-T
- VB1 1 AC1 — 4
- VB2 2 AC2 + 3

D71 SMBJ58A(NC)

C296 0.22uF 50V

C288 0.1uF 100V

R252 24.9K 1%
R251 43.2R 1%
41.2Ω

R256
C307 33pF 50V(NC)
6.8K 1%

D68 BV-SMBJ58C2H
D67 BV-SMBJ58C2H
TVS FOR SURGE PROTECTION

PGND

U7 MP8017GL
- 1 VDD / CP 2
- 3 DET
- 4 CLASS
- 15 PGND
- 16 PGND
- 11 PGND
- 5 AGND / M/D
- VBUS 18
- VBUS 19
- SNBR 17
- BST 13
- SW 14
- FB 12
- COMP 8
- 6 MSJ
- 10 VCC
- 7 VDD30B
- SS

R250 9.31K 1%
C295 2.2uF 16V
R254 150K 1%
C306 0.22uF 16V

R266 2.7K 1%
C298 0.1uF 16V(NC)
1K 1% R253
C297 22nF 16V

PGND

C301 2.2uF 100V
C429 2.2uF 100V
C299 2.2uF 100V
C290 10nF 100V
C289 0.1uF 100V(NC)

C300 4.7uF 50V

C291 0.22uF 50V

R249 243K 1%

PGND PGND PGND

T2
2 / 3 — 8 7 6 5
TSA912

C287 1nF 100V
470pF

D70 PDS5100H
R257 10R

C292 10uF 16V
C304 100uF 25V
C294 10uF 16V
C305 0.1uF 16V

PGND C293 1nF 2KV

12V0

Buck Converter (U1 - MP1657GTF)

12V0

C4 10uF 16V
C5 0.1uF 16V
R2 100K
R6 24.9K 1%

U1 MP1657GTF
- 1 VIN
- 4 BST
- SW
- 5 EN
- 6 FB
- GND 3
POWER SEQUENCE:1
0.8V

C3 1uF 16V

Vout=0.807*[(47K/7.68K)+1]=5.68V

MAX 2A

L2 4.7uH 1.7A

R3 47K 1%
C6 22pF 50V
R4 47K 1%
R7 7.68K 1%

C7 10uF 10V
C43T 10uF 10V
C43B 0.1uF 16V

D77 B340A
5V0

TYPE-C (U49 - TYPE-C_16P)

5V0

U49 TYPE-C_16P
- 3 S3
- 4 S4
- GND2
- VBUS2
- SUB2
- CC1
- DN2
- DP1
- DN1
- DP2
- SBU1
- CC2
- VBUS1
- GND1
- A1B12
- A4B9
- B8
- A5
- B7
- A6
- A7
- B6
- A8
- B5
- B4A9
- B1A12
- 1 S1
- 2 S2

D1 B340A

R794 8.1K 1%
R795 8.1K 1%

Ethernet / Connectors

J12 CONN1X5
- 5 EPHY_TXP
- 4 EPHY_TXN
- 3 EPHY_RXP
- 2 EPHY_RXN
- 1

R34 2.2R
R35 2.2R
R36 2.2R
R37 2.2R

D10 UDD32C03L01
D11 UDD32C03L01

TX+ / TX- / RX+ / RX-

R38 75R 1%
R39 75R 1%
C33 0.1uF 100V
C34 0.1uF 100V
C35 1nF 2KV

C31 0.1uF 16V(NC)
C32 0.1uF 16V(NC)

R50 0R(NC)

VA2 / VA1 / VB1 / VB2 / VA1 / VA2

J11
- 1 A1
- 2 A2
- 3 A3
- 4 A4
- 5 A5
- 6 A6
- 7 A7
- 8 A8
- 9 A9
- 10 A10
- 11
- 12
- 13
- 14
- 15 SHIELD1
- 16 SHIELD2

11 / 12 / 13 / 14

U46 — XL1050
1	TXD	RS	8
2	VSS	CANH	7
3	VDD	CANL	6
4	RXD	VREF	5

TX_CAN, TP90, 3V3, RX_CAN, CAN_H, CAN_L
C439 0.1uF 16V

CAN_H 2 — 1 D74 P0080SB-LV1
CAN_L 2 — 1 D73 P0080SB-LV1

2 GPIO22 → GPIO22 R113 0R(NC) 3V3 R779 4.7K XL2515_RST C438 0.1uF 16V

3V3 XL2515_RST SPI2_CSn 2
RX_CAN TX_CAN XL2515_RST SPI2_CSn

U45 — XL2515
20	TPAD		
19	RXCAN		
18	TXCAN		
17	VDD		
16	RESET#		
	CS#		
1	CLKOUT	SO	15	SPI2_RX 2
2	TXORTS#	SI	14	SPI2_TX 2
3	TX1RTS#	NC2	13	
4	NC1	SCK	12	SPI2_SCK 2
5	TX2RTS#	INT#	11	GPIO14 2
6	OSC2	GND	8	
7	OSC1	RX1BF#	9	
		RX0BF#	10	

TP86, TP87, TP88, TP89

C165 27pF 50V
X1 16MHz GND1 GND2
R224 0R
R40 1M
C163 27pF 50V
R772 4.7K R778 4.7K
3V3

SP3232EEN — U16
1	C1+	VCC	16
3	C1-	GND	15
4	C2+	V+	2
5	C2-	V-	6
11	T1IN	T1OUT	14
10	T2IN	T2OUT	7
12	R1OUT	R1IN	13
9	R2OUT	R2IN	8

3V3
C113 0.1uF 16V
C114 10uF 6.3V
C115 0.1uF 16V
C117 0.1uF 16V
C116 0.1uF 16V
C118 0.1uF 16V

2 UART1_TX → UART1_TX R140 0R ... R141 100R TXD232
2 UART1_RX → UART1_RX R142 0R ... R143 100R RXD232

R144 4.7K
R145 4.7K

D75 P0080SB-LV1 D76 P0080SB-LV1

RS485 — U14
1	R0	VCC	8
7	RE	B	6
3	DE	A	5
4	DI	GND	

3V3 R130 4.7K R131 4.7K(NC) 3V3
C110 0.1uF 16V

2 UART4_RX → UART4_RX R776 33R
2 GPIO15 → GPIO15 R777 33R
2 UART4_TX → UART4_TX

TP12 TEST-S
R129 1K 1%
R132 10R RS485_B_D-
R134 330R
R135 10R RS485_A_D+
3V3
R136 1K 1%
TP13 TEST-S

ID1 ID2 ID3 ID4 MARK-L
ID5 ID6 ID7 ID8 MARK-L

H1 HOLE H2 HOLE H3 HOLE H4 HOLE

CONN 1x7PIN LIE — U11
13	RS485_A_D+	RS485_A_D+	14
11	RS485_B_D-	RS485_B_D-	12
9	TXD232	TXD232	10
7	RXD232	RXD232	8
5			6
3	CAN_H	CAN_H	4
1	CAN_L	CAN_L	2

D22 P0080SB-LV1
RS485_B_D- 2 — 1
RS485_A_D+ 2 — 1 D23 P0080SB-LV1

Title block
Project: DUO_IOB
File: 04 CAN&RS485&RS232
Date: Monday, August 28, 2023
Designed by: <designer>
Rev: 1.1
Sheet: 4 of 5