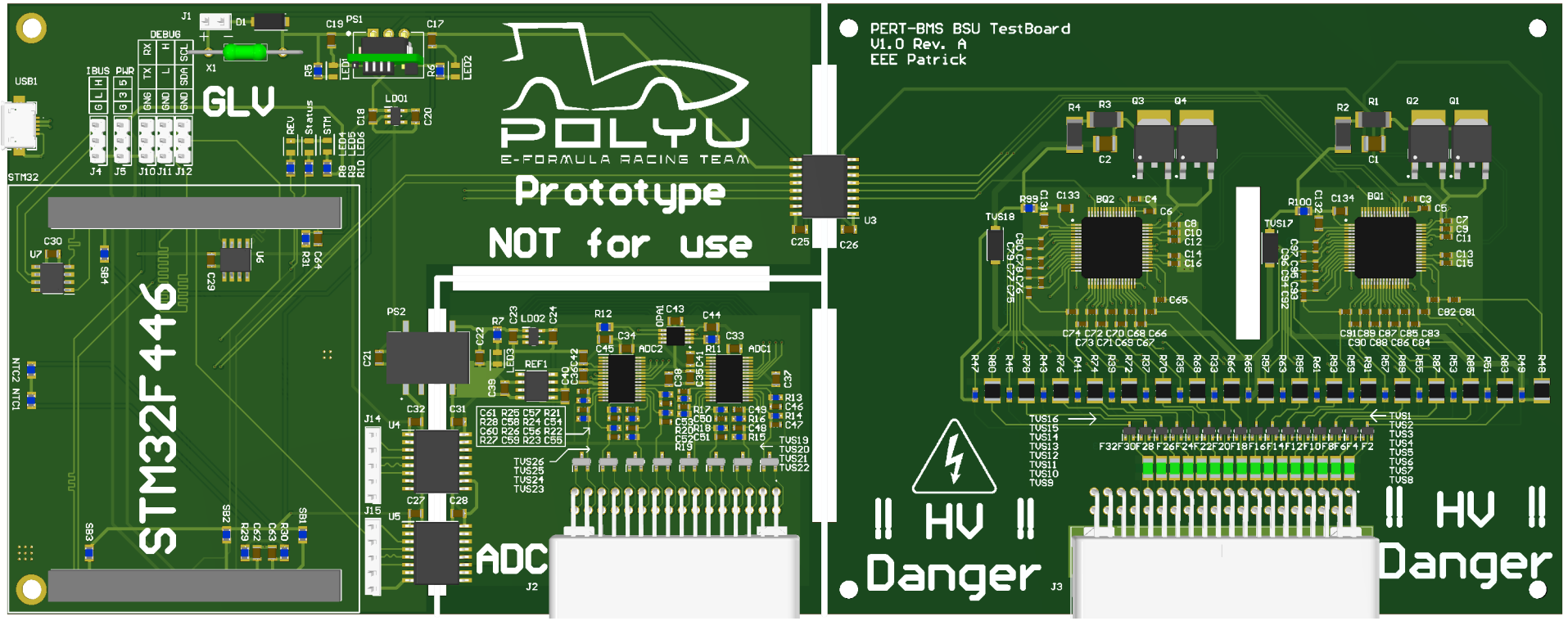
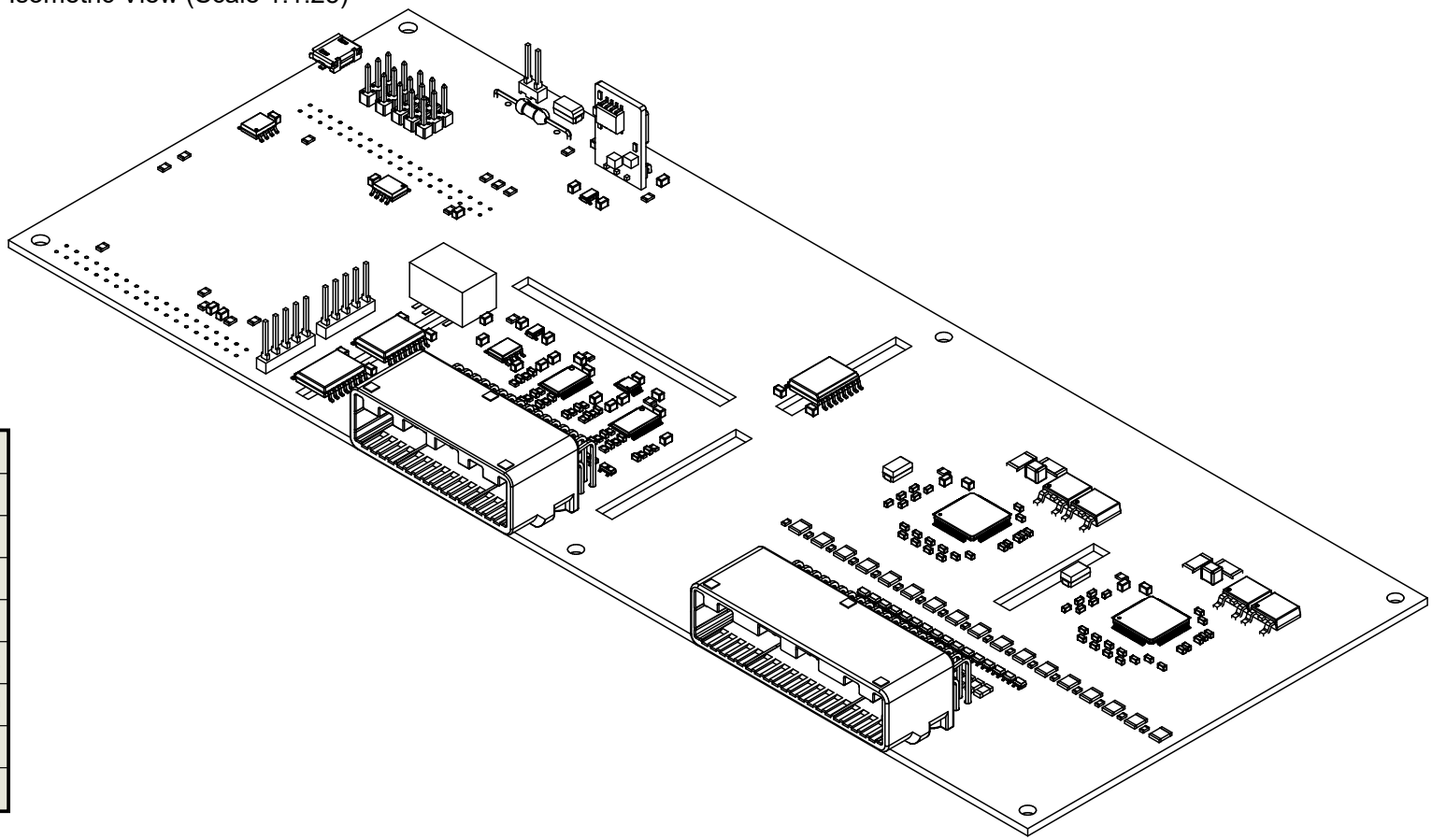


PERT BMS BSU Testing Board

TESTING PROTOTYPE
NOT FOR USE

POLYU E-FORMULA RACING TEAM	Title: PERT-BMS BSU TestBoard					
	Generation: NA	Organization: PERT	Sub Team: EEE	Module: PERT-BMS	Ver.: 1.0	Rev.
	Date: 30/12/2023			Drawn By: EEE Patrick		

Isometric View (Scale 1:1.25)



Content Table	
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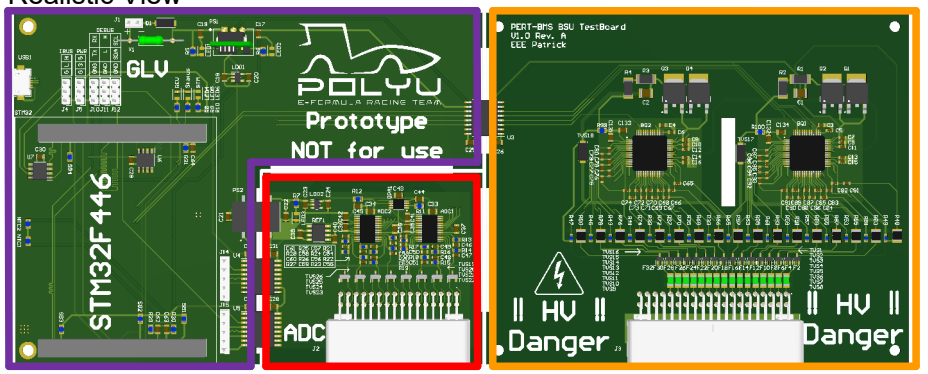
Assembly View	P.4
Layer Stack	P.6
Board Layers	P.7
Drill View	P.8
Three Side View	P.9
BOM	P.10
Post Process Information	P.12

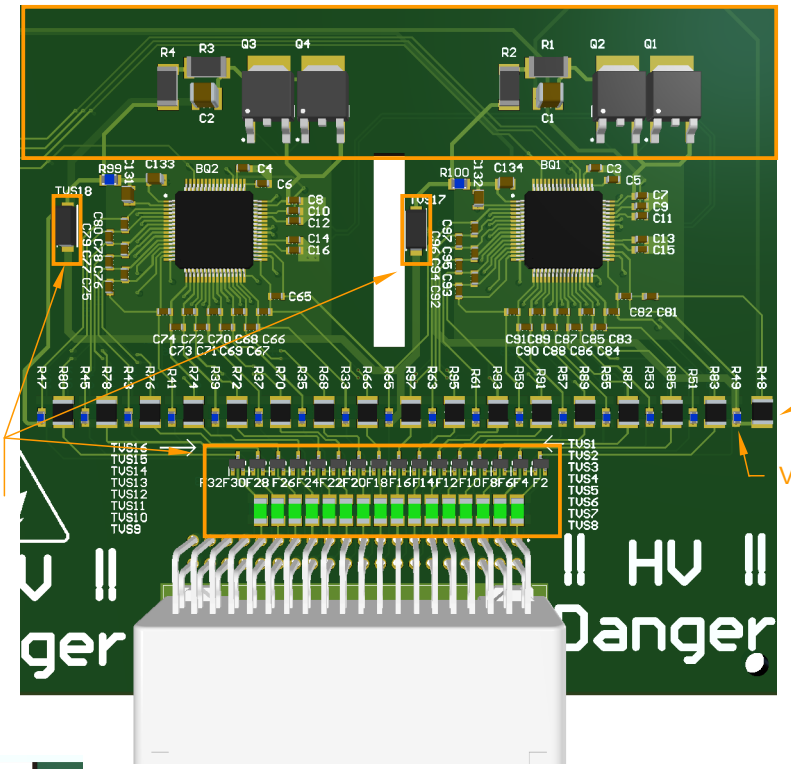
Title: PERT-BMS BSU TestBoard					
Generation: NA	Organization: PERT	Sub Team: EEE	Module: PERT-BMS	Ver.: 1.0	Rev.
Date: 30/12/2023			Drawn By: EEE Patrick		

Realistic View

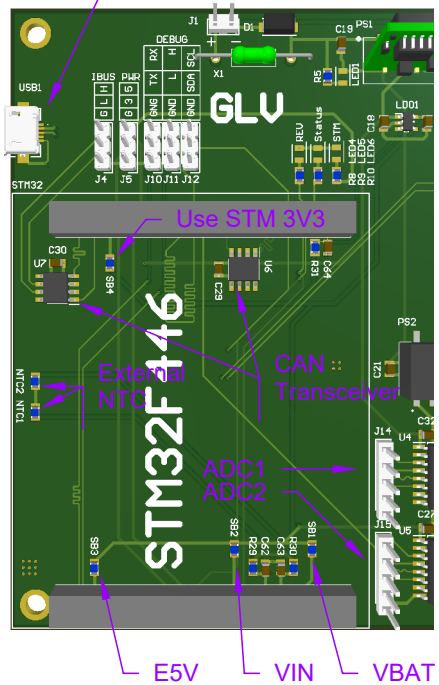


GLV ADC HV

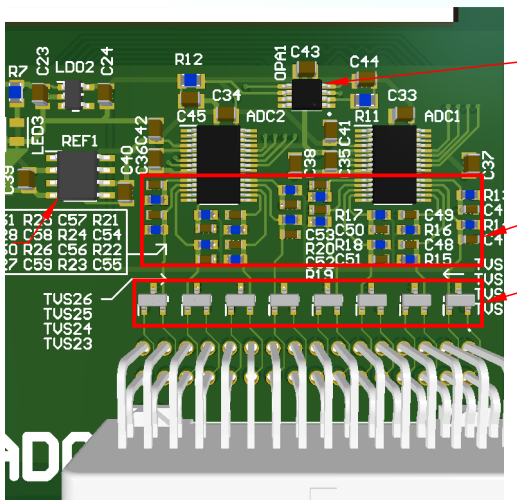
HV



GLV

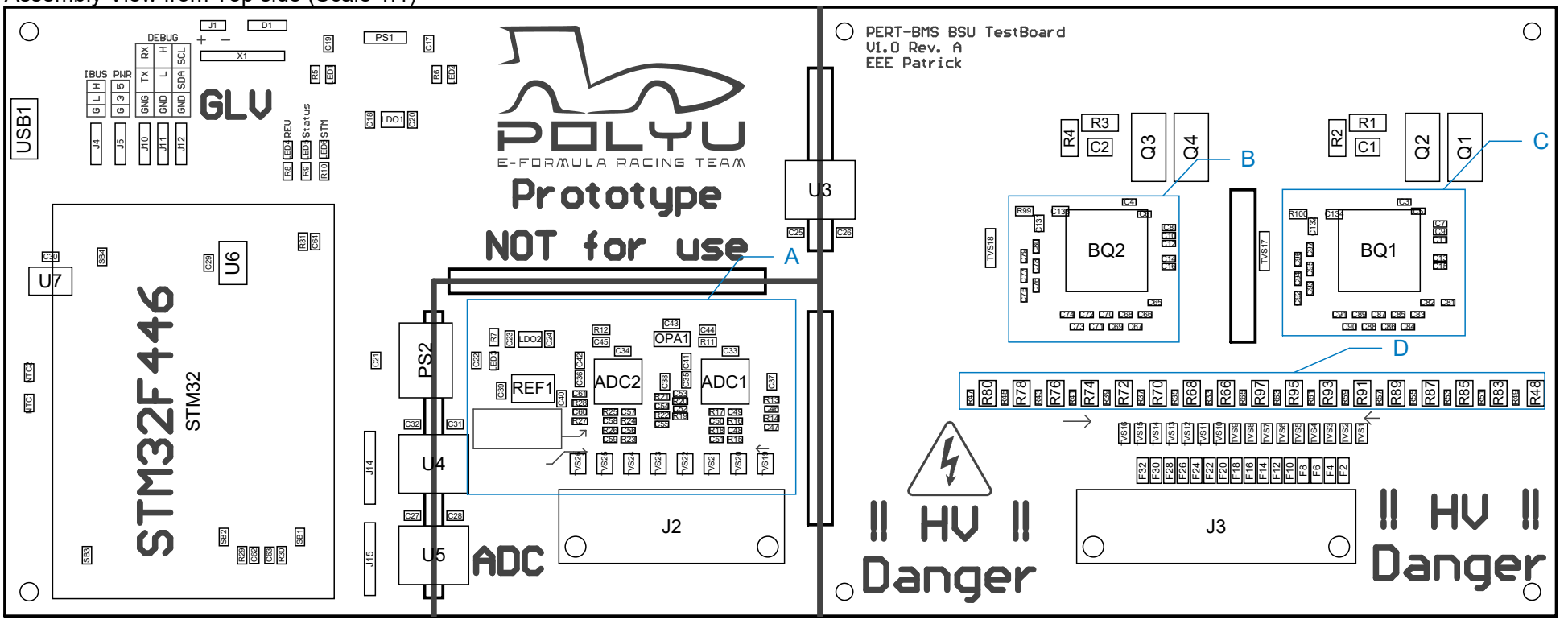


ADC

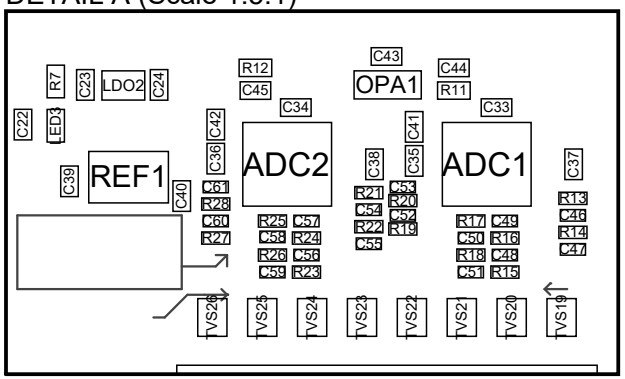


Title: PERT-BMS BSU TestBoard					
Generation: NA	Organization: PERT	Sub Team: EEE	Module: PERT-BMS	Ver.: 1.0	Rev.
Date: 30/12/2023			Drawn By: EEE Patrick		

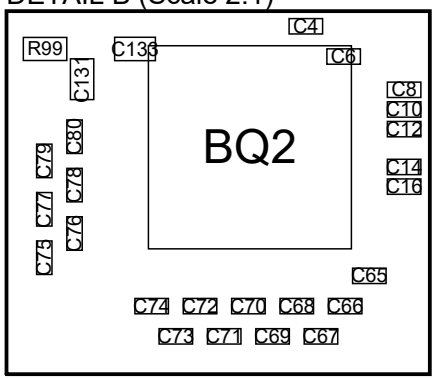
Assembly View from Top side (Scale 1:1)



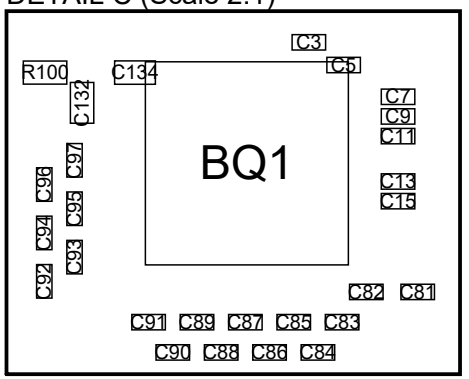
DETAIL A (Scale 1.5:1)



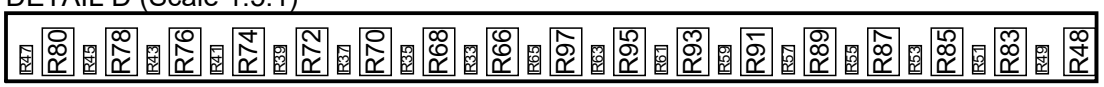
DETAIL B (Scale 2:1)



DETAIL C (Scale 2:1)

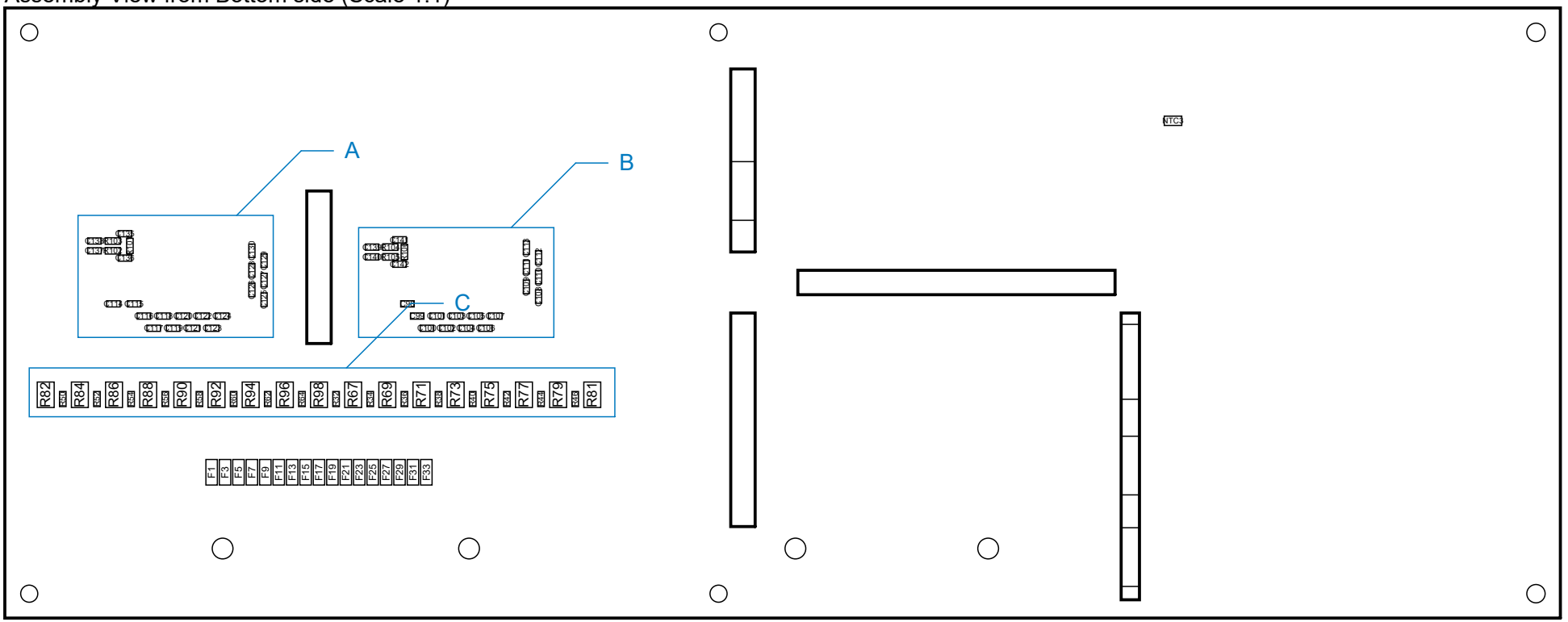


DETAIL D (Scale 1.5:1)

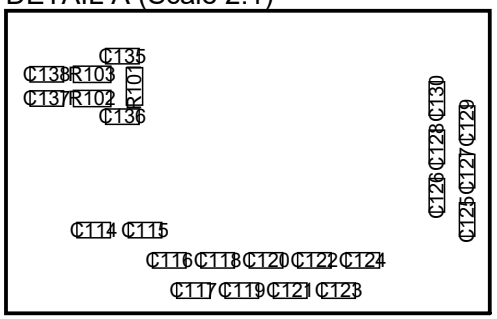


Title: PERT-BMS BSU TestBoard					
Generation: NA	Organization: PERT	Sub Team: EEE	Module: PERT-BMS	Ver.: 1.0	Rev.
Date: 30/12/2023			Drawn By: EEE Patrick		

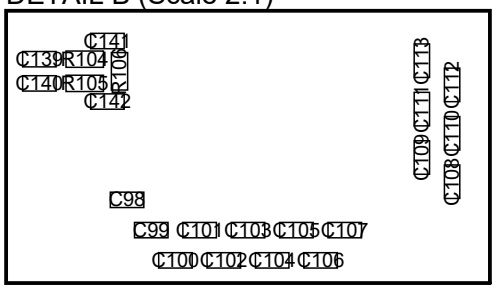
Assembly View from Bottom side (Scale 1:1)



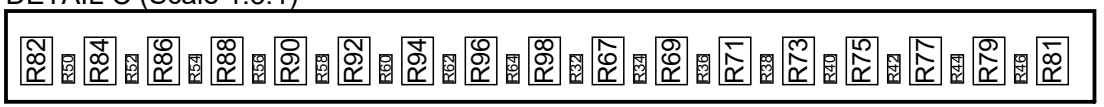
DETAIL A (Scale 2:1)



DETAIL B (Scale 2:1)

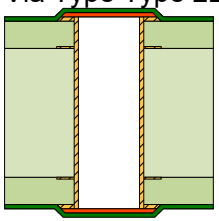


DETAIL C (Scale 1.5:1)

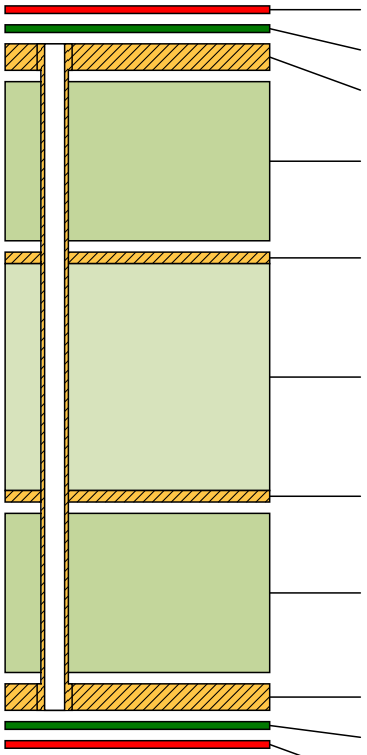


Title: PERT-BMS BSU TestBoard					
Generation: NA	Organization: PERT	Sub Team: EEE	Module: PERT-BMS	Ver.: 1.0	Rev.
Date: 30/12/2023			Drawn By: EEE Patrick		

Via Type Type 2B (Scale 16:1)



Layer Stack Legend

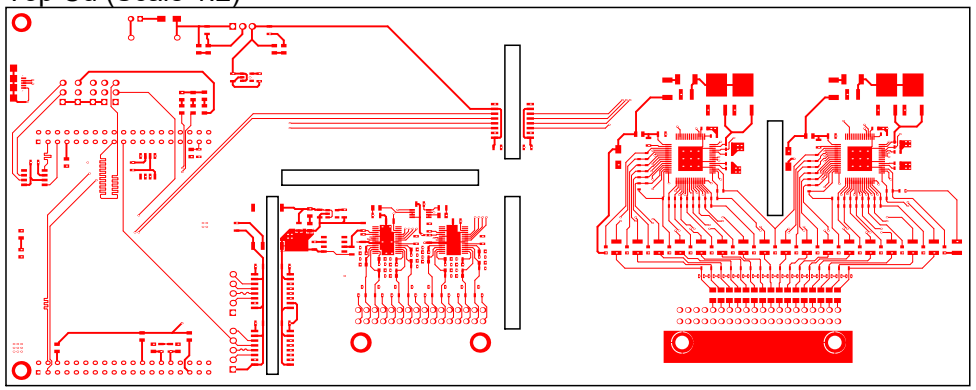


Material	Layer	Thickness	Dielectric Material	Type	Gerber
	Top Overlay			Legend	GTO
Surface Material	Top Solder	0.01mm	Solder Resist	Solder Mask	GTS
CF-004	**Top Cu**	**0.04mm**		**Signal**	**GTL**
Prepreg		*0.21mm*	*PP-006*	*Dielectric*	
CF-004	**PWR**	**0.02mm**		**Signal**	**G1**
Core		*1.06mm*	*Core-025*	*Dielectric*	
CF-004	**GND**	**0.02mm**		**Signal**	**G2**
Prepreg		*0.21mm*	*PP-006*	*Dielectric*	
CF-004	**Bottom Cu**	**0.04mm**		**Signal**	**GBL**
Surface Material	Bottom Solder	0.01mm	Solder Resist	Solder Mask	GBS
	Bottom Overlay			Legend	GBO

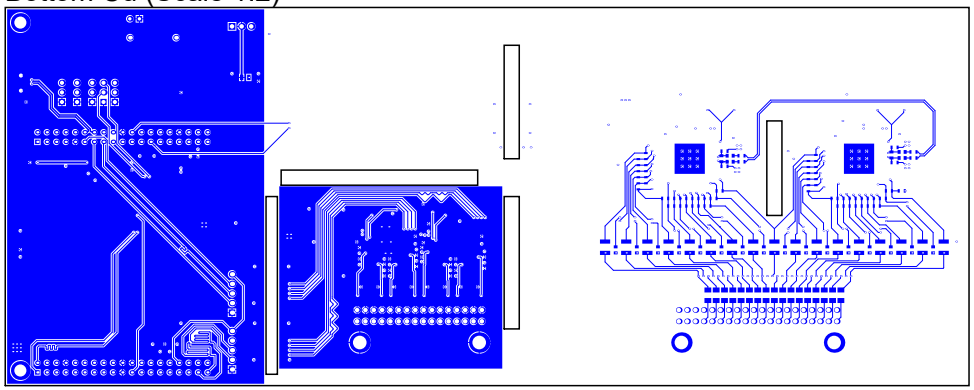
Total thickness: 1.61mm

PolyU E-Formula Racing Team	Title: PERT-BMS BSU TestBoard					
	Generation: NA	Organization: PERT	Sub Team: EEE	Module: PERT-BMS	Ver.: 1.0	Rev.
	Date: 30/12/2023			Drawn By: EEE Patrick		

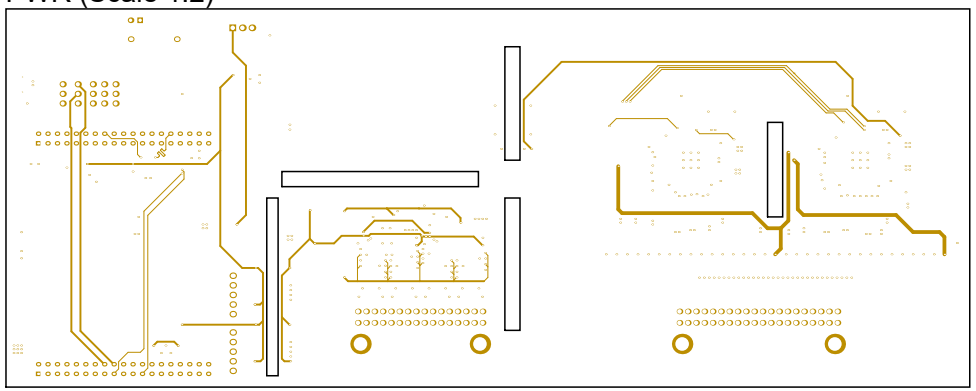
Top Cu (Scale 1:2)



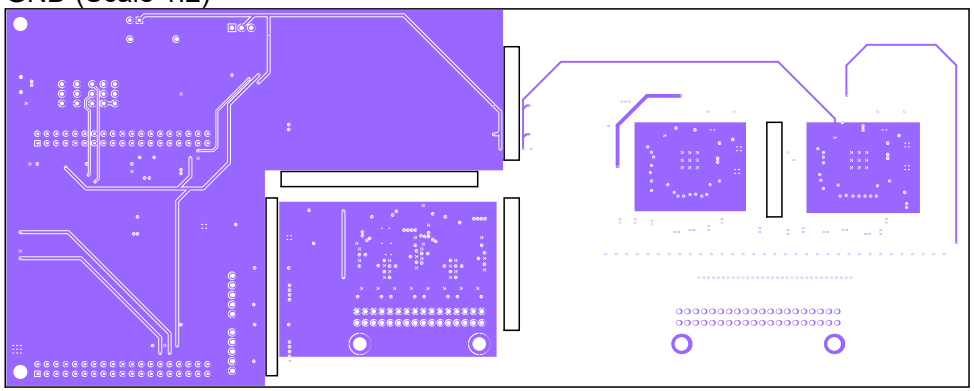
Bottom Cu (Scale 1:2)



PWR (Scale 1:2)

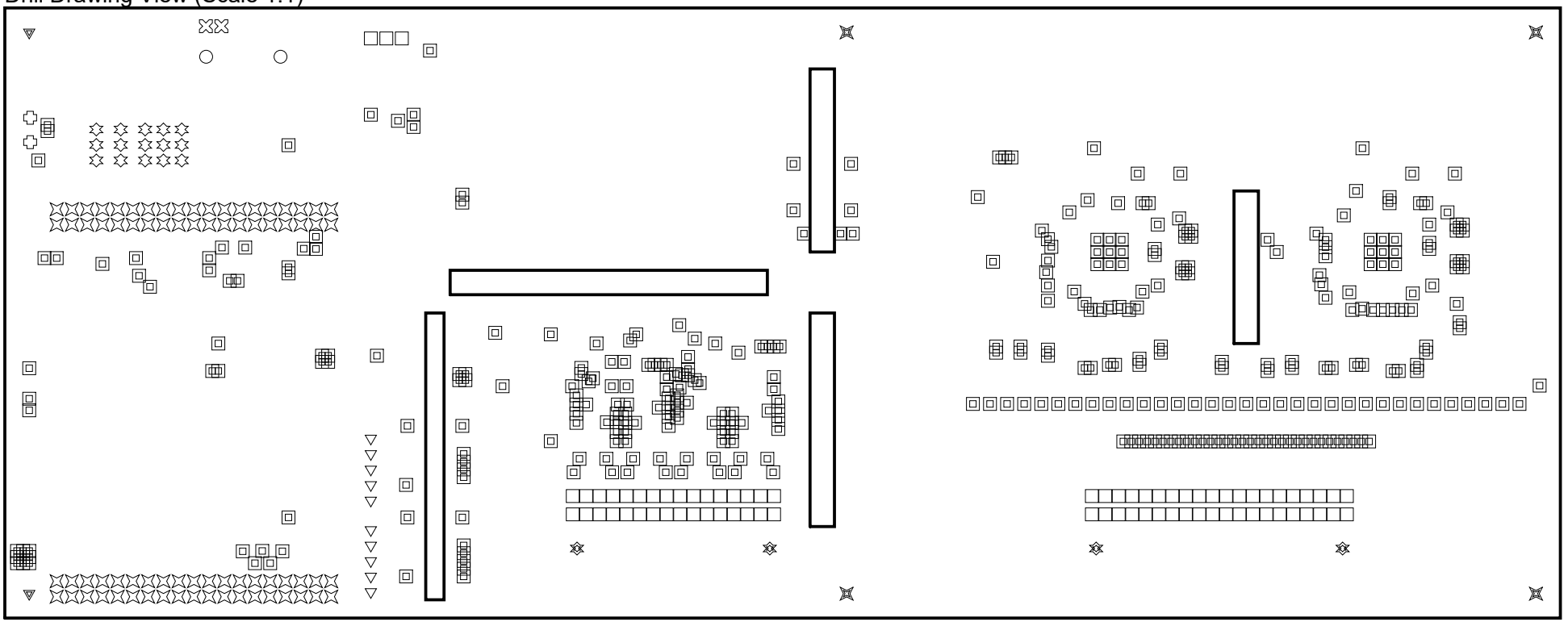


GND (Scale 1:2)



POLYU E-FORMULA RACING TEAM	Title: PERT-BMS BSU TestBoard				
Generation: NA	Organization: PERT	Sub Team: EEE	Module: PERT-BMS	Ver.: 1.0	Rev.
Date: 30/12/2023			Drawn By: EEE Patrick		

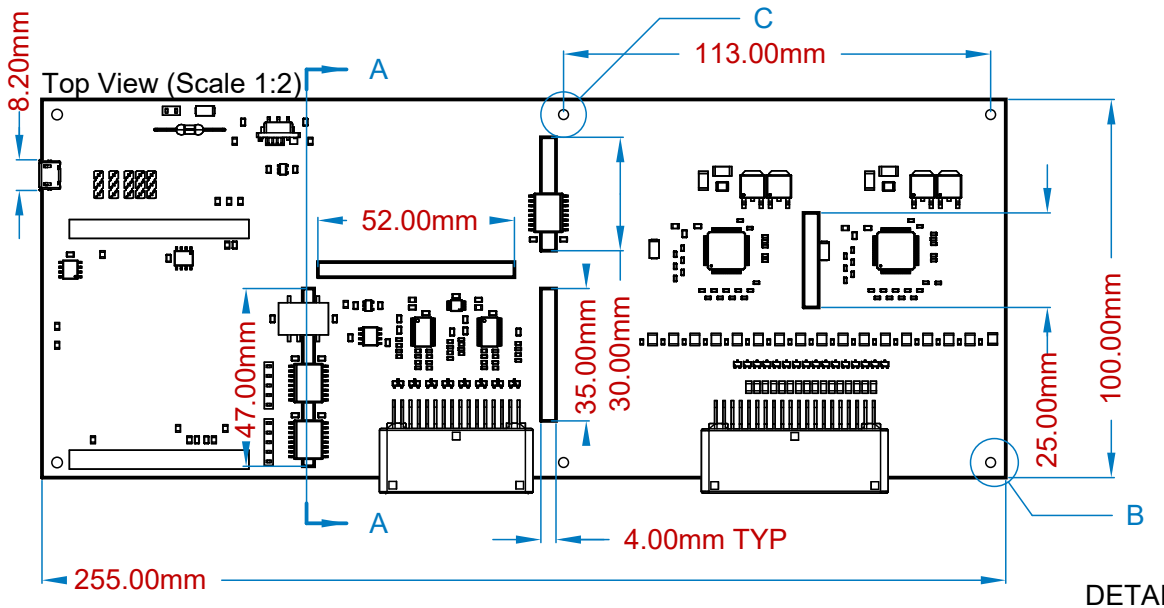
Drill Drawing View (Scale 1:1)

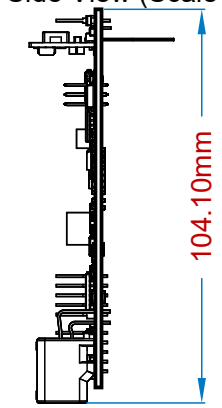


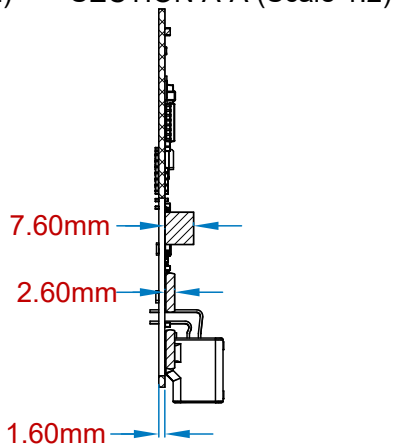
Drill Table

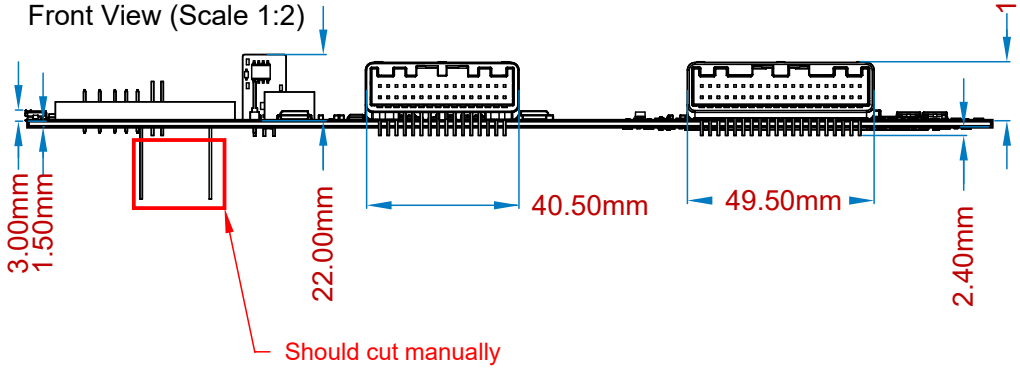
Symbol	Count	Hole Size	Plated	Hole Tolerance
⧈	377	0.30mm	Plated	
✣	2	0.55mm	Non-Plated	
⛝	76	0.60mm	Plated	
⛌	2	0.90mm	Plated	
○	2	1.01mm	Plated	
✡	15	1.10mm	Plated	
▽	10	1.15mm	Plated	
□	75	1.20mm	Plated	
⛝	4	3.00mm	Non-Plated	
▽	2	3.20mm	Plated	
⊗	4	3.60mm	Plated	
	569 Total			

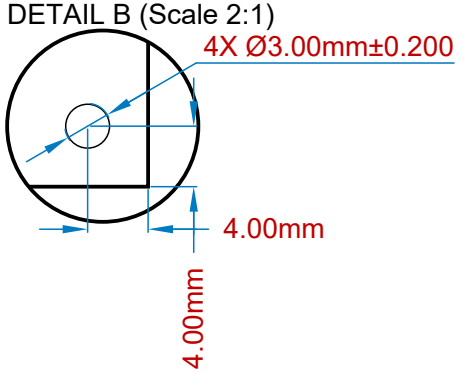
POLYU E-FORMULA RACING TEAM	Title: PERT-BMS BSU TestBoard					
	Generation: NA	Organization: PERT	Sub Team: EEE	Module: PERT-BMS	Ver.: 1.0	Rev.
	Date: 30/12/2023			Drawn By: EEE Patrick		

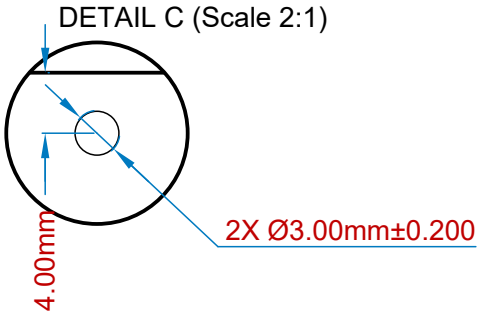












Title: PERT-BMS BSU TestBoard					
Generation: NA	Organization: PERT	Sub Team: EEE	Module: PERT-BMS	Ver.: 1.0	Rev.
Date: 30/12/2023			Drawn By: EEE Patrick		

Bill Of Materials (Top)

Designator	Name	Manufacturer_Part_Number	Quantity
ADC1, ADC2	ADS7951QDBTRQ1	ADS7951QDBTRQ1	2
BQ1, BQ2	BQ79616PAPR	BQ79616PAPR	2
C1, C2	220n		2
C3, C4, C13, C14, C15, C16	1u		6
C5, C6	2.2u		2
C7, C8, C11, C12	0.1u		4
C9, C10	4.7u		2
C17, C40	22u		2
C18, C20, C21, C23, C24, C33, C34, C35, C36, C37, C38, C39	1u		12
C19, C22, C41, C42, C43	10u		5
C25, C26, C27, C28, C29, C30, C31, C32	100n		8
C44, C45, C62, C63, C64	150p		5
C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61	150p		16
C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97	470n		33
C131, C132	470n		2
C133, C134	10n		2
D1	824500241	824500241	1
F2, F4, F6, F8, F10, F12, F14, F16, F18, F20, F22, F24, F26, F28, F30, F32	C1Q_1	C1Q 1	16
J1	Header 1x2		1
J2	1318745-2	1318745-2	1
J3	1318384-2	1318384-2	1
J4, J5, J10, J11, J12	Header 1x3	G800LR305018EU	5
J14, J15	Header 1x5	87224-5	2
LDO1, LDO2	TLV75533PDBVR	TLV75533PDBVR	2
LED1, LED2, LED3, LED4, LED6	RED		5
LED5	GREEN		1
NTC1, NTC2	NTCS0805E3104JXT	NTCS0805E3104JXT	2
OPA1	OPA2192IDGKT	OPA2192IDGKT	1

Bill Of Materials (Top)

Designator	Name	Manufacturer_Part_Number	Quantity
PS1	VXO7805-1000		1
PS2	PDSE1-S24-S5-M		1
Q1, Q2, Q3, Q4	ZXTN4004KTC	ZXTN4004KTC	4
R1, R3	200		2
R2, R4	100		2
R5	20k		1
R6, R7, R8, R9, R10	200		5
R11, R12	100		2
R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28	100k		16
R29, R30, R31	100k		3
R33, R35, R37, R39, R41, R43, R45, R47, R49, R51, R53, R55, R57, R59, R61, R63, R65	100		17
R48	0		1
R66, R68, R70, R72, R74, R76, R78, R80, R83, R85, R87, R89, R91, R93, R95, R97	10		16
R99, R100	30		2
REF1	REF5025AIDR	REF5025AIDR	1
SB1, SB2, SB3, SB4	0		4
TVS1, TVS2, TVS3, TVS4, TVS5, TVS6, TVS7, TVS8, TVS9, TVS10, TVS11, TVS12, TVS13, TVS14, TVS15, TVS16	ESDA041-2W3Y	ESDA041-2W3Y	16
TVS17, TVS18	SMAJ75A	SMAJ75A	2
TVS19, TVS20, TVS21, TVS22, TVS23, TVS24, TVS25, TVS26	PESD5V0U2BT_215	PESD5V0U2BT,215	8
U3, U4, U5	ISO7741FBDW	ISO7741FBDW	3
U6, U7	TJA1050T_CM_118	TJA1050T/CM,118	2
USB1	UJ2-MIBH-G-SMT-TR	UJ2-MIBH-G-SMT-TR	1
X1	Littelfuse 0251.500		1

POLYU E-FORMULA RACING TEAM	Title: PERT-BMS BSU TestBoard					
	Generation: NA	Organization: PERT	Sub Team: EEE	Module: PERT-BMS	Ver.: 1.0	Rev.
	Date: 30/12/2023			Drawn By: EEE Patrick		

Bill Of Materials (Bottom)

Designator	Name	Manufacturer_Part_Number	Quantity
C98, C99, C100, C101, C102, C103, C104, C105, C106, C107, C108, C109, C110, C111, C112, C113, C114, C115, C116, C117, C118, C119, C120, C121, C122, C123, C124, C125, C126, C127, C128, C129, C130	470n		33
C135, C136, C141, C142	220p		4
C137, C138, C139, C140	2.2n		4
F1, F3, F5, F7, F9, F11, F13, F15, F17, F19, F21, F23, F25, F27, F29, F31, F33	C1Q_1	C1Q 1	17
NTC3	NTCS0805E3104JXT	NTCS0805E3104JXT	1
R32, R34, R36, R38, R40, R42, R44, R46, R50, R52, R54, R56, R58, R60, R62, R64	100		16
R67, R69, R71, R73, R75, R77, R79, R81, R82, R84, R86, R88, R90, R92, R94, R96, R98	10		17
R101, R106	1k		2
R102, R103, R104, R105	51		4

POLYU E-FORMULA RACING TEAM	Title: PERT-BMS BSU TestBoard					
	Generation: NA	Organization: PERT	Sub Team: EEE	Module: PERT-BMS	Ver.: 1.0	Rev.
	Date: 30/12/2023			Drawn By: EEE Patrick		

The PCB should always have a bottom cover rigidly mounted that made by Insulation material that have minimun 3mm thick and comply at least UL94 V-0, i.e. PC ,FR4 or Normex.

The PCB most apply at least 2 layers of Conformal Coating before used. Each layer of coating must sit and wait for minimum of 24 hours till it's dry out. Mask all the connector before apply the coating.

Title: PERT-BMS BSU TestBoard					
Generation	Organization	Sub Team	Module	Ver.	Rev.
NA	PERT	EEE	PERT-BMS	1.0	
Date: 30/12/2023			Drawn By: EEE Patrick		