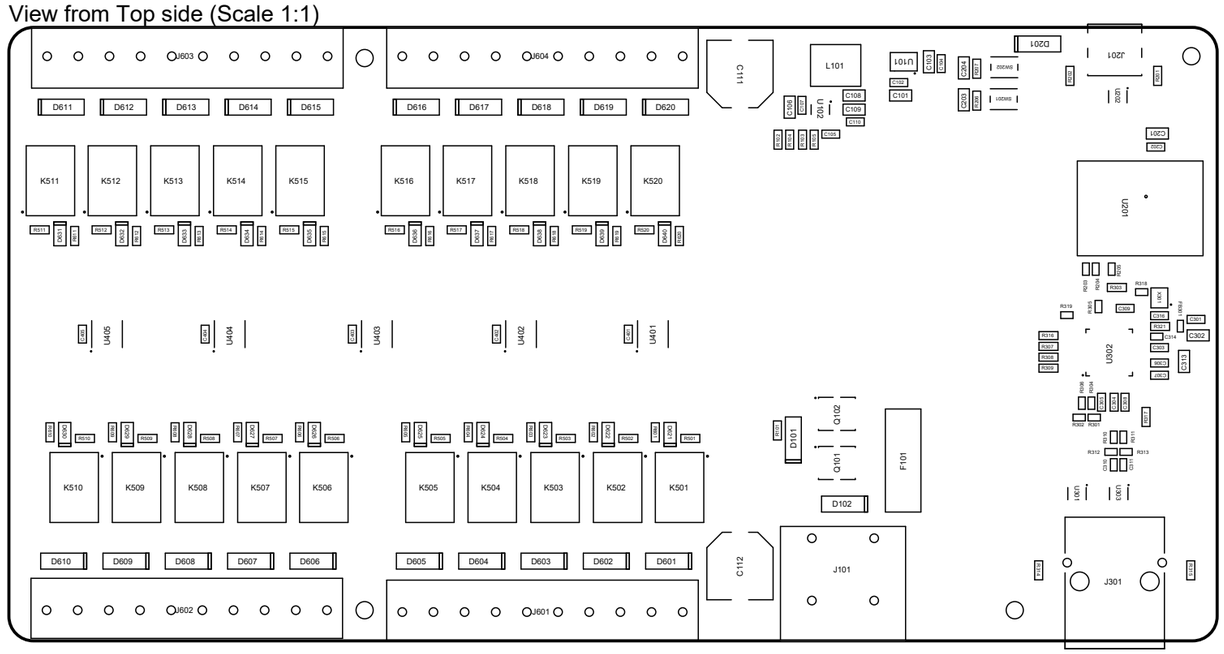
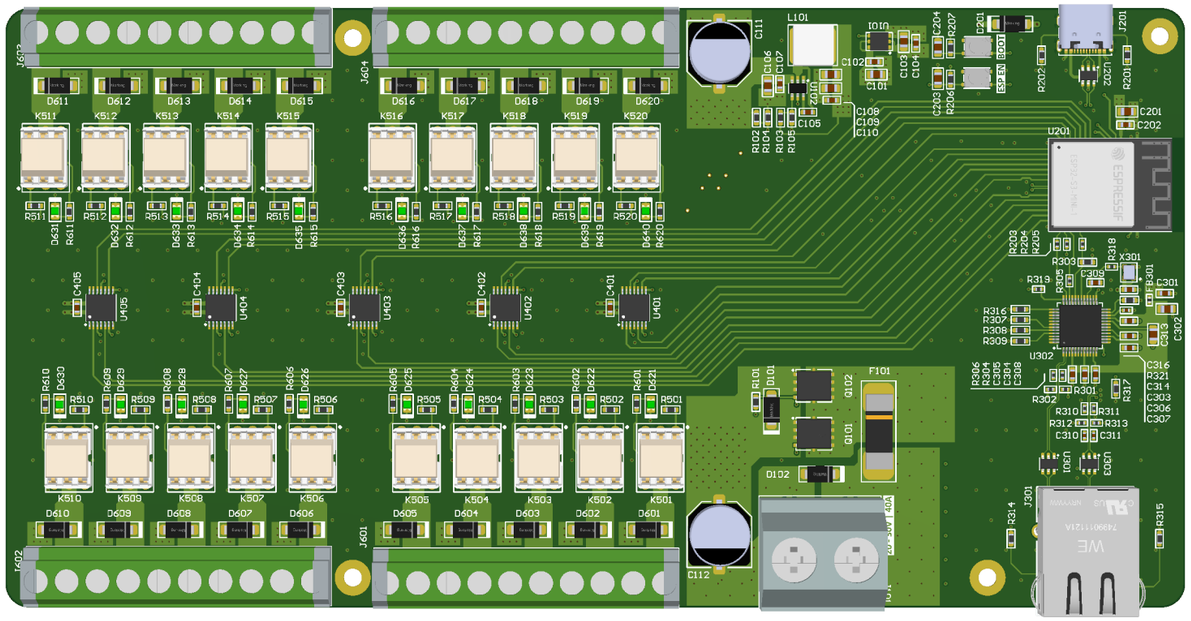
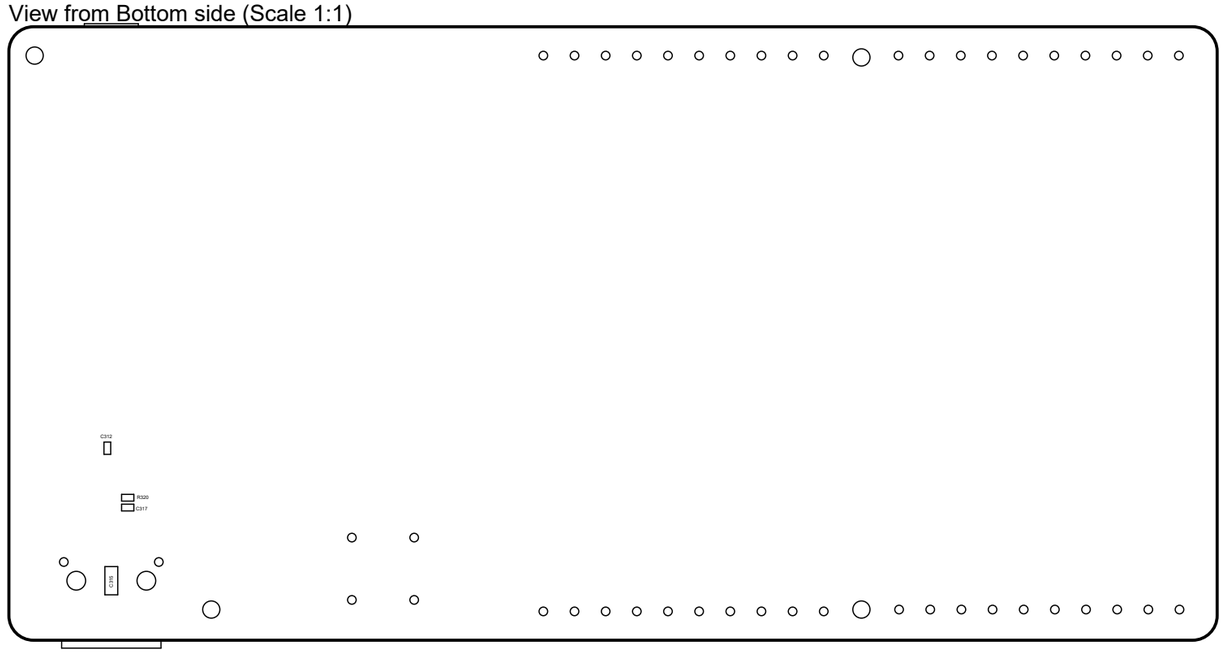
View from Top side (Scale 1:1)



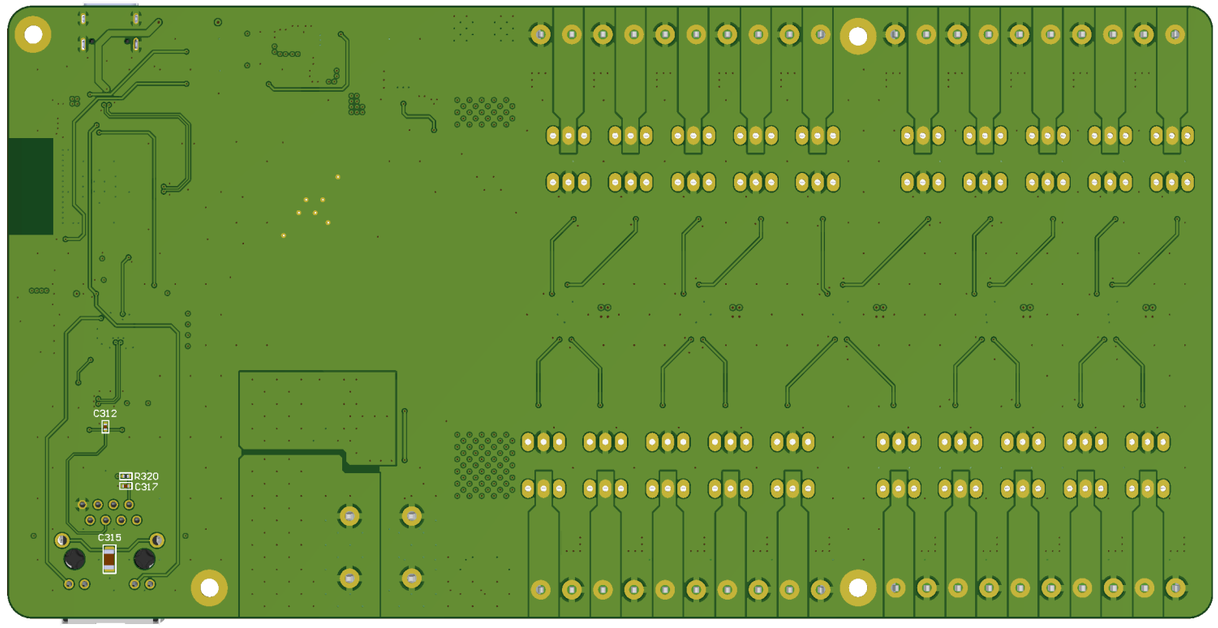
Realistic View



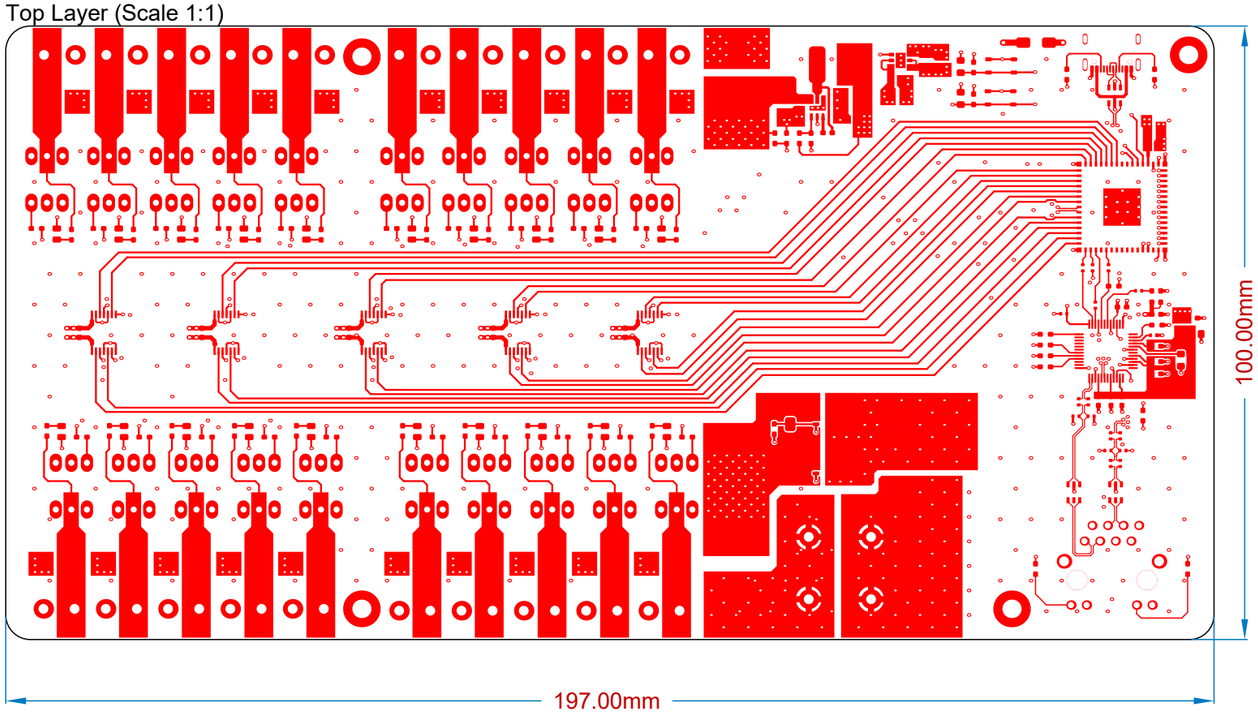
View from Bottom side (Scale 1:1)



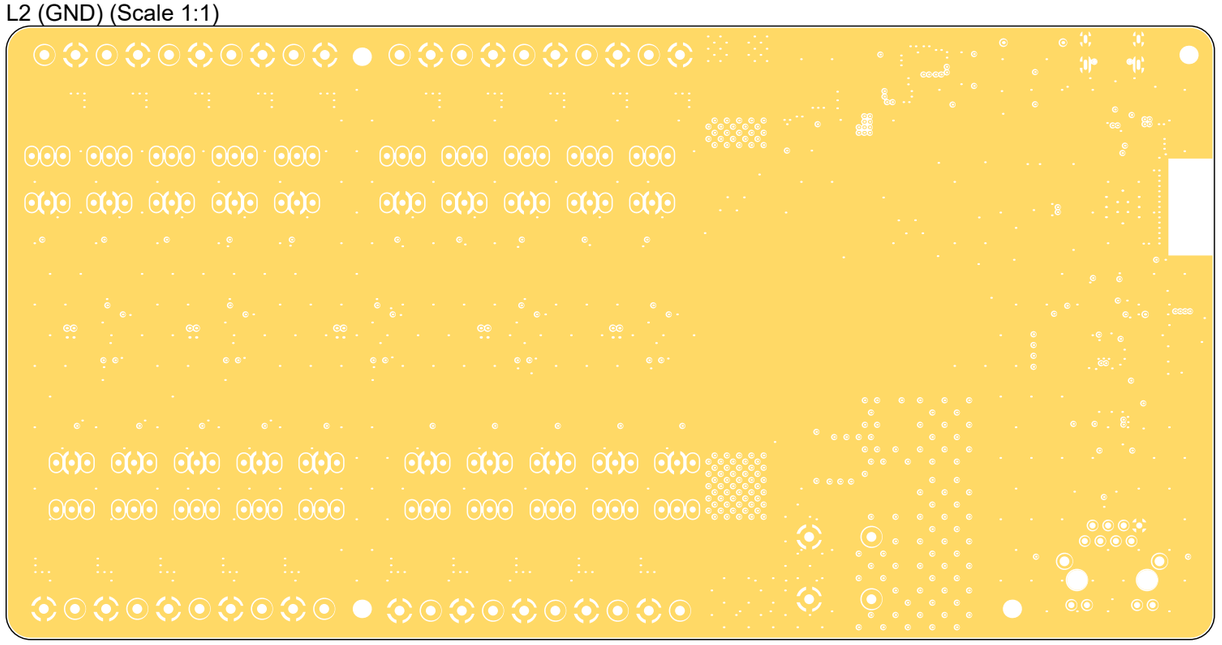
Realistic View



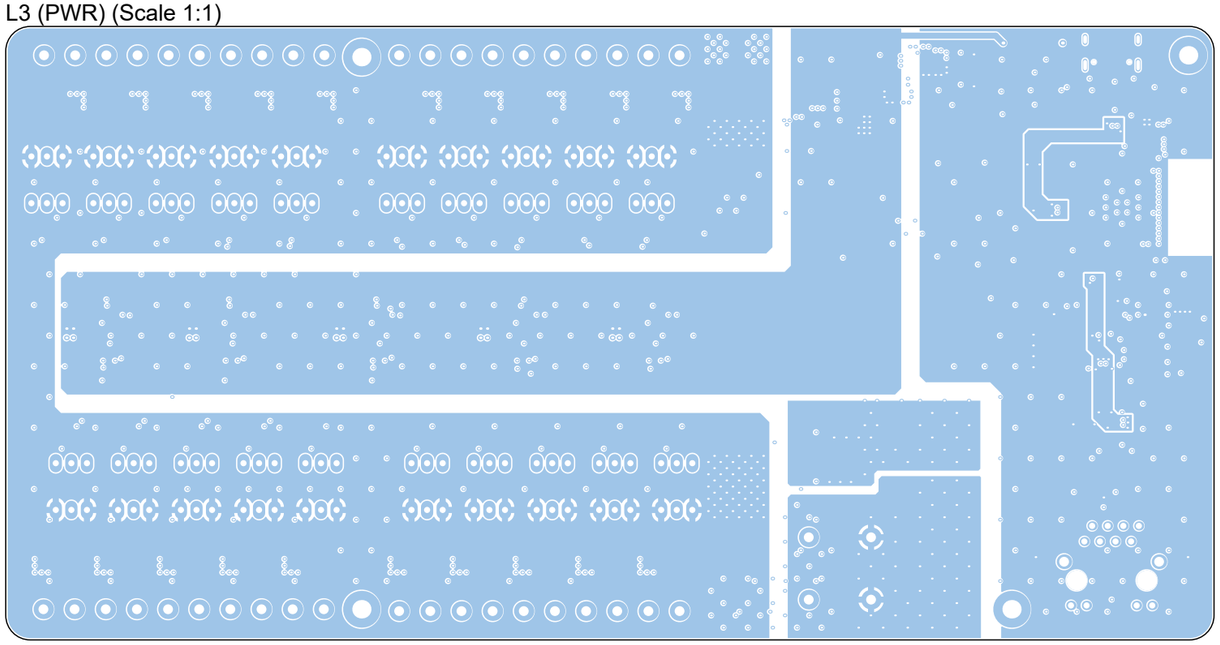
Top Layer (Scale 1:1)



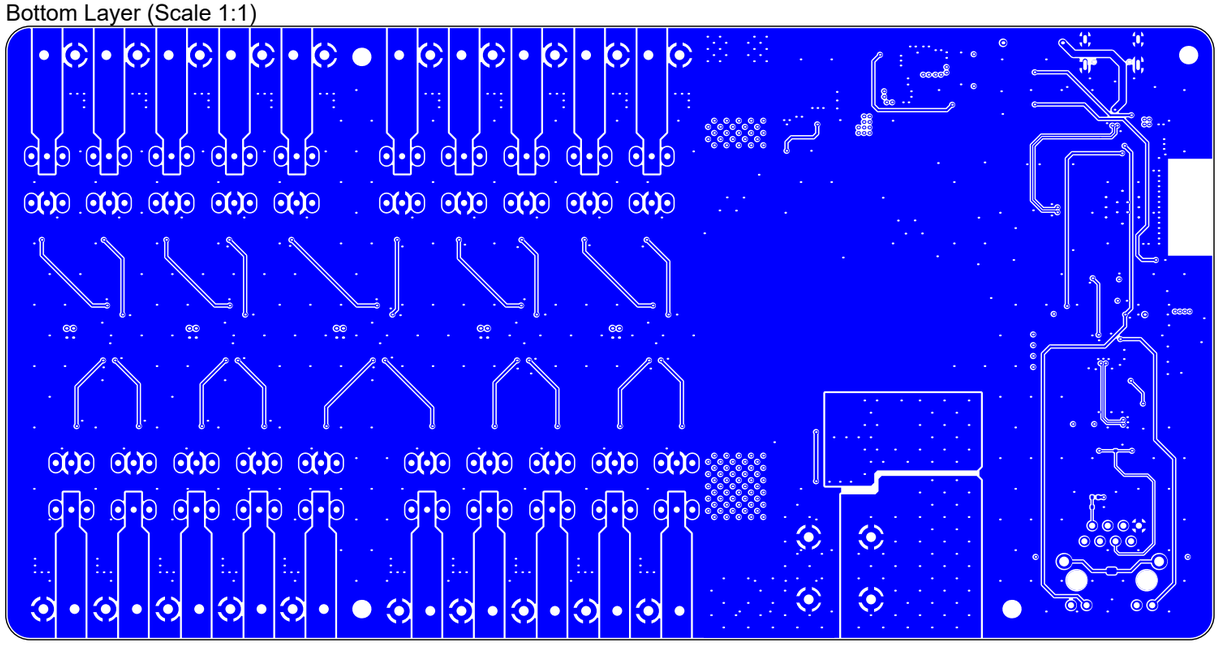
L2 (GND) (Scale 1:1)



L3 (PWR) (Scale 1:1)



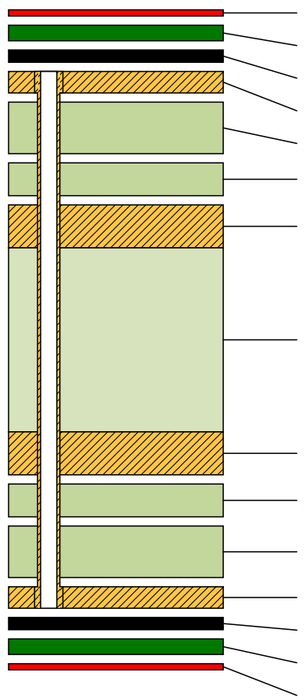
Bottom Layer (Scale 1:1)



Drill Table

Symbol	Count	Hole Size	Plated	Hole Tolerance
⧈	855	0.30mm	Plated	
▽	21	0.40mm	Plated	
◎	2	0.50mm	Plated	
⧑	4	0.60mm	Plated	
⧖	2	0.65mm	Non-Plated	
○	132	1.00mm	Plated	
✡	46	1.60mm	Plated	
⧇	4	3.00mm	Plated	
▽	2	3.25mm	Non-Plated	
	1068 Total			

Layer Stack Legend



Material	Layer	Thickness	Dielectric Material	Type	Gerber
	Top Overlay			Legend	GTO
Surface Material	Top Solder	0.025mm	SM-001	Solder Mask	GTS
PbSn	Top Surface Finish	0.020mm		Surface Finish	
CF-004	**Top Layer**	**0.035mm**		**Signal**	**GTL**
Prepreg		*0.084mm*	*PP-017*	*Dielectric*	
Prepreg		*0.054mm*	*PP-006*	*Dielectric*	
CF-004	**L2 (GND)**	**0.070mm**		**Signal**	**G1**
Core		*0.960mm*	*Core-039*	*Dielectric*	
CF-004	**L3 (PWR)**	**0.070mm**		**Signal**	**G2**
Prepreg		*0.054mm*	*PP-006*	*Dielectric*	
Prepreg		*0.084mm*	*PP-017*	*Dielectric*	
CF-004	**Bottom Layer**	**0.035mm**		**Signal**	**GBL**
PbSn	Bottom Surface Finish	0.020mm		Surface Finish	
Surface Material	Bottom Solder	0.025mm	SM-001	Solder Mask	GBS
	Bottom Overlay			Legend	GBO

Total thickness: 1.536mm

FABRICATION NOTES
Board Name: Controller A20
Rev: A
1. FABRICATE PER IPC-6012A CLASS 2.
2. FOR BOARD THICKNESS AND IMPEDANCE DETAILS REFER STACKUP DOCUMENT.
3. PRINTED WIRING BOARD SHALL COMPLY WITH REQUIREMENTS OF ANSI/J-STD-003.
4. SURFACE FINISH: LeadFree HASL
5. SOLDERMASK ON BOTH SIDES OF THE BOARD SHALL BE LPI, COLOR GREEN
6. SILK SCREEN LEGEND TO BE APPLIED PER LAYER STACKUP USING WHITE NON-CONDUCTIVE EPOXY INK.
7. THIS PRINTED WIRING BOARD IS DESIGNED WITH A MINIMUM CONDUCTOR WIDTH AND SPACING OF 0.16MM & 0.17MM.
8. THIS PRINTED WIRING BOARD IS DESIGNED WITH A MINIMUM VIA HOLE AND VIA PAD OF 0.3MM & 0.6MM.
9. ALL VIAS ARE TENTED ON BOTH SIDES UNLESS SOLDERMASK OPENED IN GERBER.
10. SOLDER MASK OPENING IS KEPT SAME SIZE AS PAD (1:1) FOR ALL COMPONENTS
11. VENDOR SHOULD FOLLOW ROHS COMPLIANT PROCESS AND Pb FREE FOR MANUFACTURING
12. TRACE WIDTH SHOULD BE ACCURATELY ETCHED. MAX TOLERANCE +/- 1 0.0254MM
13. ALL DIMENSIONS ARE MILLIMETERS UNLESS OTHERWISE SPECIFIED.
14. FLATNESS REQUIREMENTS:
A. BOW AND TWIST OF ASSEMBLY SUB-PANEL OR SINGULATED PWB SHALL NOT EXCEED 0.7% OF LONGEST SIDE
B. TEST IN ACCORDANCE WITH THE CURRENT REVISION OF IPC-TM-650 2.4.22
15. PCB MATERIAL REQUIREMENTS:
A. FLAMMABILITY RATING MUST MEET OR EXCEED UL94V-0 REQUIREMENTS. PCB MUST BEAR THE UL94V-0 REGISTERED MATERIAL ID NUMBER.
B. Tg 135 C OR EQUIVALENT.
C. EQUIVALENT MATERIAL SHALL BE RoHS COMPLIANT, HALOGEN FREE AND APPROVED BY ABC-Corp.
16. LAYER TO LAYER REGISTRATION SHALL BE WITHIN +/- 0.0508MM
17. IMPEDANCE CONTROL REQUIREMENTS (ALL TOLERANCES +/- 10%):
A. ALL 0.23 MM WIDE SINGLE-END TRACES ON LAYER 1 (TOP LAYER) SHALL BE 50 OHMS.
B. ALL 0.2 MM WIDE/0.17 MM SPACE PAIRS ON LAYER 1 (TOP LAYER) and LAYER 4 (BOTTOM LAYER) SHALL BE 90 OHMS.
C. ALL 0.16 MM WIDE/0.17 MM SPACE PAIRS ON LAYER 1 (TOP LAYER) and LAYER 4 (BOTTOM LAYER) SHALL BE 100 OHMS.
D. VENDOR MAY ADJUST DESIGN GEOMETRIES UP TO +/-20% TO ACHIEVE

ASSEMBLY NOTES
Board Name: Controller A20
Rev: A
1. Assemble in accordance with IPC-A-610, current revision, Class 2.
2. Solder electrical connections per latest revision of IPC J-STD-001.
3. This assembly contains ESD sensitive components. Handle per ANSI/ESD S20.20.
4. RoHS compliance required: Yes.
5. Mark with current assembly revision.
6. Mount components with polarity and orientation as shown on component designators/silkscreen.
7. Don't trim any connector leads