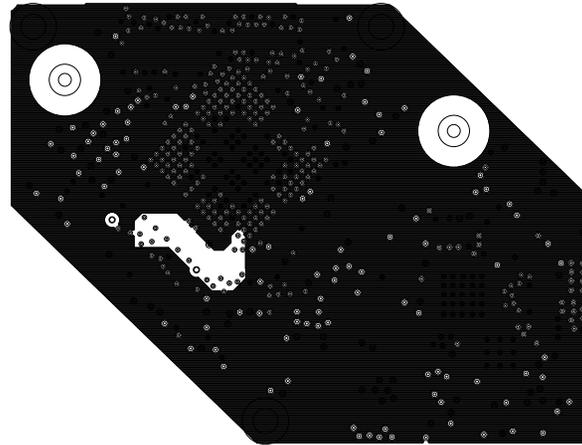
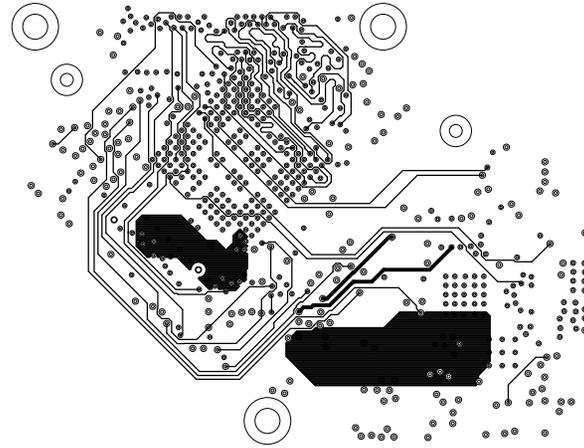


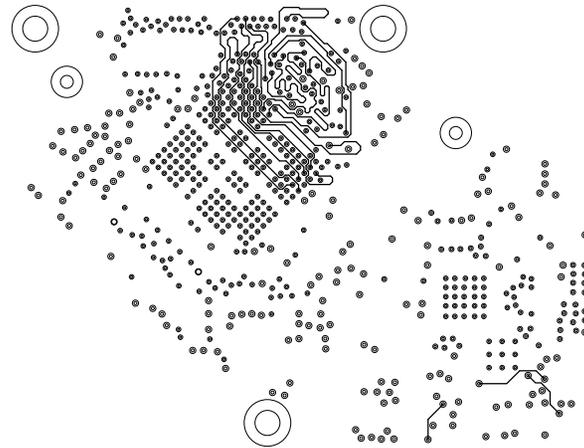
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|----------------------------|-----|-------------------|------------------------|----|----|
| CUSTOMER NAME | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | | DESCRIPTION | | |
| NIRscan Nano DLPC150 Board | | | LAYER 1 - PRIMARY SIDE | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF |
| 2514152 | D | 13 MAR 2015 | TIDL P-23327-04 | 1 | 17 |



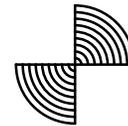
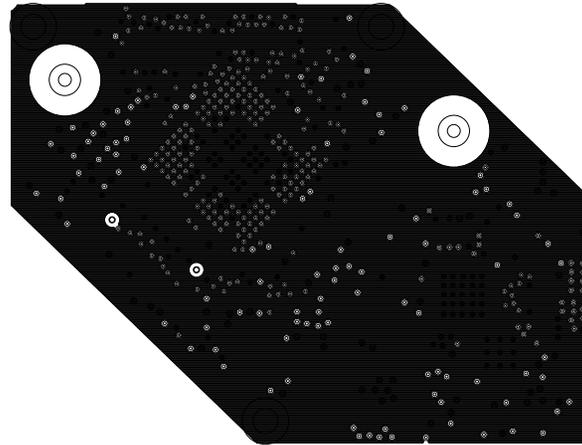
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| CUSTOMER NAME | | | | | TEXAS INSTRUMENTS | | |
| BOARD NAME | | | DESCRIPTION | | | | |
| NIRscan Nano DLPC150 Board | | | Layer 2 - GND PLANE | | | | |
| BOARD NO. | | REV | DATE | PRJ# | SH | OF | |
| 2514152 | | D | 13 MAR 2015 | TIDL P-23327-04 | 2 | 17 | |



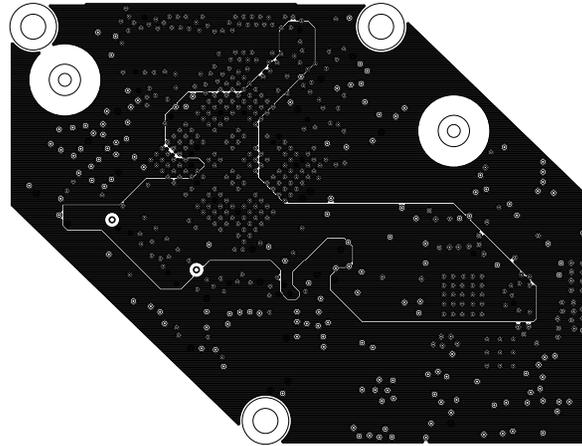
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| CUSTOMER NAME | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | DESCRIPTION | | | |
| NIRscan Nano DLPC150 Board | | Layer 3 - SIGNAL | | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF |
| 2514152 | D | 13 MAR 2015 | TIDL P-23327-04 | 3 | 17 |



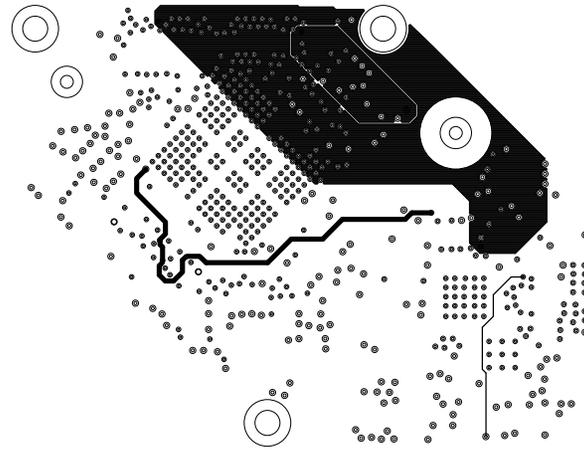
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| CUSTOMER NAME | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | DESCRIPTION | | | |
| NIRscan Nano DLPC150 Board | | LAYER 4 - SIGNAL | | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF |
| 2514152 | D | 13 MAR 2015 | TIDL-23327-04 | 4 | 17 |



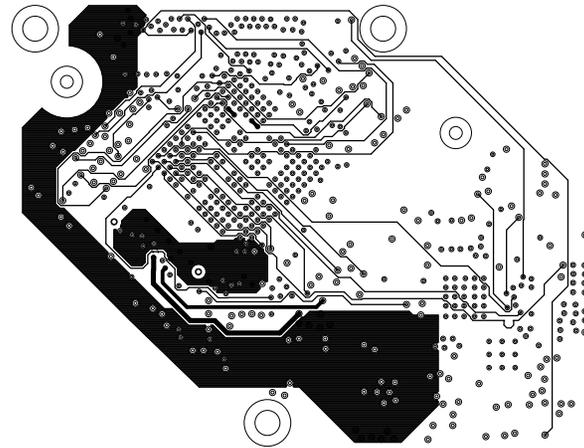
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| CUSTOMER NAME | | | | | TEXAS INSTRUMENTS | | |
| BOARD NAME | | | DESCRIPTION | | | | |
| NIRscan Nano DLPC150 Board | | | Layer 5 - GND PLANE | | | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF | | |
| 2514152 | D | 13 MAR 2015 | TIDL P-23327-04 | 5 | 17 | | |



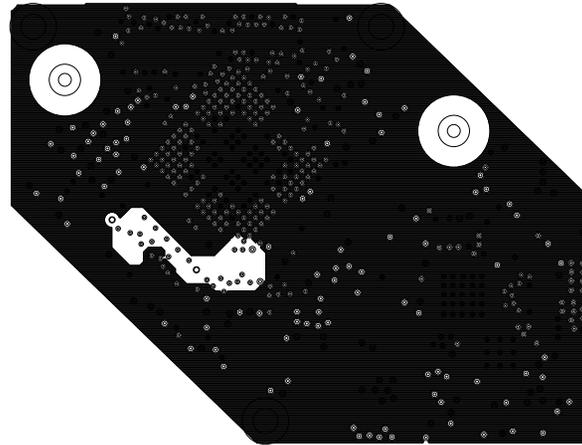
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|----------------------------|-----|-------------------|---------------------|----|----|
| CUSTOMER NAME | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | | DESCRIPTION | | |
| NIRscan Nano DLPC150 Board | | | Layer 6 - PWR PLANE | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF |
| 2514152 | D | 13 MAR 2015 | TIDL-23327-04 | 6 | 17 |



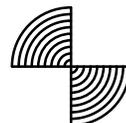
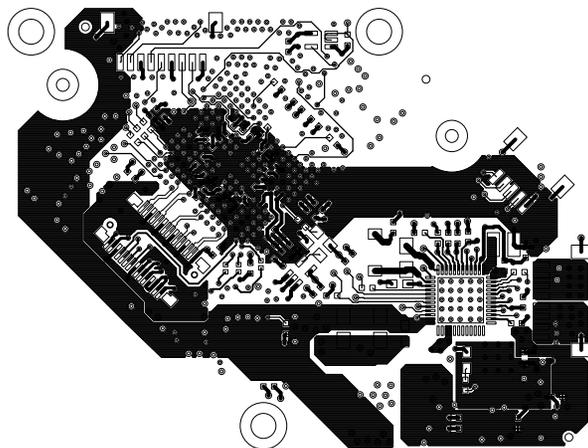
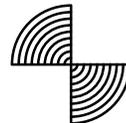
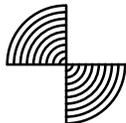
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| CUSTOMER NAME | | | | | TEXAS INSTRUMENTS | | |
| BOARD NAME | | | DESCRIPTION | | | | |
| NIRscan Nano DLPC150 Board | | | Layer 7 - SIGNAL | | | | |
| BOARD NO. | | REV | DATE | PRJ# | SH | OF | |
| 2514152 | | D | 13 MAR 2015 | TIDL P-23327-04 | 7 | 17 | |



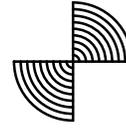
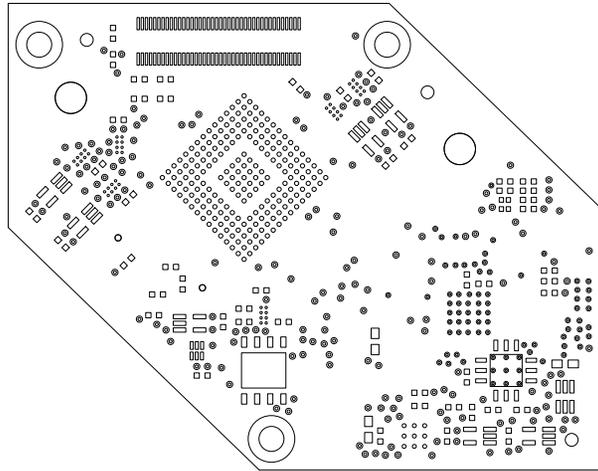
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|----------------------------|-----|-------------------|------------------|----|----|
| CUSTOMER NAME | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | | DESCRIPTION | | |
| NIRscan Nano DLPC150 Board | | | Layer 8 - SIGNAL | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF |
| 2514152 | D | 13 MAR 2015 | TIDL P-23327-04 | 8 | 17 |



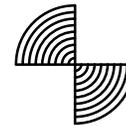
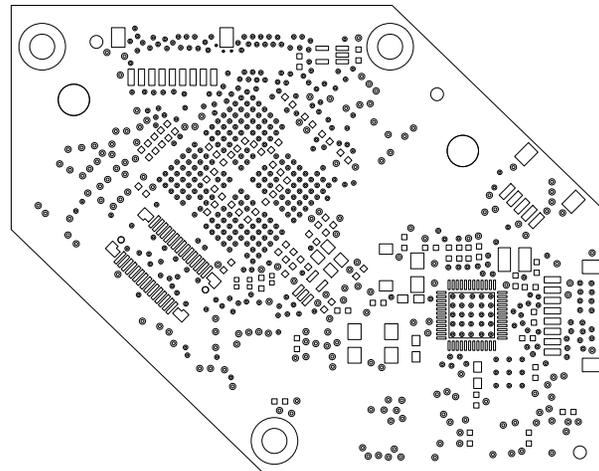
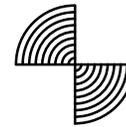
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|----------------------------|-----|-------------|---------------------|----|-------------------|--|--|
| CUSTOMER NAME | | | | | TEXAS INSTRUMENTS | | |
| BOARD NAME | | | DESCRIPTION | | | | |
| NIRscan Nano DLPC150 Board | | | LAYER 9 - GND PLANE | | | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF | | |
| 2514152 | D | 13 MAR 2015 | TIDL-23327-04 | 9 | 17 | | |



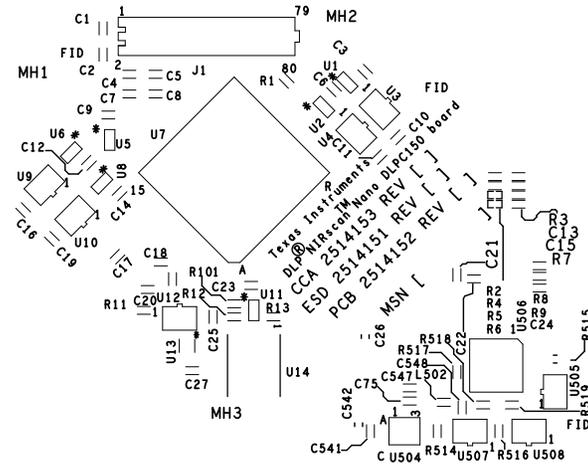
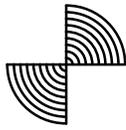
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| CUSTOMER NAME | | | | | TEXAS INSTRUMENTS | | |
| BOARD NAME | | | | DESCRIPTION | | | |
| NIRscan Nano DLPC150 Board | | | | LAYER 10 - SECONDARY SIDE | | | |
| BOARD NO. | | REV | DATE | PRJ# | SH | OF | |
| 2514152 | | D | 13 MAR 2015 | TIDL-23327-04 | 10 | 17 | |



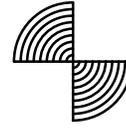
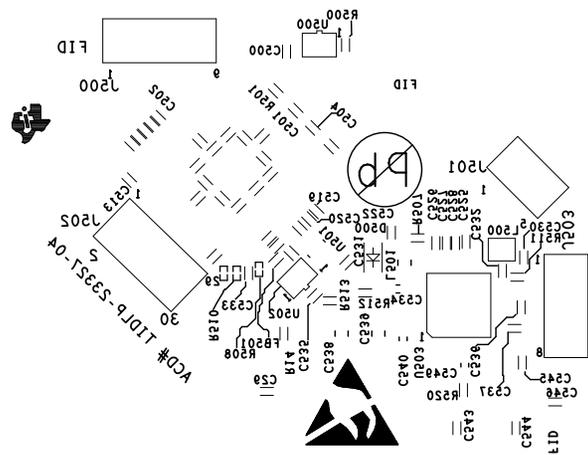
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|----------------------------|-----|-------------------|---------------------------|----|----|
| CUSTOMER NAME | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | | DESCRIPTION | | |
| NIRscan Nano DLPC150 Board | | | SOLDERMASK - PRIMARY SIDE | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF |
| 2514152 | D | 13 MAR 2015 | TIDL P-23327-04 | 11 | 17 |



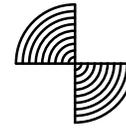
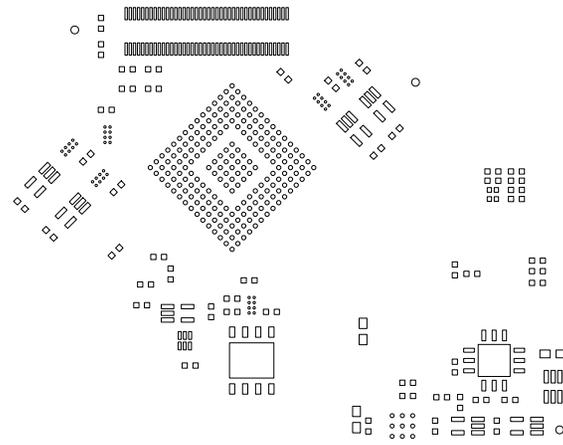
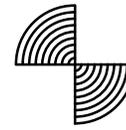
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| CUSTOMER NAME | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | | DESCRIPTION | | |
| NIRscan Nano DLPC150 Board | | | SOLDERMASK - SECONDARY SIDE | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF |
| 2514152 | D | 13 MAR 2015 | TIDL-23327-04 | 12 | 17 |



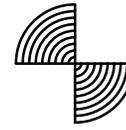
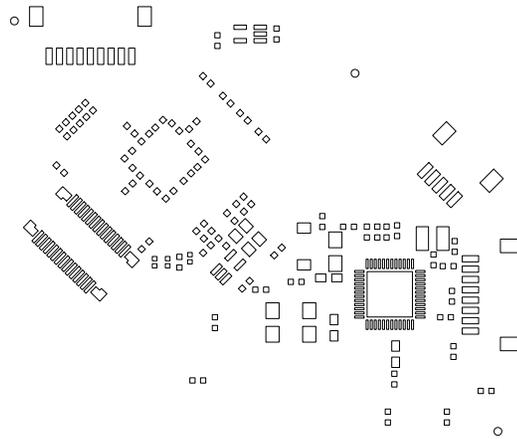
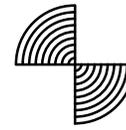
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| CUSTOMER NAME | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | | DESCRIPTION | | |
| NIRscan Nano DLPC150 Board | | | SILKSCREEN - PRIMARY SIDE | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF |
| 2514152 | D | 13 MAR 2015 | TIDL-23327-04 | 13 | 17 |



| | | | | | | | |
|----------------------------|-----|-------------|-----------------------------|-------------------|----|--|--|
| CUSTOMER NAME | | | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | | DESCRIPTION | | | | |
| NIRscan Nano DLPC150 Board | | | SILKSCREEN - SECONDARY SIDE | | | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF | | |
| 2514152 | D | 13 MAR 2015 | TIDL-23327-04 | 14 | 17 | | |

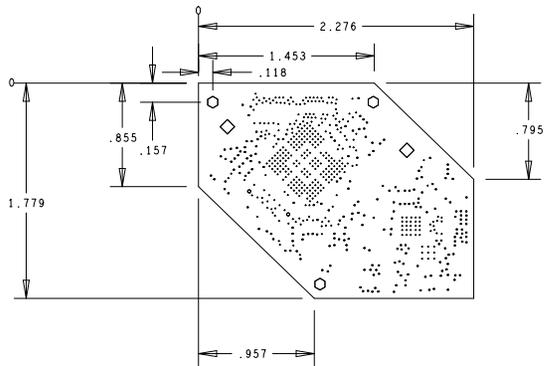


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| CUSTOMER NAME | | | | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | | | DESCRIPTION | | | | |
| NIRscan Nano DLPC150 Board | | | | SOLDERPASTE - PRIMARY SIDE | | | | |
| BOARD NO. | | REV | DATE | PRJ# | SH | | OF | |
| 2514152 | | D | 13 MAR 2015 | TIDL-23327-04 | 15 | | 17 | |



| | | | | | | | | |
|----------------------------|--|-----|-------------|------------------------------|-------------------|--|----|--|
| CUSTOMER NAME | | | | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | | | DESCRIPTION | | | | |
| NIRscan Nano DLPC150 Board | | | | SOLDERPASTE - SECONDARY SIDE | | | | |
| BOARD NO. | | REV | DATE | PRJ# | SH | | OF | |
| 2514152 | | D | 13 MAR 2015 | TIDL-23327-04 | 16 | | 17 | |

| DRILL CHART: TOP to BOTTOM | | | | |
|----------------------------|-------|------------|------------|-----|
| ALL UNITS ARE IN MILS | | | | |
| FIGURE | SIZE | TOLERANCE | PLATED | QTY |
| . | 8.0 | +3.0/-8.0 | PLATED | 391 |
| . | 10.0 | +3.0/-10.0 | PLATED | 45 |
| . | 12.0 | +3.0/-12.0 | PLATED | 181 |
| ○ | 96.0 | +3.0/-3.0 | PLATED | 3 |
| • | 24.0 | +4.0/-0.0 | NON-PLATED | 2 |
| ◇ | 120.0 | +3.0/-3.0 | NON-PLATED | 2 |



Primary Side Shown

| | | | | | |
|----------------------------|-----|-------------------|---------------|----|----|
| CUSTOMER NAME | | TEXAS INSTRUMENTS | | | |
| BOARD NAME | | DESCRIPTION | | | |
| NIRscan Nano DLPC150 Board | | FAB DRAWING | | | |
| BOARD NO. | REV | DATE | PRJ# | SH | OF |
| 2514152 | D | 13 MAR 2015 | TIDL-23327-04 | 17 | 17 |

FAB NOTES:

- ALL DIMENSIONS ARE IN INCHES. UNLESS OTHERWISE SPECIFIED, ALL BOARD OUTLINE DIMENSION TOLERANCES ARE +/- .010".
- THE PWB SHALL BE FABRICATED TO IPC-6011 AND IPC-6012, CLASS 2, TYPE 3. WORKMANSHIP SHALL CONFORM TO IPC-A-600, CLASS 2, CURRENT REVISIONS.
- BOARD MATERIAL SHALL BE 180 Tg/340 Td ISOLA FR-370HR OR EQUIVALENT, ROHS COMPLIANT AND LEAD FREE ASSEMBLY CAPABLE. BOARD MATERIAL SHALL MEET OR EXCEED IPC-4101B. ROHS CERTIFICATE OF CONFORMANCE SHALL BE DELIVERED WITH EACH LOT.
- BOARD MATERIAL & CONSTRUCTION TO BE U.L. APPROVED AND MARKED ON THE FINISHED BOARD.
- MINIMUM COPPER WALL THICKNESS OF PLATED-THRU HOLES TO BE .001 INCH, WITH A MINIMUM ANNULAR RING OF .001 INCH.
- OVERALL BOARD THICKNESS TO BE .062 +/- .005 AND APPLIES AFTER ALL LAMINATION AND PLATING PROCESSES, MEASURED FROM COPPER TO COPPER.
- INNER PLANE LAYERS TO BE 1 OZ. COPPER. INNER SIGNAL LAYERS TO BE 1/2 OZ. COPPER. OUTER LAYERS TO BE 1/2 OZ. COPPER PLATING.
- MAX. WARP & TWIST TO BE .0075 INCHES PER INCH.
- MINIMUM CONDUCTOR WIDTH SHALL BE 0.004 INCHES ON ALL LAYERS. MINIMUM CONDUCTOR SPACING SHALL BE 0.004 INCHES ON ALL LAYERS.
- ALL HOLES ARE ON A 0.0001 GRID EXCEPT THOSE INDICATED.
- MAXIMUM RATED VOLTAGE BETWEEN CONDUCTORS SHALL BE 65 VOLTS PEAK.
- NO BREAKOUT ALLOWED ON PLATED THROUGH HOLES.
- FOIL OUTER OPTIONAL.
- INTERPRET DIMENSIONS IN ACCORDANCE WITH ASME Y14.5M-1994.
- TEARDROP VIAS AS NECESSARY.
- THEIVING IS NOT ALLOWED.

PROCESS NOTES:

- PLATE ALL EXPOSED AREAS WITH ELECTROLESS IMMERSION GOLD, NICKEL 100 MIN MICROINCHES THK GOLD 2-6 MICROINCHES THK.
- APPLY LPI SOLDERMASK. COLOR: GREEN. SOLDERMASK SHALL CONFORM TO IPC-SM-840, CLASS H, CURRENT REV.
- SOLDERMASK ARTWORK HAS ZERO (0) OVERSIZED PADS. FABRICATION VENDOR IS ALLOWED TO ADJUST THE COMPONENT SOLDERMASK PADS TO MEET THEIR TOOLING REQUIREMENTS WHILE MAINTAINING WEBBING BETWEEN ADJACENT PADS.
- APPLY LPI SILKSCREEN OR EQUIVALENT PER THE ARTWORK. COLOR: WHITE.
- BOARD MUST BE ELECTRICALLY TESTED USING SUPPLIED IPC-D-356 NETLIST.

LAYER STACKUP:

- LAYER 1 - PRIMARY SIDE 0.004" WIDE/0.008" SPACING 100 OHMS DIFFERENTIAL, 0.00525" 50 OHMS SINGLE ENDED, 0.00775" 68 OHMS SINGLE ENDED (REF LY 3)
- LAYER 2 - GND PLANE
- LAYER 3 - SIGNAL 0.005" WIDE 50 OHMS SINGLE ENDED
- LAYER 4 - SIGNAL 0.005" WIDE 50 OHMS SINGLE ENDED
- LAYER 5 - GND PLANE
- LAYER 6 - PWR PLANE
- LAYER 7 - SIGNAL 0.005" WIDE 50 OHMS SINGLE ENDED
- LAYER 8 - SIGNAL 0.005" WIDE 50 OHMS SINGLE ENDED
- LAYER 9 - GND PLANE
- LAYER 10 - SECONDARY SIDE 0.004" WIDE/0.008" SPACING 100 OHMS DIFFERENTIAL, 0.00525" 50 OHMS SINGLE ENDED, 0.00775" 68 OHMS SINGLE ENDED (REF LY 8)