D Ε С В Α REVISIONS APPROVED REV DESCRIPTION **ENGINEERING RELEASE** 05/31/2024 R. COXE Fabrication Notes: B.1 SWAP SCL/SDA ON U10, INCREASE R39 VALUE 08/28/2024 R. COXE 1. LATEST VERSION OF ALL REFERENCED SPECIFICATIONS TO BE USED UNLESS OTHERWISE SPECIFIED. CHANGED U8 TO MAC VERSION 09/26/2024 R. COXE 2. FABRICATE IN ACCORDANCE WITH IPC-6012A, CLASS 2 UNLESS OTHERWISE SPECIFIED. 3. INSPECT IN ACCORDANCE WITH IPC-A-600, CLASS 2 UNLESS OTHERWISE SPECIFIED. 4. MATERIAL: BASE LAMINATE, COPPER CLAD, GLASS-BASED EPOXY RESIN, FLAME RETARDENT, TYPE GF. FINISHED BOARD MUST MEET UL94V-0. MUST CONFORM TO IPC-4101/98/99/101/126, Tg>170° C, Td>330° C, T260>30 MIN, T288>5 MIN, CTEz (50-260° C) <3.5% (6 PASSES). MATERIAL MUST BE RoHS COMPLIANT. BOARD THICKNESS AND COPPER WEIGHT (CU) SHOWN ON LAYER STACKUP DETAIL. THICKNESS TOLERANCE: +/-10% 5. FINAL CONDUCTOR SURFACE FINISH TO BE PLATED WITH IMMERSION GOLD OVER ELECTROLESS NICKEL OVER COPPER (NiAu): 6. FINISHED PRODUCT TO BE RoHS-COMPLIANT AND MEET EU RoHS DIRECTIVE. 7. UL LOGO AND DATE CODE & VENDOR CODE MUST APPEAR IN ETCH ON PRIMARY SIDE; SECONDARY SIDE IS ACCEPTABLE IF THERE IS NO ROOM ON PRIMARY SIDE. 8. DIMENSIONAL TOLERANCES ON PCB ARE AS FOLLOWS UNLESS OTHERWISE SPECIFIED.

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## **Transmission Line Structure Table**

a. HOLE TO HOLE +/- .005" b. HOLE TO EDGE +/- .010" c. EDGE TO EDGE +/- .010"

IPC-6012, CLASS 2.

DISCREPANCIES.

COLOR TO BE GREEN.

FOLLOWING RULES APPLY:

d. WARP AND TWIST OF BOARD SHALL NOT EXCEED 1%

g. 0.060" MAXIMUM RADUIS ON ANY INSIDE CORNER.

12.REMOVE ALL NON-FUNCTIONAL PADS ON INNER LAYERS.

a. THIEVING TO CARD EDGE SPACING 0.100" MINIMUM.

d. THIEVING TO ALL OTHER FEATURES 0.100" MINIMUM.

b. THIEVING TO FIDUCIAL SPACING 0.200" MINIMUM.

19.USE GERBER FILE "BOARD" FOR BOARD DIMENSIONS

WITHIN .003" OF RADIAL TRUE POSITION.

f. REMOVE ALL BURRS AND BREAK SHARP EDGES 0.015" MAXIMUM.

11.GLOBAL AND LOCAL FIDUCIALS MUST BE FREE OF ANY MARKINGS.

c. THIEVING TO NON-PLATED THROUGH HOLES 0.200" MINIMUM.

e. CONDUCTOR WIDTHS AND SPACING SHALL BE WITHIN +/- 0.0005" OF GERBER DATA.

e. THERE SHALL BE NO EXPOSED THIEVING IN ANY AREAS FREE OF SOLDER MASK

18.IMPEDANCE CONTROLLED BOARD. SEE TRANSMISSION LINE STRUCTURE TABLE.

9. TOOLING HOLES MUST BE PRIMARY DRILLED AT THE SAME TIME AS PLATED-THRU HOLES. ALL HOLES MUST BE

10.PLATED-THRU HOLES TO HAVE COPPER WALL THICKNESS NOT LESS THAN 0.001" THICKNESS TO BE DETERMINED BY

13.THIEVING OF OUTER LAYERS IS NOT ACCEPTABLE UNLESS APPROVED BY CUSTOMER. IF APPROVAL IS GRANTED THE

14.FULL NETLIST TESTING REQUIRED UNLESS OTHERWISE SPECIFIED. TESTING SHOULD CONFORM TO IPC-ET-652.

17.USE LPI SOLDER MASK OVER BARE COPPER PER SUPPLIED ARTWORK PER IPC-SM-840C, CLASS T. MUST BE RoHS

16.SILKSCREEN TO BE PERMANENT NON-CONDUCTIVE (LEGIBLE) INK AND NOT TO COVER ANY PORTION OF A

COMPLIANT. SOLDER MASK SHALL BE CAPABLE OF FIVE SOLDER EXPOSURES AT 500 DEGREES F.

15.PRIOR TO BOARD FABRICATION, COMPARE GERBER (OR ODB++) DATA TO SUPPLIED IPC-D-356 NETLIST. REPORT ALL

COMPONENT PAD. FABRICATOR TO CLIP ANY NON-CONFORMING SILKSCREEN NOMENCLATURE. COLOR TO BE WHITE.

| Transmission Line                     | Target Impedance | Trace layer | Wide Trace Width | Gap      | Reference layer |
|---------------------------------------|------------------|-------------|------------------|----------|-----------------|
| Coated Microstrip                     | 50               | Тор         | 0.0153in         |          | L2              |
| <b>Edge-Coupled Coated Microstrip</b> | 100              | Тор         | 0.0067in         | 0.0050in | L2              |
| Coated Microstrip                     | 50               | Bottom      | 0.0153in         |          | L3              |
| Edge-Coupled Coated Microstrip        | 100              | Bottom      | 0.0067in         | 0.0050in | L3              |

| Layer Stack Legend | Material           | Layer          | Thickness | Туре        | Dk   | Dielectric Material |
|--------------------|--------------------|----------------|-----------|-------------|------|---------------------|
|                    |                    | Top Overlay    |           | Legend      |      |                     |
|                    | - Surface Material | Top Solder     | 0.0010in  | Solder Mask | 3.6  | Solder Resist       |
| / <u>/</u> // \\   | - Copper           | Тор            | 0.0017in  | Signal      |      |                     |
|                    | - Prepreg          |                | 0.0080in  | Dielectric  | 3.61 | FR408HR             |
|                    | - Copper           | L2             | 0.0007in  | Signal      |      |                     |
|                    | - Core             |                | 0.0390in  | Dielectric  | 3.61 | FR408HR             |
|                    | Copper             | L3             | 0.0007in  | Signal      |      |                     |
|                    | - Prepreg          |                | 0.0080in  | Dielectric  | 3.61 | FR408HR             |
|                    | Copper             | Bottom         | 0.0017in  | Signal      |      |                     |
|                    | Surface Material   | Bottom Solder  | 0.0010in  | Solder Mask | 3.6  | Solder Resist       |
|                    | `                  | Bottom Overlay |           | Legend      |      |                     |
|                    | Total thickness: 0 | .0617in        |           |             |      |                     |

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|---|-------------|--------------------------------------|-----------------|--------|-----|--|--|--|
| DRAWN K. BARNES ENG                         | 05/31/2024  | FABRICATION DRAWING,<br>LOMBARDO PCB |                 |        |     |  |  |  |
| K. BARNES                                   | 05/31/2024  | SIZE                                 | DOCUMENT NUMBER | PAGE   | REV |  |  |  |
| CHKD<br>C. GRIGER                           | 05/31/2024  | С                                    |                 | 1 of 1 | B.2 |  |  |  |

Hole Tolerance

+0.0030in/-0.0120in

+/-0.0030in

Plated

Non-Plated

Plated

Plated

Hole Type

Round

Round

Round

Slot

Round

Round

Round

Round

Round

Round

Round

Round

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**Drill Table** 

Symbol

**X** 

\*

 $\Box$ 

Count

409

4

4

4

5

10

24

482 Total

Hole Size | Hole Length

0.0120in

0.0315in

0.0335in

0.0354in

0.0374in

0.0400in

0.0402in

0.0413in

0.0591in

0.0630in

0.0669in

0.1250in