## STACKUP TABLE:

| Layer | Name | Material | Thickness | Constant | Board Layer Stack |
|---|---|---|---|---|---|
| 1 | Top Overlay | | | | |
| 2 | Top Solder | Solder Resist | 0.80mil | 3.5 | |
| 3 | L1 TOP | Copper | 1.60mil | | |
| 4 | Dielectric 1 | RO3003 | 5.00mil | 3 | |
| 5 | L2 GND | Copper | 0.80mil | | |
| 6 | Dielectric2 | RO4450F | 3.62mil | 3.52 | |
| 7 | L3 SIGNAL 1 | Copper | 0.60mil | | |
| 8 | Dielectric3 | RO4835 LOPRO | 10.70mil | 3.66 | |
| 9 | L4 GND | Copper | 0.60mil | | |
| 10 | Dielectric4 | 370HR | 8.02mil | 4.02 | |
| 11 | L5 SIGNAL 2 | Copper | 1.20mil | | |
| 12 | Dielectric5 | 370HR | 10.00mil | 4.34 | |
| 13 | L6 SIGNAL 3 | Copper | 0.60mil | | |
| 14 | Dielectric6 | 370HR | 4.52mil | 4.06 | |
| 15 | L7 GND | Copper | 0.80mil | | |
| 16 | Dielectric7 | 370HR | 5.00mil | 4.34 | |
| 17 | L8 BOTTOM | Copper | 1.60mil | | |
| 18 | Bottom Solder | Solder Resist | 0.80mil | 3.5 | |
| 19 | Bottom Overlay | | | | |

THIS IS AN IMPEDANCE CONTROLLED BOARD

NOTE:
1. EXTERNAL LAYER CU THICKNESS ARE FINISHED THICKNESS AFTER PLATING.

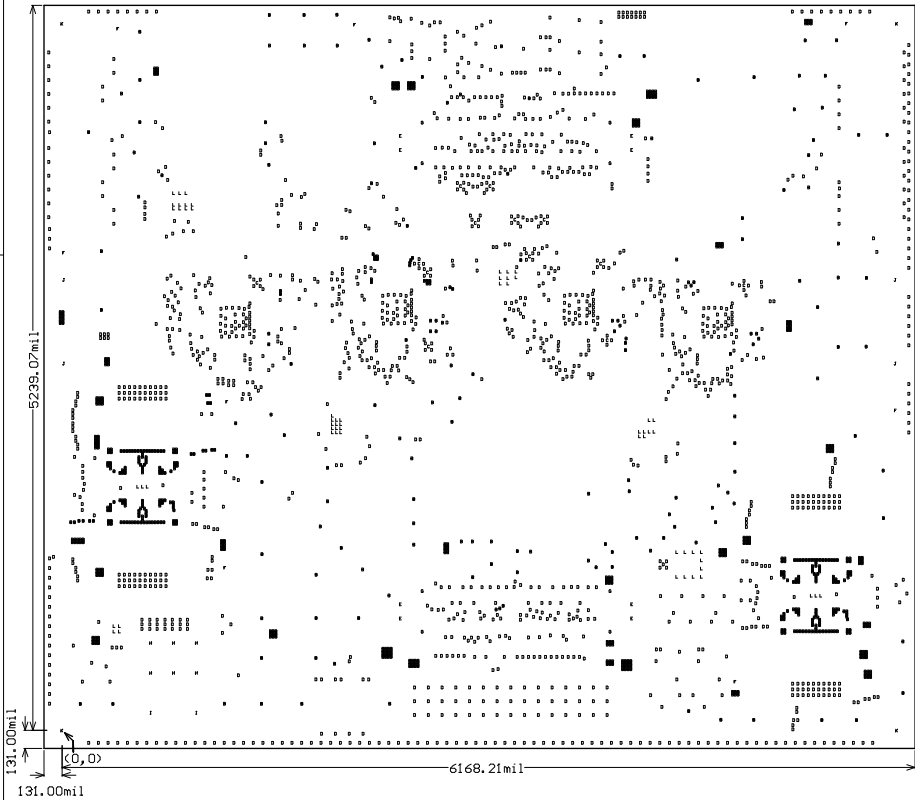## NOTES: UNLESS OTHERWISE SPECIFIED.

1. ALL VIAS ARE TENTED ON BOTH SIDES UNLESS SOLDERMASK OPENED IN GERBER.

2. THE SOLDER MASK IMAGES THAT ARE THE SAME SIZE AS THE COMPONENT PADS MAY BE ENLARGED AS
   PER THE MANUFACTURING CAPABILITIES BUT NOT BEYOND 0.08MM PER SIDE OR 0.15MM OVERALL.
   ALL OTHER SOLDER MASK IMAGES SHALL NOT BE MODIFIED.

3. TRACE WIDTH SHOULD BE ACCURATELY ETCHED. MAX TOLERANCE +/- 1 MIL
   FOR ETCHING ACCURACY NEAR THE ANTENNA REFER "ANTENNA_ETCHING_REQUIREMENTS" DOCUMENT

4. 5.9MIL VIA ONLY ON PAD SHOULD BE FILLED WITH CONDUCTIVE COPPER AND SURFACE SHOULD BE FLAT.
   FLATNESS TOLERANCE FOR VIA ON PADS: +0.000 /- 0.001 INCHES ON TOP SIDE.

5. BACKDRILLING INFO: 12 MIL DRILL AND 24 MIL PAD NEED TO BE REMOVED FROM THE BOTTOM TO LAYER 4
   USE 24MIL DRILL BIT FOR BACKDRILLING ABOVE MENTIONED DRILLS. VENDOR MUST CUT L4 AND MUST NOT CUT L3.

6. PRINTED WIRING BOARD SHALL COMPLY WITH REQUIREMENTS OF ANSI/J-STD-003.

7. BOW AND TWIST SHALL NOT EXCEED 0.7% OF LONGEST SIDE

## IMPEDANCE TABLE

| LAYER | TRACE WIDTH (mil) | TRACE SPACING (mil) | IMPEDANCE |
|---|---|---|---|
| 1 | 10.5 | - | 50 OHM +/-10% |
| 1 | 6.5 | 5.5 | 100 OHM +/-10% |
| 3 | 5.1 | - | 50 OHM +/-10% |
| 5 | 12 | - | 50 OHM +/-10% |
| 6 | 6.9 | - | 50 OHM +/-10% |
| 6 | 5 | 7 | 100 OHM +/-10% |
| 8 | 7.75 | - | 50 OHM +/-10% |
| 8 | 5.25 | 6.75 | 100 OHM +/-10% |

## DRILL TABLE: (L1-L8)

| Symbol | Count | Hole Size | Drill Layer Pair | Plated | Hole Tolerance(mil) |
|---|---|---|---|---|---|
| L | 60 | 7.87mil (0.200mm) | L1 TOP - L8 BOTTOM | PTH | +0/-7.87 |
| B | 727 | 8.00mil (0.203mm) | L1 TOP - L8 BOTTOM | PTH | +0/-8 |
| C | 13 | 12.00mil (0.305mm) | L1 TOP - L8 BOTTOM | PTH | +0/-12 |
| D | 1522 | 12.20mil (0.310mm) | L1 TOP - L8 BOTTOM | PTH | +0/-12.2 |
| E | 8 | 39.37mil (1.000mm) | L1 TOP - L8 BOTTOM | PTH | +4/-0 |
| F | 8 | 40.00mil (1.016mm) | L1 TOP - L8 BOTTOM | PTH | +/-3 |
| G | 8 | 47.24mil (1.200mm) | L1 TOP - L8 BOTTOM | PTH | +4/-0 |
| H | 6 | 70.87mil (1.800mm) | L1 TOP - L8 BOTTOM | PTH | +/-2 |
| I | 2 | 118.11mil (3.000mm) | L1 TOP - L8 BOTTOM | NPTH | +/-2 |
| J | 4 | 118.11mil (3.000mm) | L1 TOP - L8 BOTTOM | PTH | +/-3 |
| K | 4 | 160.00mil (4.064mm) | L1 TOP - L8 BOTTOM | PTH | +/-3 |
| | 2362 Total | | | | |



5239.07mil
131.00mil
(0,0)
6168.2mil
131.00mil

## DESIGN INFORMATION

MIN. TRACK WIDTH: 4 MIL
MIN. CLEARANCE: 4 MIL
MIN. VIA PAD SIZE: 13.77 MIL
MINIMUM ANNULAR RING 0.05mm (2ML) EXTERNAL
PER IPC-D-275 CLASS 2 LEVEL C
REGISTRATION TOLERANCES: METAL +/- 2 MIL, HOLES +/- 3 MIL
HOLE SIZE TOLERANCE (UNLESS OTHERWISE SPECIFIED): +/- 3 MIL

MATERIAL:
[ ] FR-408  [ ] FR-4 High Tg  [X] OTHER  REFER STACKUP
THICKNESS: [ ] 62 MIL (1.6mm) +/-10%  [X] OTHER 55MIL +/-10%
TOLERANCE: [X] ANSI PC-6012 TYPE 3 CLASS 2
[ ] OTHER +/-
BOW & TWIST: [ ] ANSI PC-6012 TYPE 3 CLASS 2
[X] OTHER +/-  REFER NOTE 7

DRILLING:
REFERENCE: [X] AS SHOWN  [X] NC_DRILL FILES
PTH COPPER THICKNESS: [X] 20-30 um  [ ] OTHER

BOARD FINISH:
SILKSCREEN: [X] TOP  [X] BOTTOM
SILKSCREEN COLOR: [X] WHITE  [ ] OTHER
SOLDER RESIST COLOR: [ ] GREEN  [X] OTHER  RED
[X] MATTE  [ ] SEMI-GLOSS

SURFACE FINISH: [ ] IMMERSION GOLD (ENIG)  [ ] ENEPIG
[X] IMM. TIN/SILVER OR EQUIV  [ ] OTHER

ARRAY/PANEL: [ ] CUT AND TRIM PER M1 BOARD OUTLINE
[ ] N.C. ROUTE  [ ] V. SCORE

CERTIFICATION: MATERIALS AND WORKMANSHIP FOR ALL PCBS
TO MEET OR EXCEED THE REQUIREMENTS OF:
[X] ANSI IPC-A-600F CLASS -> [ ] 1  [X] 2  [ ] 3
[X] RoHS  [ ] OTHER  PER ORDER

ALL BOARDS MUST MEET OR EXCEED UL94-V0 REQUIREMENTS.
PCB MUST BEAR THE UL94V-0 UL REGISTERED MATERIAL ID NUMBER

ADDITIONAL REQUIREMENTS:
MICROSECTION: [ ] YES
BARE BOARD ELEC. TEST: [ ] NONE  [X] REQUIRED  [ ] PER ORDER
[ ] XX MIL VIAS REQUIRE NON-CONDUCTIVE FILL AND PLANARIZE
[ ] XX MIL VIAS REQUIRE CONDUCTIVE FILL AND PLANARIZE
[ ] OUTER XX MIL TRACES REQUIRE 50 OHM SINGLE-ENDED IMPEDANCE
[ ] LAYER 2 & 3 (INNER LAYERS) XX MIL WIDE, XX MIL SPACE
TRACES REQUIRE 100 OHM DIFFERENTIAL IMPEDANCE

### TEXAS INSTRUMENTS

PROJECT TITLE: MMW_CAS_RF_EVM
DESIGNED FOR: Public Release
FILE NAME: PROC054C_MMWCAS_RF_EVM.PcbDoc
ENGINEER: a0271760
LAYOUT BY: Tessolve
SCALE: 0.72
ALTIUM DESIGNER VERSION: 17.1.9.592

ALL ARTWORK VIEWED FROM TOP SIDE
LAYER NAME = FAB1
BOARD #: PROC054
REV: C
SVN REV: Not In VersionControl
GENERATED : 10/22/2018 12:41:46 PM
TEXAS INSTRUMENTS

WO#307308-7306-D
SHEET 1/2

5239.07mil

6168.21mil

131.00mil

131.00mil

(0,0)

| Symbol | Count | Hole Size | Drill Layer Pair | Plated | Hole Tolerance(mil) |
|--------|-------|-----------|------------------|--------|---------------------|
| A | 5523 | 5.90mil (0.150mm) | L1 TOP - L2 GND | PTH | +0/-5.9 |
| | 5523 Total | | | | |

DRILL TABLE: (L1-L2)

TEXAS INSTRUMENTS

PROJECT TITLE:
MMW_CAS_RF_EVM

DESIGNED FOR:
Public Release

FILE NAME:
PROC054C_MMWCAS_RF_EVM.PcbDoc

ENGINEER:
a0271760

LAYOUT BY:
Tessolve

SCALE: 0.72

ALTIUM DESIGNER VERSION:
17.1.9.592

ALL ARTWORK VIEWED FROM TOP SIDE

LAYER NAME = FAB2

BOARD #: PROC054

REV: C

SVN REV: Not In VersionControl

GENERATED    : 10/22/2018  12:41:48 PM

TEXAS INSTRUMENTS

WO#307308-7306-D

SHEET 2/2