| REVISIONS | | |
|---|---|---|
| REV # | DESCRIPTION | DATE |
| REV # | CCN # | 140223 |

## FABRICATION NOTES:

1. FABRICATE PCB IN ACCORDANCE WITH IPC-6012C, CLASS 2; PER IPC-4011.
   PCB SHALL BE MANUFACTURED USING MS-40 OR EQUIVALENT.
2. MATERIALS:
   1. LAMINATE AND PREPREG (8-STAGE) TO BE IN ACCORDANCE WITH IPC-4101/126.
      (MIN.TG 180)
   2. COPPER FOIL TO BE IN ACCORDANCE WITH IPC-MF-150. UNLESS OTHERWISE SPECIFIED,
      ALL COPPER WEIGHT FOR INNER SIGNAL LAYERS AND INNER PLANE LAYERS TO BE 35UM (1 OZ.).
      FOR OUTER LAYERS 1.31 OZ. COPPER WEIGHT IS TO BE CONSIDERED "FINISHED".
      THE COPPER FOIL THICKNESS TOLERANCES SHALL BE AS PER IPC 6012M TABLE NO.3-7 AND 3-8.
3. ALL HOLES SHALL BE LOCATED WITHIN 0.15MM DIAMETER OF TRUE POSITION.
   LAYER TO LAYER REGISTRATION SHALL BE WITHIN 0.125MM.
4. BOW AND TWIST SHALL NOT EXCEED MORE THAN 0.75% OF THE DESIGN LENGTH.
5. CONDUCTOR WIDTH SHALL NOT BE LESS THAN 20% FROM ITS ORIGINAL DATA. INCASE FOR MATCHING
   IMPEDANCE MISTRAL SHALL APPROVE THE MODIFIED WIDTHS AND SPACING.
   TRACE WIDTH SHALL BE MEASURED ON THE SURFACE IN CONTACT WITH THE LAMINATE.
6. AUTOMATED OPTICAL INSPECTION OF ALL THE LAYERS IS REQUIRED.
7. FINISH:
   1. ALL EXPOSED CONDUCTIVE PATTERN AREAS NOT COVERED WITH SOLDER MASK OR OTHER PLATING SHALL BE ENIG,
      ELECTROLESS NICKEL/IMMERSION GOLD, ELECTROLESS NICKEL SHALL BE 3-6 MICRONS, TYPICAL IMMERSION GOLD
      THICKNESS SHALL BE 0.04-0.06 MICRONS OF SOLDERABLE IMMERSION GOLD SURFACE.
   2. APPLY LIQUID PHOTO IMAGEABLE SOLDER MASK PER IPC-SM-840, CLASS H, TO BOTH SIDES OF THE BOARD OVER BARE COPPER.
      VIA HOLES THAT HAVE MASK OPEN SHALL BE FILLED WITH NON CONDUCTIVE INK AND CAP PLATED,
      ALL OTHER VIA HOLES SHALL BE FILLED WITH NON CONDUCTIVE INK AND COVERED WITH SOLDER MASK,
      (HALF SOLDERMASK IMAGES THAT ARE 0.08(0.003") PER SIDE SHALL BE REDUCED IF REQUIRED.
      ALL OTHER SOLDER MASK IMAGES SHALL NOT BE ENLARGED. DEFAULT COLOUR OF SOLDER MASK SHALL BE RED.
   3. SILKSCREEN SHALL BE WHITE, PERMANENT, ORGANIC, NON-CONDUCTIVE INK. THERE SHALL BE
      NO SILKSCREEN ON ANY SOLDERABLE COMPONENT PAD. CLIPPING OF SILK SCREEN SHALL BE ALLOWED
      IF THE SILK SCREEN FALLS ON SOLDERABLE AREAS.
   4. SURFACE AND VIA HOLES FINISH SHALL NOT BE LESS THAN 20UM [0.00079"], INCASE OF LASER
      VIA'S, BLIND VIA'S SHALL NOT BE LESS THAN 12UM [0.0004"] AND BURIED VIA'S SHALL NOT BE LESS THAN 15UM [0.0004"].
   5. ALL HOLES SURROUNDED BY LAND <=0.010" SHALL BE COMPLAIN TO IPC6012, CLASS 2.
8. MARKING:
   1. BOARD SHALL MEET THE REQUIREMENTS OF UL-796E WITH FLAMMABILITY RATING OF MINIMUM 94V-0. UL LOGO,UL FILE NUMBER,
      MANUFACTURER'S IDENTIFICATION AND DATE CODE LETTER SHALL BE RENDERED IN SILKSCREEN.
9. TEST REQUIREMENTS:
   1. 100% NET LIST ELECTRICAL VERIFICATION USING MISTRAL SUPPLIED IPC-D-356 NET LIST FOR OPENS AND SHORTS.
10. THIEVING IS ALLOWED ONLY IN THE PANEL FRAME, NOT IN THE CIRCUIT AREA.
11. TEAR DROPS SHALL BE ADDED ON INTERNAL AND EXTERNAL LAYER FOR ALL THE VIA'S AND THROUGH HOLE PADS.
12. FINISHED PCB THICKNESS SHALL BE 0.0504" +/-10%.
13. MIN TRACE WIDTH/SPACING ON BOARD IS 0.003"/0.0032".
14. ALL THE IMPEDANCE SHALL BE MATCHED AS PER IMPEDANCE TABLE WITH +/-10% TOLERANCE.
15. ENSURE THAT UL REGISTERED E-FILE NUMBER SHALL BE PRINTED ON PCB SILKSCREEN
16. ALL UNCONNECTED VIA'S SHALL BE SUPPRESSED IN INTERNAL LAYERS.
17. BACKDRILLING TO BE DONE FROM L12 TO L04.
18. FOR DETAILED STACKUP, PROC131_STACKUP.PDF SHALL BE REFERRED
19. RECOMMENDED PLATING FOR CONTACT PADS ARE:
    1) VARIATION xxAu(GOLD PLATING 0.76 MICROMETERS MINIMUM OVER 2.00 MICROMETERS MINIMUM NICKEL.
20. THE ADDITION OF THIS BEVEL IS A FABRICATION OPTION AND IS NOT REQUIRED.THE BEVEL IS NOT HIT THE PLATED CONTACTS.

BACKDRILL: BOTTOM to L4-SHIG

ALL UNITS ARE IN MILS

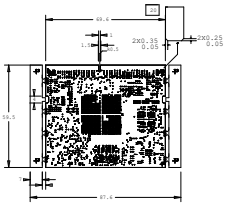
| FIGURE | SIZE | TOLERANCE | PLATED | QTY |
|---|---|---|---|---|
| • | 7.48 | +3.0/-2.0 | PLATED | 32 |
| START | TARGET | BODY CUT | BODY BOT CUT | |
| L12 | L04 | L05 | L03 | |

NOTES:
- DRILL SIZES LISTED IN LEGEND ARE CONSIDERED FINISHED.
- TOOLING IS REQUIRED TO SELECT DRILL SIZES AND DEPTHS.
- LEGEND DOES NOT SPECIFY DEPTH INTO ADJACENT DIELECTRIC LAYER.

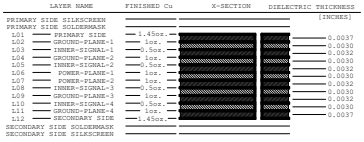
DRILL CHART: TOP to BOTTOM

ALL UNITS ARE IN MILS

| FIGURE | SIZE | TOLERANCE | PLATED | QTY |
|---|---|---|---|---|
| • | 7.96 | +3.0/-3.0 | PLATED | 96 |
| • | 7.87 | +3.0/-3.0 | PLATED | 32 |
| • | 7.98 | +3.0/-3.0 | PLATED | 32 |
| • | 7.93 | +3.0/-3.0 | PLATED | 85 |
| • | 8.0 | +3.0/-3.0 | PLATED | 115 |
| • | 8.0 | +3.0/-3.0 | PLATED | 154 |
| • | 12.0 | +3.0/-3.0 | PLATED | 233 |
| ▶ | 40.0 | +3.0/-3.0 | PLATED | 1 |
| ▶ | 32.0 | +3.0/-3.0 | NON-PLATED | 24 |
| ◀ | 70.0 | +3.0/-3.0 | NON-PLATED | 2 |
| ◀ | 86.0 | +3.0/-3.0 | NON-PLATED | 2 |
| ◀ | 138.0 | +3.0/-3.0 | NON-PLATED | 4 |




### LAYER STACKUP




### IMPEDANCE SPECIFICATIONS

| SL# | TYPE | LAYER | TRACEWIDTH (Mils) | SPACING (Mils) | IMPEDANCE (Ohms) | REF LAYER |
|---|---|---|---|---|---|---|
| 01 | EDGE COUPLED MICROSTRIP | L1/L12 | 4.8 | 7 | 100 | L2/L11 |
| 02 | EDGE COUPLED MICROSTRIP | L1/L12 | 5.1 | 5 | 90 | L2/L11 |
| 03 | EDGE COUPLED MICROSTRIP | L1/L12 | 6 | 5 | 85 | L2/L11 |
| 04 | EDGE COUPLED MICROSTRIP | L1/L12 | 7 | 5 | 80 | L2/L11 |
| 05 | EDGE COUPLED MICROSTRIP | L1/L12 | 11 | 6 | 66 | L2/L11 |
| 06 | MICROSTRIP | L1/L12 | 14 | - | 33 | L2/L11 |
| 07 | MICROSTRIP | L1/L12 | 10 | - | 40 | L2/L11 |
| 08 | MICROSTRIP | L1/L12 | 6.5 | - | 50 | L2/L11 |
| 09 | EDGE COUPLED STRIPLINE | L3 | 3 | 6.5 | 66 | L2/L4 |
| 10. | EDGE COUPLED STRIPLINE | L3,L5, | 4.6 | 5 | 80 | L2/L4,L4/L6 |
| 11. | EDGE COUPLED STRIPLINE | L10 | 4.2 | 5 | 85 | L9/L11 |
| 12. | EDGE COUPLED STRIPLINE | L3,L10 | 4 | 8 | 90 | L2/L4,L9/L11 |
| 13. | EDGE COUPLED STRIPLINE | L3,L5,L10 | 3 | 5 | 100 | L2/L4,L4/L6,L9/L11 |
| 14. | STRIPLINE | L3 | 3 | - | 33 | L2/L4 |
| 15. | STRIPLINE | L3,L5 | 5 | - | 40 | L2/L4,L4/L6 |
| 16. | STRIPLINE | L3,L5,L8, L10 | 3.2 | - | 50 | L2/L4,L4/L8,L7/L9, L9/L11 |
| 17. | STRIPLINE | L8 | 6.5 | - | 33 | L7/L9 |

| SIGNATURES | DATE |
|---|---|
| LAYOUT BY SK | 140223 |
| REVIEWED BY ZA | 140223 |
| APPROVED BY AMS | 140223 |

TEXAS INSTRUMENTS | PROC131E2

AM68 PROCESSOR SK SOM BOARD

SIZE D | Rev E2

SCALE: NONE | SHEET 1 OF 19