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,
      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 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 200M [0.00079"], INCASE OF LASER
      VIA'S, BLIND VIA'S SHALL NOT BE LESS THAN 120M [0.00047"] AND BURIED VIA'S SHALL NOT BE LESS THAN 150M [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 0.085" +/-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 L01 TO L11.
18. BACKDRILLING TO BE DONE FROM L16 TO L11.
19. BACKDRILLING TO BE DONE FROM L16 TO L04.
20. FOR DETAILED STACKUP, PROC118_STACKUP.PDF SHALL BE REFERRED

BACKDRILL: TOP to L10-SIGNAL

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
-	7.98	+3.0/-0.0	PLATED	12
START	TARGET	MUST CUT	MUST NOT CUT	
	L11	L10	L12	

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

BACKDRILL: BOTTOM to L11-GND4

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
-	7.99	+3.0/-3.0	PLATED	252
START	TARGET	MUST CUT	MUST NOT CUT	
L16	L11	L12	L10	

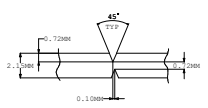
NOTES:
- DRILL SIZES LISTED IN LEGEND ARE CONSIDERED FINISHED.
- VENDOR IS REQUIRED TO SELECT TOOLING FOR OVERDRILLING.
- LEGEND DOES NOT SPECIFY DEPTH INTO ADJACENT DIELECTRIC LAYER.

BACKDRILL: BOTTOM to L4-GND2

ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
-	7.96	+3.0/-3.0	PLATED	32
START	TARGET	MUST CUT	MUST NOT CUT	
L16	L4	L5	L3	

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

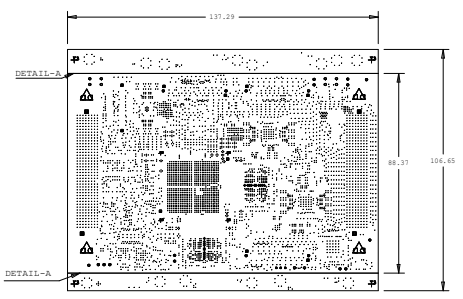


DETAIL-A(V-GROOVE DETAILS)
SCALE:NTS

DRILL CHART: TOP to BOTTOM

ALL UNITS ARE IN MILS

	FIGURE	SIZE	TOLERANCE	PLATED	QTY
19	·	7.96	+3.0/-3.0	PLATED	32
17	·	7.98	+3.0/-0.0	PLATED	12
18	·	7.99	+3.0/-3.0	PLATED	252
	·	8.0	+3.0/-3.0	PLATED	3043
	·	10.0	+3.0/-3.0	PLATED	1710
	•	36.0	+3.0/-3.0	PLATED	3
	•	40.0	+0.0/-0.0	PLATED	19
	•	40.0	+2.0/-2.0	PLATED	6
	•	40.0	+3.0/-3.0	PLATED	2
	•	44.0	+2.0/-2.0	PLATED	3
	■	34.0	+1.0/-1.0	NON-PLATED	2
	■	40.0	+3.0/-3.0	NON-PLATED	2
	■	42.0	+2.0/-2.0	NON-PLATED	6
	■	58.0	+3.0/-3.0	NON-PLATED	4
	✦	66.0	+3.0/-3.0	NON-PLATED	4
	✦	108.0	+3.0/-3.0	NON-PLATED	4
	⧋	250.0	+3.0/-3.0	NON-PLATED	4



LAYER STACKUP

LAYER NAME		FINISHED Cu	X-SECTION	DIELECTRIC THICKNESS [INCHES]
PRIMARY SIDE SILKSCREEN				
PRIMARY SIDE SOLDERMASK				
L01	PRIMARY SIDE	1.31oz		0.00440
L02	GROUND-PLANE-1	1oz.		0.00400
L03	INNER-SIGNAL-1	1oz.		0.00420
L04	GROUND-PLANE-2	1oz.		0.00400
L05	INNER-SIGNAL-2	1oz.		0.00420
L06	GROUND-PLANE-3	1oz.		0.00400
L07	INNER-SIGNAL-3	1oz.		0.00420
L08	POWER-PLANE-1	1oz.		0.00400
L09	POWER-PLANE-2	1oz.		0.00420
L10	INNER-SIGNAL-4	1oz.		0.00400
L11	GROUND-PLANE-4	1oz.		0.00420
L12	INNER-SIGNAL-5	1oz.		0.00400
L13	GROUND-PLANE-5	1oz.		0.00420
L14	INNER-SIGNAL-6	1oz.		0.00400
L15	GROUND-PLANE-6	1oz.		0.00440
L16	SECONDARY SIDE	1.31oz		
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	4.7	5.6	100	L2/L15
02	EDGE COUPLED MICROSTRIP	L1/L16	6.3	5.7	90	L2/L15
03	EDGE COUPLED MICROSTRIP	L16	7.4	5.8	85	L15
04	EDGE COUPLED MICROSTRIP	L1	9	5	80	L2
05	EDGE COUPLED MICROSTRIP	L1	4	5.3	120	L3
06	MICROSTRIP	L1	18	-	33	L2
07	MICROSTRIP	L1	13	-	40	L2
08	MICROSTRIP	L1/L16	9	-	50	L2/L15
09	EDGE COUPLED STRIPLINE	L3,L5,L7, L10,L12,L14	3	5	100	L2/L4,L4/L6,L6/L8, L9/L11,L11/L13,L13/L15
10.	EDGE COUPLED STRIPLINE	L10,L12,L14	3.8	5	90	L9/L11,L11/L13,L13/L15
11.	EDGE COUPLED STRIPLINE	L12,L14	4.3	5	85	L11/L13,L13/L15
12.	EDGE COUPLED STRIPLINE	L3,L5	5	5	80	L2/L4,L4/L6
13.	EDGE COUPLED STRIPLINE	L7	7.3	5.4	66	L6/L8
14.	EDGE COUPLED STRIPLINE	L3	3	15	132	L2/L4
15.	STRIPLINE	L3,L5,L7, L10,L12,L14	3.8	-	50	L2/L4,L4/L6,L6/L8, L9/L11,L11/L13,L13/L15
16.	STRIPLINE	L7	8	-	33	L6/L8
17.	STRIPLINE	L3	3	-	66	L2/L4
18.	STRIPLINE	L3,L5,L10	6	-	40	L2/L4,L4/L6,L9/L11

SIGNATURES		DATE
LAYOUT BY	UD	171221
REVIEWED BY	ZA	171221
APPROVED BY	AMB	171221

TEXAS INSTRUMENTS

PROC118E2

TDA4VE, TDA4VL & TDA4AL SOM

SIZE D | Rev E2

SCALE: NONE

SHEET 1 OF 23