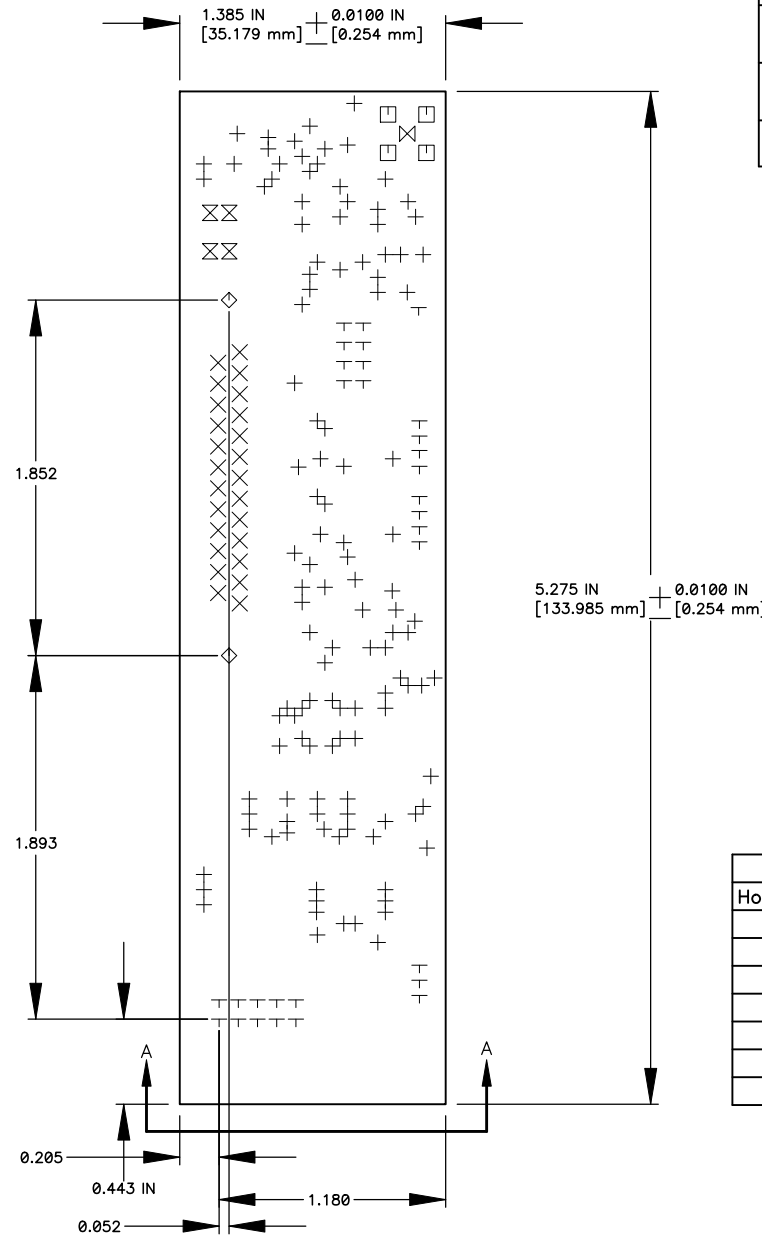


REVISIONS

ZONE	LTR	DESCRIPTION	ECR	DATE	BY	APRV
	OD	INITIAL RELEASE		11/03/09	DMS	P.MOORE M.HUNTEN
	A	See ECO for details	TRNT-013	03/02/11	DMS	D.SAWYER M.HUNTEN

NOTES: unless otherwise specified

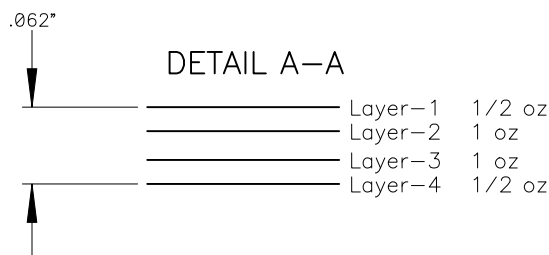
- 1.0 Fabricate circuit board to conform to IPC-A-600  
Applicable documents  
The following items are required:  
PATTERN FILM / GERBER DATA DWG # TRNT-EL-04-3009  
DETAIL DRAWING DWG # TRNT-EL-04-1009 THIS DOCUMENT
- 1.1 Artwork may not be modified except for process control.
- 2.0 BASE MATERIAL
  - 2.1 Laminate base material shall be natural color, FR370 or equivalent.  
See Detail A-A for layer to layer specification and overall thickness.
  - 2.2 B-Stage shall be selected at vendors discretion to meet over all board thickness and end item requirements.
- 3.0 COPPER PLATING
  - 3.1 Copper plating shall have a minimum purity of 99.5 percent and a minimum thickness of .001 inch. This also applies to the plating in the holes.
- 4.0 SOLDERMASK
  - 4.1 Apply LPI Green soldermask over bare copper according to the soldermask pattern file per IPC-SM-840.
- 5.0 FINISH
  - 5.1 EXPOSED COPPER SHALL BE Ni/Au -- IMMERSION GOLD 3-5u INCH (0.00003-0.00005) OVER ELECTROLESS NICKEL 100-200u INCH (0.00001-0.00002) THICK IAW IPC-2221 AND IPC-4552 (ENIG).
- 6.0 SILK SCREEN
  - 6.1 Silk screen top (-1) and bottom (-4) side of board using white epoxy ink according to the -1S pattern film and the -4S pattern film.  
Ink shall not cover any exposed metal.
- 7.0 DIMENSIONS
  - 7.1 All dimensions are in inches.
  - 7.2 Unless otherwise specified all hole sizes apply after plating.  
Hole sizes are shown in the drill schedule.
- 8.0 TOLERANCES
  - 8.1 Hole size tolerance +- .003 after plating unless otherwise specified.
  - 8.2 Conductor widths and spacing shall be within 20% of the artwork originals.
  - 8.3 Layer to layer registration shall be .007 inches of true position
  - 8.4 Board dimensions shall meet the requirements of the board drawing.
  - 8.5 Warp and twist shall not exceed that defined in IPC-A-600.
- 9.0 APPEARANCE
  - 9.1 All inside and outside corners shall have a maximum radius of .065
  - 9.2 Remove all burrs and smooth sharp edges to .010 max.



Array of 4 on a tabbed panel  
Space between boards on long edge should be a minimum of .6 inches

Drill Table			
Hole Dia (inch)	Symbol	Quantity	Plated
0.018	+	122	Yes
0.037	X	25	Yes
0.041	T	30	Yes
0.047	Z	4	Yes
0.062	M	1	Yes
0.072	□	4	Yes
0.124	◇	2	No

APPROVED FOR  
CONSTRUCTION  
03-07-11 DMS



VENDOR NOTE: NOTIFY US OF ANY CONFLICTING REQUIREMENTS OR IF BOARDS CANNOT BE MANUFACTURED TO MEET THE ABOVE REQUIREMENTS, DUE TO VENDORS PROCESS AND/OR TECHNIQUES OR BECAUSE PHOTO TOOLS AND/OR SPECIFICATIONS ARE INADEQUATE.

Modified Date: Fri Mar 18, 2011

Print Date: Fri Mar 18, 2011

TOLERANCES UNLESS OTHERWISE NOTED .XX ± .03 ANGULAR .XXX ± .010 ± .5°		 THIRD ANGLE PROJECTION		NATIONAL OPTICAL ASTRONOMY OBSERVATORIES OPERATED BY THE ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN ASTRONOMY UNDER COOPERATIVE AGREEMENT WITH NATIONAL SCIENCE FOUNDATION			
DO NOT SCALE DRAWING		NAME <b>DETAIL</b>		USED ON <b>TORRENT</b>		REF	
NEXT ASSEMBLY <b>TRNT-EL-04-0009</b>		TRANSITION UTILITY BOARD		DWG SIZE <b>B</b>		REV <b>A</b>	
SCHEMATIC <b>TRNT-EL-04-2009</b>		SCALE: FULL		DESIGNED BY m huntent p moore		DATE 03nov09	
DWG PRODUCED USING PCAD2006		DRAWN BY Dee Stover		CHECKED BY		DATE	
		DATE 03NOV09		APPROVED BY		DATE	
				DWG NO <b>TRNT-EL-04-1009</b>		RELEASED	
				SHEET 1 OF 1			