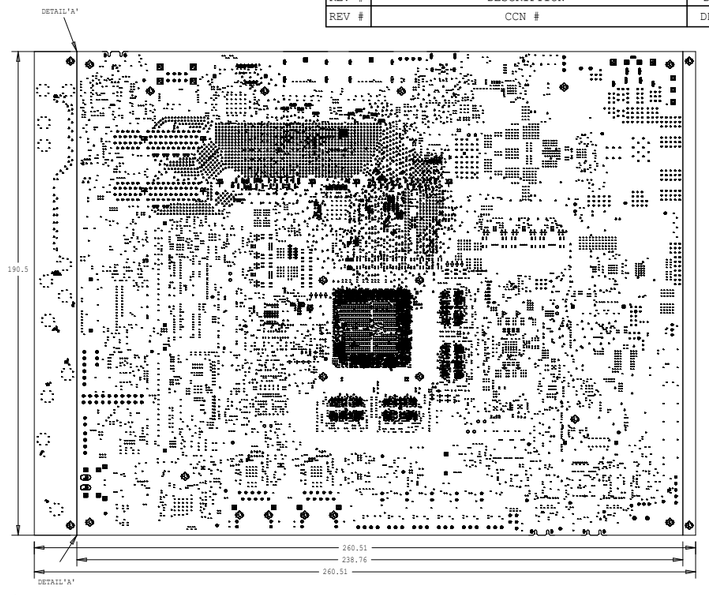
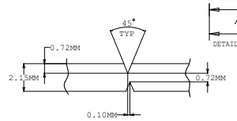
REVISIONS		
REV #	DESCRIPTION	DATE
REV #	CCN #	DDMMYY

FABRICATION NOTES:

1. FABRICATE PCB IN ACCORDANCE WITH IPC-6012C, CLASS 2; PER IPC-6011.
   PCB SHALL BE MANUFACTURED USING I-SPEED OR EQUIVALENT.
2. MATERIALS:
   1. LAMINATE AND PREPREG (B-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,
      FOR OUTER LAYERS 1.45 OZ. COPPER WEIGHT IS TO BE CONSIDERED "FINISHED".
      THE COPPER FOIL THICKNESS TOLERANCES SHALL BE AS PER IPC 6012B 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,
      ONLY 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 GREEN.
   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 [0.00047"] AND BURIED VIA'S SHALL NOT BE LESS THAN 15UM [0.0006"].
   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 0.0850" +/-10%.
13. MIN TRACE WIDTH/SPACING ON BOARD IS 0.0031"/0.0033".
14. ALL THE IMPEDANCE SHALL BE MATCHED AS PER IMPEDANCE TABLE WITH +/-10% TOLERANCE.
15. ALL UNCONNECTED VIA'S SHALL BE SUPPRESSED IN INTERNAL LAYERS.
16. V-SCORE TO BE DONE AS PER DETAIL'A'.
17. FOR STACKUP DETAILS 'PROC141_STACKUP.PDF' SHALL BE REFERRED.





DETAIL-A(V-GROOVE DETAILS)
SCALE:NTS

LAYER STACKUP

LAYER NAME		FINISHED Cu	X-SECTION	DIELECTRIC THICKNESS [INCHES]
PRIMARY SIDE SILKSCREEN				
PRIMARY SIDE SOLDERMASK				
L01	PRIMARY SIDE	1.67oz		0.0034
L02	GROUND-PLANE-1	0.5oz.		0.0038
L03	INNER-SIGNAL-1	0.5oz.		0.0038
L04	GROUND-PLANE-2	0.5oz.		0.0038
L05	INNER-SIGNAL-2	0.5oz.		0.005
L06	GROUND-PLANE-3	1oz.		0.0046
L07	INNER-SIGNAL-3	1oz.		0.005
L08	POWER-PLANE-1	1oz.		0.0052
L09	POWER-PLANE-2	1oz.		0.005
L10	INNER-SIGNAL-4	1oz.		0.0046
L11	GROUND-PLANE-4	1oz.		0.005
L12	INNER-SIGNAL-5	0.5oz.		0.0038
L13	GROUND-PLANE-5	0.5oz.		0.0038
L14	INNER-SIGNAL-6	0.5oz.		0.0038
L15	GROUND-PLANE-6	0.5oz.		0.0038
L16	SECONDARY SIDE	1.67oz		0.0034
SECONDARY SIDE SOLDERMASK				
SECONDARY SIDE SILKSCREEN				

IMPEDANCE SPECIFICATIONS

SL#	TYPE	LAYER	TRACEWIDTH(Mils)	SPACING(Mils)	IMPEDANCE(Ohms)	REF LAYER
01	EDGE COUPLED MICROSTRIP	L1/L16	3.7	7.3	100	L2/L15
02	EDGE COUPLED MICROSTRIP	L1	5.2	8	120	L3
03	EDGE COUPLED MICROSTRIP	L1/L16	4.5	6	90	L2/L15
04	EDGE COUPLED MICROSTRIP	L1/L16	5.2	5.8	85	L2/L15
05	MICROSTRIP	L1/L16	5	-	50	L2/L13
06	EDGE COUPLED STRIPLINE	L3,L14	3.1	6.5	100	L2/L4,L13/L15
07	EDGE COUPLED STRIPLINE	L5,L12	3.5	5	100	L4/L6,L11/L13
08	EDGE COUPLED STRIPLINE	L10	3.5	8.3	100	L9/L11
09	EDGE COUPLED STRIPLINE	L3,L14	3.6	5	90	L2/L4,L13/L15
10	EDGE COUPLED STRIPLINE	L5,L12	4.25	5	90	L4/L6,L11/L13
11	EDGE COUPLED STRIPLINE	L7	5	7	90	L6/L8
12	EDGE COUPLED STRIPLINE	L3,L14	4.1	5	85	L2/L4,L13/L15
13	EDGE COUPLED STRIPLINE	L5,L12	4.75	5	85	L4/L6,L11/L13
14	EDGE COUPLED STRIPLINE	L3	5.1	6.9	80	L2/L4
15	EDGE COUPLED STRIPLINE	L5	5.5	5.5	80	L4/L6
16	EDGE COUPLED STRIPLINE	L14	7	6	66	L13/L15
17	STRIPLINE	L3,L14	3.5	-	50	L2/L4,L13/L15
18	STRIPLINE	L5,L12	4	-	50	L4/L6,L11/L13
19	STRIPLINE	L7,L10	4.3	-	50	L6/L8,L9/L11
20	STRIPLINE	L3	5.5	-	40	L2/L4
21	STRIPLINE	L5	6	-	40	L4/L6
22	STRIPLINE	L3	7.5	-	33	L2/L4
23	EDGE COUPLED MICROSTRIP	L1/L16	5	15.5	100 DSI	L2/L15
24	EDGE COUPLED STRIPLINE	L3,L14	3.3	9.7	100 DSI	L2/L4,L13/L15
25	EDGE COUPLED STRIPLINE	L5,L12	4	10	100 DSI	L4/L6,L11/L13
26	EDGE COUPLED STRIPLINE	L3	3	8	132	L2/L4
27	STRIPLINE	L3	3	-	66	L2/L4

DRILL CHART: L2-GND1 to L3-SIGNAL1

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
•	5.0	+2.0/-2.0	PLATED	1288

DRILL CHART: L3-SIGNAL1 to L4-GND2

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
•	5.0	+2.0/-2.0	PLATED	606

DRILL CHART: L4-GND2 to L5-SIGNAL2

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
•	5.0	+2.0/-2.0	PLATED	342

DRILL CHART: L4-GND2 to L13-GND5

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
·	8.0	+3.0/-3.0	PLATED	327

DRILL CHART: L12-SIGNAL5 to L13-GND5

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
•	5.0	+2.0/-2.0	PLATED	714

DRILL CHART: L13-GND5 to L14-SIGNAL6

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
•	5.0	+2.0/-2.0	PLATED	1116

DRILL CHART: L14-SIGNAL6 to L15-GND6

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
•	5.0	+2.0/-2.0	PLATED	1141

DRILL CHART: L15-GND6 to BOTTOM

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
•	5.0	+2.0/-2.0	PLATED	630

DRILL CHART: TOP to BOTTOM

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
•	8.0	+3.0/-3.0	PLATED	6130
•	8.0	+3.0/-3.0	PLATED	1
•	10.0	+3.0/-3.0	PLATED	882
•	20.0	+3.0/-3.0	PLATED	276
•	28.0	+3.0/-3.0	PLATED	128
•	32.0	+2.0/-2.0	PLATED	4
•	32.0	+3.0/-3.0	PLATED	3
•	36.0	+3.0/-3.0	PLATED	31
•	40.0	+2.0/-2.0	PLATED	12
•	40.0	+3.0/-3.0	PLATED	77
•	44.0	+2.0/-2.0	PLATED	33
•	46.0	+3.0/-3.0	PLATED	6
•	48.0	+3.0/-3.0	PLATED	2
•	56.0	+3.0/-3.0	PLATED	2
▪	60.0	+3.0/-3.0	PLATED	6
▪	66.0	+3.0/-3.0	PLATED	6
▪	68.0	+3.0/-3.0	PLATED	3
▪	86.0	+3.0/-3.0	PLATED	2
▪	90.0	+3.0/-3.0	PLATED	4
▪	34.0	+1.0/-1.0	NON-PLATED	2
▪	34.0	+2.0/-2.0	NON-PLATED	4
▪	40.0	+1.97/-1.97	NON-PLATED	2
▪	40.0	+3.0/-3.0	NON-PLATED	11
▪	52.0	+3.0/-3.0	NON-PLATED	1
▪	58.0	+3.0/-3.0	NON-PLATED	2
▪	92.0	+2.0/-2.0	NON-PLATED	4
▪	108.0	+3.0/-3.0	NON-PLATED	4
▪	126.0	+3.0/-3.0	NON-PLATED	22
▪	52.0x24.0	+3.0/-3.0	PLATED	6
▪	62.0x24.0	+2.0/-2.0	PLATED	2
▪	70.0x26.0	+2.0/-2.0	PLATED	4
▪	82.0x24.0	+2.0/-2.0	PLATED	2
▪	86.0x24.0	+3.0/-3.0	PLATED	1
▪	86.0x24.0	+3.0/-3.0	PLATED	2
▪	90.0x26.0	+2.0/-2.0	PLATED	4
▪	98.0x24.0	+3.0/-3.0	PLATED	4
▪	158.0x78.0	+3.0/-3.0	NON-PLATED	2

SIGNATURES		DATE
LAYOUT BY	GR	221222
REVIEWED BY	ZA	221222
APPROVED BY	AMB	221222

TEXAS INSTRUMENTS

PROC141E4

TDA4AP, TDA4VP, TDA4AH, & TDA4VH
EVALUATION BOARD

SIZE D | Rev E4

SCALE: NONE | SHEET 1 OF 23