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- 21
- MARK IN LOCATION SHOWN WITH 1.0 MINIMUM HIGH CHARACTERS THE SERIAL NUMBER "NXXXXX" (WHERE N IS A VENDOR DESIGNATION LETTER ASSIGNED BY TMT AND XXXXX IS A UNIQUE 5 DIGIT SERIAL NUMBER FOR EACH PART. THE VENDOR DESIGNATION AND THE STARTING SERIAL NUMBER SHALL BE IN ACCORDANCE WITH THE VALUES PROVIDED IN THE PURCHASE ORDER)
20.
- BOW AND TWIST OF RIGID SECTIONS SHALL NOT EXCEED 0.75% WHEN MEASURED DIAGONALLY.
19.
- ALL UNDIMENSIONED HOLES SHALL BE LOCATED WITHIN 0.12 RADIUS OF THE POSITION INDICATED BY THE MASTER PATTERN ARTWORK.
18.
- ALL COPPER FEATURE SIZES OF THE FINISHED PRINTED WIRING FLEXPRINT SHALL BE WITHIN ±10% OF THE SIZE INDICATED BY THE MASTER PATTERN ARTWORK.
17.
- REGISTRATION OF ALL PRINTED WIRING ELEMENTS AFTER LAMINATION SHALL BE WITHIN 0.076 mm OF THE TRUE POSITION.
16.
- PAIRED TRACES IN FLEX AREA ARE TO HAVE 100 OHMS ±10% DIFFERENTIAL IMPEDANCE. TRACE WIDTH AND SPACE MAY BE ADJUSTED TO OBTAIN THIS.
15.
- ELECTRICAL TEST: CONTINUITY SHORT AND OPEN TESTING ON ALL AVAILABLE EXPOSED TERMINAL PADS USING IPC-D-356A NETLIST DATA. CONTINUITY TEST SHALL BE AT 5 OHMS MAX. SHORTS TESTING SHALL BE PERFORMED AT 200V. MINIMUM ISOLATION OF 100M OHMS.
- 14
- LEGEND OVER SOLDER MASK ON BOTH SIDES OF PWB USING ITEM 8. LEGEND MARKING SHALL NOT BE NEARER THAN .005 INCH TO ANY PAD. CHARACTER HEIGHT SHALL BE .030 INCH MINIMUM.
13.
- AFTER APPLICATION OF SOLDER MASK, PLATE ALL EXPOSED COPPER WITH ENIG PER IPC-6013.
- 12
- APPLY SOLDER MASK, ITEM 7, TO TOP AND BOTTOM OVER BARE COPPER, COMPONENT PADS TO BE FREE FROM BLEEDING OR MISREGISTRATION.
11.
- FABRICATE AND INSPECT PRINTED WIRING BOARD PER IPC-6013B, CLASS 2, TYPE 4.
10.
- FOIL LAMINATION MAY BE APPLIED AS AN ALTERNATE COSTRUCTION ON OUTER LAYERS.
- 9
- MATERIAL: NON-SUPPORTED ADHESIVE FILM (THICKNESS AND QUANTITY AS REQUIRED) PER IPC-4203/18-0000MX
- 8
- MATERIAL: NON-SUPPORTED POLYIMIDE FILM, ADHESIVE ONE SIDE PER IPC-4203/1-E1E1M1/0
- 7
- MATERIAL: 1 OZ COPPER CLAD, SINGLE SIDED, .002 IN. THICK POLYIMIDE LAMINATE PER IPC-4204/11-E1E2Z CU-W7-HS/0
- 6
- MATERIAL: 1 OZ COPPER CLAD, DOUBLE SIDED, .003 IN. THICK POLYIMIDE LAMINATE PER IPC-4204/11-E1E3Z CU-W7-HS/HS
- 5
- MATERIAL: 0.135 mm THICK EPOXY/WOVEN GLASS PREPEG PER IPC-4101/P 26-E2116 TW RE VC
- 4
- MATERIAL: 1 OZ COPPER CLAD, DOUBLE SIDED, 0.38 mm THICK EPOXY/WOVEN GLASS LAMINATE PER IPC-4101/L 26-0380-C1/C1
3.
- THIS IS A REDUCED DIMENSION DRAWING. ADDITIONAL DIMENSIONS NEEDED TO DEFINE THE TRUE PROFILES OF THIS PART SHALL BE OBTAINED FROM THE MASTER CAD MODEL DATABASE NAMED 10369689-A.ZIP. DIMENSIONS AND TOLERANCES SHALL BE INTERPRETED PER ASME Y14.5M.
2.
- THIS DOCUMENT AND RELATED ARTWORK ARE COMPUTER GENERATED. ALL MODIFICATIONS ARE TO BE PERFORMED TO THE ORIGINAL DATABASE ON FILE IN SECTION 383.
1.
- THE FINISHED PRINTED WIRING BOARD SHALL MEET THE REQUIREMENTS OF IPC-A-600-X (LATEST REVISION).

NOTES: UNLESS OTHERWISE SPECIFIED

| REVISION HISTORY | | | | | | | | | | | | | | | | | | |
|------------------|-------|--|--|--|--|--|--------|-----|-----|--------|------|-----------|--|---|-----------|----------|--------------|--|
| LTR | ZONE | DESCRIPTION | | | | | | DWN | CHK | STRUCT | MATL | THRM CONT | | ENGR | DSGN SUPV | DATA MGT | RELEASE DATE | |
| A | | INITIAL RELEASE | | | | | CAT II | | | | | | | | | | | |
| B | A8/B7 | BOARD SIZE CHANGE. ADDED ROGERS 4350B MATERIAL. ADDED GUARD RING. | | | | | II | | | | | | | SEE PRODUCT DATA MANAGEMENT SYSTEM (PDMS) FOR APPROVAL SIGNATURES AND DATES | | | | |
| C | | CHANGED ROGERS 4350B MATERIAL BACK TO FR4, CHANGED U1 TO DUAL CHANNEL, ADDED SWAP INPUT AND OUTPUT SWITCH. | | | | | II | | | | | | | | | | | |

SEE PRODUCT DATA MANAGEMENT SYSTEM (PDMS) FOR APPROVAL SIGNATURES AND DATES

| | | | | | | | | | |
|--|----|---------|---------|-----------|-------------------------------|--|-----------------|------------------|------|
| | | | | | | | | | |
| | AR | 8 | | | ENTHONE 50-100R CATALYST 9 | INK, WHITE EPOXY | IPC-4781 | 14 | |
| | AR | 7 | | | PROBIMER 52 OR TAIYO PSR-4000 | SOLDERMASK, LPI | IPC-SM-840 CL A | 12 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | AR | 6 | | | | ACRYLIC ADHESIVE FILM NON-SUPPORTED | IPC-4203/18 | 9 | |
| | AR | 5 | | | | POLYIMIDE FILM ACRYLIC ADHESIVE ONE SIDE | IPC-4203/1 | 8 | |
| | AR | 4 | | | | POLYIMIDE FILM CU CLAD 1/2 OZ. | IPC-4204/11 | 7 | |
| | AR | 3 | | | | POLYIMIDE FILM CU CLAD 1/2 OZ. / 1/2 OZ. | IPC-4204/11 | 6 | |
| | AR | 2 | | | | GLASS BASE EPOXY RESIN PREPREG, B-STAGE | IPC-4104/P 26 | 5 | |
| | AR | 1 | | | | GLASS BASE EPOXY RESIN CU CLAD 1 OZ / 1 OZ | IPC-4104/L 26 | 4 | |
| | -1 | ITEM NO | REF DES | CAGE CODE | PART OR IDENTIFYING NO | NOMENCLATURE OR DESCRIPTION | SPECIFICATION | MATERIAL OR NOTE | ZONE |

PARTS LIST

| | | | | | | | | | |
|---------------|---------|----------------------------|--|---|--|------------------------------------|-----------------|--------------|--------------|
| | | MATERIAL: | | UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS | CONTRACT NO | JET PROPULSION LABORATORY | | | |
| | | MATERIAL PER SPECIFICATION | | LINEAR TOLERANCES: | APPD _____ DATE _____ | CALIFORNIA INSTITUTE OF TECHNOLOGY | | | |
| | | | | 0 to 6 ±0.1 | DWN D PALMER | PASADENA, CA 91109 | | | |
| | | | | OVER 6 to 30 ±0.2 | ENGR C SHELTON | PRINTED WIRING BOARD, | | | |
| | | THIRD ANGLE PROJECTION | | OVER 30 to 120 ±0.3 | | EDGE SENSOR DRIVE BOARD | | | |
| | | | | OVER 120 to 315 ±0.5 | | — MATRIX V5 | | | |
| | | | | OVER 315 to 1000 ±0.8 | SEE JPL DATA MANAGEMENT SYSTEM FOR APPROVAL SIGNATURES AND DATES | SIZE D | CAGE CODE 23835 | 10369689 | REV C |
| | | | | ANGULAR TOLERANCES: ±0.5° | | SCALE: 1/1 | | UNCLASSIFIED | SHEET 1 OF 2 |
| | | | | MACHINE FINISH ✓ | | | | | |
| 10369690 | TMT | | | DO NOT SCALE DRAWING | | | | | |
| NEXT ASSEMBLY | USED ON | | | INTERPRET DWG PER ASME Y14.100M | | | | | |
| APPLICATION | | | | | | | | | |

REV 01/2013

DBASE NAME: ANSL_D-SH1/A5

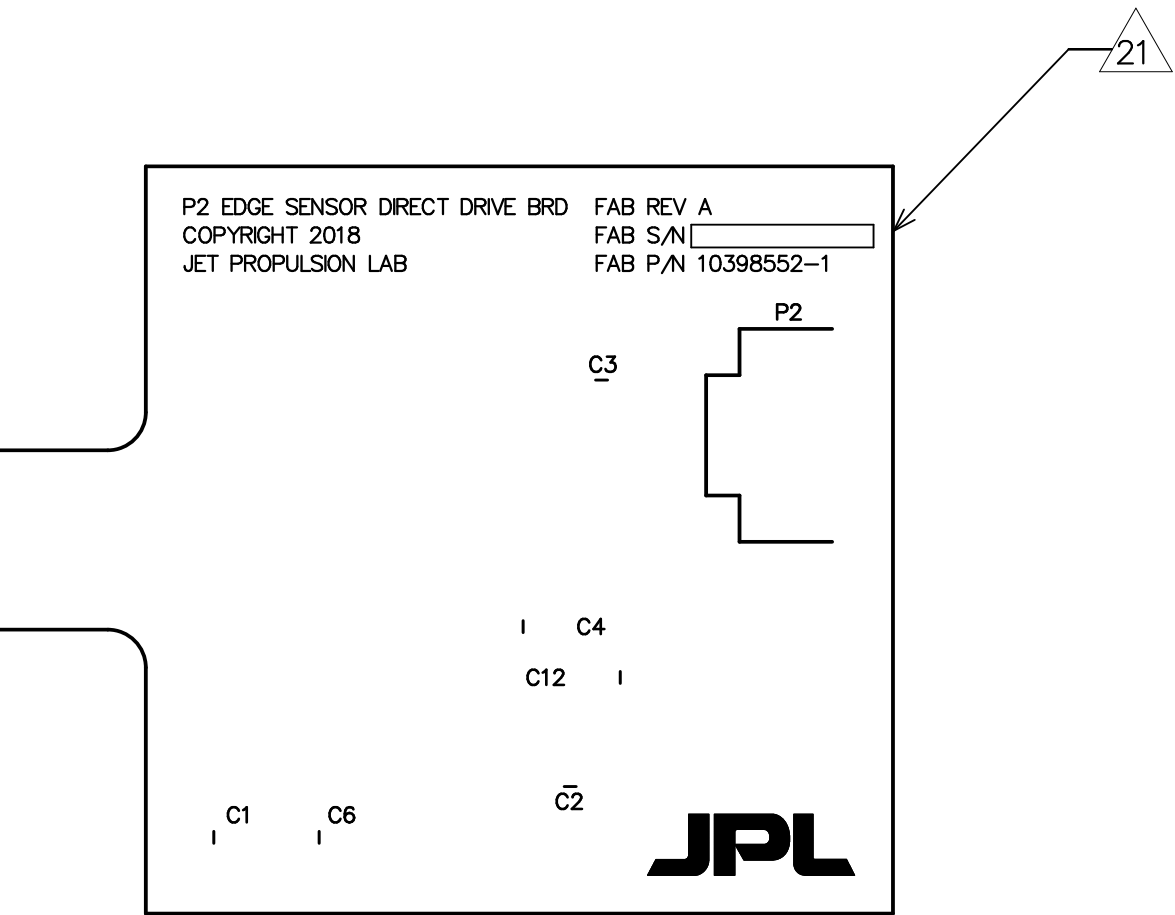
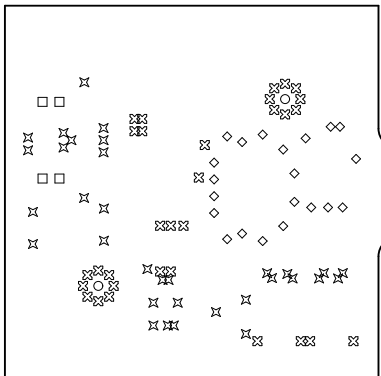
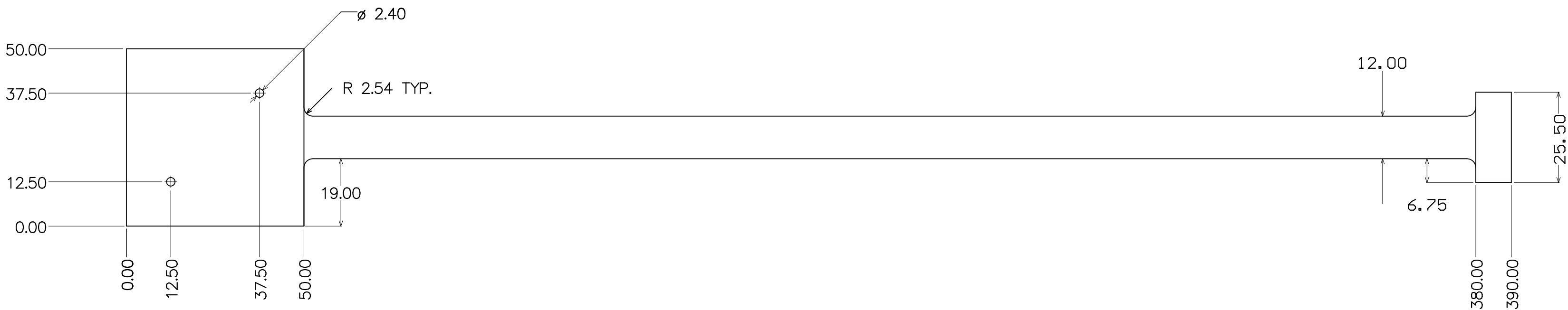
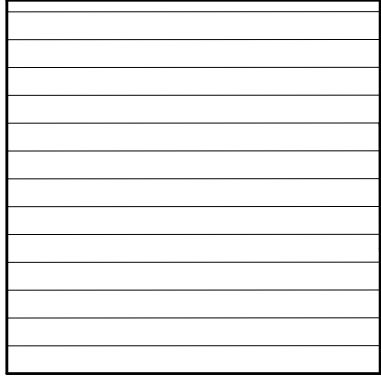
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| Layer | Name | Material | Thickness | Constant | Rigid Stack | Flex Stack | Rigid Stack 2 |
|-------|-------------------|----------------------|-----------|----------|-------------|------------|---------------|
| 1 | Flex Coverlay Top | Polyimide/Adhesive | 0.051mm | 3.5 | | | |
| 2 | Top Overlay | | | | | | |
| 3 | Top Solder | Solder Resist | 0.010mm | 3.5 | | | |
| 4 | Component Side | Copper | 0.036mm | | | | |
| 5 | Dielectric 1 | FR-4 | 0.381mm | 4.2 | | | |
| 6 | Ground Plane | Copper | 0.036mm | | | | |
| 7 | Dielectric 11 | FR-4 | 0.226mm | 4.2 | | | |
| 8 | Flex Shield Top | Copper | 0.018mm | | | | |
| 9 | Dielectric 6 | Composite dielectric | 0.051mm | 3.78 | | | |
| 10 | Dielectric 10 | Composite dielectric | 0.041mm | 3.78 | | | |
| 11 | Diff Pair | Copper | 0.018mm | | | | |
| 12 | Dielectric 9 | Polyimide | 0.076mm | 3.5 | | | |
| 13 | Flex Shield Bot | Copper | 0.018mm | | | | |
| 14 | Dielectric 12 | FR-4 | 0.226mm | 4.2 | | | |
| 15 | Power Plane | Copper | 0.036mm | | | | |
| 16 | Dielectric 4 | FR-4 | 0.381mm | 4.2 | | | |
| 17 | Solder Side | Copper | 0.036mm | | | | |
| 18 | Bottom Solder | Solder Resist | 0.010mm | 3.5 | | | |
| 19 | Bottom Overlay | | | | | | |
| 20 | Flex Coverlay Bot | Polyimide/Adhesive | 0.051mm | 3.5 | | | |



DASH AND SERIAL NUMBER DETAIL (2X)

| Symbol | Count | Hole Size | Plated | Hole Type | Via/Pad |
|--------|-----------|--------------------|--------|-----------|---------|
| ⌘ | 45 | 0.381mm (15.00mil) | PTH | Round | Via |
| ⌘ | 31 | 0.508mm (20.00mil) | PTH | Round | Via |
| ◇ | 24 | 0.711mm (28.00mil) | PTH | Round | Via |
| □ | 4 | 0.838mm (33.00mil) | PTH | Round | Pad |
| ○ | 2 | 2.400mm (94.49mil) | NPTH | Round | Pad |
| | 106 Total | | | | |

LAYER DRILL DRAWING (GD1)

P2 EDGE SENSOR - MATRIX DRIVE BOARD
10369689-116 REV C
JPL D.P. 09/26/2018