

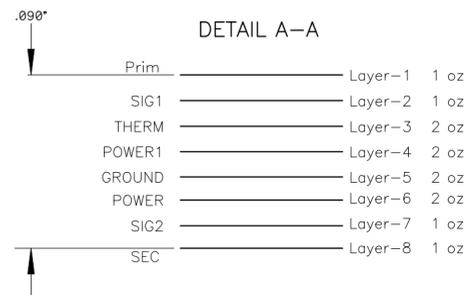
Hole Dia (inch)	Symbol	Quantity	Plated
0.014	+	41	Yes
0.018	X	560	Yes
0.028	Y	147	Yes
0.032	T	6	Yes
0.032	X	59	Yes
0.035	M	6	Yes
0.043	□	25	Yes
0.055	□	2	Yes
0.055	◇	2	No
0.059	◇	1	No
0.067	□	4	No
0.090	◇	3	No
0.118	□	14	Yes
0.125	◇	3	No

APPROVED FOR  
CONSTRUCTION  
10-28-11 DMS

REVISIONS						
ZONE	LTR	REVISIONS	ECR	DATE	BY	APRV
	A	SEE ECO FOR CHANGE DETAILS	TRNT-011	JUN 2010	DMS	pmoore mhunten
	A1	Add Fiducials and tooling holes to tabbed area for assembly		10/5/10	DMS	
	B	SEE ECOS FOR CHANGE DETAILS	TRNT-014, 018 TRNT-022, 026	OCT 2011	DMS	pmoore

- NOTES: unless otherwise specified
- 1.0 Fabricate circuit board to conform to IPC-A-600H  
Applicable documents  
The following items are required:  
PATTERN FILM / GERBER DATA DWG # TRNT-EL-04-3001  
DETAIL DRAWING DWG # TRNT-EL-04-1001 THIS DOCUMENT
  - 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. Plate board edge complete, primary, secondary and L3 are electrically and thermally connected.
  - 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 (-8) side of board using white epoxy ink according to the -1S pattern film and the -8S 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.
  - 10.0 TABS
    - 9.1 Route board edge approximately as shown
    - 9.2 V-groove 60 x.036" both sides or mouse bites at breakaway points

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.



QTY REQ'D	PART OR IDENTIFYING NO	ITEM DESCRIPTION		ITEM NO
TOLERANCES UNLESS OTHERWISE NOTED		NATIONAL OPTICAL ASTRONOMY OBSERVATORIES		
.XX ± .03 ANGULAR		OPERATED BY THE ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN ASTRONOMY UNDER COOPERATIVE AGREEMENT WITH NATIONAL SCIENCE FOUNDATION		
.XXX ± .010 ±.5°		THIRD ANGLE PROJECTION		
DO NOT SCALE DRAWING		NAME	USED ON	REF
NEXT ASSEMBLY TRNT-EL-04-0001		DETAIL POWER SUPPLY BOARD	TORRENT	
REFER TO SCHEMATIC TRNT-EL-04-2001		DWG SIZE	REV	
		C	B	
SCALE: FULL	DESIGNED BY P.Moore	DATE MAY2010	CHECKED BY	DATE
DWG PRODUCED USING PCAD2006	DRAWN BY Dee Stover	DATE MAY2010	APPROVED BY	DATE
DWG NO TRNT-EL-04-1001		SHEET 1 OF 1		