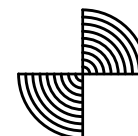
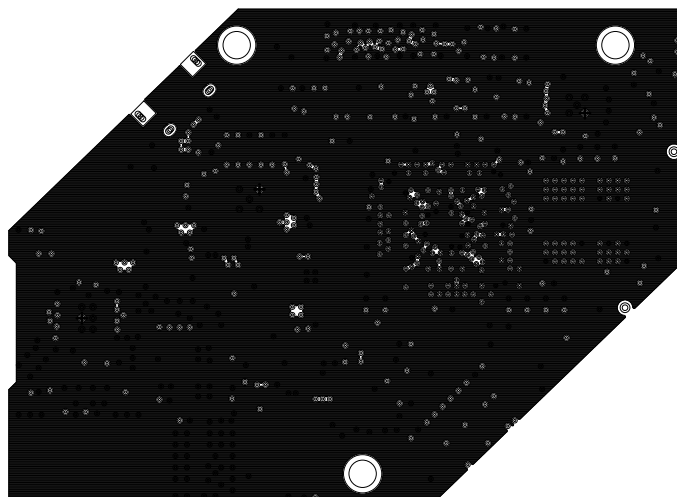
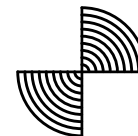
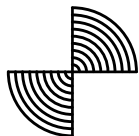
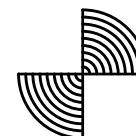
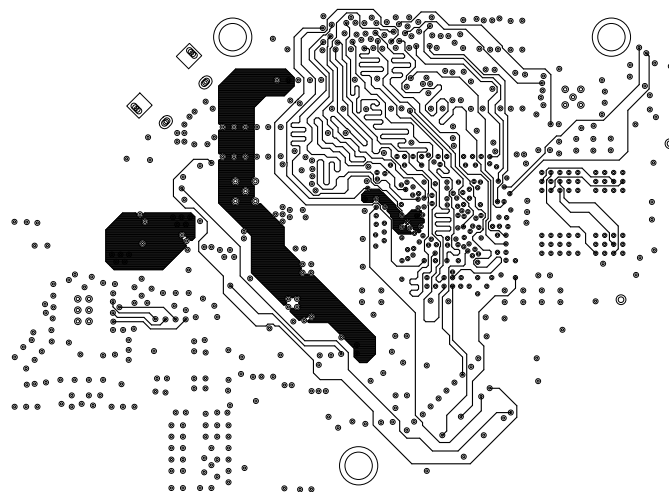
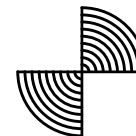
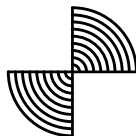


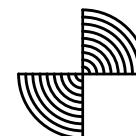
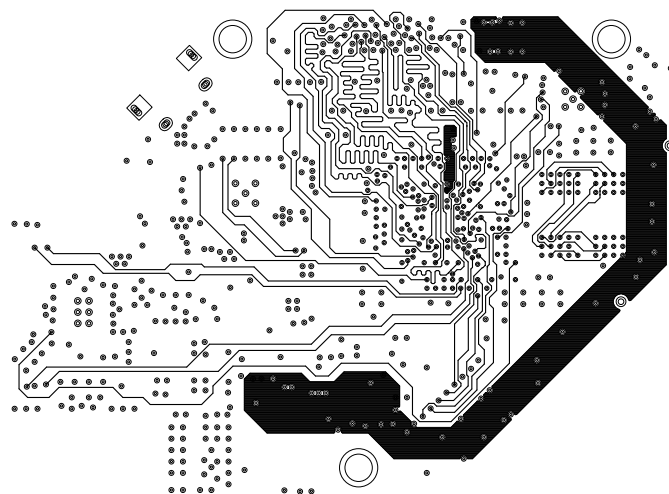
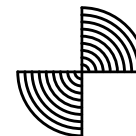
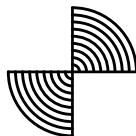
CUSTOMER NAME		TEXAS INSTRUMENTS			
BOARD NAME			DESCRIPTION		
NIRscan Nano TIVA Board			LAYER 1 - PRIMARY SIDE		
BOARD NO.	REV	DATE	PRJ#	SH	OF
2514148		30 OCT 2014	TIDL P-23328-02	1	17



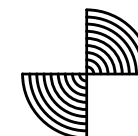
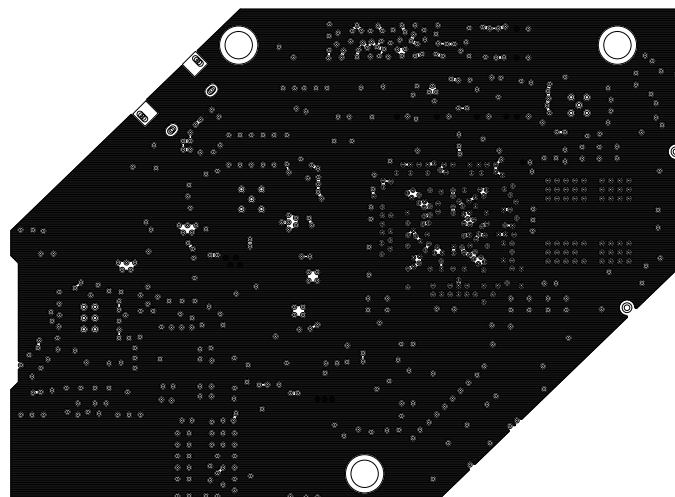
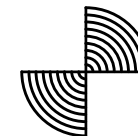
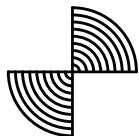
CUSTOMER NAME		TEXAS INSTRUMENTS			
BOARD NAME			DESCRIPTION		
NIRscan Nano TIVA Board			Layer 2 - GND PLANE		
BOARD NO.	REV	DATE	PRJ#	SH	OF
2514148		30 OCT 2014	TIDL P-23328-02	2	17



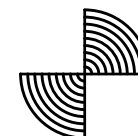
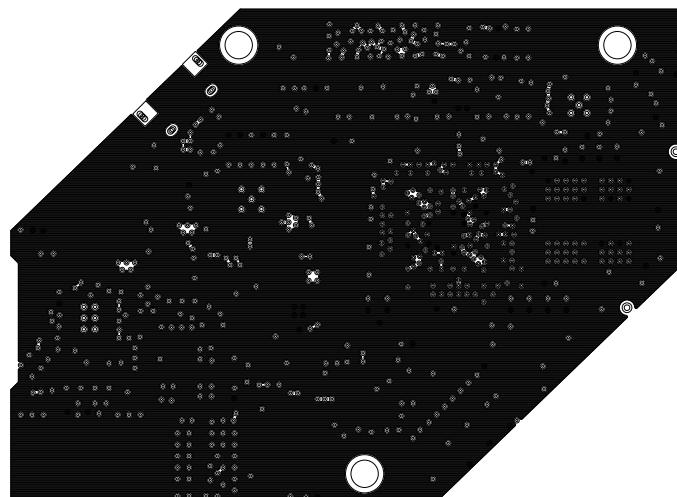
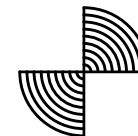
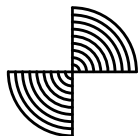
CUSTOMER NAME		TEXAS INSTRUMENTS			
BOARD NAME			DESCRIPTION		
NIRscan Nano TIVA Board			Layer 3 - SIGNAL		
BOARD NO.	REV	DATE	PRJ#	SH	OF
2514148		30 OCT 2014	TIDL P-23328-02	3	17



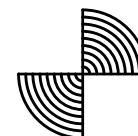
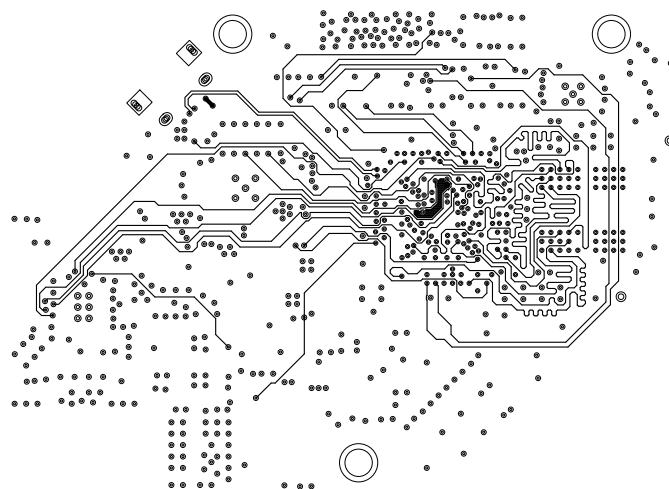
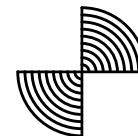
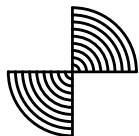
CUSTOMER NAME		TEXAS INSTRUMENTS			
BOARD NAME			DESCRIPTION		
NIRscan Nano TIVA Board			LAYER 4 - SIGNAL		
BOARD NO.	REV	DATE	PRJ#	SH	OF
2514148		30 OCT 2014	TIDL-23328-02	4	17



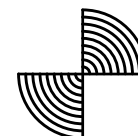
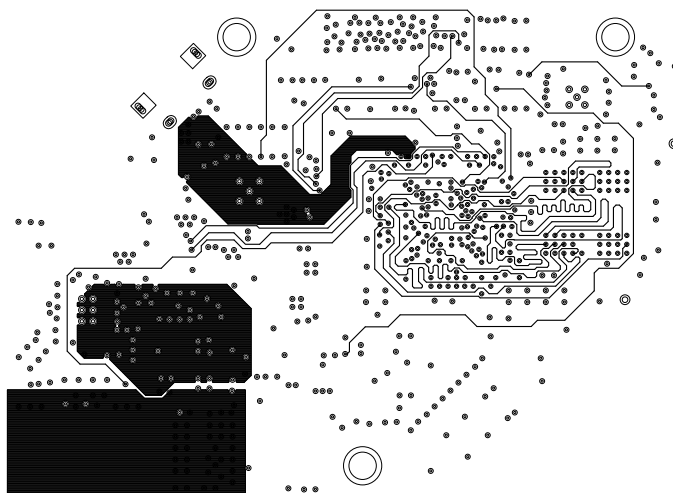
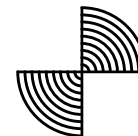
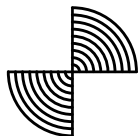
CUSTOMER NAME		TEXAS INSTRUMENTS				
BOARD NAME			DESCRIPTION			
NIRscan Nano TIVA Board			Layer 5 - PWR PLANE			
BOARD NO.	REV	DATE	PRJ#	SH	OF	
2514148		30 OCT 2014	TIDL P-23328-02	5	17	



CUSTOMER NAME		TEXAS INSTRUMENTS				
BOARD NAME			DESCRIPTION			
NIRscan Nano TIVA Board			Layer 6 - PWR PLANE			
BOARD NO.	REV	DATE	PRJ#	SH	OF	
2514148		30 OCT 2014	TIDL-23328-02	6	17	

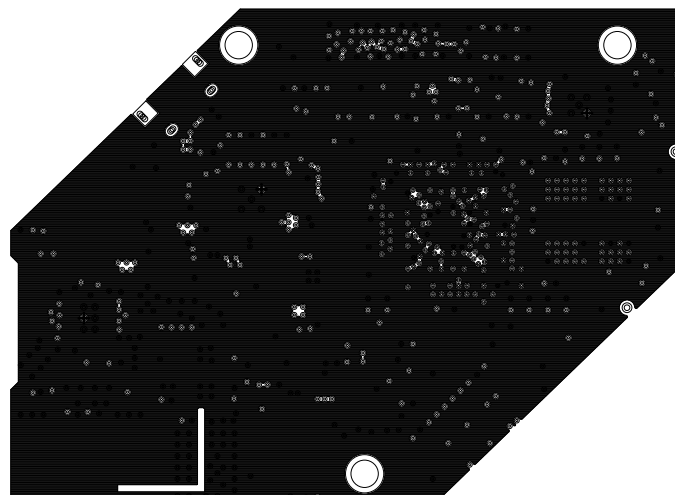
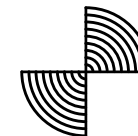
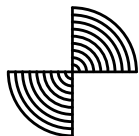


CUSTOMER NAME		TEXAS INSTRUMENTS			
BOARD NAME			DESCRIPTION		
NIRscan Nano TIVA Board			Layer 7 - SIGNAL		
BOARD NO.	REV	DATE	PRJ#	SH	OF
2514148		30 OCT 2014	TIDL P-23328-02	7	17

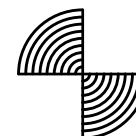
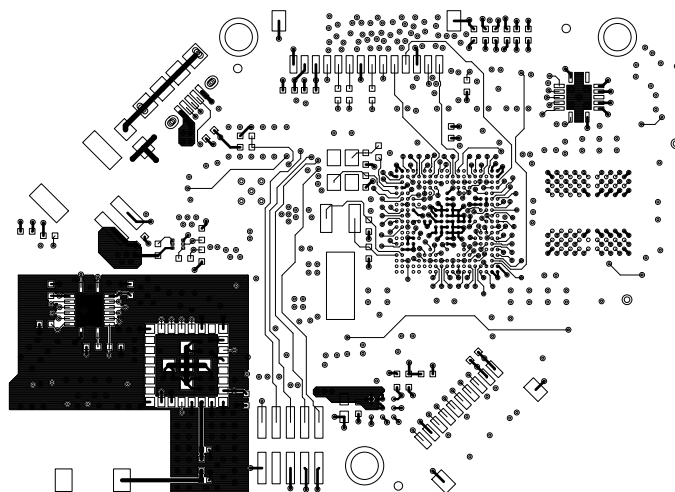
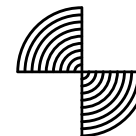
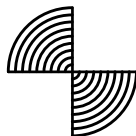


CUSTOMER NAME		TEXAS INSTRUMENTS				
BOARD NAME			DESCRIPTION			
NIRscan Nano TIVA Board			Layer 8 - SIGNAL			
BOARD NO.	REV	DATE	PRJ#	SH	OF	
2514148		30 OCT 2014	TIDL P-23328-02	8	17	

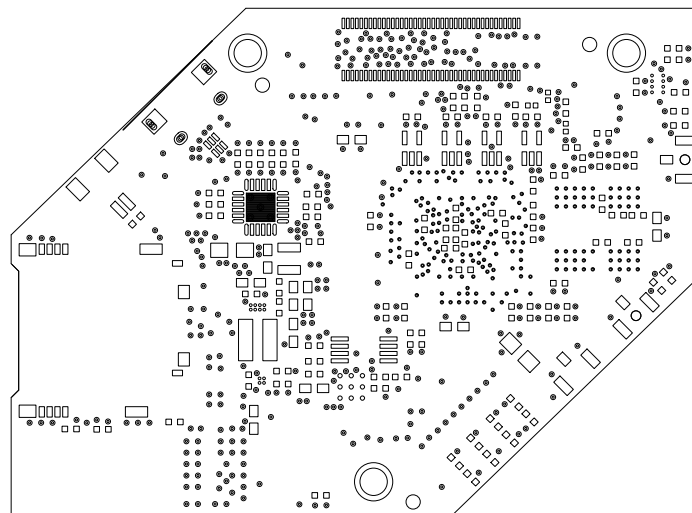
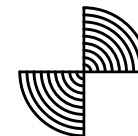
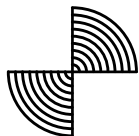




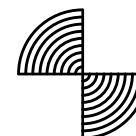
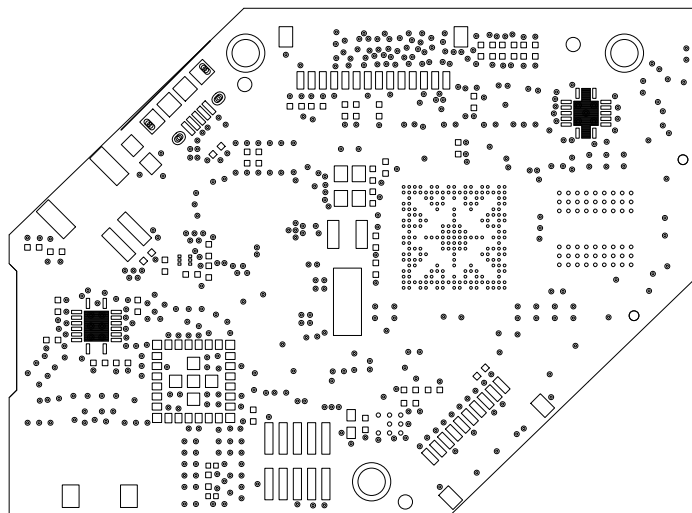
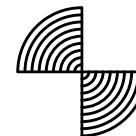
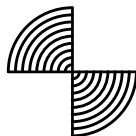
CUSTOMER NAME		TEXAS INSTRUMENTS			
BOARD NAME			DESCRIPTION		
NIRscan Nano TIVA Board			LAYER 9 - GND PLANE		
BOARD NO.	REV	DATE	PRJ#	SH	OF
2514148		30 OCT 2014	TIDL P-23328-02	9	17



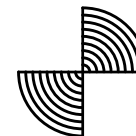
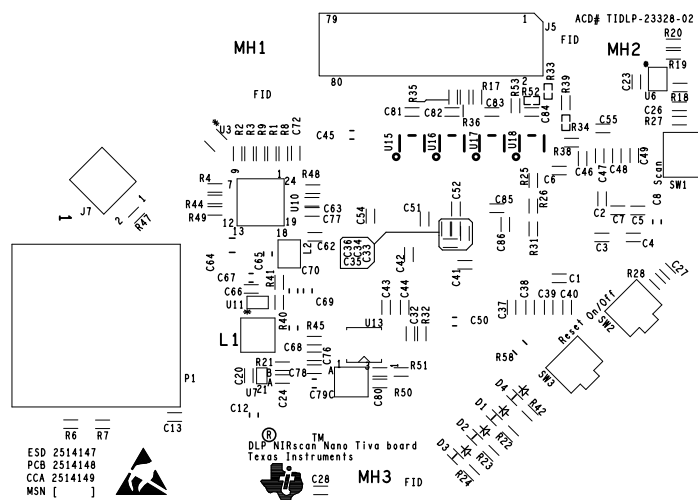
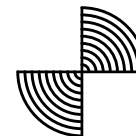
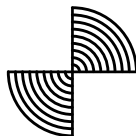
CUSTOMER NAME		TEXAS INSTRUMENTS			
BOARD NAME			DESCRIPTION		
NIRscan Nano TIVA Board			LAYER 10 - SECONDARY SIDE		
BOARD NO.	REV	DATE	PRJ#	SH	OF
2514148		30 OCT 2014	TIDL P-23328-02	10	17



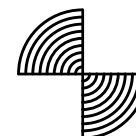
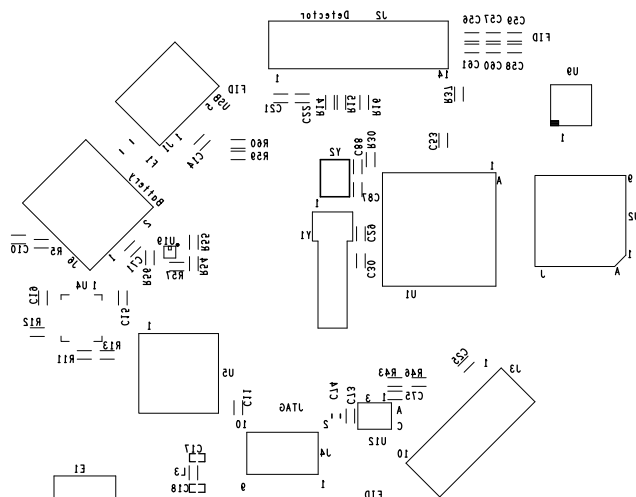
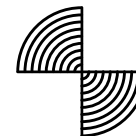
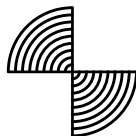
CUSTOMER NAME						TEXAS INSTRUMENTS					
BOARD NAME						DESCRIPTION					
NIRscan Nano TIVA Board						SOLDERMASK - PRIMARY SIDE					
BOARD NO.			REV	DATE	PRJ#	SH	OF				
2514148				30 OCT 2014	TIDL P-23328-02	11	17				



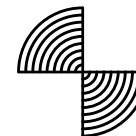
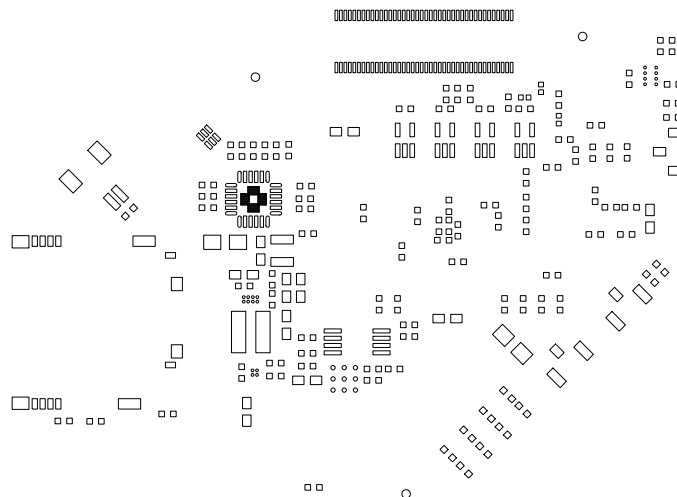
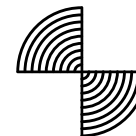
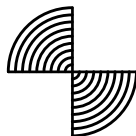
CUSTOMER NAME		TEXAS INSTRUMENTS			
BOARD NAME			DESCRIPTION		
NIRscan Nano TIVA Board			SOLDERMASK - SECONDARY SIDE		
BOARD NO.	REV	DATE	PRJ#	SH	OF
2514148		30 OCT 2014	TIDL P-23328-02	12	17



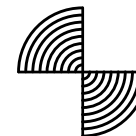
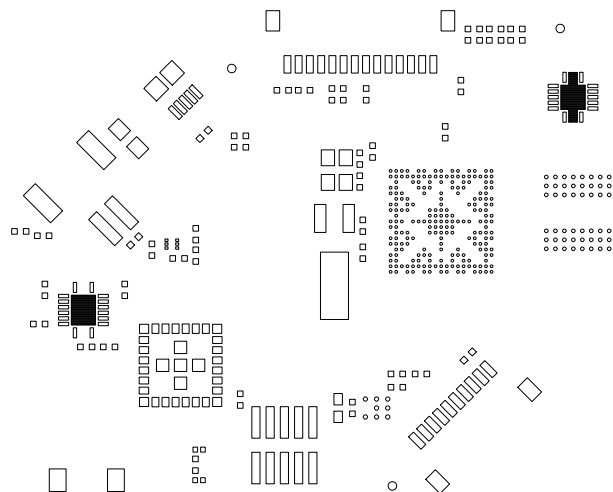
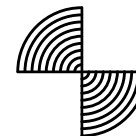
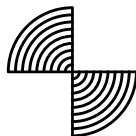
CUSTOMER NAME		TEXAS INSTRUMENTS				
BOARD NAME			DESCRIPTION			
NIRscan Nano TIVA Board			SILKSCREEN - PRIMARY SIDE			
BOARD NO.	REV	DATE	PRJ#	SH	OF	
2514148		30 OCT 2014	TIDL-23328-02	13	17	



CUSTOMER NAME		TEXAS INSTRUMENTS			
BOARD NAME		DESCRIPTION			
NIRscan Nano TIVA Board		SILKSCREEN - SECONDARY SIDE			
BOARD NO.	REV	DATE	PRJ#	SH	OF
2514148		30 OCT 2014	TIDL P-23328-02	14	17



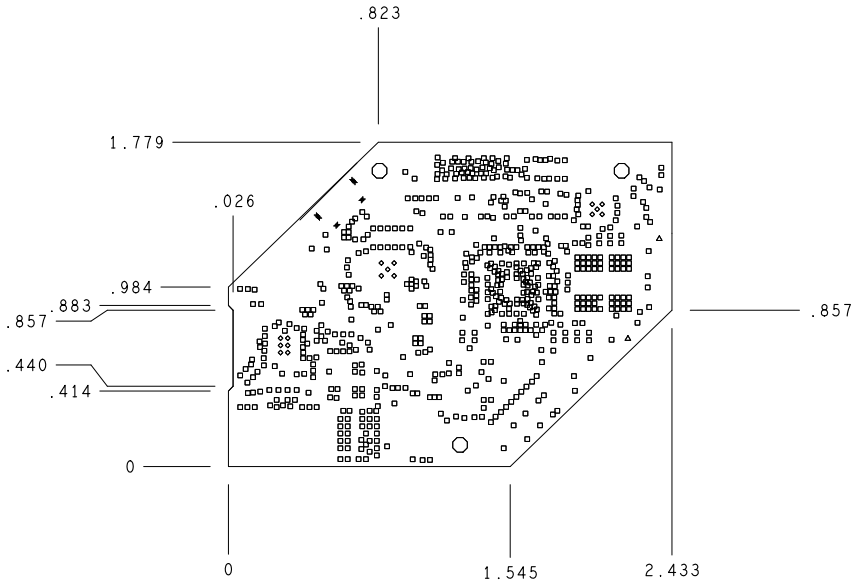
CUSTOMER NAME		TEXAS INSTRUMENTS			
BOARD NAME			DESCRIPTION		
NIRscan Nano TIVA Board			SOLDERPASTE - PRIMARY SIDE		
BOARD NO.	REV	DATE	PRJ#	SH	OF
2514148		30 OCT 2014	TIDL-23328-02	15	17



CUSTOMER NAME		TEXAS INSTRUMENTS				
BOARD NAME			DESCRIPTION			
NIRscan Nano TIVA Board			SOLDERPASTE - SECONDARY SIDE			
BOARD NO.	REV	DATE	PRJ#	SH	OF	
2514148		30 OCT 2014	TIDL-23328-02	16	17	



DRILL CHART: TOP to BOTTOM				
ALL UNITS ARE IN MILS				
FIGURE	SIZE	TOLERANCE	PLATED	QTY
□	8.0	+3.0/-8.0	PLATED	681
◦	12.0	+3.0/-12.0	PLATED	16
+	21.654	+2.0/-2.0	PLATED	14
○	96.0	+3.0/-3.0	PLATED	3
△	35.0	+3.0/-3.0	NON-PLATED	2



Primary Side Shown

CUSTOMER NAME TEXAS INSTRUMENTS					
BOARD NAME NIRscan Nano TIVA Board			DESCRIPTION FAB DRAWING		
BOARD NO. 2514148	REV	DATE 30 OCT 2014	PRJ# TIDL P-23328-02	SH 17	OF 17

LAYER STACKUP	MIN. FINAL Cu WEIGHT
LAYER 1 - PRIMARY SIDE	0.5 oz
LAYER 2 - GND PLANE	1 oz
LAYER 3 - SIGNAL	0.5 oz
LAYER 4 - SIGNAL	0.5 oz
LAYER 5 - PWR PLANE	1 oz
LAYER 6 - PWR PLANE	1 oz
LAYER 7 - SIGNAL	0.5 oz
LAYER 8 - SIGNAL	0.5 oz
LAYER 9 - GND PLANE	1 oz
LAYER 10 - SECONDARY SIDE	0.5 oz

FAB NOTES:

- ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED. ALL BOARD OUTLINE DIMENSION TOLERANCES ARE +/- .010".
- THE PWB SHALL BE FABRICATED TO IPC-6012, CLASS 2 AND 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 +/- 10% AND APPLIES AFTER ALL LAMINATION AND PLATING PROCESSES, MEASURED FROM COPPER TO COPPER.
- MAX. WARP & TWIST TO BE .0075 INCHES PER INCH.
- BOARD MUST BE ELECTRICALLY TESTED USING SUPPLIED IPC-D-356 NETLIST.

PROCESS NOTES:

- PLATE ALL EXPOSED AREAS WITH ELECTROLESS IMMERSION GOLD, NICKEL 100 MIN MICROINCHES THK GOLD 2-6 MICROINCHES THK.
- APPLY LPI SOLDERMASK OVER BARE COPPER (SMOBC), 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.

CONTROLLED IMPEDANCE	
4 MIL TRACES ON INTERNAL LAYERS SHALL HAVE A SINGLE ENDED IMPEDANCE OF 50 OHMS +/- 10%	
3.9 MIL TRACES ON EXTERNAL LAYERS SHALL HAVE A SINGLE ENDED IMPEDANCE OF 50 OHMS +/- 10%	
4 MIL TRACES WITH 8 MIL SPACING ON EXTERNAL LAYERS SHALL HAVE A DIFFERENTIAL IMPEDANCE OF 90 OHMS +/- 10%	
4.3 MIL TRACES WITH 6.7 MIL SPACING ON INTERNAL LAYERS SHALL HAVE A DIFFERENTIAL IMPEDANCE OF 90 OHMS +/- 10%	
ADJUST DIELECTRIC THICKNESSES TO MEET SPECIFIED IMPEDANCE	