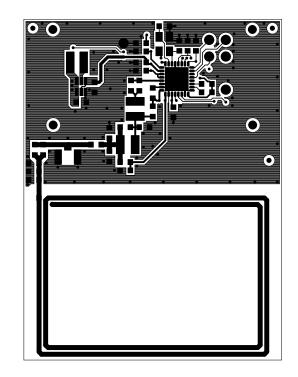
TEXAS INS	STRUMENT	S		
BOARD NAME:		DESCRIPT	ION:	
TRF7970ATB			LAYER 1 - PRI	MARY SIDE
TI TICKET NO:	REV: DATE		PROJECT#:	SH: OF:
	D 02.	/06/2013	RFID	1 8
		, ,		



CUSTOMER NAME:

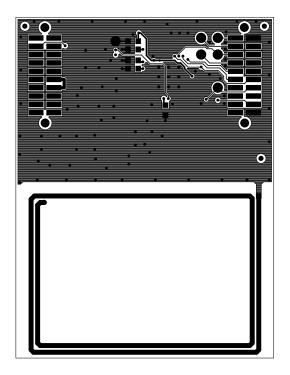


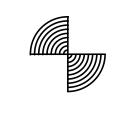








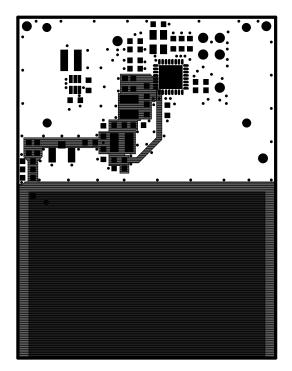




CUSTOMER NAME: TEXAS IN	ISTRUMENTS	
BOARD NAME: TRF7970ATB		DESCRIPTION: LAYER 2 - SECONDARY SIDE
TI TICKET NO:	REV: DATE: D 02/06	PRDJECT#: SH: OF: 5/2013 RFID 2 8





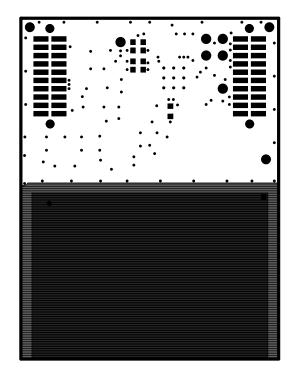




CUSTOMER NAME: TEXAS IN	STRUMENTS		
BOARD NAME: TRF7970ATB		DESCRIPTION: SOLDERMASK - P	RIMARY SIDE
TI TICKET NO:	REV: DATE: D 02/06	PROJECT#: /2013 RFID	5H: OF: 3 8





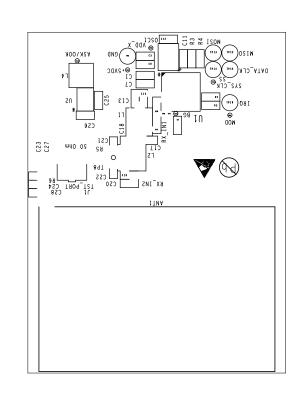




CUSTOMER NAME: TEXAS IN	STRUMENTS	
BOARD NAME: TRF7970ATB		DESCRIPTION: SOLDERMASK - SECONDARY SIDE
TI TICKET NO:	REV: DATE: D 02/00	PROJECT#: SH: OF: 6/2013 RFID 4 8

CUSTOMER NAME:	TEXAS	INSTRUM	ENTS						
BOARD NAME: TRF7970ATE	3			DESCRIPT	ION: SILKSCREE	N - PR	IMAR`	Y SIDE	
TI TICKET NO:		REV: D	DATE: 02/06	/2013	PROJECT#: RFID	SH	l : 5	OF: 8	

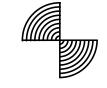


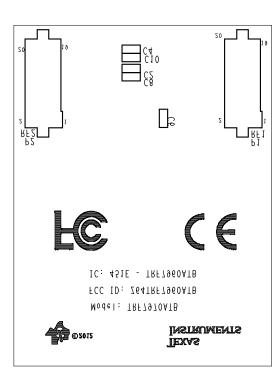






CUSTOMER NAME: TEXAS IN	ISTRUMENTS	
BOARD NAME: TRF7970ATB		DESCRIPTION: SILKSCREEN - SECONDARY SIDE
TI TICKET NO:	REV: DATE: D 02/06	PROJECT#: SH: DF: 6/2013 RFID 6 8



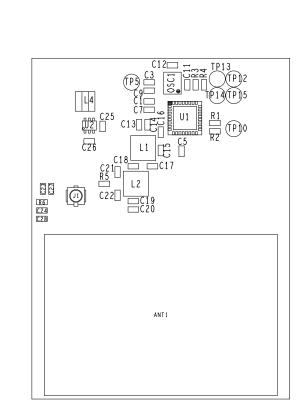






CUSTOMER NAME: TEXAS INS	STRUMENTS		
BOARD NAME: TRF7970ATB		DESCRIPTION: ASSEMBLY - P	RIMARY SIDE
TI TICKET NO:	REV: DATE: D 02/06	PROJECT#: 5/2013 RFID	SH: OF: 1 2



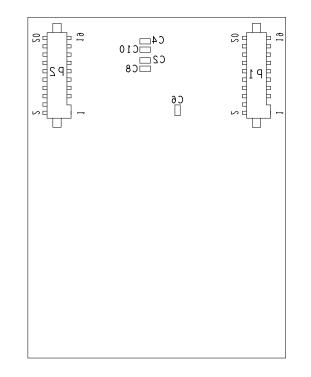














CUSTOMER NAME: TEXAS IN:	STRUMENTS	
BOARD NAME: TRF7970ATB		DESCRIPTION: ASSEMBLY - SECONDARY SIDE
TI TICKET NO:	REV: DATE: D 02/06	PROJECT#: SH: OF: 6 / 2013 RFID 2 2

FAB NOTES:

- 1. ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.
- 2. THE PWB SHALL BE FABRICATED TO IPC-6012, CLASS 2 AND WORKMANSHIP SHALL CONFORM TO IPC-A-600, CLASS 2. CURRENT REVISIONS.
- 3. BOARD MATERIAL SHALL BE 180 Tg / 340 Td ISOLA FR-370HR OR EQUIVALENT, ROSH COMPLIANT AND LEAD FREE ASSEMBLY CAPABLE. BOARD MATERIAL SHALL MEET OR EXCEED IPC-4101B. ROSH CERTIFICATE OF CONFORMANCE SHALL BE DELIVERED WITH EACH LOT.
- 4. BOARD MATERIAL & CONSTRUCTION TO BE U.L. APPROVED AND MARKED ON THE FINISHED BOARD.
- 5. OVERALL BOARD THICKNESS TO BE .062 +/-.005". AND APPLIES AFTER ALL LAMINATION AND PLATING PROCESSES, MEASURED FROM COPPER TO COPPER.
- 6. MAX. WARP & TWIST TO BE .0075 PER INCH.
- 7. BOARD MUST BE ELECTRICALLY TESTED USING SUPPLIED IPC-D-356 NETLIST.
- 30 MIL TRACES ON LAYER 1 ARE 50 OHMS +/- 10%. THEY ARE REFERANCE TO LAYER 1 GROUND WITH SOLDERMASK CLEAR AWAY.

PROCESS NOTES:

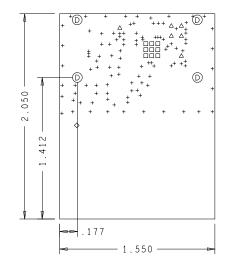
- APPLY LPI SOLDERMASK OVER BARE COPPER (SMOBC), COLOR: GREEN. SOLDERMASK SHALL CONFORM TO IPC-SM-840, CLASS H. CURRENT REV.
- 2. PLATE ALL EXPOSED AREAS WITH ELECTROLESS NICKEL IMMERSION GOLD. NICKEL: 100 MICRO-INCHES MIN. GOLD: 2-8 MICROINCHES MIN.
- 3. SOLDERMASK ARTWORK HAS ZERO (0) OVERSIZED PADS. FABRICATION VENDOR IS ALLOWED TO ADJUST THE COMPONENT SOLDERMASK PADS TO MEET THEIR TOOLING REQUIREMENTS.
- 4. APPLY NON-CONDUCTIVE LPI SILKSCREEN OR EQUIVALENT PER THE ARTWORK. COLOR: WHITE.
- 5. BOARD MUST BE ELECTRICALLY TESTED USING SUPPLIED IPC-D-356 NETLIST.

LAYER STACK UP:

LAYER 1 - PRIMARY SIDE LAYER 2 - SECONDARY SIDE

LATER Z - SECONDART SIDE

LAYER 1	PRIMARY SIDE Plate to 1.5 oz min Layer 1
	FR4-370 Core 0.058" 0.50z / 0.50z Layer 1 & 2
LAYER 2	SECONDARY SIDE Plate to 1.5 oz min Layer 2



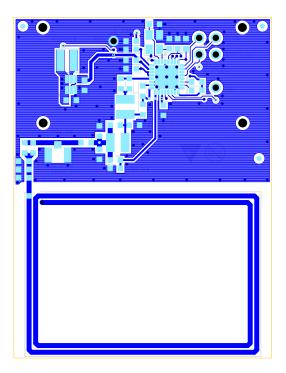
DRILL CHART: TOP to BOTTOM ALL UNITS ARE IN MILS FIGURE SIZE TOLERANCE PLATED QTY 8.0 +3.0/-3.0 PLATED 109 + 9 12.0 +3.0/-3.0 PLATED 1 \diamond 20.0 +3.0/-3.0PLATED 6 Δ 38.0 +3.0/-3.0 PLATED \bigcirc 53.0 4 +2.0/-2.0 NON - PLATED

VIEWED FROM PRIMARY SIDE

CUSTOMER NAME: TEXAS IN	NSTRUMENTS		
BOARD NAME: TRF7970ATB		DESCRIPTION: FABRICATIO	N DRAWING
TI TICKET NO:	REV: DATE: D 02/06	PROJECT#: 5/2013 RFID	sh: of: 1 1





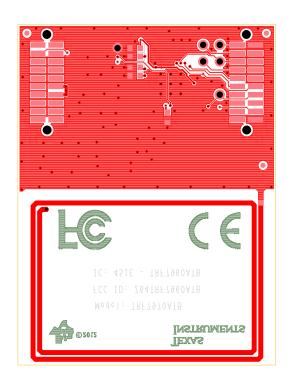




CUSTOMER NAME: TEXAS INS	STRUMENTS		
BOARD NAME: TRF7970ATB		DESCRIPTION: BAYERCBENPRIMAR	MASIDEIDE
TI TICKET NO:	REV: DATE: D 02/06	PROJECT#: SH: /2013 RFID	OF: 1 8

TEXAS IN:	STRUMENTS		
BOARD NAME: TRF7970ATB	DESCRIPT	ION: BAYERC2EENSECC	NDARYASIDEIDE
TI TICKET NO:	REV: DATE: D 02/06/2013		SH: OF: 28









IMPORTANT NOTICE FOR TI REFERENCE DESIGNS

Texas Instruments Incorporated ("TI") reference designs are solely intended to assist designers ("Buyers") who are developing systems that incorporate TI semiconductor products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products.

TI reference designs have been created using standard laboratory conditions and engineering practices. **TI has not conducted any testing other than that specifically described in the published documentation for a particular reference design.** TI may make corrections, enhancements, improvements and other changes to its reference designs.

Buyers are authorized to use TI reference designs with the TI component(s) identified in each particular reference design and to modify the reference design in the development of their end products. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER TI INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN, including but not limited to any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services, or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

TI REFERENCE DESIGNS ARE PROVIDED "AS IS". TI MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE REFERENCE DESIGNS OR USE OF THE REFERENCE DESIGNS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. TI DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO TI REFERENCE DESIGNS OR USE THEREOF. TI SHALL NOT BE LIABLE FOR AND SHALL NOT DEFEND OR INDEMNIFY BUYERS AGAINST ANY THIRD PARTY INFRINGEMENT CLAIM THAT RELATES TO OR IS BASED ON A COMBINATION OF COMPONENTS PROVIDED IN A TI REFERENCE DESIGN. IN NO EVENT SHALL TI BE LIABLE FOR ANY ACTUAL, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES, HOWEVER CAUSED, ON ANY THEORY OF LIABILITY AND WHETHER OR NOT TI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, ARISING IN ANY WAY OUT OF TI REFERENCE DESIGNS OR BUYER'S USE OF TI REFERENCE DESIGNS.

TI reserves the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI's terms and conditions of sale of semiconductor products. Testing and other quality control techniques for TI components are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers' products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers' products and applications, Buyers should provide adequate design and operating safeguards.

Reproduction of significant portions of TI information in TI data books, data sheets or reference designs is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards that anticipate dangerous failures, monitor failures and their consequences, lessen the likelihood of dangerous failures and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in Buyer's safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed an agreement specifically governing such use.

Only those TI components that TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components that have **not** been so designated is solely at Buyer's risk, and Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265 Copyright © 2015, Texas Instruments Incorporated