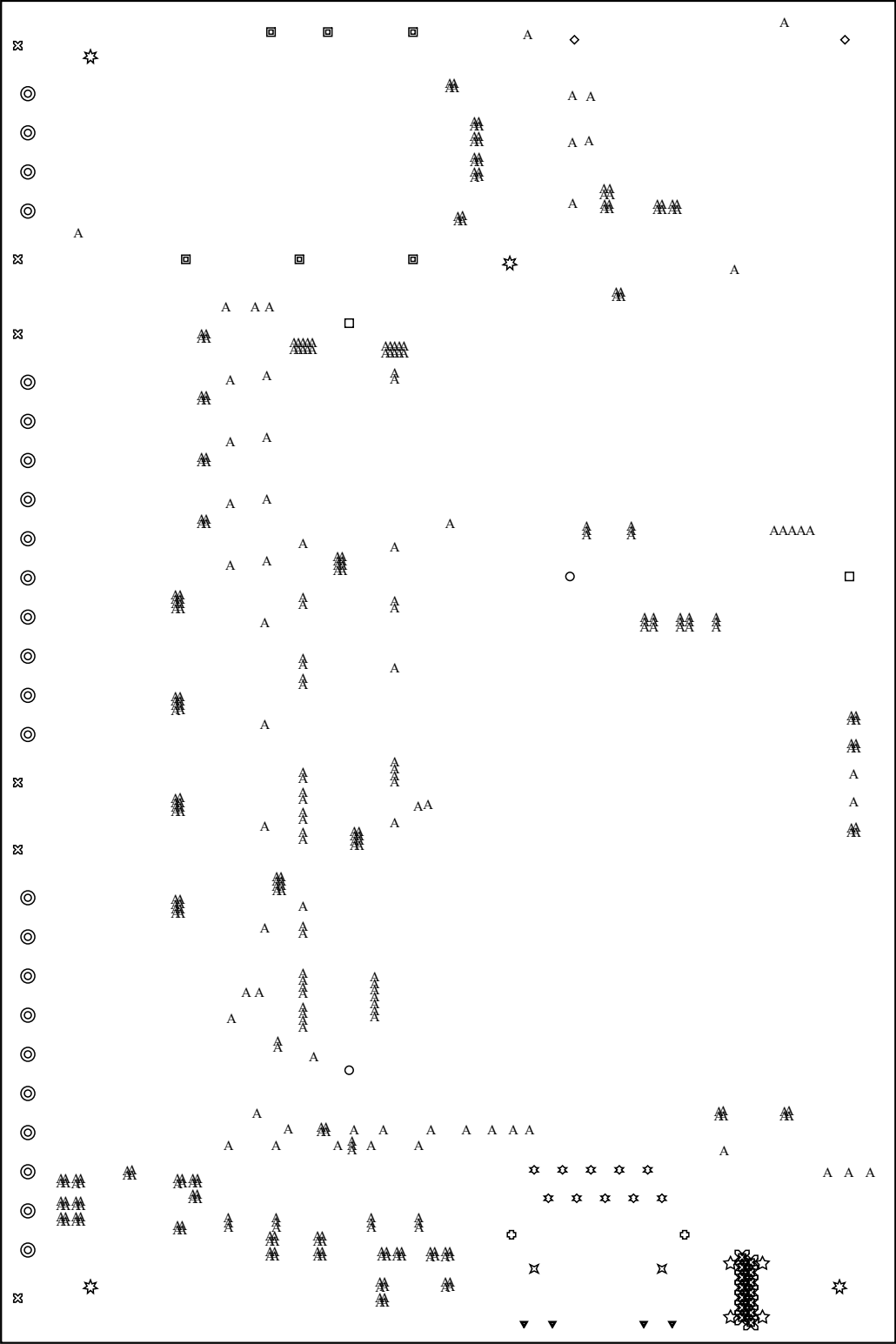
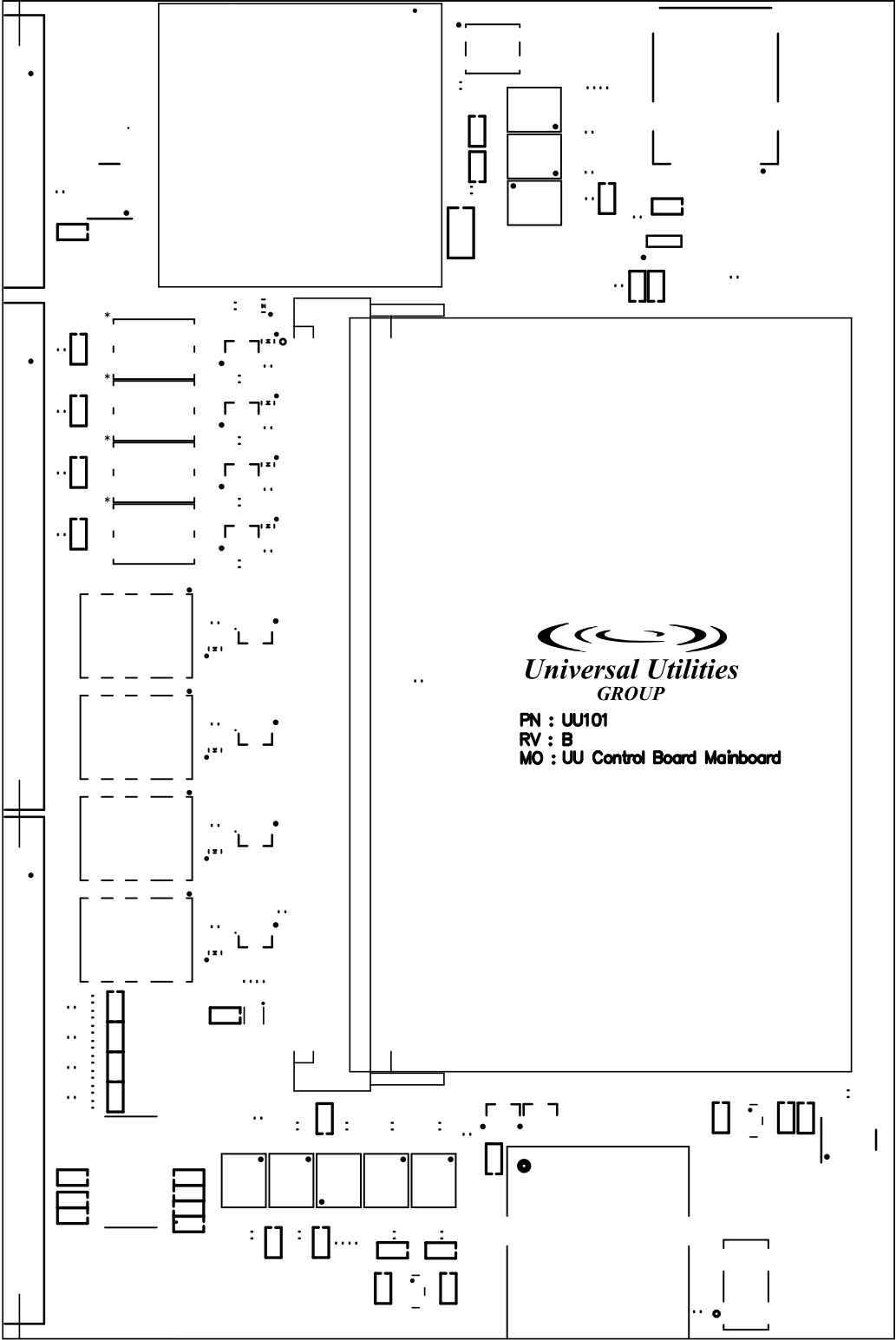


Drill Drawing View



Top Overlay (Scale 1.7:1)



Drill Table (Top - Bottom)

Symbol	Count	Hole Size	Plated	Hole Type	Drill Layer Pair	Via / Pad	Hole Tolerance
□	2	1.60mm(62.99mil)	Non-Plated	Round	Top Layer - Bottom Layer	Pad	
○	2	1.10mm(43.31mil)	Non-Plated	Round	Top Layer - Bottom Layer	Pad	
◇	2	2.80mm(110.24mil)	Plated	Round	Top Layer - Bottom Layer	Pad	
☆	10	0.89mm(35.00mil)	Plated	Round	Top Layer - Bottom Layer	Pad	
⊠	2	3.25mm(128.00mil)	Plated	Round	Top Layer - Bottom Layer	Pad	
⊕	2	1.63mm(64.00mil)	Plated	Round	Top Layer - Bottom Layer	Pad	
▼	4	1.02mm(40.00mil)	Plated	Round	Top Layer - Bottom Layer	Pad	
▣	6	1.50mm(59.06mil)	Plated	Round	Top Layer - Bottom Layer	Pad	
⊗	6	2.40mm(94.49mil)	Plated	Round	Top Layer - Bottom Layer	Pad	
◎	24	1.20mm(47.24mil)	Plated	Round	Top Layer - Bottom Layer	Pad	
☆	4	0.60mm(23.62mil)	Plated	Slot	Top Layer - Bottom Layer	Pad	
⊗	14	0.41mm(16.00mil)	Plated	Round	Top Layer - Bottom Layer	Pad	
☆	4	3.00mm(118.11mil)	Plated	Round	Top Layer - Bottom Layer	Pad	
Λ	386	0.20mm(7.87mil)	Plated	Round	Top Layer - Bottom Layer	Via	

DESIGN INFORMATION

BOARD SIZE :

(REFER ALSO ARRAY/PANEL PROFILING INFORMATION)

120 mm(D) X 80 mm(L)

Number of Layers : 4 Layer
MIN. TRACK WIDTH : 0.127 mm(MIL)
MIN. CLEARANCE : 0.127 mm(MIL)
MIN. VIA PAD SIZE : 0.2 mm(MIL)
MINIMUM ANNULAR RING : 0.254
EXTERNAL PER IPC-D-275 CLASS 2 LEVEL C

REGISTRATION TOLERANCES:

METAL 0.127 mm (MIL),
HOLES 0.127 mm (MIL)

BOARD MATERIAL :

MATERIAL :
FR-408, FR-4 High Tg.
OTHER : Provide by MFG

THICKNESS:

0.8mm (32 MIL) +/-10%
1.6 mm (63 MIL) +/-10%
2.0 mm (79 MIL) +/-10%
OTHER :

TOLERANCE:

ANSI IPC-6012 TYPE 3 CLASS 2
OTHER :

BOW & TWIST:

ANSI IPC-6012 TYPE 3 CLASS 2
OTHER :

COPPER THICKNESS (FINISHED):

OUTER SIGNAL:

18 um (0.07 MIL)
35 um (1.38 MIL)
70 um (2.76 MIL)
OTHER :

INNER PLANE:

18 um (0.07 MIL)
35 um (1.38 MIL)
70 um (2.76 MIL)
OTHER :

DRILLING:

AS SHOWN, NC_DRILL FILES
PTH MIN COPPER THICKNESS:

25.4um, OTHER

BOARD FINISH :

SILKSCREEN : TOP, BOTTOM

SILKSCREEN COLOR : WHITE, BLACK

SOLDER RESIST COLOR : GREEN, BLACK, BLUE, OTHER :

SURFACE FINISH : OSP, HARD GOLD

HASL WITH LEAD, HASL LEAD FREE

IMMERSION GOLD (ENIG), ENEPIG,

IMM. TN OR EQUIV, IMM. SILVER (Ag)

OTHER

ARRAY/PANEL: CUT AND TRIM PER MECH LAYER 1,

N.C. ROUTE, V. SCORE

CERTIFICATION:

MATERIALS AND WORKMANSHIP FOR ALL PCBs

TO MEET OR EXCEED THE REQUIREMENTS OF:

ANSI IPC-A-600F CLASS -> 1, 2, 3

UL 94V-0, RoHS, OTHER

ADDITIONAL REQUIREMENTS :

MICROSECTION : YES, NO

VIA TENTING : YES, NO

BARE BOARD ELEC. TEST:

NONE,
REQUIRED,
PER ORDER
OTHER :

MANUFACTURER'S UL : RAIL, METAL, SILK



Head Office Universal Utilities Public Company Limited
No. 1 Eastwater Building, 18th Floor, Vibhavadi road, Jomphon, Jatujak, Bangkok 10900, Tel : +662-272-1688, Fax : +662-2721690-1

TITLE:

FABICATION

PROJECT: UU101_UUControl_MainBoard.PrjPcb

SIZE: A3

FINISH: 20/05/2022 02:50

MFG

DRAWN: EAKAWIT K.

CHK'D:KACHAKORN

APPV'D:CHERDCHAI P.

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REVISION: =PCBRev

SCALE 1:1

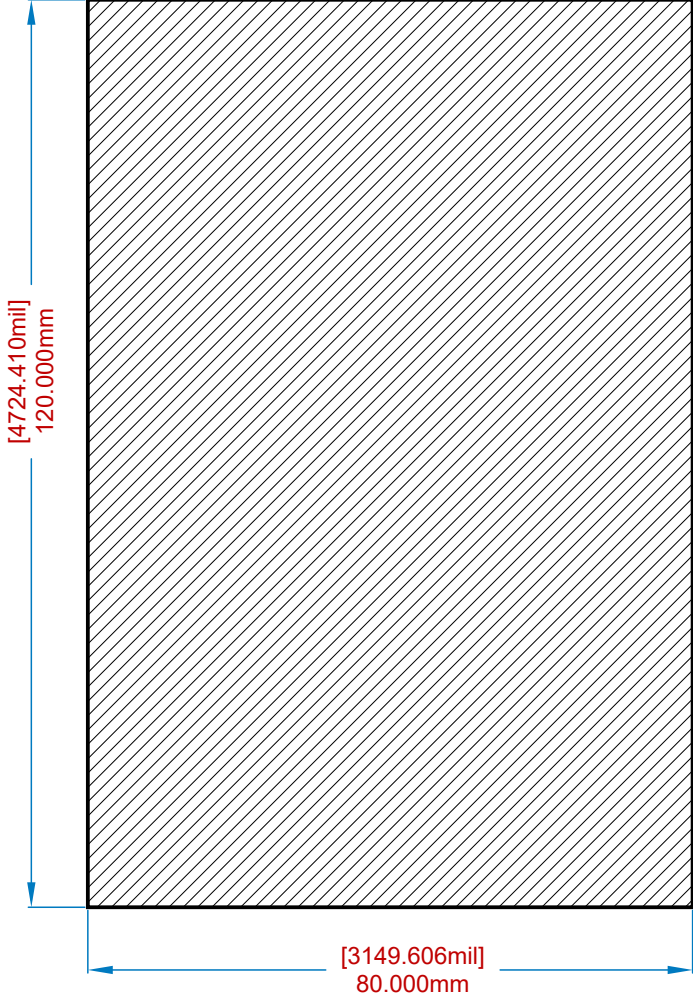
DWG NO.

SHEET 1 OF 2

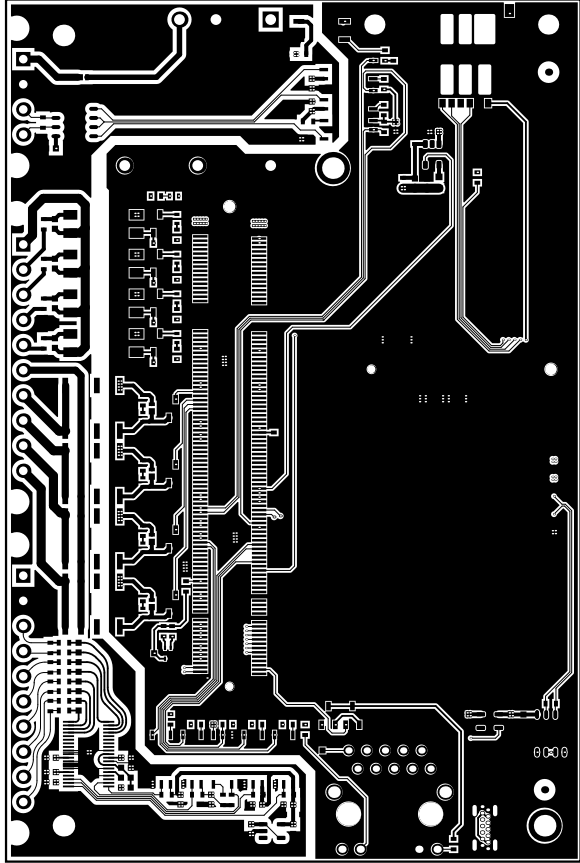
Layer Stack Legend

Material	Layer	Thickness	Dielectric Material	Type	Gerber
	Top Overlay			Legend	GTO
Surface Material	Top Solder	0.025mm(1.000mil)	Solder Resist	Solder Mask	GTS
Copper	Top Layer	0.036mm(1.400mil)		Signal	GTL
Prepreg		0.071mm(2.800mil)	PP-006	Dielectric	
CF-004	GND	0.035mm(1.378mil)		Internal Plane	GP1
Core		1.200mm(47.244mil)	FR-4	Dielectric	
CF-004	PWR	0.035mm(1.378mil)		Internal Plane	GP2
Prepreg		0.071mm(2.800mil)	PP-006	Dielectric	
Copper	Bottom Layer	0.036mm(1.400mil)		Signal	GBL
Surface Material	Bottom Solder	0.025mm(1.000mil)	Solder Resist	Solder Mask	GBS
	Bottom Overlay			Legend	GBO
Total thickness: 1.534mm(60.400mil)					

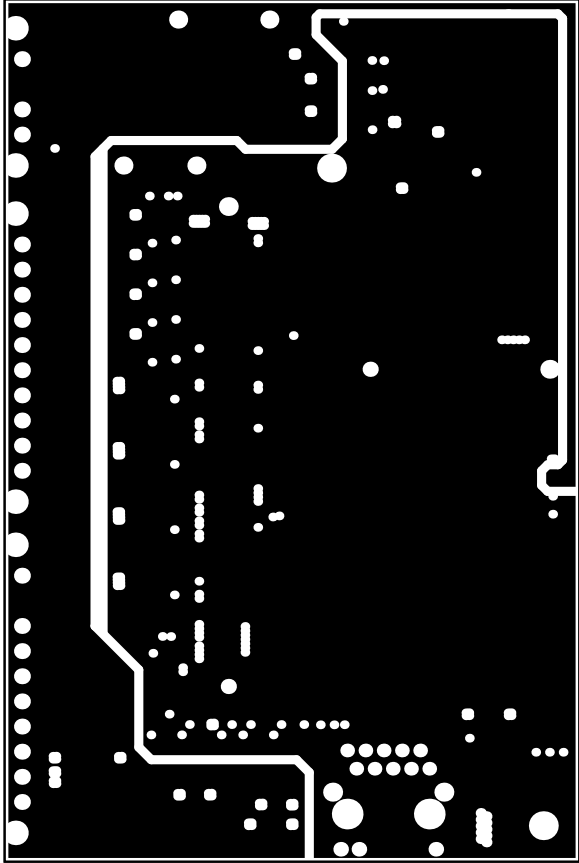
Region View (Scale 1:1)



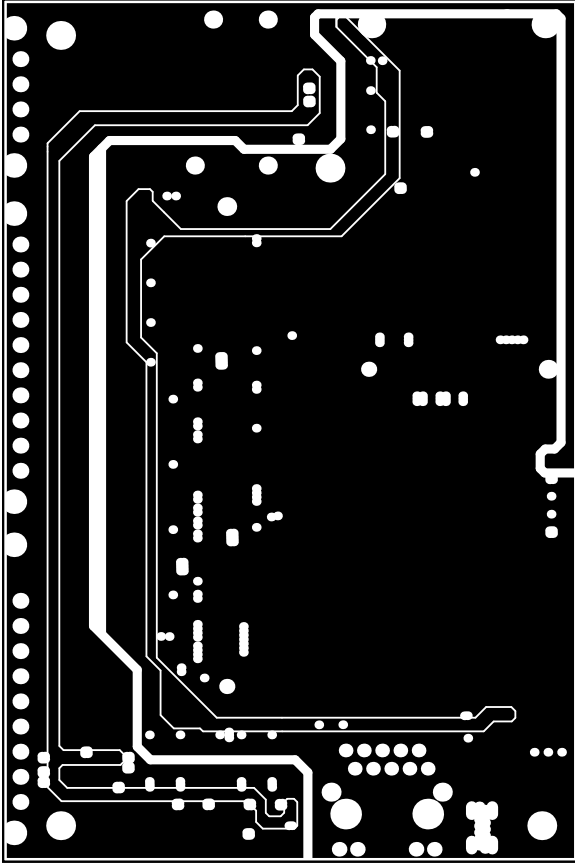
Top Layer (Scale: 1:1.05263157894737)



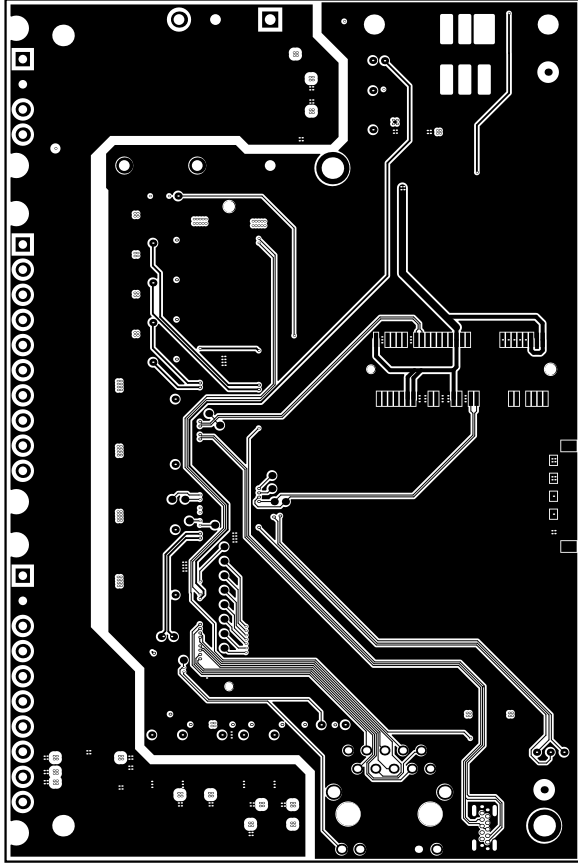
GND (Scale: 1:1.05263157894737)



PWR (Scale: 1:1.05263157894737)



Bottom Layer (Scale: 1:1.05263157894737)



DESIGN INFORMATION

BOARD SIZE :

(REFER ALSO ARRAY/PANEL PROFILING INFORMATION)

120 mm(D) X 80 mm(L)

Number of Layers : 4 Layer
MIN. TRACK WIDTH : 0.127 mm(MIL)
MIN. CLEARANCE : 0.127 mm(MIL)
MIN. VIA PAD SIZE : 0.2 mm(MIL)
MINIMUM ANNULAR RING : 0.254
EXTERNAL PER IPC-D-275 CLASS 2 LEVEL C
REGISTRATION TOLERANCES:
METAL 0.127 mm (MIL),
HOLES 0.127 mm (MIL)

BOARD MATERIAL :

MATERIAL :
FR-408, FR-4 High Tg.
X OTHER : Provide by MFG

THICKNESS:

0.8mm (32 MIL) +/-10%
X 1.6 mm (63 MIL) +/-10%
2.0 mm (79 MIL) +/-10%
OTHER :

TOLERANCE:

X ANSI IPC-6012 TYPE 3 CLASS 2
OTHER :

BOW & TWIST:

X ANSI IPC-6012 TYPE 3 CLASS 2
OTHER :

COPPER THICKNESS (FINISHED):

OUTER SIGNAL:

18 um (0.07 MIL)
X 35 um (1.38 MIL)
70 um (2.76 MIL)
OTHER :

INNER PLANE:

18 um (0.07 MIL)
X 35 um (1.38 MIL)
70 um (2.76 MIL)
OTHER :

DRILLING:

REFERENCE:
X AS SHOWN, X NC DRILL FILES

PTH MIN COPPER THICKNESS:

X 25.4um, OTHER

BOARD FINISH :

SILKSCREEN : X TOP, X BOTTOM
SILKSCREEN COLOR : X WHITE, BLACK
SOLDER RESIST COLOR : X GREEN, BLACK,
BLUE, OTHER :
SURFACE FINISH : OSP, HARD GOLD
X HASL WITH LEAD, HASL LEAD FREE
IMMERSION GOLD (ENIG), ENEPIG,
IMM. TN OR EQUIV, IMM. SILVER (Ag)
OTHER

ARRAY/PANEL: CUT AND TRIM PER MECH LAYER 1,
N.C. ROUTE, V. SCORE

CERTIFICATION:

MATERIALS AND WORKMANSHIP FOR ALL PCBs
TO MEET OR EXCEED THE REQUIREMENTS OF:

X ANSI IPC-A-600F CLASS -> 1, X 2, 3
UL 94V-0, RoHS, OTHER

ADDITIONAL REQUIREMENTS :

MICROSECTION : YES, X NO
VIA TENTING : X YES, NO

BARE BOARD ELEC. TEST:

NONE,
REQUIRED,
PER ORDER
OTHER :

MANUFACTURER'S UL : RAIL, METAL, SILK



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TITLE:

FABICATION

PROJECT:	UU101_UUControl_MainBoard.PrjPcb	SIZE:	A3
FINISH: 20/05/2022 02:50	MFG		
DRAWN: EAKAWIT K.	CHK'D:KACHAKORN	APPV'D:CHERDCHAI P.	

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REVISION: =PCBRev	SCALE 1:1	DWG NO.	SHEET 2 OF 2
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