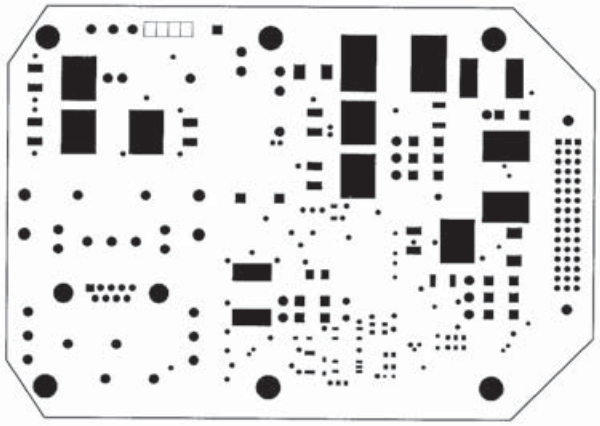


VERIFY PLOT

DATE 6 APR 8 2005

Layer Name _____ Top Solder Mask

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
A		X3 REL AS A	Jm	HF	4/04/05	

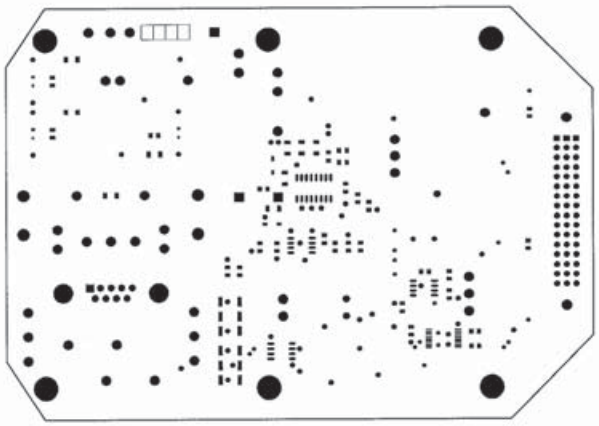
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: ARTWORK
POWER SUPPLY
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
JJuneili	05/21/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 488-4023	B	349.1337-AWK	A
CHECKED HF 08APR'05	DATE				
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE

SHEET 7 OF 12



VERIFY PLOT

DATE APR 08 2005

Layer Name _____ Bottom Solder Mask

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
A		X3 REL. AS A	JM	HE	4/04/05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

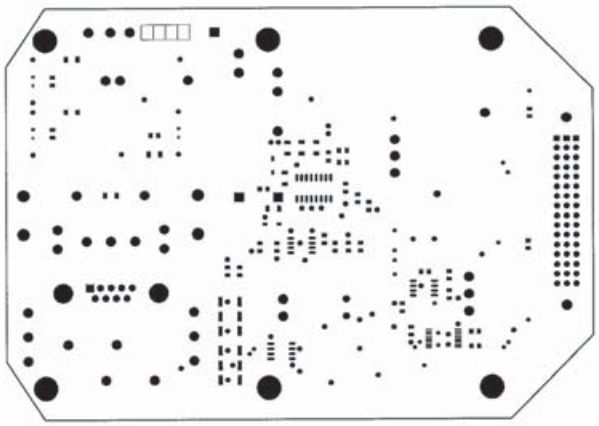
DRAWN	DATE	DESIGN BY:
JWarnell	09/21/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823
CHECKED	DATE	
HE	08APR'05	
PROJ ENGR	DATE	
FFH	8/APR/05	

UL	EX	DO NOT SCALE DRAWING	SCALE	SHEET 8 OF 12

TITLE
ARTWORK
POWER SUPPLY
SB2 SYS6

DWG SIZE	PART NUMBER	REV
B	349.1337-AWK	A

\\sb2sy6^1\psu\docs\psu_revA.PCB



VERIFY PLOT

DATE APR 08 2005

Layer Name _____ Bottom Solder Mask

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
A		X3 REL. AS A	JM	HE	4/04/05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

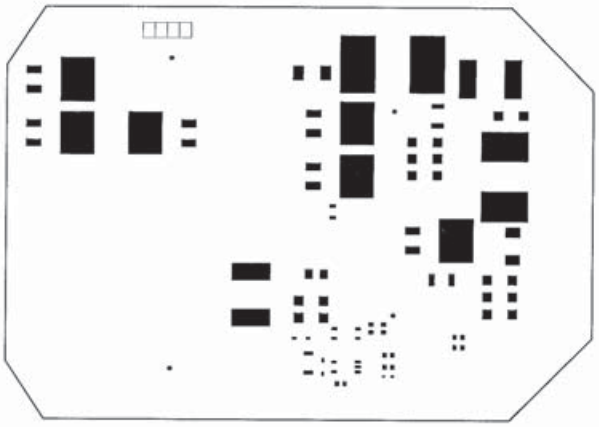
DRAWN	DATE	DESIGN BY:
JWarnell	09/21/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823
CHECKED	DATE	
HE	08APR'05	
PROJ ENGR	DATE	
FFH	8/APR/05	

UL	EX	DO NOT SCALE DRAWING	SCALE	SHEET 8 OF 12

TITLE
ARTWORK
POWER SUPPLY
SB2 SYS6

DWG SIZE	PART NUMBER	REV
B	349.1337-AWK	A

\\sb2sy6^1\psu\docs\psu_revA.PCB



VERIFY PLOT
DATE APR 0 8 2005

Layer Name _____ Top Paste Mask

Stacking Chart _____

REV	CON	DESCRIPTION	BY	CHK	DATE	APVD
A		X2 REL. AS A	JM	RF	4/04/05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

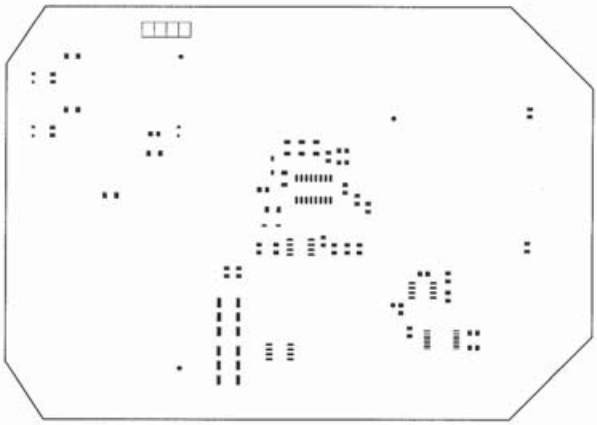
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: ARTWORK
POWER SUPPLY
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
Jtarrell	09/25/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1337-AWK	A
CHECKED	DATE				
HF	08APR05				
PROJ ENGR	DATE	UL	CX	DO NOT SCALE DRAWING	SCALE
[illegible]	4/8/2005				

SHEET 9 OF 12

n\sb2sy6~1\psu\docs\psu_revaPCB



VERIFY PLOT
DATE APR 0 8 2005

Layer Name _____ Bottom Paste Mask

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
A		X3 REL. AS A	JM	HF	4/04/05	PM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

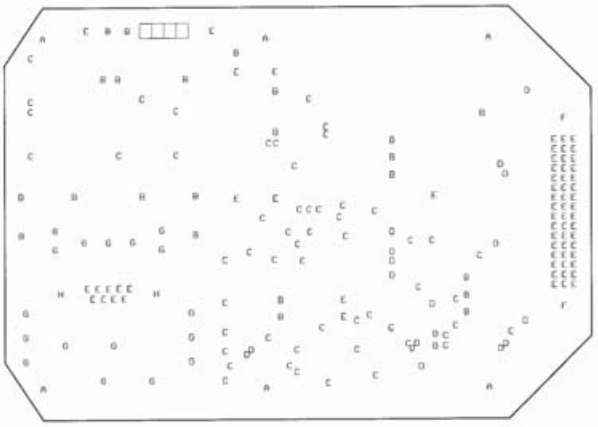
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
JVanelli	08/21/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4822	B	349.1337-AWK	A
CHECKED HF 08APR'05	DATE				
PROJ ENGR PM 3CAN05	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE

TITLE
ARTWORK
POWER SUPPLY
SB2 SYS6

SHEET 10 OF 12

n\sb2sy6^1\psu\docs\psu_revA.PCB



VERIFY PLOT
DATE APR 0 8 2005

130mil	3.302mm
120mil	3.048mm
110mil	2.794mm
60mil	1.524mm
50mil	1.27mm
42mil	1.0668mm
28mil	0.7112mm
20mil	0.508mm
Total	

Layer Name ..... Drill Drawing for Through Hole

Stacking Chart .....

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
A		X3 REL. AS A	JM	HF	4/04/05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: ARTWORK
POWER SUPPLY
SB2 SYS6

DRAWN	DATE	DESIGN BY:	SWB SIZE	PART NUMBER	REV
JWarnell	09/21/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 488-4823	B	349.1337-AWK	A
CHECKED HF 08APR05	DATE				
PROJ ENGR HF 8 Apr 2005	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE

SHEET 11 OF 12

USING ARTWORK 349.1337-AWK REVISION A
LAYERS WITH SOLDERMASK AND SILKSCREEN
ER LAYERS.

OP CIRCUIT) AND LAYER # 4 (BOTTOM CIRCUIT)
E COPPER ON FR-4 SUBSTRATE OF THICKNESS
REATER.

TERNAL GROUND) AND LAYER # 3 (INTERNAL CIRCUIT)
E COPPER ON FR-4 MATERIAL SIZED TO MAKE
BOARD 0.061 INCHES NOMINAL.

CE ON LAYER # 2 NOT TO EXCEED 30 MILS.

ED AS FOLLOWS:

1 oz copper (1.4 mils plus plating) ----> Top Circuit Layer
FR-4 plus prepreg (12 mils minimum)
2 oz copper (2.8 mils) ----> Internal Ground Plane
FR-4 plus prepreg
2 oz copper (2.8 mils) ----> Internal Circuit Layer
FR-4 plus prepreg (12 mils minimum)
1 oz copper (1.4 mils plus plating) ----> Bottom Circuit Layer

SS TOLERANCE TO BE 0.010 INCH/INCH.

UCTOR WIDTH TO BE 0.008 INCH.

LE LIQUID SOLDER MASK OVER BARE COPPER (SMOBC)
OTTOM LAYERS.

TO BE HOT AIR LEVELED.

TO BE PLATED THROUGH WITH MINIMUM 0.001 INCHES COPPER.

ZES APPLY AFTER PLATING, WITH TOLERANCE +/- 0.002 INCHES.
NCES APPLY TO CLEARANCE HOLE FOR UIC WHICH MAY BE MILLED.

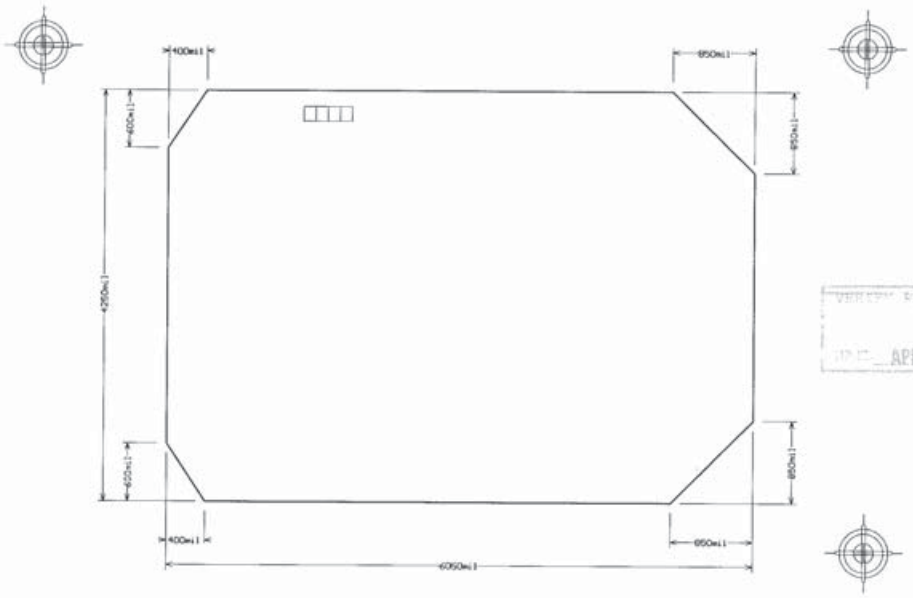
THROUGH HOLES MARKED WITH ARROW (<=>, TWO PLACES).
G HOLES.

H SIDES WITH NON-CONDUCTIVE WHITE INK.

E PERMANENTLY MARKED ON SOLDER SIDE WITH
TTER SPECIFIED ON THIS DRAWING AND ON THE PURCHASE
COPPER IN AREA INDICATED BY [ ].
LISTED UL SUPPLIER MARK AS RECOGNIZED FOR UL LISTING.
DATE CODE TO SHOW YEAR AND WEEK OF MANUFACTURE.

115
85
190

n\sb2sy6~1\psu\docs\psu_revA.PCB



Layer Name _____ Mechanical Layer 1

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
A		X3 REL. AS A	HF		4/04/05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

DRAWN	DATE	DESIGN BY
JVanelli	08/25/02	ANALYSIS & DESIGN GROUP
CHECKED	DATE	P.O. BOX 34430
HF	04/04/05	HOUSTON, TEXAS 77234
PROJ ENGR	DATE	(281) 481-4423
HF	04/04/05	

DWG SIZE: B

TITLE: ARTWORK POWER SUPPLY SB2 SYS6

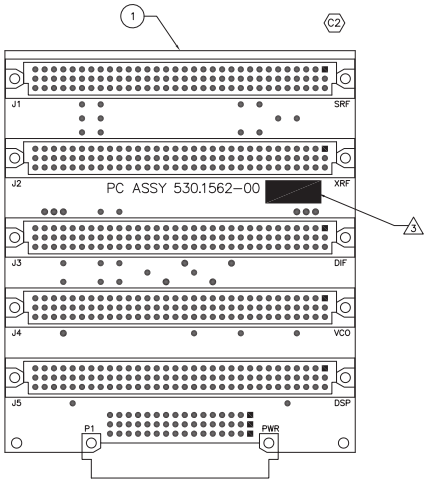
PART NUMBER: 349.1337-AWK

REV: A

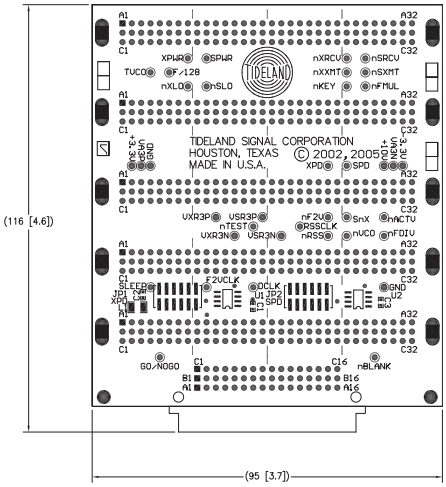
UL | CX | DO NOT SCALE DRAWING | SCALE | SHEET 12 OF 12

NOTES: UNLESS OTHERWISE SPECIFIED

1. FOR SCHEMATIC SEE 530.1562-SCH.
2. ASSEMBLE IN STATIC FREE AREA.
3. MARK ASSEMBLY REVISION LETTER IN AREA SHOWN.
4. MAX. COMPONENT HEIGHT TOP-12 [.5], BOTTOM-5 [.2].
5. MAX. LEAD PROTRUSION: 2.3 [.09].
6. REMOVED.
7. BOARD ASSY SHALL MEET REQUIREMENTS OF IPC-A-610 CLASS 3.



TOP



BOTTOM

APPROVED FOR:
_____ONLY
___INT. ____DATE

REV	ECN	ZONE	DESCRIPTION	BY	CHK	DATE	APVD
C	6240	D5	2) DELETED NOTE 6, 5X 1) REMOVED NOTE 6	HA	FS	07SEP12	PFM
B	3743		ADDED TIME DELAY CIRCUIT	HA	HF	06MAY05	PFM
A	--		X2 RELEASED AS REV. A	HA	HF	05MAY05	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED.

DWG SIZE	NEXT ASSEMBLY	USED ON

NOTICE
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORP. WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE, OR USED FOR ANY PURPOSE OTHER THAN MAINTENANCE, REPAIR, OR INSTALLATION AND IT SHALL BE RETURNED ON DEMAND.

UNLESS OTHERWISE SPECIFIED
1. TOLERANCE MILLIMETERS: X = ±0.8, .X = ±0.4, .XX = ±0.13; TOLERANCE INCHES EQUIV: .X = ±.03 0.762, .XX = ±.015 0.381, .XXX = ±.005 0.127
2. ANGULAR ± 0° 30'
3. ALL DIMENSIONS ARE IN MILLIMETERS OR MILLIMETER [INCHES]
4. TOLERANCES ARE NON-ACCUMULATIVE.
5. MACHINED INSIDE CORNERS 0.5R MAX.
6. INTERPRET DWG PER ASME Y14.5-2009.
SURFACE FINISH 125; REMOVE BURRS AND SHARP EDGES

MATERIAL
FINISH

DRAWN	DATE	ENGRG MGR	DATE
HA	14APR05	PFM	05MAY05
CHECKED	DATE	MFG MGR	DATE
HF	05MAY05	PCTO	05MAY05
PROJ ENGR	DATE	QA MGR	DATE
PFM	05MAY05	DRW	05MAY05

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: PC ASSY, BACKPLANE, SEABEACON 2 SYSTEM 6

UL	EX	DWG SIZE	PART NUMBER	REV
		D	530.1562-DWG	C

DO NOT SCALE DRAWING | SCALE 2:1 | SHEET 1 OF 1

5301562C.DWG 06SEP12 14:27

TIDELAND SIGNAL CORPORATION

APPROVED FOR:
xxxxxxx ONLY
xxx INT. xxxxxx DATE

Seabeacon 2 System 6 – BACKPLANE

5301582-SCH

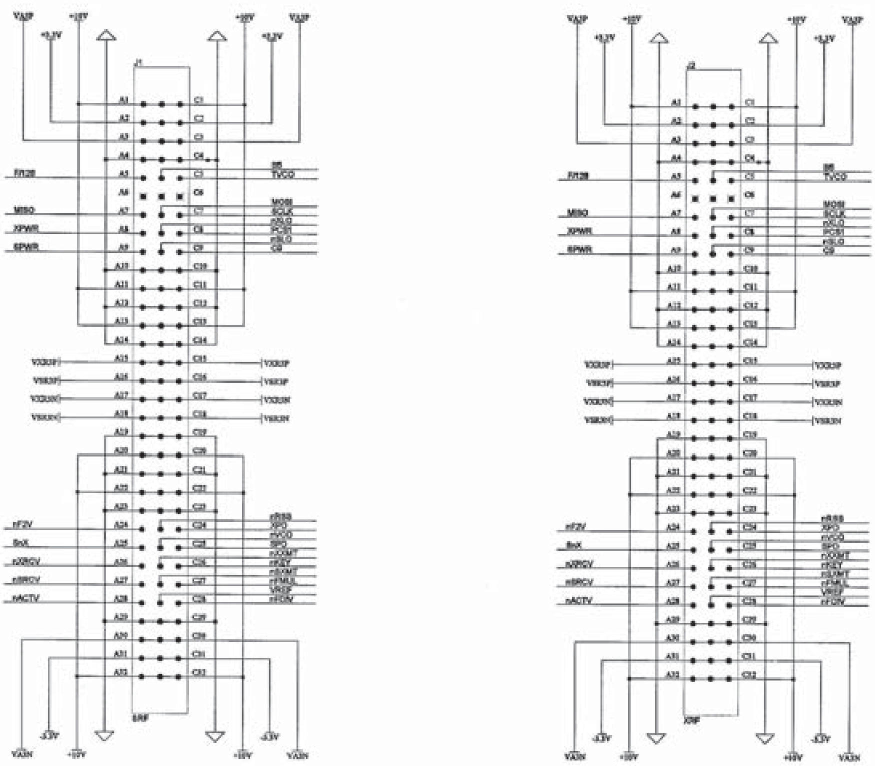
5-May-2005

Tideland Signal Corp.
4310 Directors Row
Houston, Texas 77092
713-681-6101

REV: B

1 OF 4

ORIGINAL



BACKPLANE– SRF & XRF

5301562-SCH

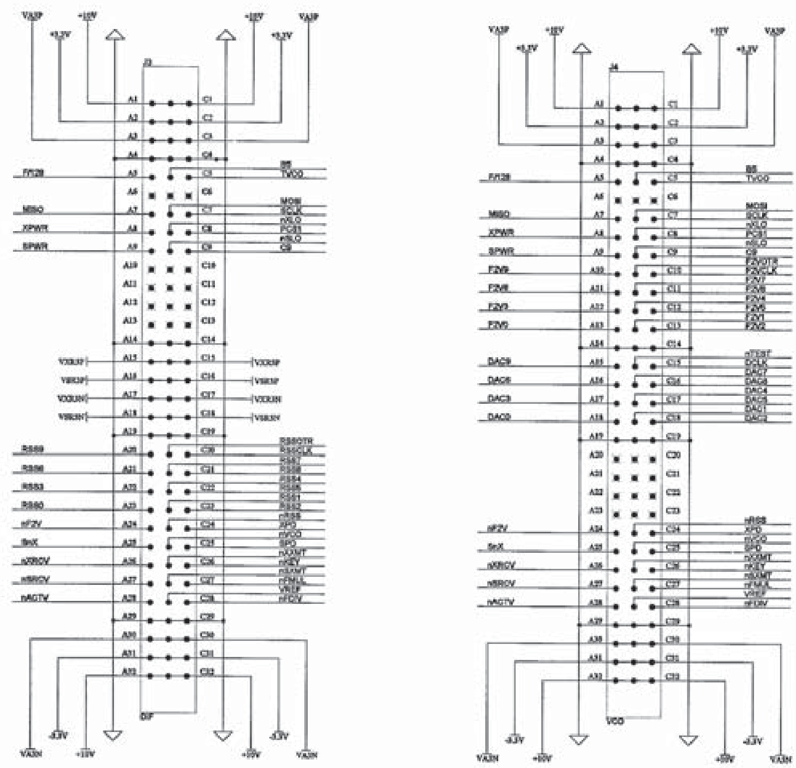
5-May-2005

Tideland Signal Corp
4310 Directors Row
Houston, Texas 77092
713-681-6101

REV: B

2 OF 4

ORIGINAL



BACKPLANE – DIF & VCO

5301563-SCH

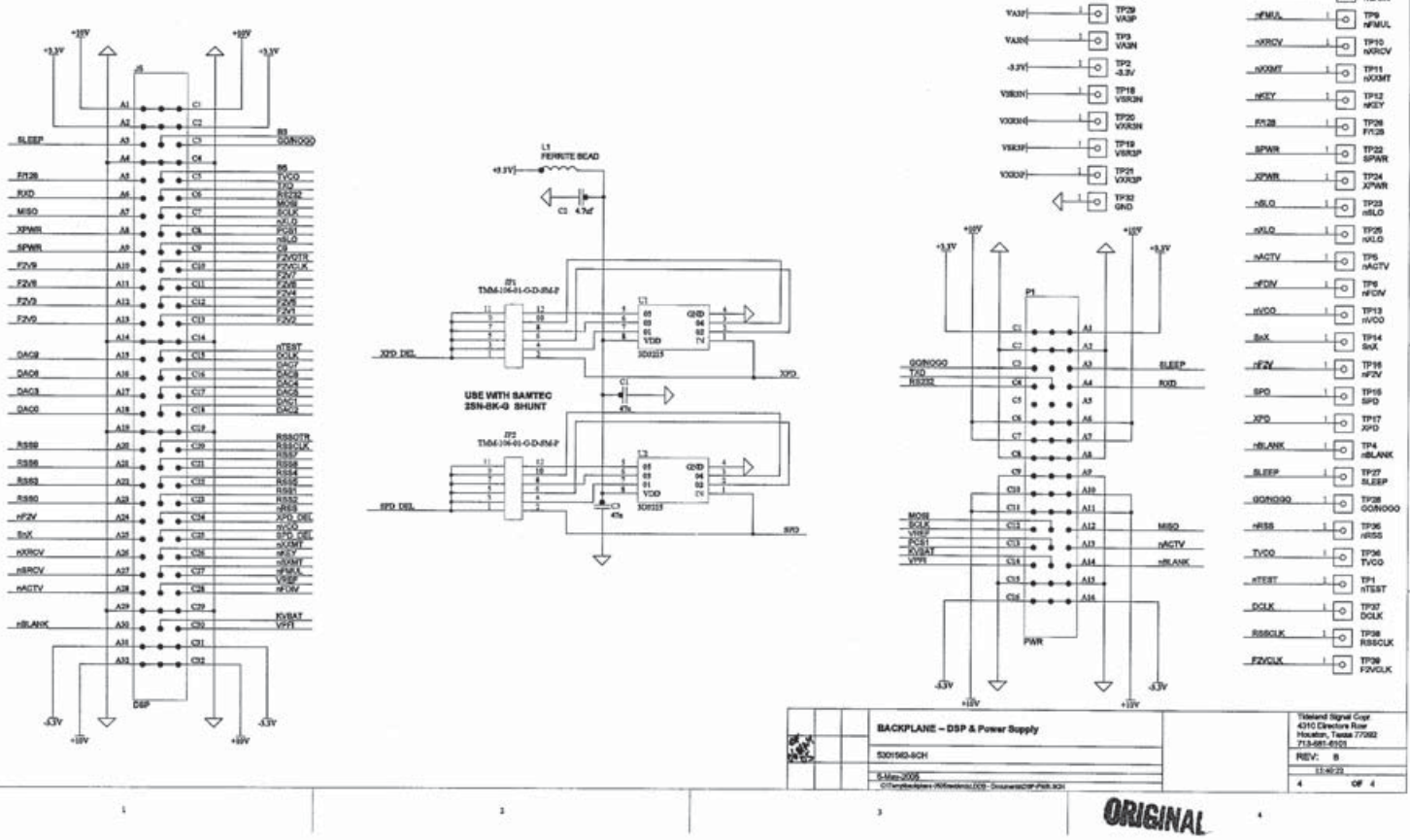
8-May-2005

Tideland Signal Corp
4310 Directors Row
Houston, Texas 77092
713-681-6101

REV: B

3 OF 4

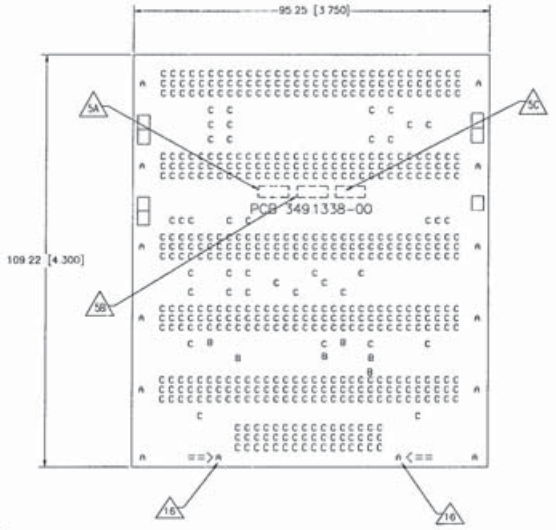
ORIGINAL


BACKPLANE – DSP & Power Supply
5301560-SCH
5-May-2005
Wideband Signal Corp
4310 Directors Row
Houston, Texas 77092
713-681-6101
REV: B
4 OF 4
USE WITH SAMTEC
2SN-BK-G SHUNT
DSP
PWR
ORIGINAL

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE BASIC
2. THIS MULTI-LAYER BOARD SHALL MEET THE REQUIREMENTS OF IPC-6011 & IPC-6012A, TYPE 3, CLASS 3.
3. MANUFACTURE USING ARTWORK 349.1338-AWK REV B, LAYER 1 THRU LAYER 7, TOP & BOTTOM SOLDERMASK AND TOP & BOTTOM SILKSCREEN. FOR MANUFACTURING PURPOSES THIS ARTWORK SHALL NOT BE REPRODUCED TO OR FROM A REPRODUCIBLE MEDIA THAT IS LESS THAN A STABLE BASE MATERIAL.
4. COPPER CLAD LAMINATE AND PREPREG MATERIALS SHALL CONFORM TO TYPE GF PER MIL-S-13949. SPECIFIC MATERIAL REQUIREMENTS, THICKNESS AND LAYER ARRANGEMENTS SHALL BE IN ACCORDANCE WITH FIGURE 1.
5. BOARD MUST BE PERMANENTLY MARKED, ON COMPONENT SIDE, WITH:
   A. REVISION LETTER SPECIFIED ON THIS DRAWING AND ON THE PURCHASE ORDER IN COPPER IN AREA INDICATED BY [ ]
   B. CURRENTLY LISTED UL SUPPLIER MARK AS RECOGNIZED FOR UL LISTING [ ]
   C. A FOUR DIGIT DATE CODE YEAR AND WEEK OF MANUFACTURE [ ]
6. MINIMUM CONDUCTOR WIDTH, MINIMUM SPACING BETWEEN CONDUCTORS, & MINIMUM ANNULAR RING PER IPC-6011 & 6012A, TYPE 3, CLASS 3
7. ALL PLATED THRU HOLES SHALL HAVE A MINIMUM OF 0.00008 [000003] - 0.00020 [00008] GOLD
8. ALL HOLE SIZES ARE AFTER PLATING, WITH TOLERANCE ±0.05 [± .002]
9. SOLDERMASK : GREEN
10. SILKSCREENS SHALL BE APPLIED TO BOTH SIDES OF BOARD PER MASTER PATTERN SILKSCREENS USING NON-CONDUCTIVE WHITE EPOXY INK
11. BOARD MUST BE 100% BARE BOARD TESTED POINT TO POINT ON MANIA SYSTEM OR EQUIVALENT. TEST CERTIFICATION MUST BE PROVIDED. TEST CERTIFICATION MUST INCLUDE 40VDC TEST VOLTAGE, 50 OHM OPEN SENSITIVITY, 2.5 MEGOHM SHORT AND 300mA MAX TEST CURRENT
12. BOARD FLATNESS TOLERANCE TO BE 0.25 [.010] 25.4 [1.00]
13. EDGE CLEARANCE FOR LAYER 2 (GND) NOT TO EXCEED 0.76 [.030]
14. USE PCB LAMINATE WITH A WATER ABSORPTION LESS THAN OR EQUAL TO 0.13%
15. TOP AND BOTTOM LAYERS TO BE FINISH BY GOLD IMMERSION PROCESS 0.00008 [.000003] - 0.0020 [.000008] GOLD OVER NICKEL (ENIG) PER IPC-4552

16. DO NOT PLATE THROUGH HOLES MARKED WITH ARROW (==> TWO PLACES)



VIEWED FROM COMPONENT SIDE

HOLE SCHEDULE			
DIAMETER	QTY	SYM	PLTD
ø2.79 [ø.110]	12	A	YES
ø0.61 [ø.024]	6	B	YES
ø1.07 [ø.042]	566	C	YES
ø2.79 [ø.110]	2	A	NO

16

LAYERS STACKED AS FOLLOWS:

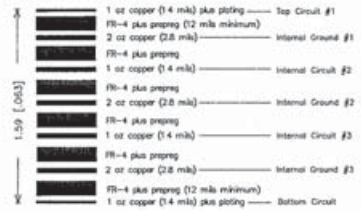


FIGURE 1 4
SCALE: NONE

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
D	4618	UPDATED NOTES	HA	HF	07FEB07	PFM
C	3743	REVISED FIG 1 & NOTE 3	HA	HF	12JUL05	KN
B	3743	ADDED TIME DELAY CIRCUIT	HA	HF	06MAY05	PFM
A	---	X2 RELEASED AS REV. A	HA	HF	03MAY05	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED.

DWG SIZE: NEXT ASSEMBLY | USED ON

NOTICE
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORP. WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE, OR USED FOR ANY PURPOSE OTHER THAN MAINTENANCE, REPAIR, OR INSTALLATION AND IT SHALL BE RETURNED ON DEMAND.

UNLESS OTHERWISE SPECIFIED
1. TOLERANCES: MILLIMETERS .XX = ±0.25, .X = ±0.4, .XX = ±0.13; INCHES .XXX = ±0.005, .XX = ±0.010, .X = ±0.015
2. ANGULAR ± 0° 30'
3. ALL DIMENSIONS ARE IN MILLIMETERS OR MILLIMETERS [INCHES]
4. TOLERANCES ARE NON-ACCUMULATIVE.
5. MACHINED INSIDE CORNERS 0.38 MAX.
6. INTERPRET DWG PER ANSI Y14.5M-1982.

SURFACE TEXTURE 125 — REMOVE BURRS AND SHARP EDGES

MATERIAL

FINISH

	NAME	DATE
DRAWN	I NAPPIER	07JAN05
CHECKED		
ENGR MGR		
QA MGR	PCTD	07JAN05
PROJ ENGR	PFM	07JAN05
QA MGR	SHW	07JAN05

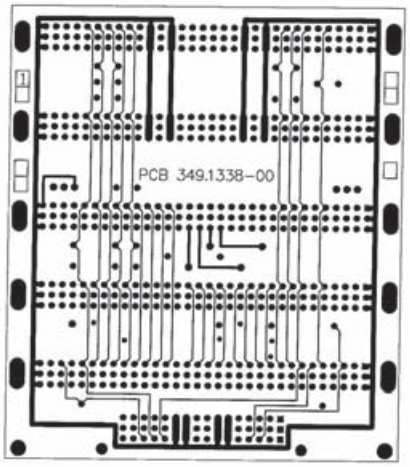
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: FAB, BACKPLANE
SEABEACON 2 SYSTEM 6

SIZE	DWG NO	REV
D	349.1338-00	D

DO NOT SCALE DRAWING | SCALE 1:2 | SHEET 1 OF 1

3491338D.DWG 07FEB07 10:42



Layer Name _____ TOP LAYER --- SIGNAL LAYER #1

Stacking Chart _____ 1

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	HF	4-13-05	VP
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

VERIFY PLOT
DATE MAY 05 2005

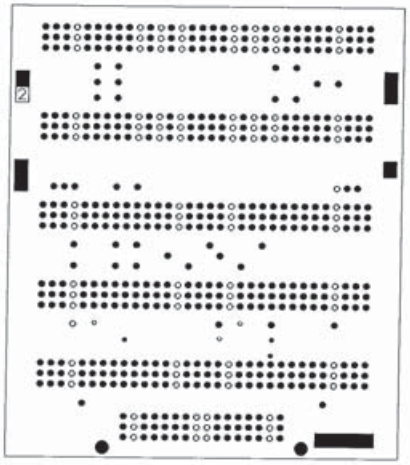
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: ARTWORK BACKPLANE SBCN-2 SYS-6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
Juanelli	09/27/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 491-4823	B	349.1338-AWK	B
CHECKED HF 06MAY'05	DATE				
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE

SHEET 1 OF 15

13-Apr-2005
10:05:14
d:\tideland\tide_bkp\50408_~1\mbd_revb.PCB



VERIFY PLOT

DATE MAY 05 2005

Layer Name GND PLANE #1

Stacking Chart 1 2

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	HF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
BACKPLANE
SBCN-2 SYS-6

DRAWN DATE: JUanelli 09/27/02
CHECKED DATE: HF 06MAY'05
DESIGN BY: ANALYSIS & DESIGN GROUP, P.O. BOX 34430, HOUSTON, TEXAS 77234, (281) 481-4823
PROJ ENGR DATE: PGm 06 MAY 05
UL
CX
DO NOT SCALE DRAWING
SCALE
DWG SIZE: B
PART NUMBER: 349.1338-AWK
REV: B
SHEET 2 OF 15

13-Apr-2005
10:05:28
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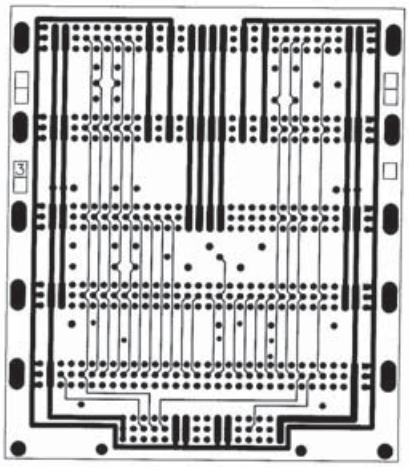

VERIFY PLOT

DATE MAY 0 5 2005

Layer Name _____ SIGNAL LAYER #2

Stacking Chart _____ 3

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	JP43	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	HF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

13-Apr-2005
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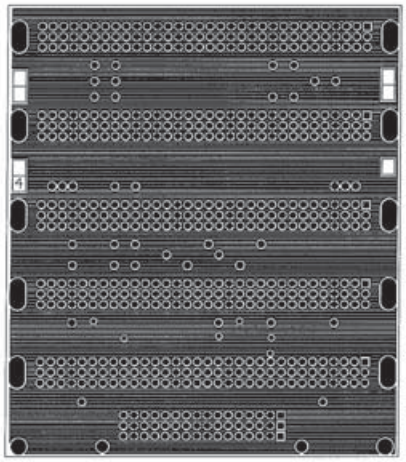
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

DRAWN	DATE	DESIGN BY:
JVanelli	03-27-02	ANALYSIS & DESIGN GROUP
CHECKED	DATE	P.O. BOX 24130
HF	4/04/05	HOUSTON, TEXAS 77234
PROJ ENGR	DATE	(281) 481-4823
Ron Dunham		

DWG SIZE	PART NUMBER	REV
B	349.1338-AWK	B

UL | EX | DO NOT SCALE DRAWING | SCALE | SHEET 3 OF 15

TITLE
ARTWORK
BACKPLANE
SBCN-2 SYS-6



VERIFY PLOT

DATE MAY 05 2005

Layer Name GND PLANE #2

Stacking Chart 1 2 3 4 5 6

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPO & XPO	JTM	HF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
JVanelli	09/27/02	ANALYSIS & DESIGN GROUP P.O. BOX 34130 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1338-AWK	B
CHECKED	DATE				
HF	04MAY'05				
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE
					SHEET 4 OF 15

TITLE
ARTWORK
BACKPLANE
SBCN-2 SYS-6

13-Apr-2005
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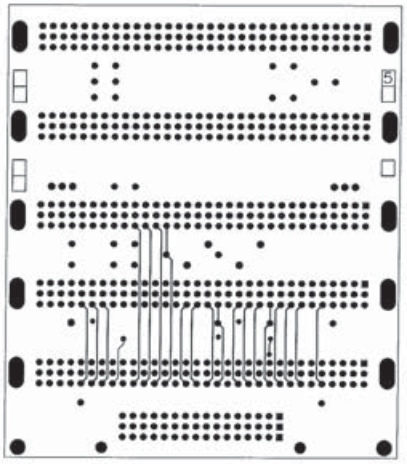

VERIFY PLOT

DATE MAY 0 5 2005

Layer Name _____ SIGNAL LAYER #3

Stacking Chart _____ [ ][ ][ ][5][ ][ ]

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	HF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
BACKPLANE
SBCN-2 SYS-6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
JUanelli	09/27/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1338-AWK	B
CHECKED HF	DATE 06 MAY '05				
PROJ ENGR	DATE	UL	CX	DO NOT SCALE DRAWING	SCALE

SHEET 5 OF 15

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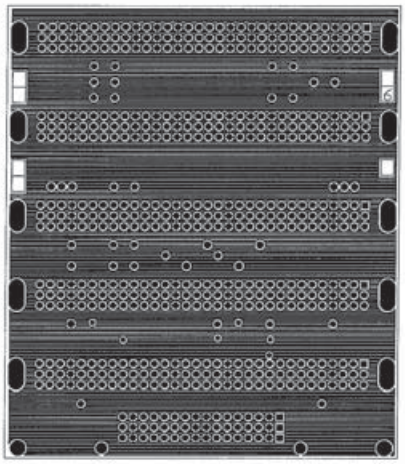

VERIFY PLOT

DATE MAY 0 5 2005

Layer Name _____ GND PLANE #3

Stacking Chart _____ [ ][ ][ ][ ][6]

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	HF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

DRAWN DATE: JVanelli 09/27/02	DESIGN BY: ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	DWG SIZE: B	PART NUMBER: 349.1338-AWK	REV: B
CHECKED DATE: HF 06MAY05				
PROJ ENGR DATE:	UL	EX	DO NOT SCALE DRAWING	SCALE	SHEET 6 OF 15

TITLE
ARTWORK
BACKPLANE
SBCN-2 SYS-6

13-Apr-2005
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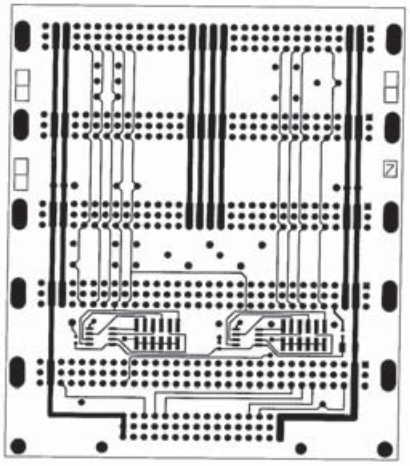

VERIFY PLOT
DATE MAY 05 2005

Layer Name _____ BOTTOM LAYER -- SIGNAL LAYER #4

Stacking Chart _____ 7

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	HF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: ARTWORK BACKPLANE SBCN-2 SYS-6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
JVanelli	09/27/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1338-AWK	B
CHECKED HF 06MAY05	DATE				
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE

SHEET 7 OF 15

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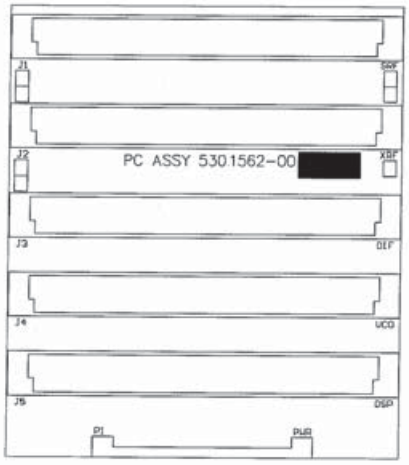

VERIFY PLOT
DATE MAY 0 5 2005

Layer Name _____ Top Overlay

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON GPD & XPD	JTM	BF	4-13-05	
A		X2 RELEASED AS A			4-01-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: ARTWORK BACKPLANE SBCN-2 SYS-6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
JVanelli	09/27/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 488-4823	B	349.1338-AWK	B
CHECKED HF	DATE 06MAY'05				
PROJ ENGR	DATE	UL	CX	DO NOT SCALE DRAWING	SCALE

SHEET 8 OF 15

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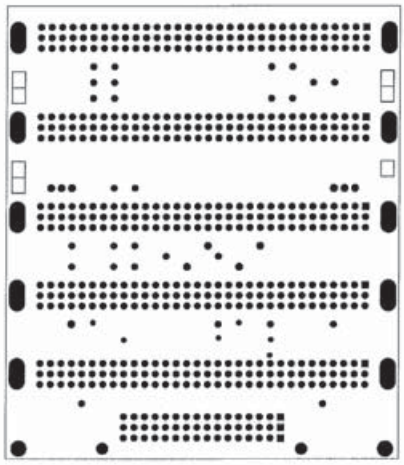

VERIFY PLOT

DATE MAY 2 5 2005

Layer Name _____ Top Solder Mask

Stocking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	HF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
BACKPLANE
SBCN-2 SYS-6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
JVanelli	09/27/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1338-AWK	B
CHECKED HF	DATE 09MAY05				
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE

SHEET 9 OF 15

13-Apr-2005
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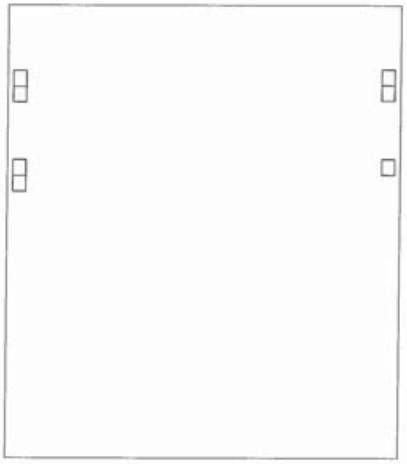

VERIFY PLOT

DATE MAY 05 2005

Layer Name _____ Top Paste Mask

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	HF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

DRAWN DATE: JUanelli 08/27/02	DESIGN BY: ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 491-4823	DWG SIZE: B	PART NUMBER: 349.1338-AWK	REV: B
CHECKED DATE: HF 06MAY'05				
PROJ ENGR DATE: DFM 06MAY05	UL	EX	DO NOT SCALE DRAWING	SCALE	SHEET 10 OF 15

TITLE
ARTWORK
BACKPLANE
SBCN-2 SYS-6

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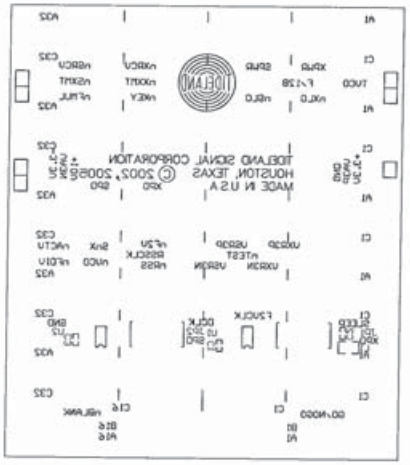

VERIFY PLOT
DATE MAY 05 2005

Layer Name _____ Bottom Overlay

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	MF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

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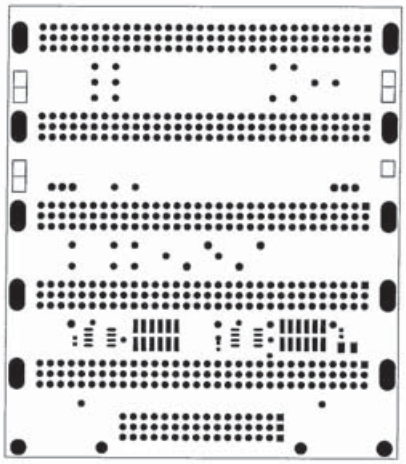
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
BACKPLANE
SBCN-2 SYS-6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
JVanelli	09/27/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1338-AWK	B
CHECKED HF 06MAY'05	DATE				
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE

SHEET 11 OF 15



VERIFY PLOT

MAY 0 5 2005

DATE

Layer Name _____ Bottom Solder Mask

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	HF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.

4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: ARTWORK BACKPLANE SBCN-2 SYS-6

DRAWN JVanelli 09/27/02	DESIGN BY: ANALYSIS & DESIGN GROUP P.O. BOX 34130 HOUSTON, TEXAS 77234 (281) 481-4823	DWG SIZE B	PART NUMBER 349.1338-AWK	REV B
CHECKED HF 06MAY'05 DATE				
PROJ ENGR DATE	UL	EX	DO NOT SCALE DRAWING	SCALE

SHEET 12 OF 15

13-Apr-2005
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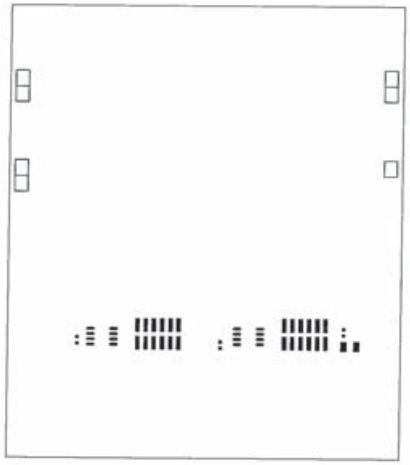

VERIFY PLOT

DATE MAY 05 2005

Layer Name ____ Bottom Paste Mask

Stacking Chart ____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	HF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: ARTWORK BACKPLANE SBCN-2 SYS-6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
JUanelli	09/27/02	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1338-AWK	B
CHECKED HF 06 MAY 05	DATE				
PROJ ENGR	DATE	UL / CX / DO NOT SCALE DRAWING / SCALE		SHEET 13 OF 15	

13-Apr-2005
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VERIFY PLOT

DATE MAY 0 5 2005

A	14	110mil	2.794mm
C	566	42mil	1.0668mm
B	6	24mil	0.6096mm
	586	Total	

13-Apr-2005
10:05:31
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Layer Name _____ Drill Drawing for Through Hole

Stocking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPD & XPD	JTM	HF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

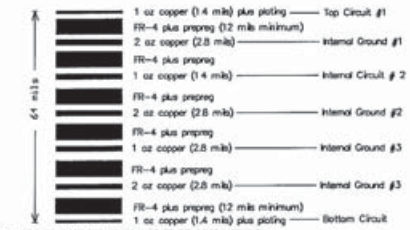
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
BACKPLANE
SBCN-2 SYS-6

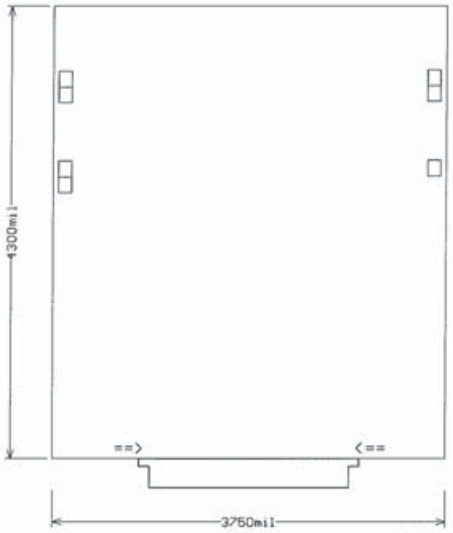
DRAWN DATE: JUanelli 09-27-02	DESIGN BY: ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823		DWG SIZE: B	PART NUMBER: 349.1338-AWK	REV: B
CHECKED DATE: HF 04/04/05					
PROJ ENGR DATE: [illegible]	UL	EX	DO NOT SCALE DRAWING	SCALE	SHEET 14 OF 15

NOTES:

1. MANUFACTURE USING ARTWORK 349.1338-AWK REVISION B, SEVEN COPPER LAYERS WITH SOLDER MASK AND SILKSCREEN ON BOTH OUTER LAYERS.
2. LAYER # 1 (TOP CIRCUIT) AND LAYER # 4 (BOTTOM CIRCUIT) TO BE 1 OUNCE COPPER ON FR-4 SUBSTRATE OF THICKNESS 12 MILS OR GREATER.
3. LAYERS # 2, #4, #5 (INTERNAL GROUND) AND LAYERS # 3, #5 (INTERNAL CIRCUIT) TO BE 2 OUNCE COPPER ON FR-4 MATERIAL, SIZED TO MAKE THICKNESS OF BOARD 0.063 INCHES NOMINAL.
4. EDGE CLEARANCE ON LAYERS # 2, #4, #6 NOT TO EXCEED .30 MILS.
5. LAYERS STACKED AS FOLLOWS:



6. BOARD FLATNESS TOLERANCE TO BE 0.010 INCH/INCH.
7. MINIMUM CONDUCTOR WIDTH TO BE 0.012 INCH.
8. PHOTOIMAGEABLE LIQUID SOLDER MASK OVER BARE COPPER (SMOBC) ON TOP AND BOTTOM LAYERS.
9. HOLES TO BE PLATED THROUGH WITH MINIMUM 0.001 INCHES COPPER.
10. HOLE SIZES APPLY AFTER PLATING, WITH TOLERANCE +/- 0.002 INCHES.
11. DO NOT PLATE THROUGH HOLES MARKED WITH ARROW (==>, TWO PLACES)
12. SILKSCREEN BOTH SIDES WITH NON-CONDUCTIVE WHITE INK.
13. BOARD MUST BE PERMANENTLY MARKED ON SOLDER SIDE WITH:
    -- REVISION LETTER SPECIFIED ON THIS DRAWING AND ON THE PURCHASE ORDER IN COPPER IN AREA INDICATED BY [ ],
    -- CURRENTLY LISTED UL SUPPLIER MARK AS RECOGNIZED FOR UL LISTING,
    -- FOUR DIGIT DATE CODE TO SHOW YEAR AND WEEK OF MANUFACTURE.



VERIFY PLOT
MAY 05 2005
DATE

Layer Name _____ Mechanical Layer 1

Stocking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
B	3743	ADDED DELAY CIRCUITS ON SPO & XPO	JTM	AF	4-13-05	
A		X2 RELEASED AS A			4-04-05	

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

Components _____ 53
Nets _____ 95
Holes _____ 586
13-Apr-2005
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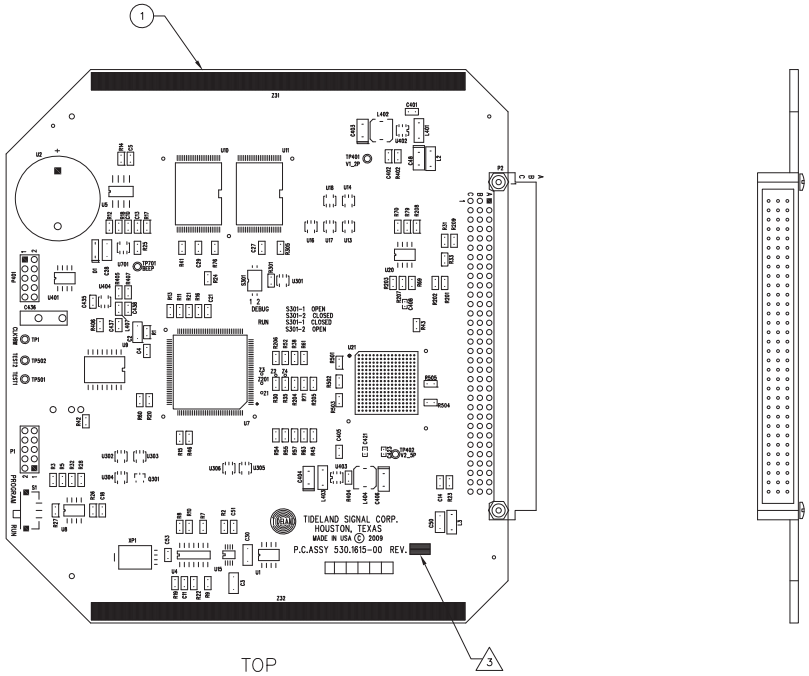
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

DRAWN JUarnelli 09/27/02	DESIGN BY: ANALYSIS & DESIGN GROUP P.O. BOX 34130 HOUSTON, TEXAS 77234 (281) 481-4823		DWG SIZE B	PART NUMBER 349.1338-AWK	REV B
CHECKED AF 06MAY05					
PROJ ENGR RPm 05MAY05	UL	EX	DO NOT SCALE DRAWING	SCALE	SHEET 15 OF 15

TITLE
ARTWORK
BACKPLANE
SBCN-2 SYS-6

NOTES: UNLESS OTHERWISE SPECIFIED

1. BOARD ASSY SHALL MEET REQUIREMENTS OF IPC-A-610 CLASS 3.
2. ASSEMBLE IN STATIC FREE AREA.
3. MARK ASSEMBLY REVISION LETTER IN AREA SHOWN.
4. MAX. COMPONENT HEIGHT TOP: 12.7 [.50], BOTTOM: 5.1 [.20].
5. MAX. LEAD PROTRUSION: 2.3 [.09].
6. FOR SCHEMATIC SEE 530.1615-SCH.
7. REMOVED.
8. ⬡ DENOTES REVISION SYMBOL.



TOP

APPROVED FOR:
_____ONLY
___INT. ____DATE

DASH OPTION	
DASH NO.	DESCRIPTION
-00	DSP, SBCN-2 SYS 6 (UNTUNED)
-01	DSP, SBCN-2 SYS 6 (TUNED)

REV	ECN	ZONE	DESCRIPTION	BY	CHK	DATE	APVD
E	6351		1) ADDED DASH OPTION TABLE	HA	LM	18JAN13	PFM
D	6240	B5-2	2) DELETED NOTE 7 1) REMOVED NOTE 7	HA	FS	07SEP12	PFM
C	5258		ADDED 40MHZ OSC. CIRCUIT	HA	HF	21SEP09	PFM
B	5241		CHG L401, L404, C403, C404, C406	HA	HF	22JUL09	PFM
A	--		RELEASED FOR PRODUCTION	HA	HF	09APR09	KN

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED.

DWG SIZE: NEXT ASSEMBLY: USED ON

UNLESS OTHERWISE SPECIFIED
1. TOLERANCE MILLIMETERS: X = ±0.8, .X = ±0.4, .XX = ±0.13
TOLERANCE INCHES: X = ±.03, .XX = ±.015, .XXX = ±.005
MILLIMETER EQUIV: .762, .381, .127
2. ANGULAR ± 0° 30'
3. ALL DIMENSIONS ARE IN MILLIMETERS OR MILLIMETER [INCHES]
4. TOLERANCES ARE NON-ACCUMULATIVE.
5. MACHINED INSIDE CORNERS 0.5R MAX.
6. INTERPRET DWG PER ASME Y14.5-2009.
SURFACE FINISH 125 / REMOVE BURRS AND SHARP EDGES

MATERIAL
FINISH

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

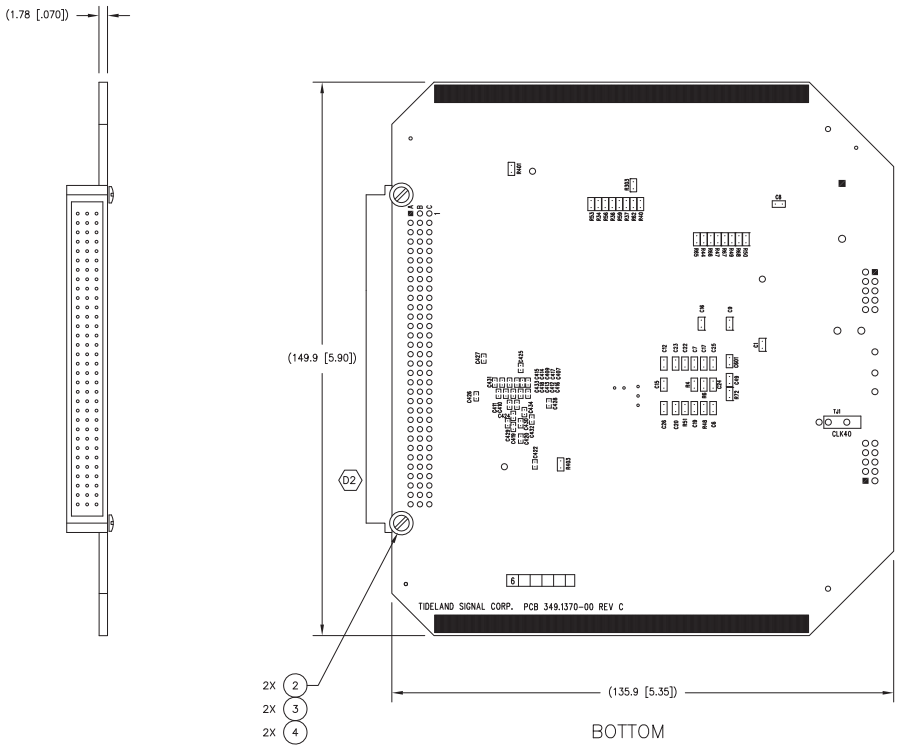
TITLE: PC ASSY, DSP 68HC16 SEABEACON 2 SYSTEM 6

	DATE		DATE
DRAWN		ENGRG MGR	
HA	20AUG08	KN	16APR09
CHECKED	DATE	MFG MGR	DATE
HF	09APR09	EB	16APR09
PROJ ENGR	DATE	QA MGR	DATE
PFM	16APR09	DRW	17APR09

UL | EX | DWG SIZE: D | PART NUMBER: 530.1615-DWG | REV: E

DO NOT SCALE DRAWING | SCALE: 2:1 | SHEET 1 OF 2

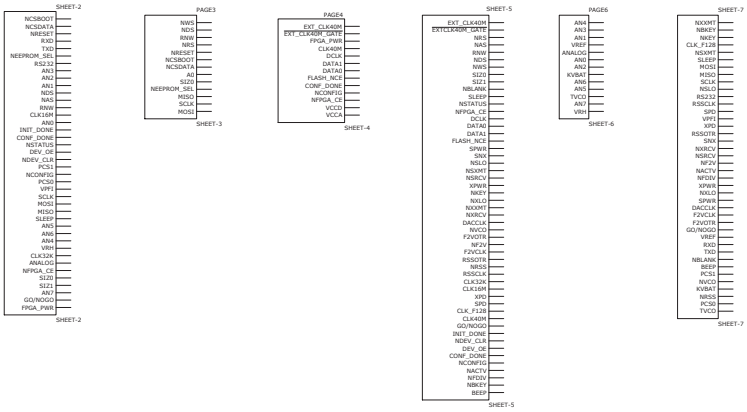
5301615E.DWG 21JAN13 10.00



TIDELAND SIGNAL CORP.	4310 DIRECTORS ROW HOUSTON, TEXAS 77092
UL / EX	DWG SIZE: D
PART NUMBER	530.1615-DWG
REV	E
DO NOT SCALE DRAWING	SCALE 2:1
SHEET	2 OF 2

ATTENTION – MANUAL REVISIONS ARE NOT PERMITTED.

NOTES: (UNLESS OTHERWISE SPECIFIED)



REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505, CLK CIRCUIT PG4, C701, D701	RRW	HF	07SEP09	PFM
B	5241	CHANGE L401, L404, L403, C404, C406	RRW	HF	07JUL09	PFM
A		RELEASE FOR PRODUCTION	RRW	HF	07APR09	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

NOTICE

UNLESS OTHERWISE SPECIFIED

1. TOLERANCE MILLIMETERS	TOLERANCE INCHES	MILLIMETERS EQUIV
X. = +0_8	.X = +-.03	0.762
.X = +0_4	.XX = +-.015	0.381
.XX = +0_.13	.XXX = +-.005	0.127

2. ANGULAR + 0_ 30'
3. ALL DIMENSIONS ARE IN MILLIMETERS OR MILLIMETERS [INCHES].
4. TOLERANCES ARE NON-ACCUMULATIVE.
5. MACHINED INSIDE CORNERS 0.5R MAX.
6. INTERPRET DWG PER ANSI Y14.5M-1982.

SURFACE FINISH 125 | REMOVE BURRS AND SHARP EDGES

MATERIAL

FINISH

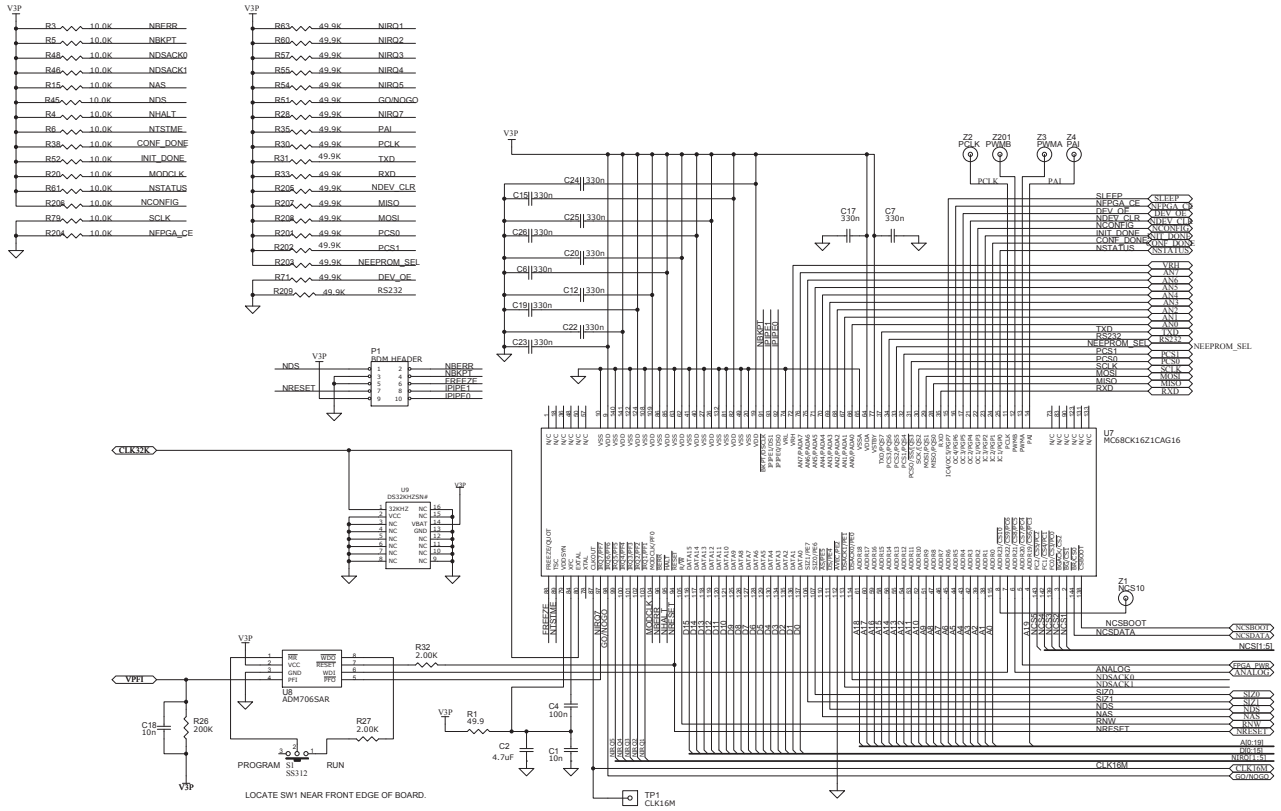
DRAWN RRW	DATE 15SEP08	ENGRG MGR DRK	DATE 07APR09
CHECKED HF	DATE 01APR09	MFG MGR ERB	DATE 07APR09
PROJ ENG PFM	DATE 07APR09	QA MGR DRW	DATE 07APR09

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

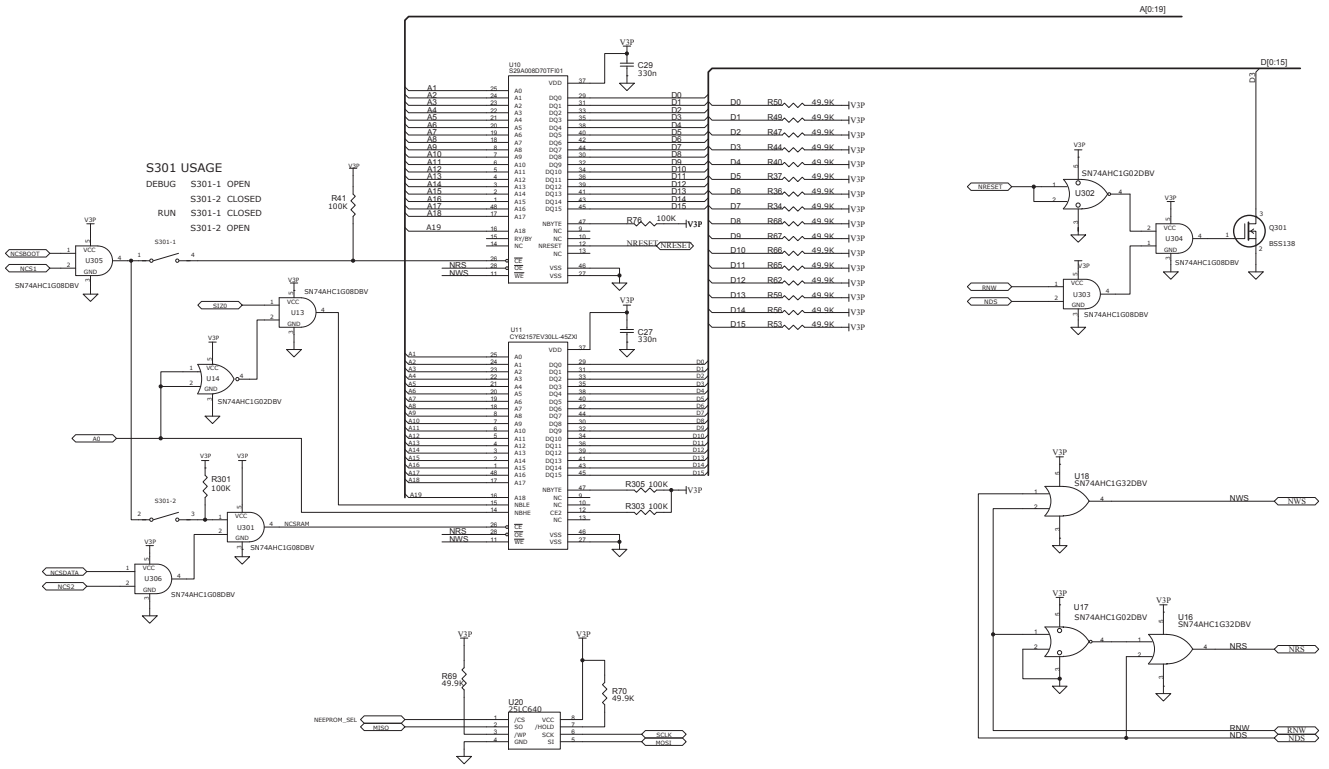
TITLE
SCH, SBCN-2, SYS-6, DSP
SHEET CONNECTIONS

UL	EX	DWG SIZE	PART NUMBER	REV
		C	530.1615-SCH	C

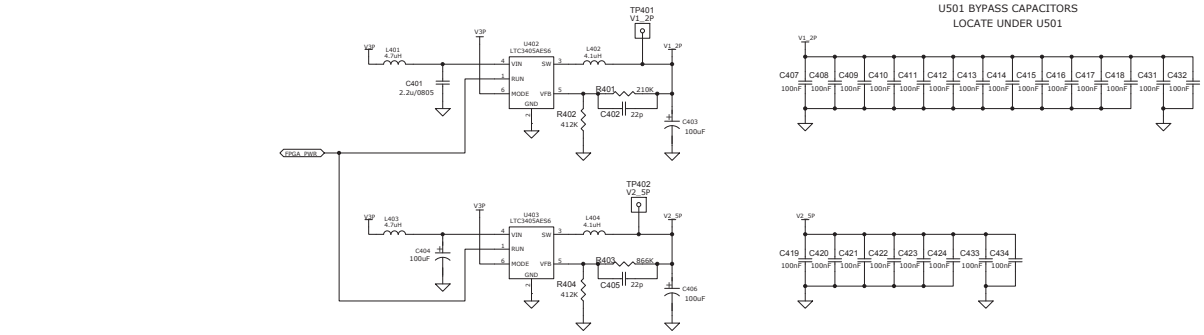
DO NOT SCALE DRAWING | FILENAME SBCN-2_SYS-6 REV C.sch | SCALE NONE | SHEET: 1 OF 7



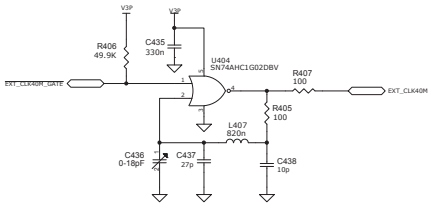
TIDELAND SIGNAL CORP.			
4310 DIRECTORS ROW		HOUSTON, TEXAS 77092	
TITLE: SCH, SBCN-2, SYS-6, DSP 68HC16 CPU			
UL / EX	DWG SIZE: C	PART NUMBER: 530.1615-SCH	REV: C
DO NOT SCALE DRAWING	FILENAME: SBCN-2_SYS-6 REV C.sch	SCALE: NONE	SHEET: 2 OF 7

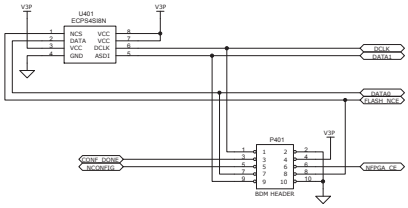


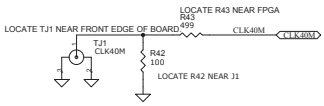
TIDELAND SIGNAL CORP.	
4310 DIRECTORS ROW	HOUSTON, TEXAS 77092
TITLE	SCH, SBCN-2, SYS-6, DSP MEMORY
UL / EX	
DWG SIZE	C
PART NUMBER	530.1615-SCH
REV	C
DO NOT SCALE DRAWING	
FILENAME	SBCN-2_SYS-6 REV C.sch
SCALE	NONE
SHEET:	3 OF 7



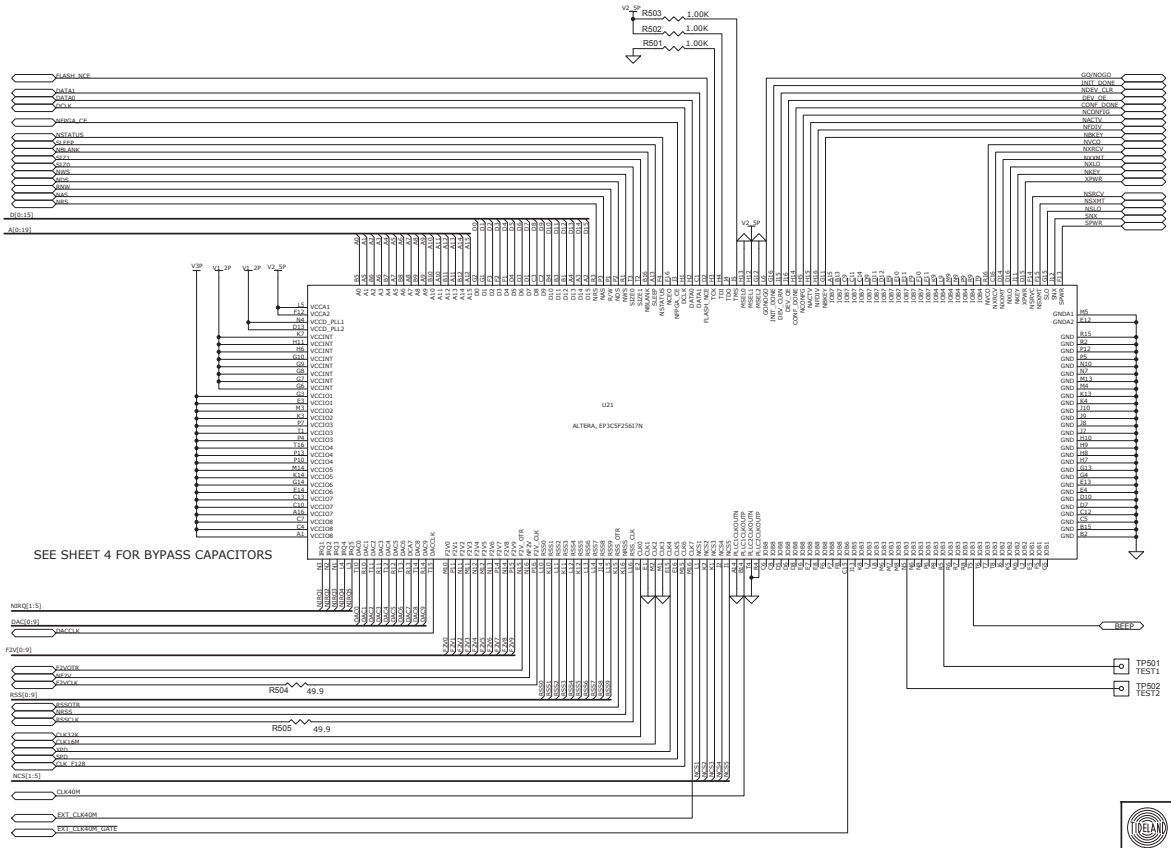
U501 BYPASS CAPACITORS
LOCATE UNDER U501







TIDELAND SIGNAL CORP.	4310 DIRECTORS ROW HOUSTON, TEXAS 77092
TITLE	SCH, SBCN-2, SYS-6, DSP FPGA SUPPORT
UL / EX	
DWG SIZE	C
PART NUMBER	530.1615-SCH
REV	C
DO NOT SCALE DRAWING	
FILENAME	SBCN-2_SYS-6 REV C.sch
SCALE	NONE
SHEET:	4 OF 7



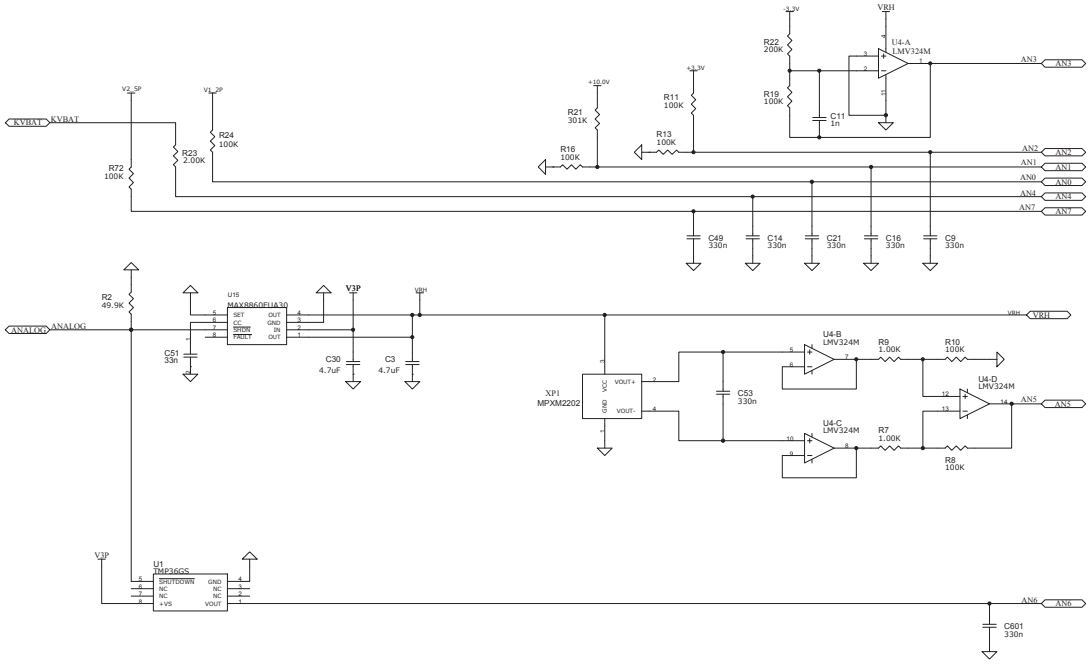
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
SCH, SBCN-2, SYS-6, DSP
FIELD PROGRAMMABLE GATE ARRAY

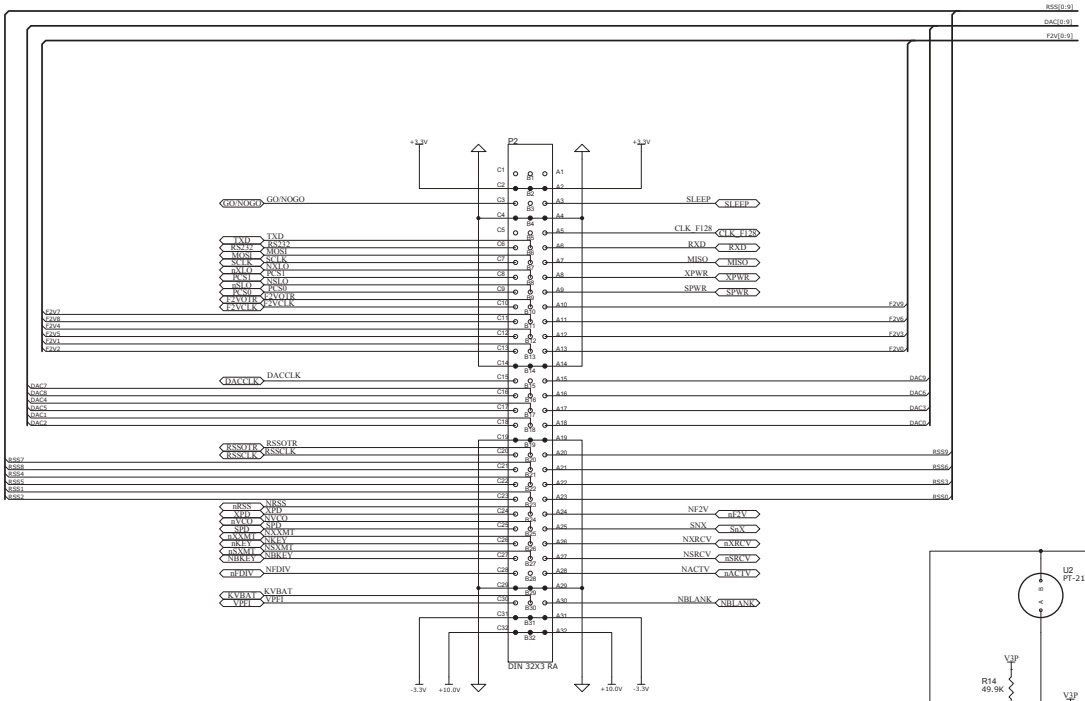
UL	EX	DWG SIZE	PART NUMBER	REV
		C	530.1615-SCH	C

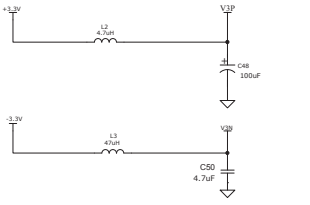
DO NOT SCALE DRAWING	FILENAME	SCALE	SHEET
	SBCN-2_SYS-6 REV C.sch	NONE	5 OF 7

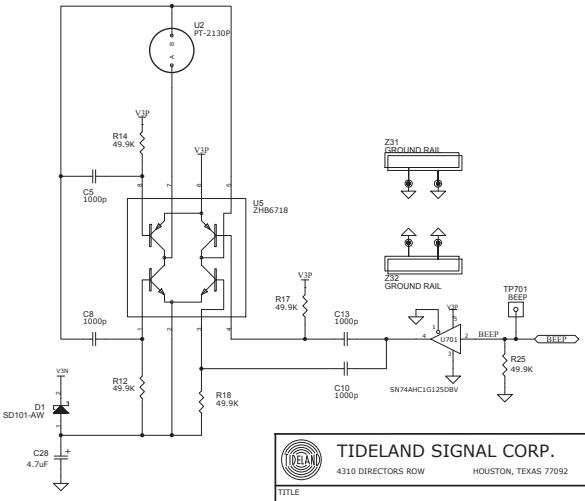
NOTE: LOCATE C9, C14, C16, C21, C49, C601 NEAR U7



TIDELAND SIGNAL CORP.	
4310 DIRECTORS ROW	HOUSTON, TEXAS 77092
TITLE	SCH, SBCN-2, SYS-6, DSP ANALOG WEATHER STATION
UL / EX	
DWG SIZE	C
PART NUMBER	530.1615-SCH
REV	C
DO NOT SCALE DRAWING	
FILENAME	SBCN-2_SYS-6 REV C.sch
SCALE	NONE
SHEET:	6 OF 7



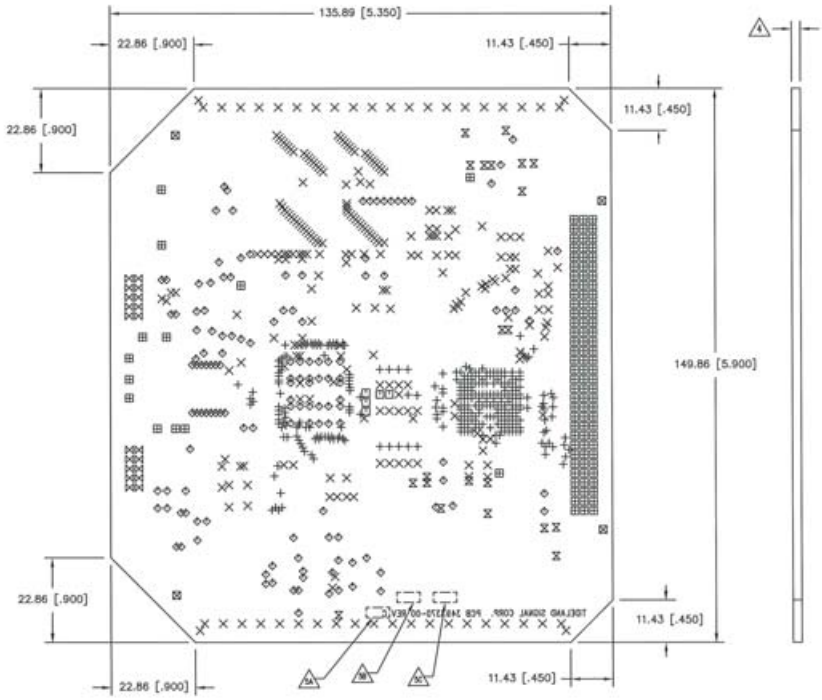


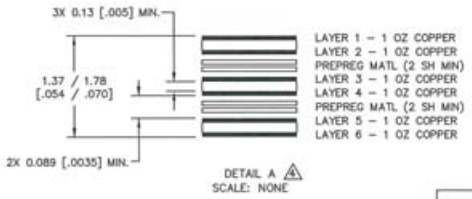


TIDELAND SIGNAL CORP.				
4310 DIRECTORS ROW HOUSTON, TEXAS 77092				
TITLE: SCH, SBCN-2, SYS-6, DSP BEEPER AND BACKPLANE PORTS				
UL	EX	DWG SIZE: C	PART NUMBER: 530.1615-SCH	REV: C
DO NOT SCALE DRAWING		FILENAME: SBCN-2_SYS-6 REV C.sch	SCALE: NONE	SHEET: 7 OF 7

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE BASIC.
2. THIS MULTILAYER BOARD SHALL MEET THE REQUIREMENTS OF IPC-6011, CLASS 3, IPC-4552.
3. MANUFACTURE USING ARTWORK 349.1370-AMK REV C, SIX COPPER LAYERS WITH SOLDER MASK, SILKSCREEN, AND PASTE MASK ON BOTH OUTER LAYERS. FOR MANUFACTURING PURPOSES THIS ARTWORK SHALL NOT BE REPRODUCED TO OR FROM A REPRODUCIBLE MEDIA THAT IS LESS THAN A STABLE BASE MATERIAL.
4. COPPER CLAD LAMINATE AND PREPREG MATERIALS SHALL CONFORM TO TYPE FR-4. SPECIFIC MATERIAL REQUIRMENTS, THICKNESS AND LAYER ARRANGEMENTS SHALL BE IN ACCORDANCE WITH DETAIL A.
5. BOARD MUST BE PERMANENTLY MARKED, ON LAYER #6 (BOTTOM CIRCUIT) WITH:
   A. REVISION LETTER SPECIFIED ON THIS DRAWING AND ON THE PURCHASE ORDER IN COPPER IN AREA INDICATED BY [ ].
   B. CURRENTLY LISTED UL SUPPLIER MARK AS RECOGNIZED FOR UL LISTING [ ].
   C. A FOUR DIGIT DATE CODE YEAR AND WEEK OF MANUFACTURE [ ].
6. MINIMUM CONDUCTOR WIDTH 0.15 [.006].
7. EDGE CLEARANCE ON INTERNAL LAYERS 2 & 5 NOT TO EXCEED 0.76 [.030].
8. TOP AND BOTTOM LAYERS TO BE FINISHED BY GOLD IMMERSION PROCESS, 0.00008 [.000003]–0.00020 [.000008] GOLD OVER NICKEL (ENIG) PER IPC-4552.
9. ALL PLATED THRU HOLES SHALL HAVE A MINIMUM OF 0.00008 [.000003] –0.00020 [.000008] GOLD.
10. ALL HOLE SIZES ARE AFTER PLATING, WITH TOLERANCE ±0.05 [±.002].
11. SOLDERMASK GREEN.
12. SILKSCREEN SHALL BE APPLIED TO BOTH SIDES OF BOARD PER MASTER PATTERN SILKSCREENS, USING NON-CONDUCTIVE WHITE EPOXY INK.
13. BOARD MUST BE 100% BARE BOARD TESTED POINT TO POINT ON MANIA SYSTEM OR EQUIVALENT. TEST CERTIFICATION MUST BE PROVIDED. 2.5 MEGOHM SHORT AND 300mA MAX. TEST CURRENT.
14. USE PCB LAMINATE WITH A WATER ABSORPTION LESS THAN OR EQUAL TO 0.13%.
15. BOARD FLATNESS TO BE 0.25 [.010]. 25.4 [1.00]/25.4 [1.00].





DETAIL A ⚠4
SCALE: NONE

HOLE SCHEDULE				
DIA. MM	DIA. IN	QTY.	SYM.	PLTD
0.25	.010	342	+	YES
0.30	.012	268	×	YES
0.41	.016	5	□	YES
0.46	.018	139	◇	YES
0.64	.025	21	⧖	YES
0.97	.038	20	⊠	YES
1.07	.042	109	⊞	YES
2.79	.110	4	⊠	NO

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED 40MHZ OSC. CIRCUIT	HA	HF	21SEP09	PFM
B	5241	CHG L401, L404, C403, C404, C406	HA	HF	22JUL09	PFM
A	---	RELEASED FOR PRODUCTION	HA	HF	09APR09	KN

ATTENTION – MANUAL REVISIONS ARE NOT PERMITTED.

NEXT ASSEMBLY | USED ON

NOTICE
THIS DRAWING CONTAINS PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORP. WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE, OR USED FOR ANY PURPOSE OTHER THAN MAINTENANCE, REPAIR, OR INSTALLATION AND IT SHALL BE RETURNED ON DEMAND.

UNLESS OTHERWISE SPECIFIED
1. TOLERANCE: MILLIMETER .X ± 0.5 / .XX ± 0.25 / ANGLES ± 1°; INCHES .X ± .02 / .XX ± .010 / ANGLES ± 1°
2. ANGULAR ± 0.25°
3. ALL DIMENSIONS ARE IN MILLIMETERS OR MILLIMETER [INCHES]
4. TOLERANCES ARE NON-ACCUMULATIVE.
5. MACHINED ANGLE CORNERS 0.08 MAX.
6. INTERPRET DWG PER ANSI Y14.5M-1982.

SURFACE FINISH 125 / | REMOVE BURRS AND SHARP EDGES

MATERIAL
FINISH

	DRAWN	DATE	ENGRG MGR	DATE
	HA	22AUG08	KN	15SEP09
	CHECKED	DATE	MFG MGR	DATE
	HF	22SEP09		15SEP09
	PROJ ENGR	DATE	QA MGR	DATE
	PFM	15SEP09	DFM	15SEP09

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

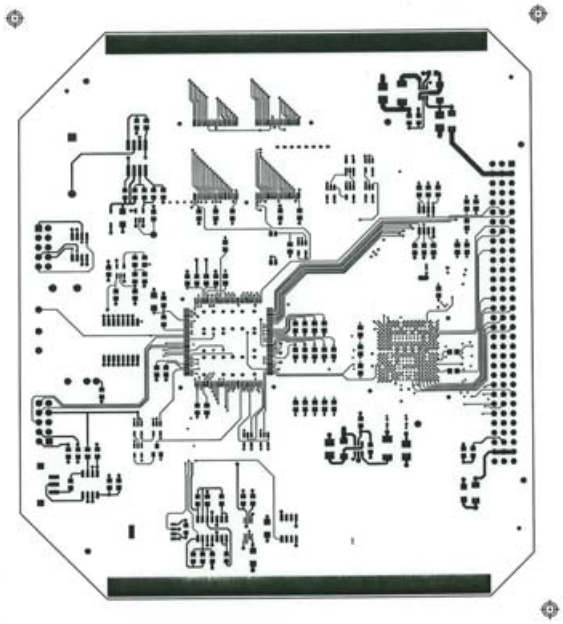
TITLE: PC FAB, DSP 68HC16 SEABEACON 2 SYSTEM 6

UL	EX	DWG SIZE	PART NUMBER	REV
		D	349.1370-00	C

DO NOT SCALE DRAWING | SCALE 2:1 | SHEET 1 OF 1

349.1370C.DWG 22SEP09 10:25

ORIGINAL



VERIFY PLOT

DATE SEP 23 2009

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP09	PFM
B	5241	CHG L405, L404, C403, C404, C406	ION	HF	12JUL09	PFM
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.

4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU

LAYER 1 TOP

DRAWN ION DATE 13 AUG 08

DESIGN BY: P. F. MUELLER

CHECKED HF DATE 07APR09

PROJ ENGR EKB DATE 07APR09

UL

EX

DO NOT SCALE DRAWING

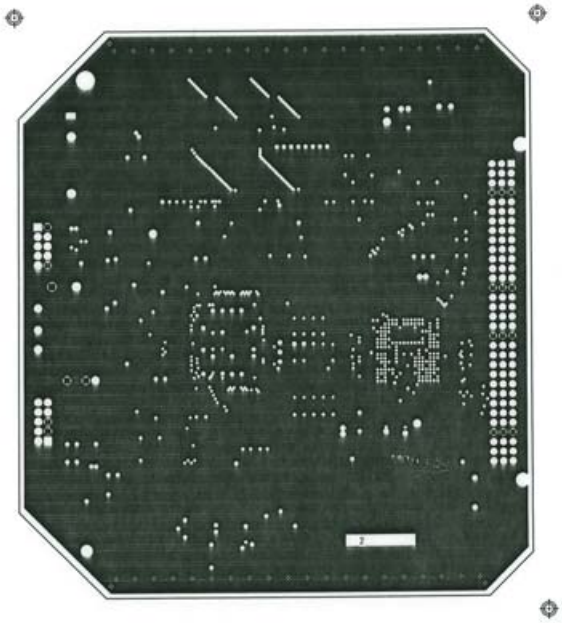
DWG SIZE: B

PART NUMBER: 349.1370-AWK

REV: C

SCALE: 1 : 1

SHEET 1 OF 13



VERIFY PLOT

DATE SEP 23 2009

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP09	PFM
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12JUL08	PFM
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.

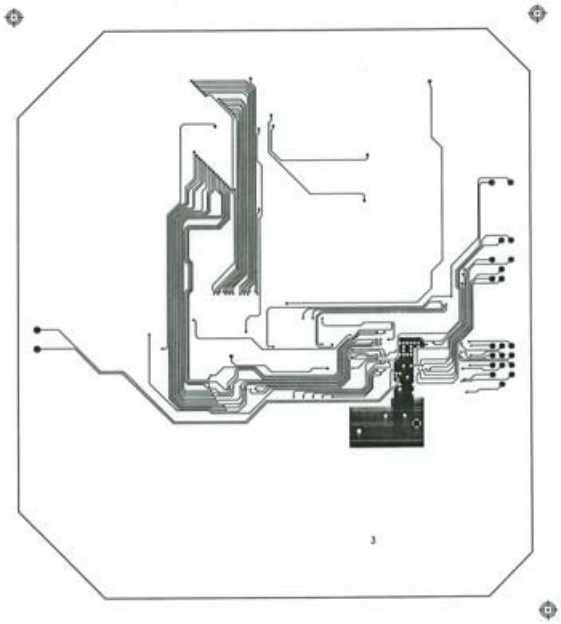
4310 DIRECTORS ROW HOUSTON, TEXAS 77082

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU

LAYER 2 GND PLANE

DRAWN ION 13 AUG 08	DESIGN BY: P. F. MUELLER	DWG SIZE: B	PART NUMBER: 349.1370-AWK	REV: C
CHECKED HF 07APR09				
PROJ ENGR ENG 07APR09	UL	EX	DO NOT SCALE DRAWING	SCALE 1 : 1

SHEET 2 OF 13



VERIFY PLOT
DATE SEP 23 2009

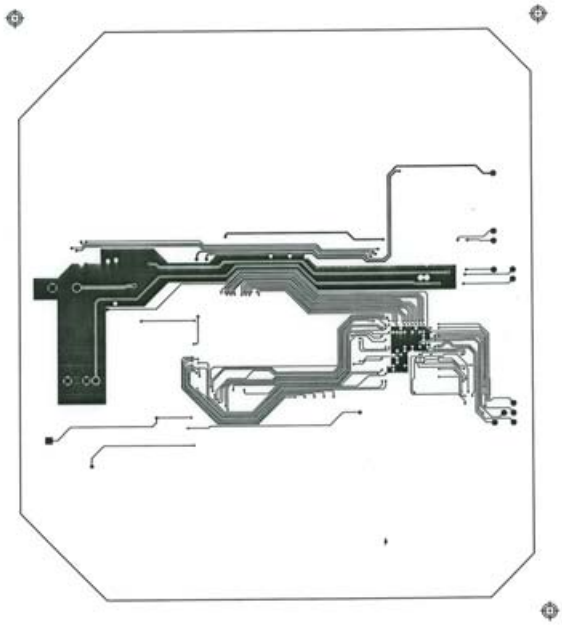
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP09	PFW
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12JUL09	PFW
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFW

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU
LAYER 3 ROUTING

DRAWN ION 13 AUG 08	DESIGN BY: P. F. MUELLER	SIZE B	PART NUMBER 349.1370-AWK	REV C
CHECKED HF 07APR09				
PROJ ENGR ERB 07APR09	UL	EX	DO NOT SCALE DRAWING	SCALE 1 : 1	SHEET 3 OF 13



VERIFY PLOT
DATE SEP 23 2009

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP09	PFM
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12JUL09	PFM
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFM

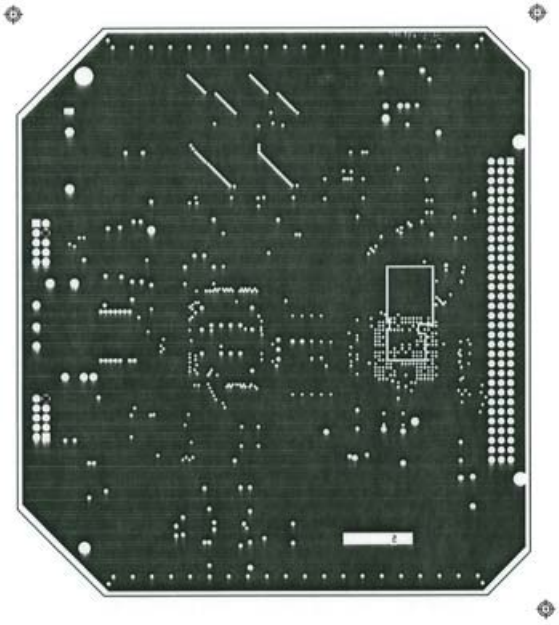
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU
LAYER 4 ROUTING

DRAWN ION 13 AUG 08	DESIGN BY: P. F. MUELLER	SIZE B	PART NUMBER 349.1370-AWK	REV C
CHECKED HF 07APR09				
PROJ ENGR ERB 07APR09	UL	EX	DO NOT SCALE DRAWING	SCALE 1 : 1

SHEET 4 OF 13



VERIFY PLOT

DATE SEP 23 2009

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP09	PFM
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12JUL09	PFM
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

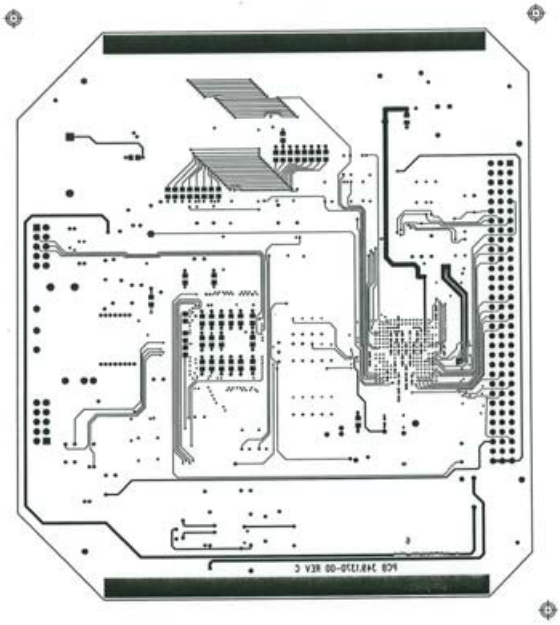
TIDELAND SIGNAL CORP.

4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU

LAYER 5 POWER

DRAWN ION 13 AUG 08	DESIGN BY: P. F. MUELLER	SIZE B	PART NUMBER 349.1370-AWK	REV C
CHECKED HF 07APR09				
PROJ ENGR EKB 07APR09	UL	EX	DO NOT SCALE DRAWING	SCALE 1 : 1 SHEET 5 OF 13



VERIFY PLOT

DATE SEP 23 2009

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP09	PFM
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12JUL09	PFM
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFM

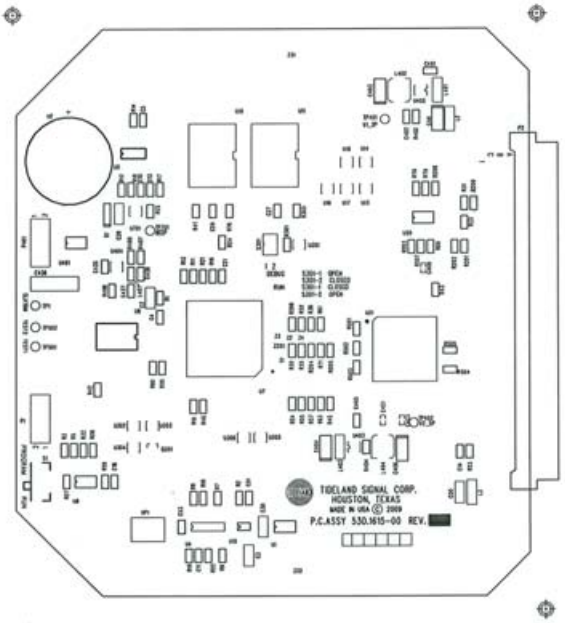
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU
LAYER 6 BOTTOM

DRAWN ION 13 AUG 08	DESIGN BY: P. F. MUELLER	D&D SIZE: B	PART NUMBER: 349.1370-AWK	REV: C
CHECKED HF 07APR09				
PROJ ENGR ERB 07APR09	UL	EX	DO NOT SCALE DRAWING	SCALE 1 : 1

SHEET 6 OF 13



VERIFY PLOT

DATE SEP 23 2009

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP09	PFM
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12JUL09	PFM
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

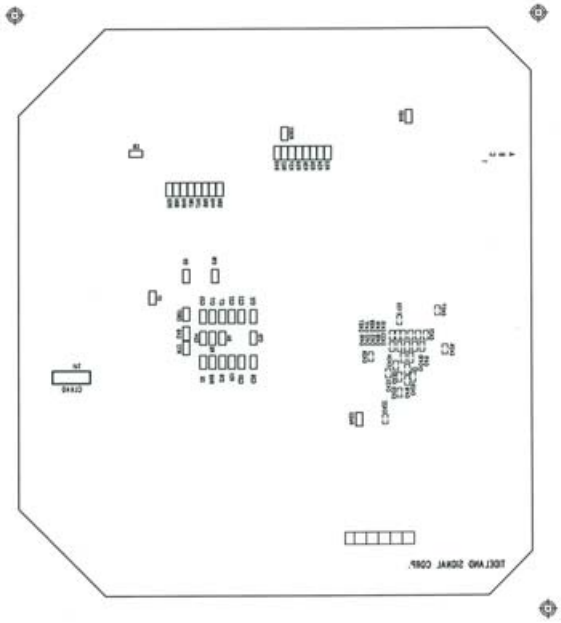
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU

TSS

DRAWN ION 13 AUG 08	DESIGN BY: P. F. MUELLER	DWG SIZE: B	PART NUMBER: 349.1370-AWK	REV: C
CHECKED HF 07APR09				
PROJ ENGR ERB 07APR09	UL	EX	DO NOT SCALE DRAWING	SCALE 1 : 1

SHEET 7 OF 13



VERIFY PLOT
DATE SEP 23 2009

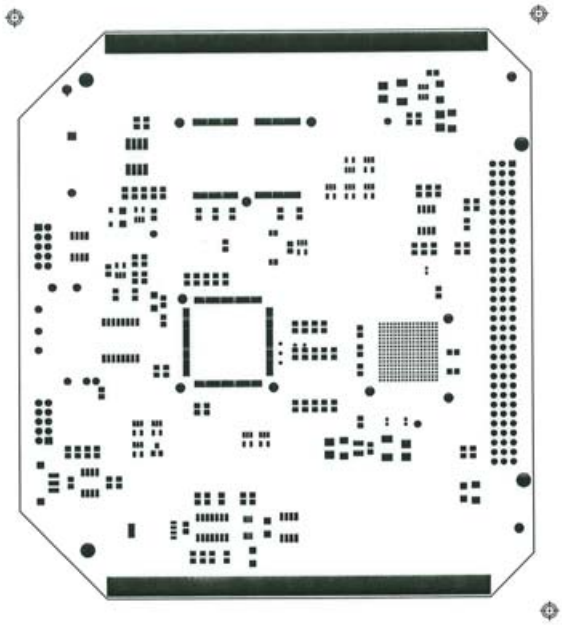
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP08	PFW
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12JUL08	PFW
A		RELEASE FOR PRODUCTION	ION	HF	07APR08	PFW

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU
BSS

DRAWN	DATE	DESIGN BY	DWG SIZE	PART NUMBER	REV
ION	13 AUG 08	P. F. MUELLER	B	349.1370-AWK	C
CHECKED	DATE				
HF	07APR09				
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE 1 : 1
ERB	07APR09				SHEET 8 OF 13



VERIFY PLOT

DATE SEP 23 2008

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP08	PFM
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12AUG08	PFM
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

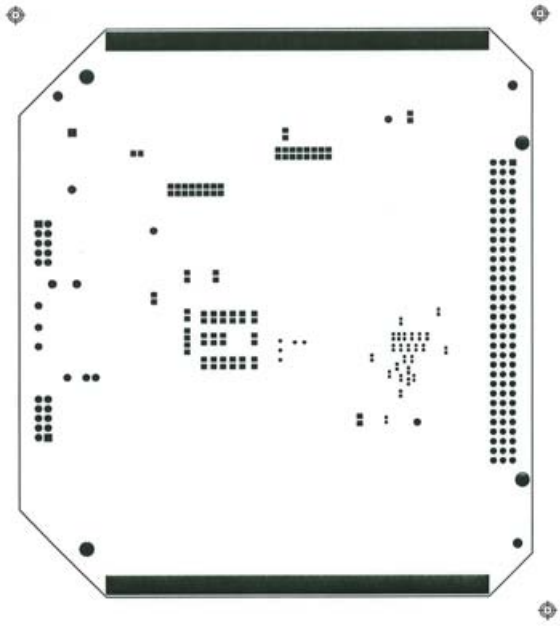
TIDELAND SIGNAL CORP.

4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU

TSM

DRAWN ION 13 AUG 08	DESIGN BY: P. F. MUELLER		SIZE B	PART NUMBER 349.1370-AWK	REV C
CHECKED HF 07APR09					
PROJ ENGR ERB 07APR09	UL	EX	DO NOT SCALE DRAWING	SCALE 1 : 1	SHEET 9 OF 13



VERIFY PLOT
DATE SEP 23 2009

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP09	PFM
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12JUL09	PFM
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFM

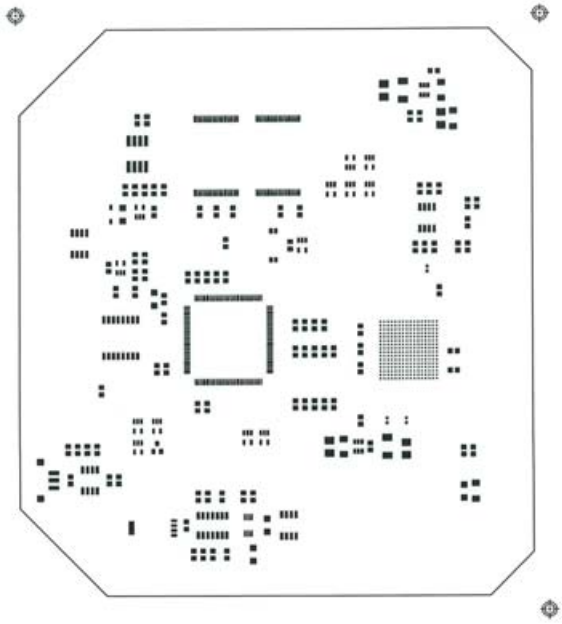
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU

BSM

DRAWN ION 13 AUG 08	DESIGN BY: P. F. MUELLER	DWG SIZE: B	PART NUMBER: 349.1370-AWK	REV: C
CHECKED HF 07APR09				
PROJ ENGR ERB 07APR09	LL	EX	DO NOT SCALE DRAWING	SCALE 1 : 1	SHEET 10 OF 13



VERIFY PLOT

DATE SEP 23 2009

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP09	PFW
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12JUL09	PFW
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFW

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

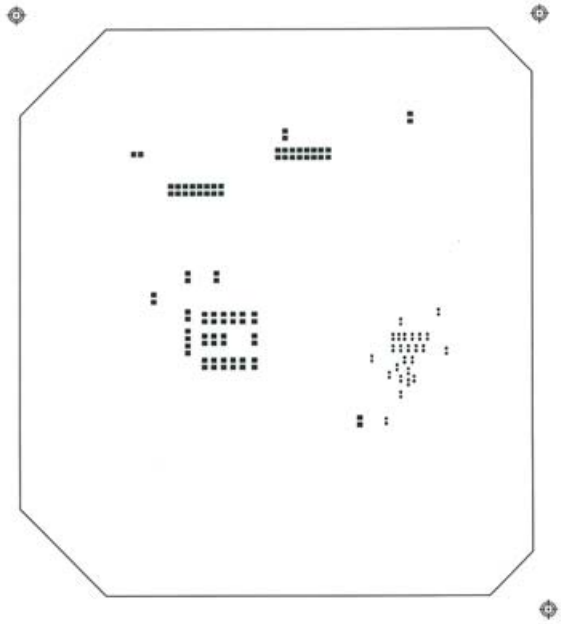
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU

TSP

DRAWN ION 13 AUG 08	DESIGN BY: P. F. MUELLER	SIZE: B	PART NUMBER: 349.1370-AWK	REV: C
CHECKED HF 07APR09				
PROJ ENGR ERB 07APR09	UL	CX	DO NOT SCALE DRAWING	SCALE 1 : 1

SHEET 11 OF 13



VERIFY PLOT

DATE SEP 23 2009

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP09	PFM
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12JUL09	PFM
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.

4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU

BSP

DRAWN ION 13 AUG 08

DESIGN BY: P. F. MUELLER

CHECKED HF 07APR09

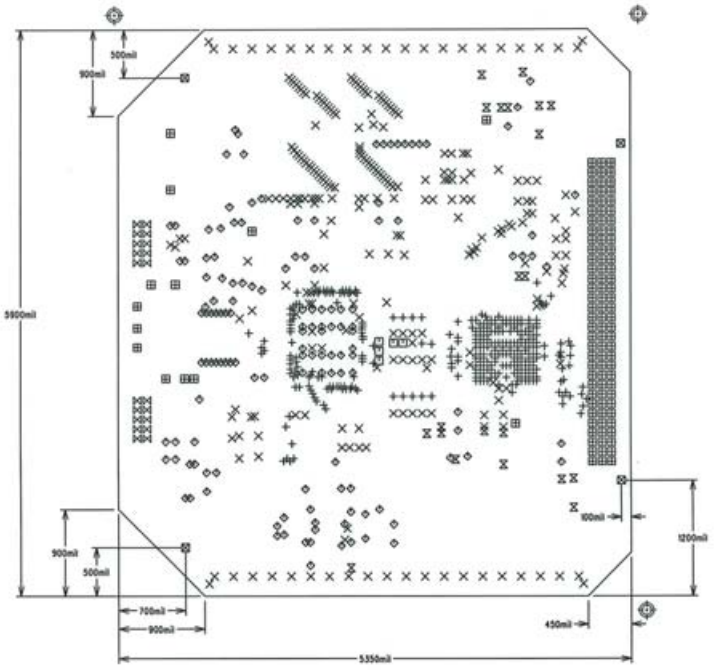
PROJ ENGR EKB 07APR09

DWG SIZE: B

PART NUMBER: 349.1370-AWK

REV: C

UL | EX | DO NOT SCALE DRAWING | SCALE 1 : 1 | SHEET 12 OF 13



SIZE	QTY	SYM	PLATED	TOL
10	342	+	YES	+/-0.003
12	250	X	YES	+/-0.003
16	5	▽	YES	+/-0.003
18	128	◇	YES	+/-0.003
25	21	⧖	YES	+/-0.003
38	20	⋈	YES	+/-0.003
42	159	⊞	YES	+/-0.003
110	4	⊠	NO	+/-0.003

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
C	5258	ADDED R504, R505	ION	HF	03SEP08	PFM
B	5241	CHG L401, L404, C403, C404, C406	ION	HF	12JUL08	PFM
A		RELEASE FOR PRODUCTION	ION	HF	07APR09	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.

4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: AWK, SBCN-2, SYS-6, DSP 68HC16 CPU

FAB

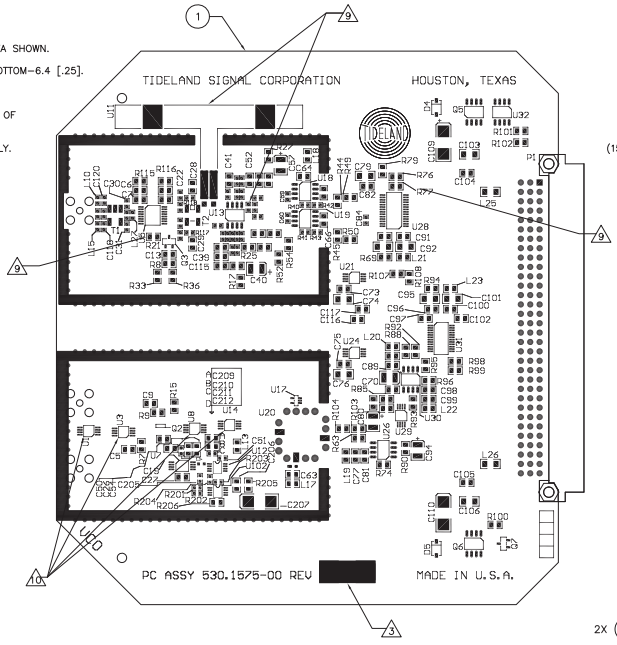
DRAWN ION 13 AUG 08	DESIGN BY: P. F. MUELLER	SHEET SIZE: B	PART NUMBER: 349.1370-AWK	REV: C
CHECKED HF 07APR09				
PROJ ENGR ERB 07APR09	UL	EX	DO NOT SCALE DRAWING	SCALE: 1 : 1 — SHEET 13 OF 13

VERIFY PLOT

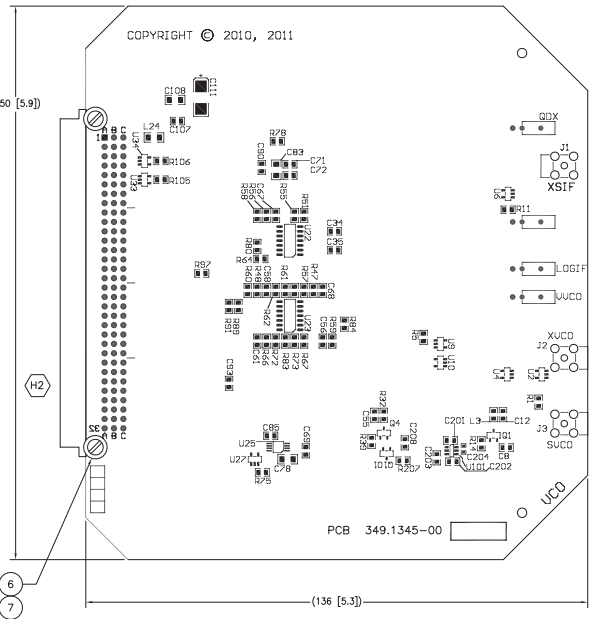
DATE SEP 23 2009

NOTES: UNLESS OTHERWISE SPECIFIED

1. FOR SCHEMATIC SEE 530.1575-SCH.
2. ASSEMBLE IN STATIC FREE AREA.
3. MARK ASSEMBLY REVISION LETTER IN AREA SHOWN.
4. MAX. COMPONENT HEIGHT TOP-10 [.4],BOTTOM-6.4 [.25].
5. MAX. LEAD PROTRUSION: 2.3 [.09].
6. BOARD ASSY SHALL MEET REQUIREMENTS OF IPC-A-610B CLASS 3.
7. ENSURE ITEMS 9 & 10 ARE SEATED FULLY.
8. REMOVED.
9. U11,C53,R21,R77 ARE ADDED AT TEST.
10. U1, U3, U8, AND U14 SOLDER PER MANUFACTURER'S SPECIFICATION.
11. ⬡ DENOTES REVISION SYMBOL.



TOP



BOTTOM

2X 6
2X 7
2X 8
2X 5

APPROVED FOR:
_____ONLY
___INT. ____DATE

DASH OPTION	
DASH NO.	DESCRIPTION
-00	VCO, SBCN-2 SYS 6 (UNTUNED)
-01	OBSOLETE
-02	VCO, SBCN-2 SYS 6 (TUNED)

REV	ECN	ZONE	DESCRIPTION	BY	CHK	DATE	APVD
J	6351		1) ADDED DASH OPTION TABLE	HA	LM	18JAN13	PFM
		C3-1	2) DELETED NOTE 8				
H	6240		1) REMOVED NOTE 8	HA	FS	07SEP12	PFM
G	5069		NEW PRESCALER CIRCUIT	HA	PFM	18MAR10	ERB
F	4821		X6 MODIFIED, RELEASED AS F	TGB	HF	06DEC07	ERB

ATTENTION – MANUAL REVISIONS ARE NOT PERMITTED.

DWG SIZE | NEXT ASSEMBLY | USED ON

UNLESS OTHERWISE SPECIFIED
1. TOLERANCE MILLIMETERS: X = ±0.8, .X = ±0.4, .XX = ±0.13 | TOLERANCE INCHES: X = ±.03, .XX = ±.015, .XXX = ±.005 | MILLIMETER EQUIV: 0.762, 0.381, 0.127
2. ANGULAR ± 0° 30'
3. ALL DIMENSIONS ARE IN MILLIMETERS OR MILLIMETER [INCHES]
4. TOLERANCES ARE NON-ACCUMULATIVE.
5. MACHINED INSIDE CORNERS 0.5R MAX.
6. INTERPRET DWG PER ASME Y14.5-2009.
SURFACE FINISH 125 / | REMOVE BURRS AND SHARP EDGES

MATERIAL
FINISH

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

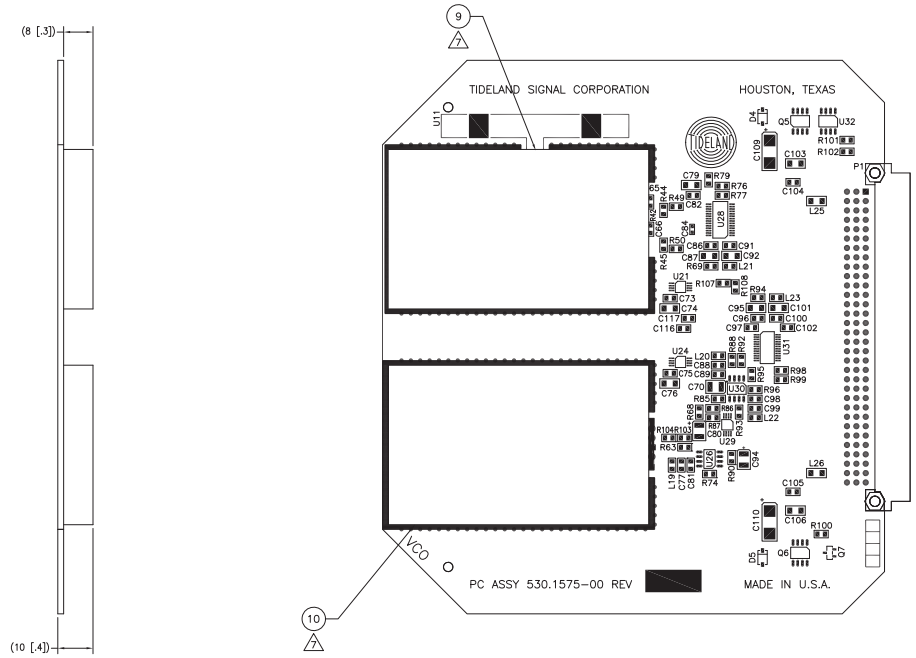
TITLE
PC ASSY, VCO CIRCUIT, SERIES 2, SEABEACON 2 SYSTEM 6

	DATE		DATE
DRAWN P. SCHMIDT	22SEP03	ENGRG MGR WRK	06DEC07
CHECKED HF	06DEC07	MFG MGR ERB	06DEC07
PROJ ENGR ERB	06DEC07	QA MGR DRW	06DEC07

UL | EX | DWG SIZE D | PART NUMBER 530.1575-DWG | REV J

DO NOT SCALE DRAWING | SCALE 2:1 | SHEET 1 OF 2

5301575U.DWG 21JAN13 11:30



TOP
(SHOWN WITH SHIELDS INSTALLED)

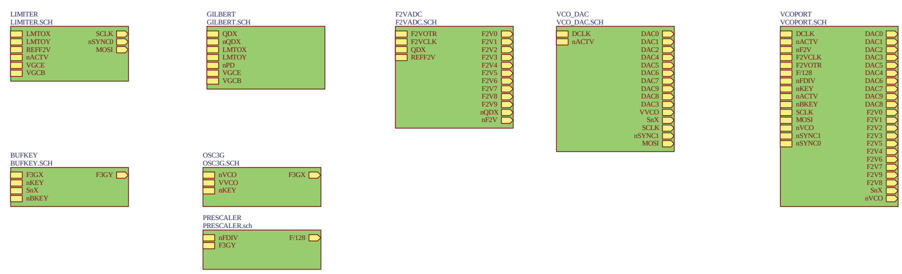
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

UL	EX	DWG SIZE	PART NUMBER	REV
		D	530.1575-DWG	J

DO NOT SCALE DRAWING | SCALE 2:1 | SHEET 2 OF 2

ATTENTION – MANUAL REVISIONS ARE NOT PERMITTED.

Z1
TIDELAND SIGNAL CORPORATION



NOTES (apply to all sheets):

1. RF substrate to be Rogers RO4003 material:
   dielectric constant = 3.38 (nominal),
   substrate thickness = 16mils,
   conductor thickness = 2.8mils.

2. Distributed element parameters are specified in mils.
   e.g. 30x150 denotes 30mil width by 150mil length,
   e.g. 35xFIT denotes 35mil width with arbitrary length,
   e.g. 30s10x600 denotes 30mil width by 600mil length with 10mil separation.

3. Chip R, L, C are EIA 0805 size code unless otherwise specified.

4. Signal ground is one or more vias with direct connection to ground plane.
   Signal ground routes to be minimum practical length.

5. RF ground is one or more vias with direct connection to microstrip ground plane.
   RF ground routes to be maximum width, absolute minimum practical length.
   RF ground via is 16mil round hole with minimum 32mil round pad.
   RF ground via reference plane is through center of hole.

POWER PORT LEGENDS (applies to all sheets):

V3P	POSITIVE RAIL (+3.30VDC nominal)
VA3P	ACTIVE MODE POSITICVE, SWITCHED (+3.30VDC nominal)
	SIGNAL GROUND & POWER COMMON (+0.00VDC)
	RF GROUND (+0.00VDC nominal)
VA3N	ACTIVE MODE NEGATIVE, SWITCHED (-3.30VDC nominal)
V3N	NEGATIVE RAIL (-3.30VDC nominal)
+10V	POSITIVE RAIL (+10VDC nominal)
V10P	POSITIVE RAIL FILTERED (+10VDC nominal)

RF TRACK WIDTH LEGEND (applies to all sheets):

W = 8 mils
W = 10 mils
W = 12 mils
W = 24 mils
W = 30 mils
W = 35 mils

APPROVED FOR: ____________ ONLY
____ INT. ____ DATE

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

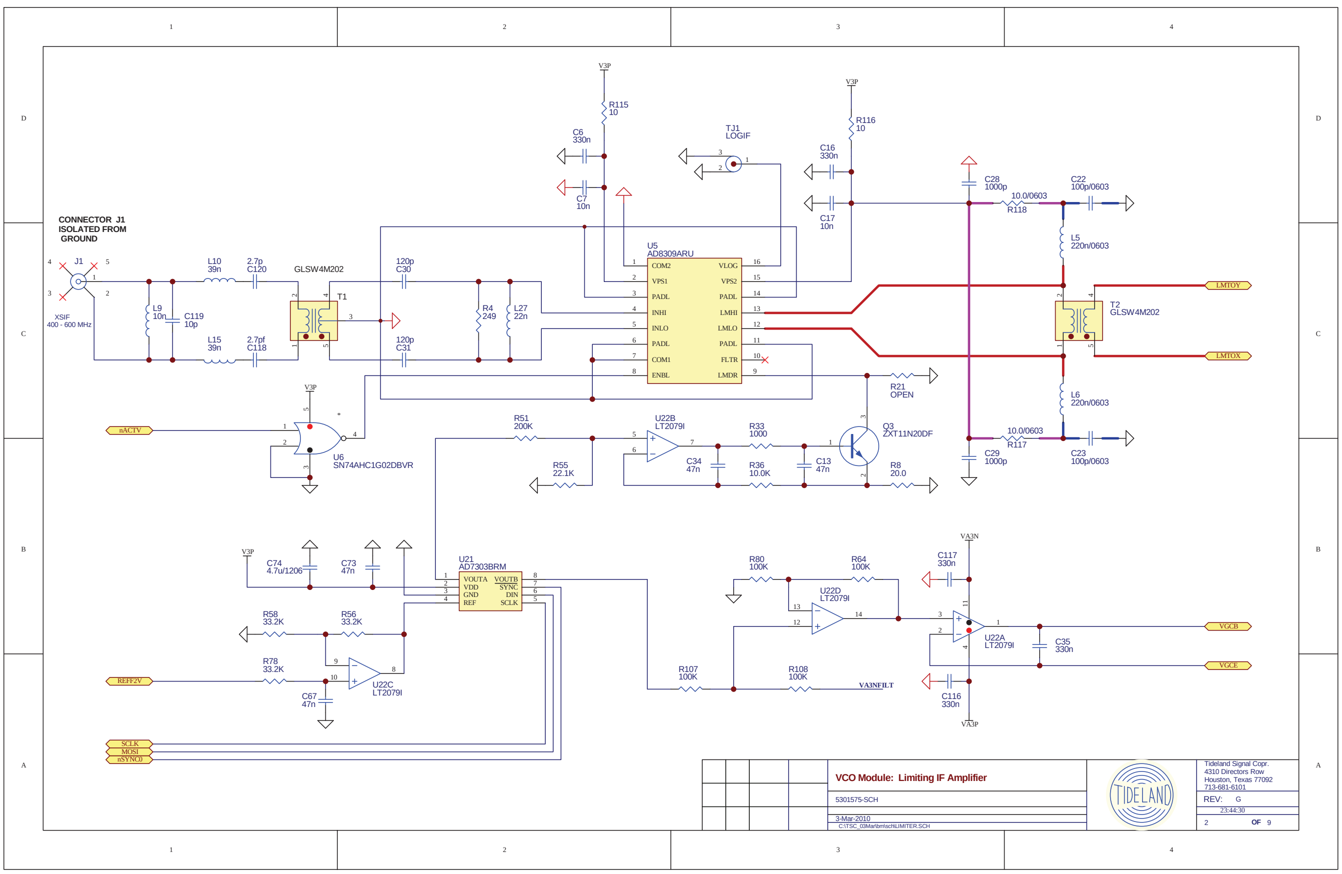
SeaBeacon II System 6 -- VCO Module

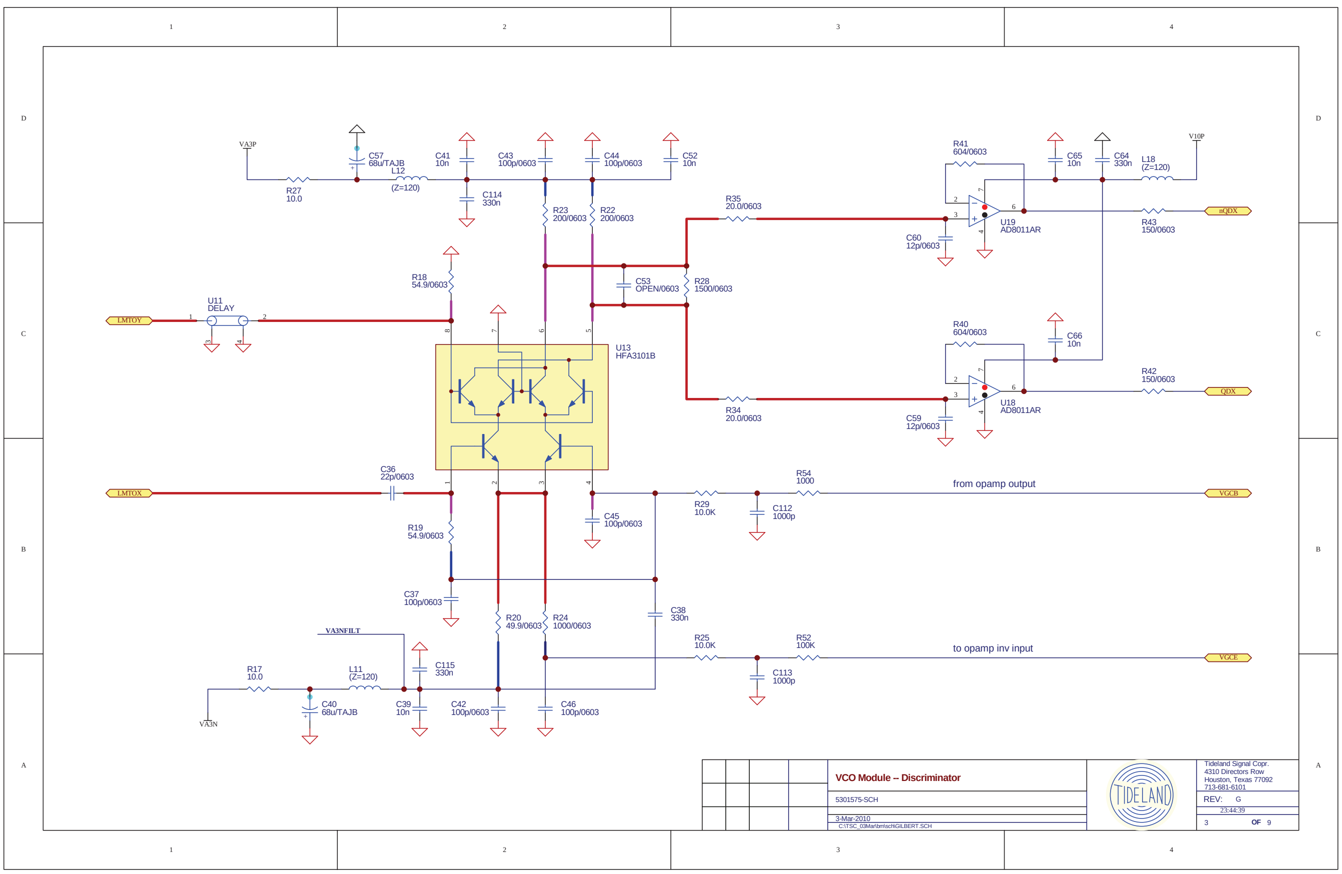
5301575-SCH

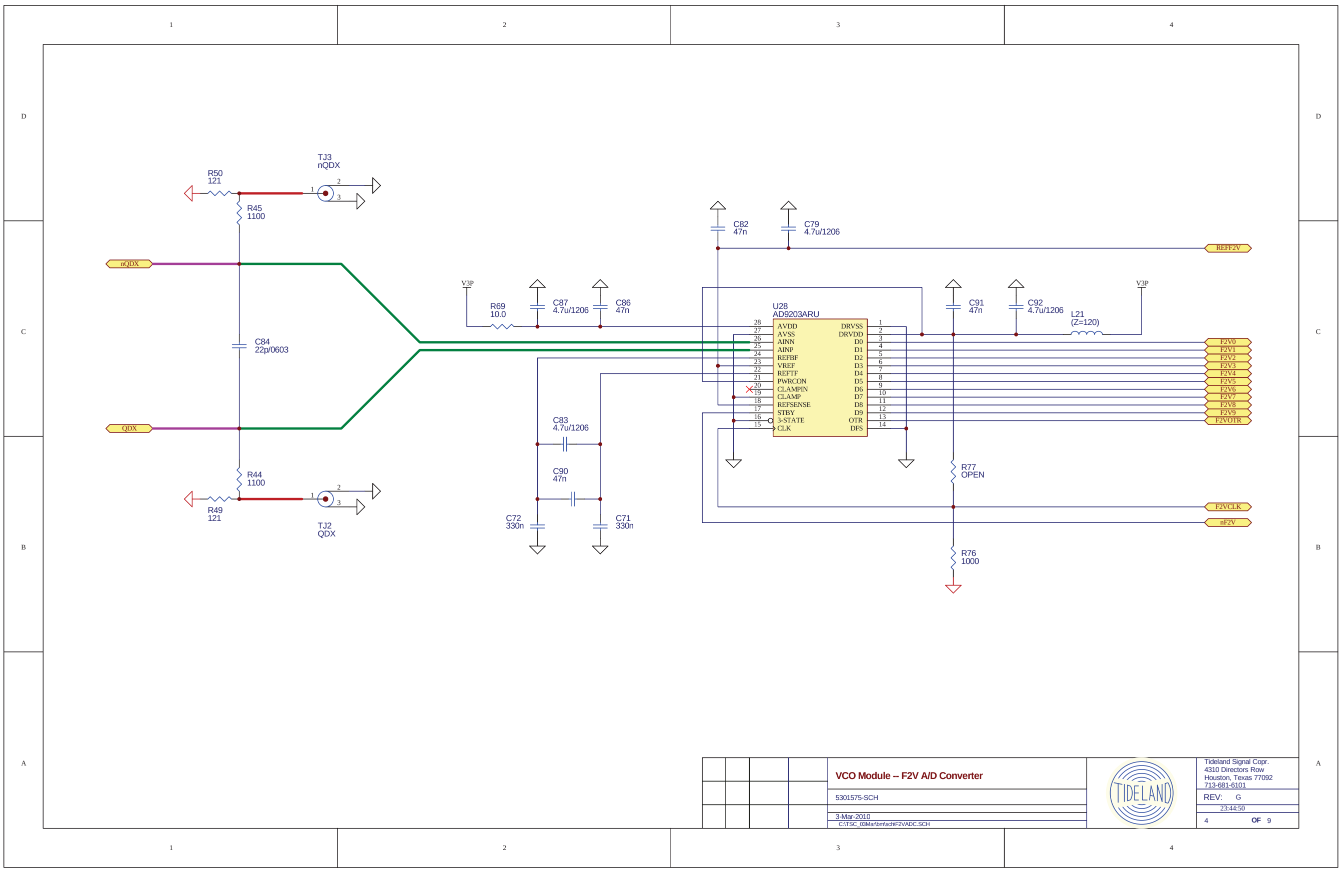
3-Mar-2010
C:\TSC_03Mar\bm\sch\VCO_revG.prj

Tideland Signal Copr.
4310 Directors Row
Houston, Texas 77092
713-681-6101

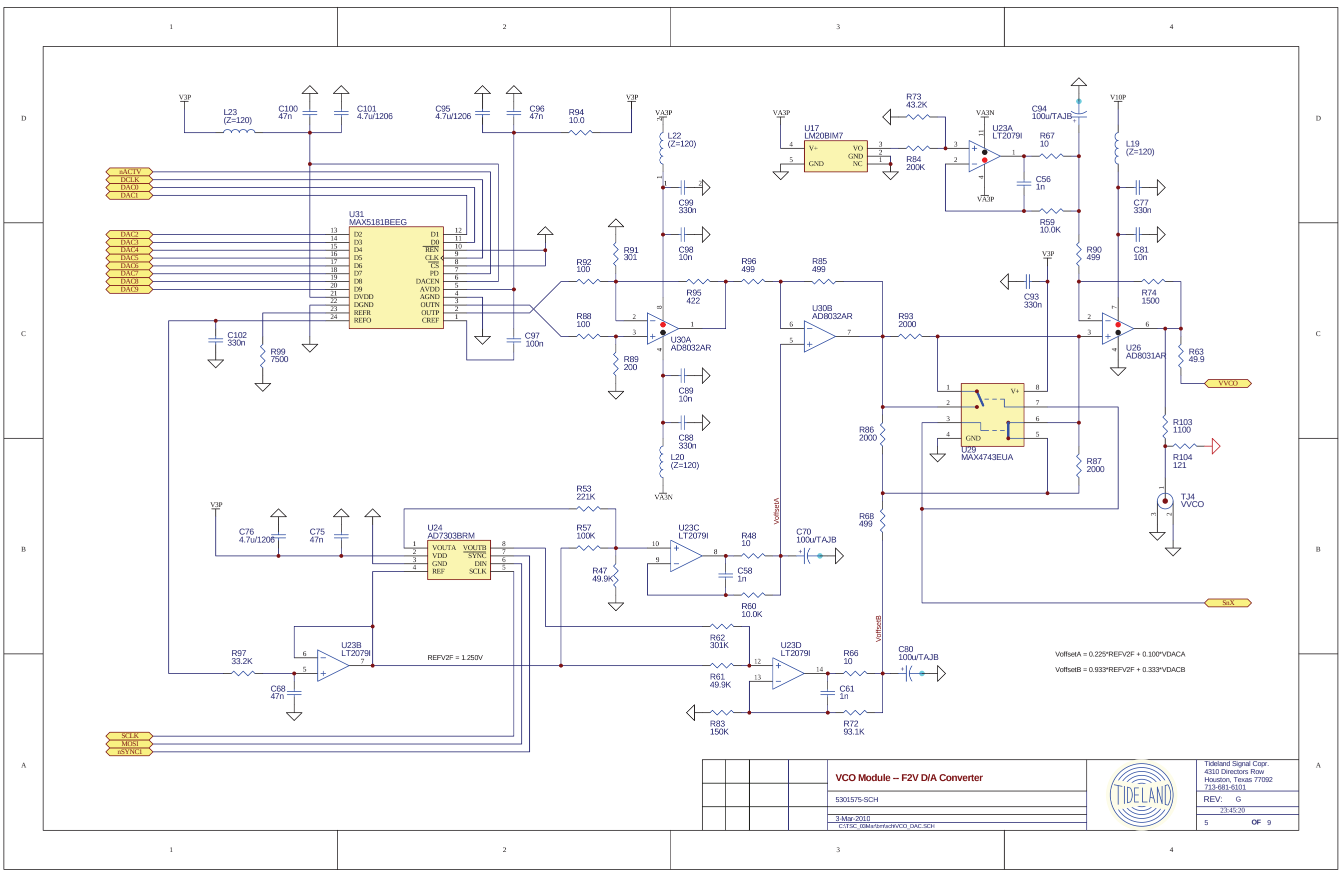
REV: G
23:44:21
1 OF 9

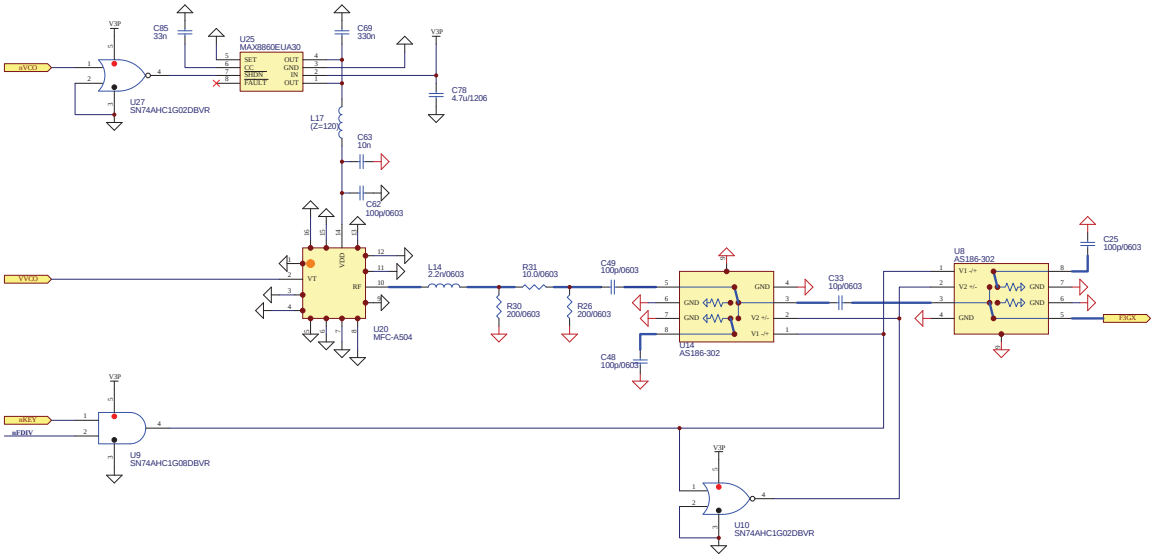

CONNECTOR J1
ISOLATED FROM
GROUND
J1
XSIF
400 - 600 MHz
L10
39n
2.7p
C120
L9
10n
C119
10p
L15
39n
2.7pf
C118
GLSW4M202
T1
120p
C30
120p
C31
R4
249
L27
22n
V3P
R115
10
C6
330n
C7
10n
TJ1
LOGIF
U5
AD8309ARU
COM2
VPS1
PADL
INHI
INLO
PADL
COM1
ENBL
VLOG
VPS2
PADL
LMHI
LMLO
PADL
FLTR
LMDR
R116
10
C16
330n
C17
10n
C28
1000p
10.0/0603
R118
C22
100p/0603
L5
220n/0603
T2
GLSW4M202
LMTOY
LMTOX
L6
220n/0603
10.0/0603
R117
C29
1000p
C23
100p/0603
R21
OPEN
nACTV
U6
SN74AHC1G02DBVR
R51
200K
R55
22.1K
U22B
LT2079I
C34
47n
R33
1000
R36
10.0K
C13
47n
Q3
ZXT11N20DF
R8
20.0
C74
4.7u/1206
C73
47n
U21
AD7303BRM
VOUTA
VDD
GND
REF
VOUTB
SYNC
DIN
SCLK
R58
33.2K
R56
33.2K
R78
33.2K
REFF2V
C67
47n
U22C
LT2079I
R80
100K
R64
100K
U22D
LT2079I
R107
100K
R108
100K
VA3NFILT
VA3N
C117
330n
U22A
LT2079I
C35
330n
VGCB
VGCE
C116
330n
VA3P
SCLK
MOSI
nSYNC0
VCO Module: Limiting IF Amplifier
5301575-SCH
3-Mar-2010
TIDELAND
Tideland Signal Copr.
4310 Directors Row
Houston, Texas 77092
713-681-6101
REV: G
23:44:30
2 OF 9


VA3P
R27
10.0
C57
68u/TAJB
L12
(Z=120)
C41
10n
C114
330n
C43
100p/0603
C44
100p/0603
C52
10n
R23
200/0603
R22
200/0603
R35
20.0/0603
R41
604/0603
C65
10n
C64
330n
L18
(Z=120)
V10P
U19
AD8011AR
C60
12p/0603
R43
150/0603
nQDX
R18
54.9/0603
C53
OPEN/0603
R28
1500/0603
LMTOY
U11
DELAY
U13
HFA3101B
R40
604/0603
C66
10n
R42
150/0603
QDX
U18
AD8011AR
R34
20.0/0603
C59
12p/0603
LMTOX
C36
22p/0603
R29
10.0K
R54
1000
C112
1000p
from opamp output
VGCB
C45
100p/0603
R19
54.9/0603
C37
100p/0603
C38
330n
R20
49.9/0603
R24
1000/0603
R25
10.0K
R52
100K
C113
1000p
to opamp inv input
VGCE
VA3NFILT
R17
10.0
L11
(Z=120)
C115
330n
C40
68u/TAJB
C39
10n
C42
100p/0603
C46
100p/0603
VA3N
VCO Module -- Discriminator
5301575-SCH
3-Mar-2010
TIDELAND
Tideland Signal Copr.
4310 Directors Row
Houston, Texas 77092
713-681-6101
REV: G
23:44:39
3 OF 9



R50
121
R45
1100
TJ3
nQDX
nQDX
C84
22p/0603
QDX
R44
1100
R49
121
TJ2
QDX
V3P
R69
10.0
C87
4.7u/1206
C86
47n
C83
4.7u/1206
C90
47n
C72
330n
C71
330n
C82
47n
C79
4.7u/1206
REFF2V
U28
AD9203ARU
AVDD
AVSS
AINN
AINP
REFBF
VREF
REFTF
PWRCON
CLAMPIN
CLAMP
REFSENSE
STBY
3-STATE
CLK
DRVSS
DRVDD
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
OTR
DFS
C91
47n
C92
4.7u/1206
L21
(Z=120)
V3P
F2V0
F2V1
F2V2
F2V3
F2V4
F2V5
F2V6
F2V7
F2V8
F2V9
F2VOTR
R77
OPEN
F2VCLK
nF2V
R76
1000
VCO Module -- F2V A/D Converter
5301575-SCH
3-Mar-2010
C:\TSC_03Mar\bm\sch\F2VADC.SCH
TIDELAND
Tideland Signal Copr.
4310 Directors Row
Houston, Texas 77092
713-681-6101
REV: G
23:44:50
4 OF 9

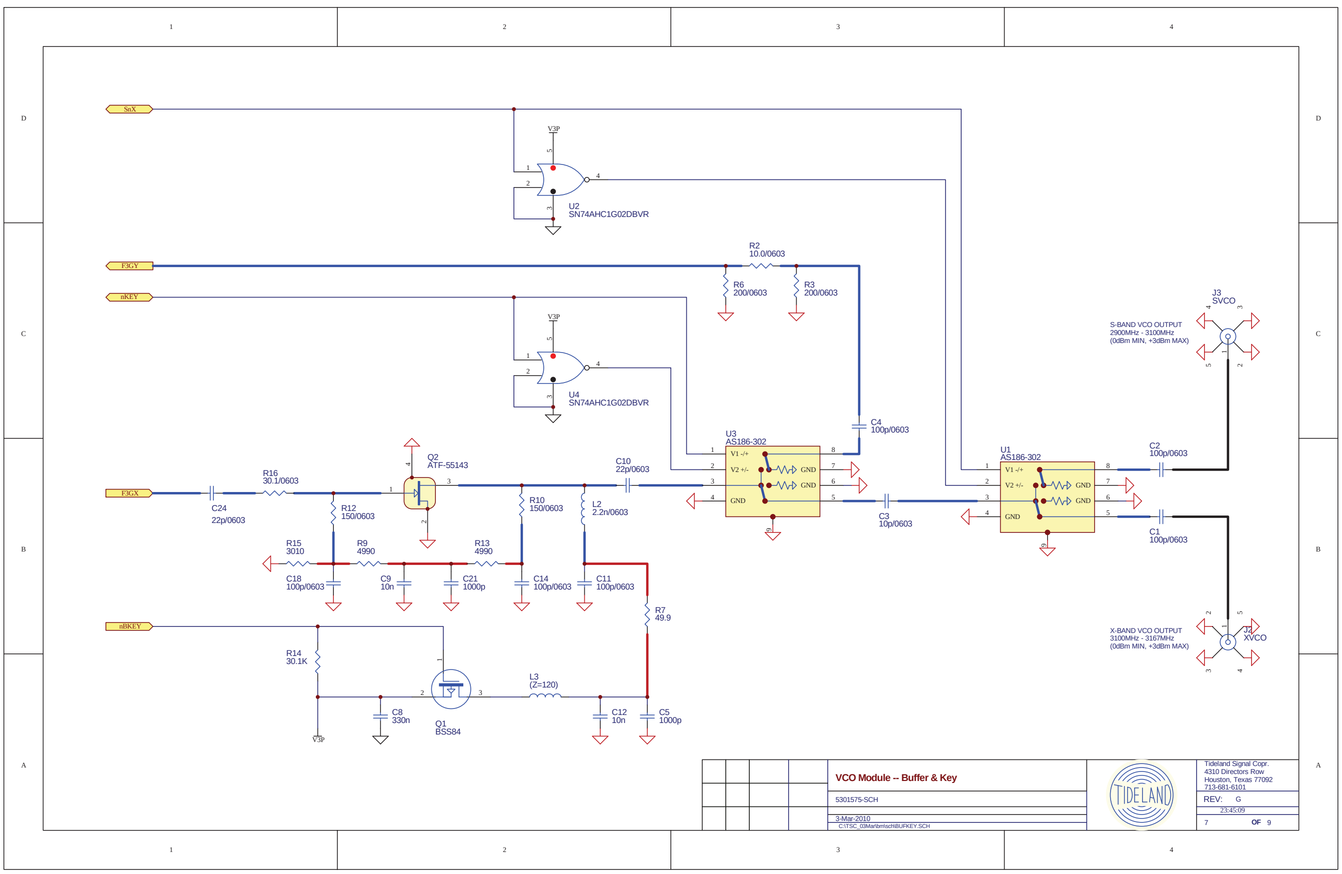

VCO Module -- F2V D/A Converter
5301575-SCH
3-Mar-2010
C:\TSC_03\Marbornsch\VCO_DAC.SCH
Tideland Signal Copr.
4310 Directors Row
Houston, Texas 77092
713-681-6101
REV: G
23:45:20
5 OF 9
TIDELAND
VoffsetA = 0.225*REFV2F + 0.100*VDACA
VoffsetB = 0.933*REFV2F + 0.333*VDACB
REFV2F = 1.250V
U31
MAX5181BEEG
U30A
AD8032AR
U30B
AD8032AR
U17
LM20BIM7
U23A
LT2079I
U23B
LT2079I
U23C
LT2079I
U23D
LT2079I
U24
AD7303BRM
U26
AD8031AR
U29
MAX4743EUA
TJ4
VVCO
nACTV
DCLK
DAC0
DAC1
DAC2
DAC3
DAC4
DAC5
DAC6
DAC7
DAC8
DAC9
SCLK
MOSI
nSYNC1
VVCO
SnX
VoffsetA
VoffsetB
L23 (Z=120)
C100 47n
C101 4.7u/1206
C95 4.7u/1206
C96 47n
R94 10.0
L22 (Z=120)
C99 330n
C98 10n
R91 301
R92 100
R95 422
R96 499
R85 499
R88 100
R89 200
C89 10n
C88 330n
L20 (Z=120)
C102 330n
R99 7500
C97 100n
R73 43.2K
R84 200K
R67 10
C56 1n
R59 10.0K
C94 100u/TAJB
L19 (Z=120)
C77 330n
C81 10n
R90 499
C93 330n
R74 1500
R93 2000
R63 49.9
R86 2000
R87 2000
R68 499
R103 1100
R104 121
R53 221K
R57 100K
R47 49.9K
R48 10
C58 1n
R60 10.0K
C70 100u/TAJB
C76 4.7u/1206
C75 47n
R62 301K
R61 49.9K
R66 10
C80 100u/TAJB
C61 1n
R83 150K
R72 93.1K
R97 33.2K
C68 47n
V3P
VA3P
VA3N
V10P

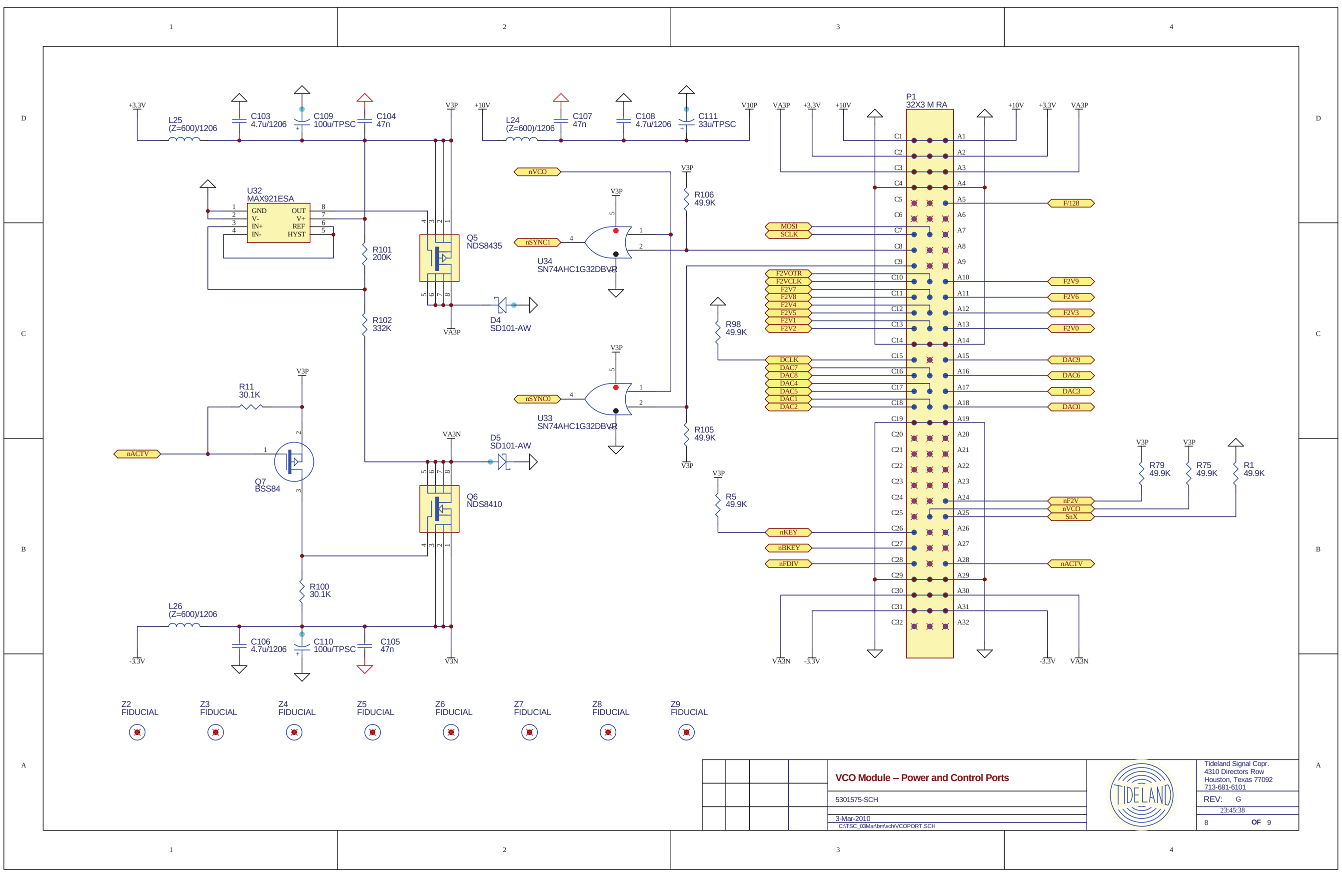


VCO Module -- Oscillator & Prescaler	
5301575-SCH	
3-Mar-2010	
C:\FSC_SSB\antenna\OSC3G.SCH	

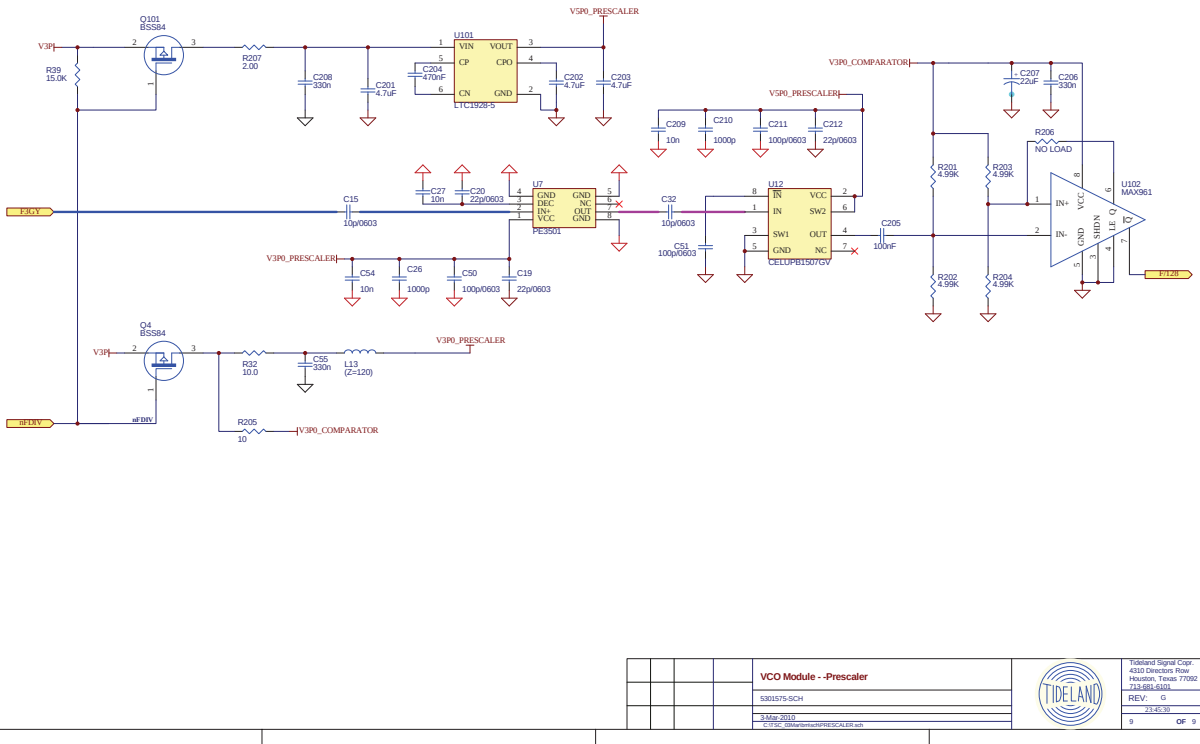
Tideland Signal Copr.
4310 Directors Row
Houston, Texas 77092
713-681-6101

REV:	G
	2.3.45.00
6	OF 9


SnX
F3GY
nKEY
F3GX
nBKEY
V3P
U2
SN74AHC1G02DBVR
U4
SN74AHC1G02DBVR
R2
10.0/0603
R6
200/0603
R3
200/0603
C4
100p/0603
J3
SVCO
S-BAND VCO OUTPUT
2900MHz - 3100MHz
(0dBm MIN, +3dBm MAX)
Q2
ATF-55143
R16
30.1/0603
C24
22p/0603
R12
150/0603
C10
22p/0603
R10
150/0603
L2
2.2n/0603
U3
AS186-302
V1 -/+
V2 +/-
GND
C3
10p/0603
U1
AS186-302
C2
100p/0603
C1
100p/0603
R15
3010
R9
4990
R13
4990
C18
100p/0603
C9
10n
C21
1000p
C14
100p/0603
C11
100p/0603
R7
49.9
X-BAND VCO OUTPUT
3100MHz - 3167MHz
(0dBm MIN, +3dBm MAX)
J2
XVCO
R14
30.1K
C8
330n
Q1
BSS84
L3
(Z=120)
C12
10n
C5
1000p
VCO Module -- Buffer & Key
5301575-SCH
3-Mar-2010
C:\TSC_03Mar\bm\sch\BUFKEY.SCH
TIDELAND
Tideland Signal Copr.
4310 Directors Row
Houston, Texas 77092
713-681-6101
REV: G
23:45:09
7 OF 9



VCO Module -- Power and Control Ports
5301575-SCH
3-Mar-2010
C:\TSC_03Mar\bmsch\VCOPORT.SCH
Tideland Signal Copr.
4310 Directors Row
Houston, Texas 77092
713-681-6101
REV: G
23:45:38
8 OF 9
TIDELAND
P1
32X3 M RA
U32
MAX921ESA
GND
V-
IN+
IN-
OUT
V+
REF
HYST
Q5
NDS8435
Q6
NDS8410
Q7
BSS84
U34
SN74AHC1G32DBVR
U33
SN74AHC1G32DBVR
D4
SD101-AW
D5
SD101-AW
L25
(Z=600)/1206
L24
(Z=600)/1206
L26
(Z=600)/1206
C103
4.7u/1206
C109
100u/TPSC
C104
47n
C107
47n
C108
4.7u/1206
C111
33u/TPSC
C106
4.7u/1206
C110
100u/TPSC
C105
47n
R101
200K
R102
332K
R11
30.1K
R100
30.1K
R106
49.9K
R105
49.9K
R98
49.9K
R5
49.9K
R79
49.9K
R75
49.9K
R1
49.9K
+3.3V
-3.3V
+10V
V10P
V3P
V3N
VA3P
VA3N
nVCO
nSYNC1
nSYNC0
nACTV
MOSI
SCLK
F/128
F2VOTR
F2VCLK
F2V7
F2V8
F2V4
F2V5
F2V1
F2V2
F2V9
F2V6
F2V3
F2V0
DCLK
DAC7
DAC8
DAC4
DAC5
DAC1
DAC2
DAC9
DAC6
DAC3
DAC0
nF2V
nVCO
SnX
nKEY
nBKEY
nFDIV
nACTV
Z2 FIDUCIAL
Z3 FIDUCIAL
Z4 FIDUCIAL
Z5 FIDUCIAL
Z6 FIDUCIAL
Z7 FIDUCIAL
Z8 FIDUCIAL
Z9 FIDUCIAL



VCO Module - -Prescaler	
5301575-SCH	
3-Mar-2010	
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Tideland Signal Copr.
4310 Directors Row
Houston, Texas 77092
713-681-6101

REV: G

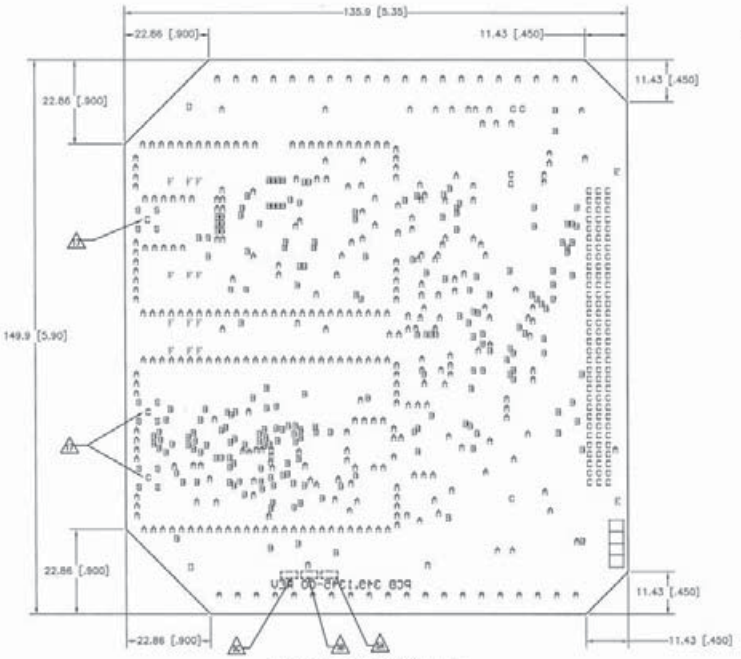
23:45:30

9 OF 9

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE BASIC.
2. THIS MULTILAYER BOARD SHALL MEET THE REQUIREMENTS OF IPC-6011, CLASS 3.
3. MANUFACTURE USING ARTWORK 349.1345-XMK REV G, FOUR COPPER LAYERS WITH SOLDER MASK, SILKSCREEN, AND PASTE MASK ON BOTH OUTER LAYERS. FOR MANUFACTURING PURPOSES THIS ARTWORK SHALL NOT BE REPRODUCED TO OR FROM A REPRODUCIBLE MEDIA THAT IS LESS THAN A STABLE BASE MATERIAL.
4. LAYER #1 (TOP CIRCUIT) AND LAYER #2 (INTERNAL GROUND) TO BE 1 OUNCE COPPER ON ROGERS RO4003 SUBSTRATE OF THICKNESS 0.41 [.016] NOMINAL, DIELECTRIC CONSTANT 3.38 NOMINAL. LAYER #3 (INTERNAL SIGNAL & POWER) AND LAYER #4 (BOTTOM CIRCUIT) TO BE 1 OUNCE COPPER ON FR-4 MATERIAL OF THICKNESS 0.41 [.016] NOMINAL. DIELECTRIC CONSTANT 4.2 TO 4.8 TYPICAL. CORE TO BE FR-4 MATERIAL, SIZED TO MAKE OVERALL BOARD THICKNESS 1.58 [.063] NOMINAL. COPPER CLAD LAMINATE AND PREPREG MATERIALS SHALL CONFORM TO TYPE GF PER MIL-P-13949. SPECIFIC MATERIAL REQUIREMENTS, THICKNESS, AND LAYER ARRANGEMENTS SHALL BE IN ACCORDANCE WITH FIGURE 1.
5. BOARD MUST BE PERMANENTLY MARKED, ON SOLDER SIDE, WITH:
   A. REVISION LETTER SPECIFIED ON THIS DRAWING AND ON THE PURCHASE ORDER IN COPPER IN AREA INDICATED BY [ ].
   B. CURRENTLY LISTED UL SUPPLIER MARK AS RECOGNIZED FOR UL LISTING [ ].
   C. A FOUR DIGIT DATE CODE YEAR AND WEEK OF MANUFACTURE [ ].
6. MINIMUM CONDUCTOR WIDTH 0.20 [.008].
7. EDGE CLEARANCE ON INTERNAL LAYERS NOT TO EXCEED 0.76 [.030].
8. TOP AND BOTTOM LAYERS TO BE FINISHED BY GOLD IMMERSION PROCESS, 0.00008 [.000003]-0.00020 [.000008] GOLD SURFACE OVER EXPOSED COPPER.
9. ALL PLATED THRU HOLES SHALL HAVE A MINIMUM OF 0.03 [.001] THK PLATED COPPER.
10. ALL HOLE SIZES ARE AFTER PLATING, TOL. ±.05 [±.002].
11. SOLDERMASK OVER BARE COPPER PROCESS SHALL BE EMPLOYED ON TOP AND BOTTOM AS FOLLOWS: TIN-LEAD PLATE TO BE USED ONLY AS A COPPER ETCHANT RESIST AND THEN COMPLETELY REMOVED, CHEMICALLY. PHOTOIMAGEABLE LIQUID SOLDER MASK COLOR: GREEN, TO BE APPLIED OVER BARE COPPER FOLLOWED BY 63/37 TIN-LEAD PLATING TO COVER ALL EXPOSED TRACES, PADS, AND WALLS OF PLATED THRU HOLES. EXCESS SOLDER SHALL BE REMOVED AND HOLES SHALL BE CLEARED.
12. SILKSCREEN SHALL BE APPLIED TO BOTH SIDES OF BOARD PER MASTER PATTERN SILKSCREENS, USING NON-CONDUCTIVE WHITE EPOXY INK.
13. BOARD MUST BE 100% BARE BOARD TESTED POINT TO POINT ON MANIA SYSTEM OR EQUIVALENT. TEST CERTIFICATION MUST BE PROVIDED. TEST CERTIFICATION MUST INCLUDE 40VDC TEST VOLTAGE, 50 OHM OPEN SENSITIVITY, 2.5 MEGOHM SHORT AND 350mA MAX TEST CURRENT.
14. USE PCB LAMINATE WITH A WATER ABSORPTION LESS THAN OR EQUAL TO 0.13%.
15. BOARD FLATNESS TO BE 0.25 [.010] 2.54 [1.000]/2.54 [1.000].
16. EXPOSED PADS TO BE HOT AIR LEVELED.
17. DO NOT PLATE THRU THESE 'C' HOLES.

HOLE SCHEDULE				
DIA MM	DIA IN	QTY	SYM	PLTD
2.79	.110	2	E	NPLTD
2.54	.100	2	D	NPLTD
1.70	.067	12	G	PLTD
1.07	.042	101	C	PLTD
0.89	.035	12	F	PLTD
0.41	.016	203	B	PLTD
0.51	.020	270	A	PLTD
1.07	.042	3	C	NPLTD 17



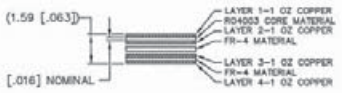


FIGURE 1 4
SCALE: NONE

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
G	5069	NEW PRESCALER CIRCUIT	HA	PFM	18MAR10	ERB
F	4821	X5 RELEASED AS F	TGB	HF	29NOV07	ERB

ATTENTION — MANUAL REVISIONS ARE NOT PERMITTED.

UNLESS OTHERWISE SPECIFIED
1. TOLERANCE: MILLIMETER — X = ±0.8, .X = ±0.25, .XX = ±0.13, .XXX = ±0.05; INCHES — X = ±.03, .X = ±.010, .XX = ±.005, .XXX = ±.002
2. ANGULAR ± 2°
3. ALL DIMENSIONS ARE IN MILLIMETERS OR INCHES [INCHES]
4. TOLERANCES ARE NON-ACCUMULATIVE.
5. MACHINED INSIDE CORNERS 0.38 MAX.
6. INTERPRET DWG PER ANSI Y14.5M-1994.

MATERIAL
FINISH
DRAWN HA 13MAR10
ENGRG MGR MFM 18MAR10
SUPERVISOR
MFG MGR
ENGR HF 29NOV07
CEO
PROJ ENGR CEO 29NOV07
QA MGR
CPM

NEXT ASSEMBLY — USED ON

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THIS DRAWING REMAINS PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORP. WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE, OR USED FOR ANY PURPOSE OTHER THAN MANUFACTURING, REPAIR, OR INSTALLATION AND IT SHALL BE RETURNED ON DEMAND.

SURFACE FINISH 125 — REMOVE BURRS AND SHARP EDGES

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77081

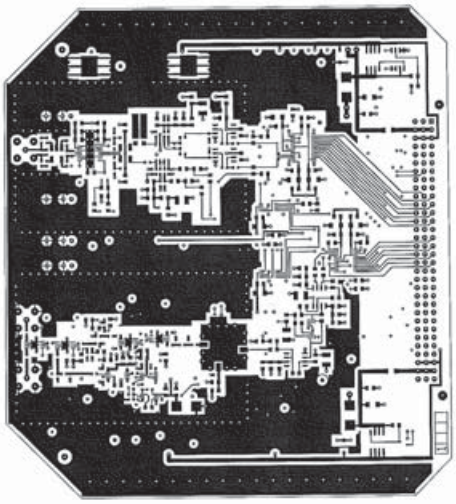
TITLE: PC FAB, VCO SERIES 2, SEABEACON 2 SYSTEM 6

SIZE D | DWG NO 349.1345-00 | REV G
SCALE 2:1 | SHEET 1 OF 1
DO NOT SCALE DRAWING

ORIGINAL

349134500.DWG 07MAY10 14:00

APPROVED FOR:
_____ONLY
___INT. ____DATE



Layer Name_____Top Layer

Stacking Chart_

G	5068	Neu Prescaler Circuit	WM		100304	
F	4821	X5 REL. AS F	JTH		100107	
X5	3823	CHANGED INPUT TO U6	JTH		93004	
X4	3823	CHANGE TOP SOLDER MASK	JTH		71404	
X3	3823		JTH		51004	
X2	3823		JV		32304	
X1	3823		JV		30803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE: ARTWORK VCO MODULE SB2 SYS6

DRAWN	DATE	DESIGN BY:	SIZE	PART NUMBER	REV
BMcginley	03/04/10	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1345-AWK	G
CHECKED	DATE				

PROJ. ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE	SHEET 1 OF 12
	3/4/2010					

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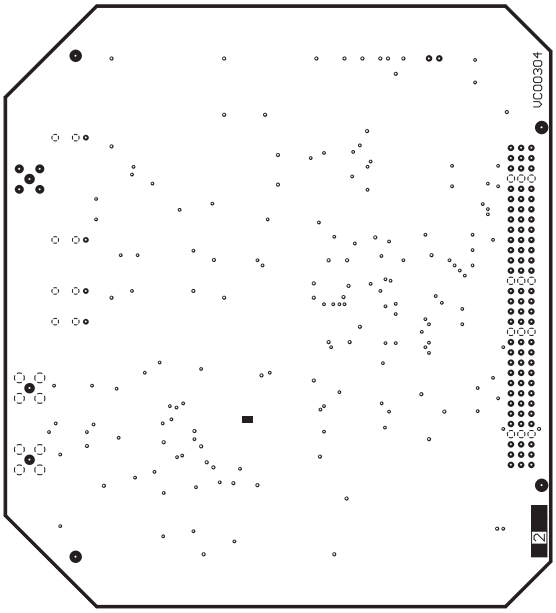

Layer Name_____Internal Plane 1

Stacking Chart__ 2

G	5069	New Prescaler Circuit	WBM		100304	
F	4821	X5 REL. AS F	JTM		100107	
X5	3923	CHANGED INPUT TO U6	JTM		80304	
X4	3923	CHANGE TOP SOLDER MASK	JTM		71404	
X3	3923		JTM		51004	
X2	3923		JU		30304	
X1	3923		JU		90803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
VCO MODULE
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
BMcginley	03/04/10	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1345-AWK	G
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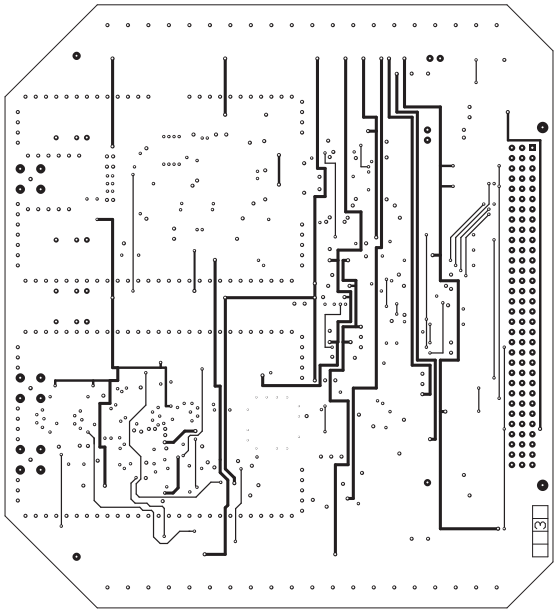

Layer Name_____Mid Layer 1

Stacking Chart_ 3

G	5069	New Prescaler Circuit	WBM		100304	
F	4821	X5 REL. AS F	JTM		100107	
X5	3923	CHANGED INPUT TO U6	JTM		80304	
X4	3923	CHANGE TOP SOLDER MASK	JTM		71404	
X3	3923		JTM		51004	
X2	3923		JU		30304	
X1	3923		JU		90803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

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TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
VCO MODULE
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
BMcginley	03/04/10	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1345-AWK	G
CHECKED	DATE				
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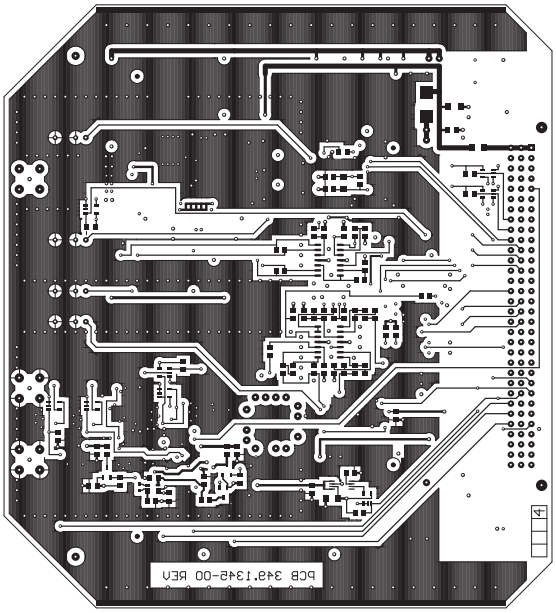

Layer Name_____Bottom Layer

Stacking Chart_ 4

G	5069	New Prescaler Circuit	WBM		100304	
F	4821	X5 REL. AS F	JTM		100107	
X5	3923	CHANGED INPUT TO U6	JTM		80304	
X4	3923	CHANGE TOP SOLDER MASK	JTM		71404	
X3	3923		JTM		51004	
X2	3923		JU		30304	
X1	3923		JU		90803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

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TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
VCO MODULE
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
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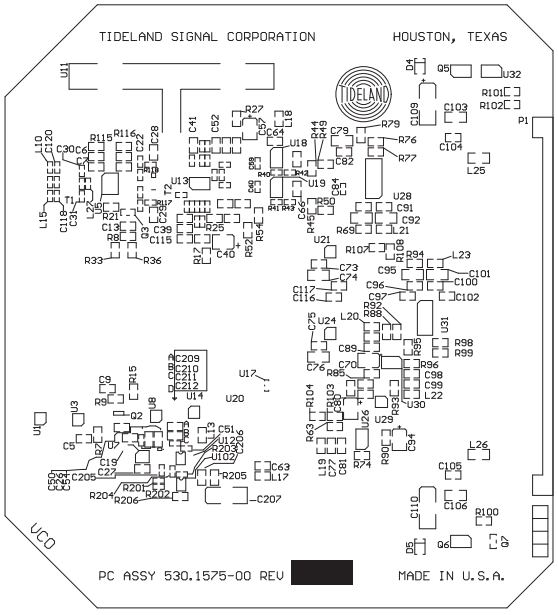

Layer Name_____ Top Overlay

Stacking Chart__ ☐☐☐☐

G	5069	New Prescaler Circuit	WBM		100304	
F	4821	X5 REL. AS F	JTM		100107	
X5	3923	CHANGED INPUT TO U6	JTM		80304	
X4	3923	CHANGE TOP SOLDER MASK	JTM		71404	
X3	3923		JTM		51004	
X2	3923		JU		30304	
X1	3923		JU		90803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

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TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
VCO MODULE
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
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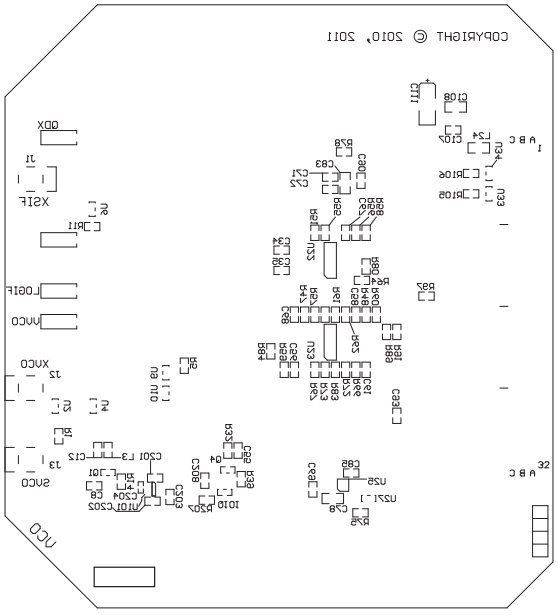

Layer Name_____Bottom Overlay

Stacking Chart_____

G	5069	New Prescaler Circuit	WBM		100304	
F	4821	X5 REL. AS F	JTM		100107	
X5	3923	CHANGED INPUT TO U6	JTM		80304	
X4	3923	CHANGE TOP SOLDER MASK	JTM		71404	
X3	3923		JTM		51004	
X2	3923		JU		30304	
X1	3923		JU		90803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

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4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
VCO MODULE
SB2 SYS6

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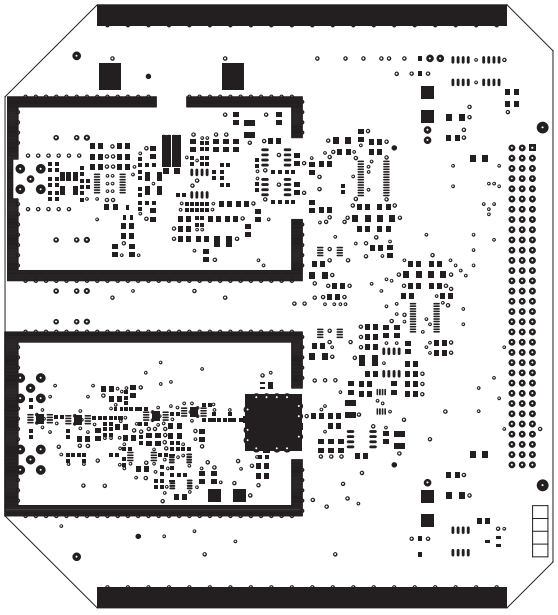

Layer Name_____ Top Solder Mask

Stacking Chart__ ☐☐☐☐

G	5069	New Prescaler Circuit	WBM		100304	
F	4821	X5 REL. AS F	JTM		100107	
X5	3923	CHANGED INPUT TO U6	JTM		80304	
X4	3923	CHANGE TOP SOLDER MASK	JTM		71404	
X3	3923		JTM		51004	
X2	3923		JU		30304	
X1	3923		JU		90803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

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TITLE
ARTWORK
VCO MODULE
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
BMcginley	03/04/10	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1345-AWK	G
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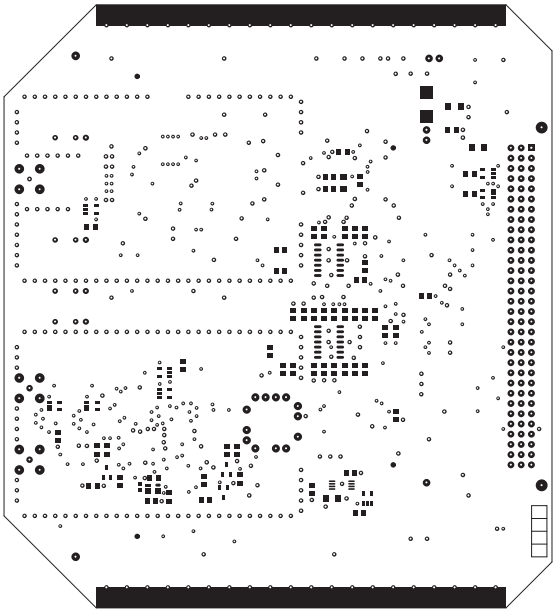

Layer Name_____Bottom Solder Mask

Stacking Chart_□□□□

G	5069	New Prescaler Circuit	WBM		100304	
F	4821	X5 REL. AS F	JTM		100107	
X5	3923	CHANGED INPUT TO U6	JTM		80304	
X4	3923	CHANGE TOP SOLDER MASK	JTM		71404	
X3	3923		JTM		51004	
X2	3923		JU		30304	
X1	3923		JU		90803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
VCO MODULE
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
BMcginley	03/04/10	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1345-AWK	G
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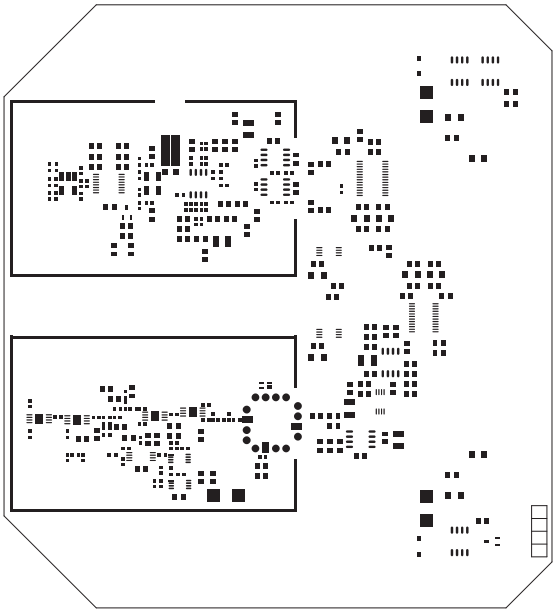

Layer Name_____ Top Paste Mask

Stacking Chart__ ☐☐☐☐

G	5069	New Prescaler Circuit	WBM		100304	
F	4821	X5 REL. AS F	JTM		100107	
X5	3923	CHANGED INPUT TO U6	JTM		80304	
X4	3923	CHANGE TOP SOLDER MASK	JTM		71404	
X3	3923		JTM		51004	
X2	3923		JU		30304	
X1	3923		JU		90803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

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TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
VCO MODULE
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
BMcginley	03/04/10	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1345-AWK	G
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PROJ ENGR	DATE	UL / EX / DO NOT SCALE DRAWING / SCALE		SHEET 9 OF 12	

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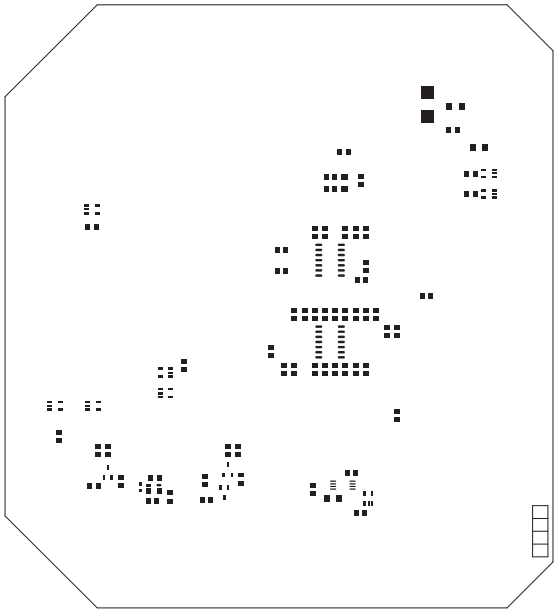

Layer Name_____Bottom Paste Mask

Stacking Chart_____

G	5069	New Prescaler Circuit	WBM		100304	
F	4821	X5 REL. AS F	JTM		100107	
X5	3923	CHANGED INPUT TO U6	JTM		80304	
X4	3923	CHANGE TOP SOLDER MASK	JTM		71404	
X3	3923		JTM		51004	
X2	3923		JV		30304	
X1	3923		JV		90803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
VCO MODULE
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
BMcginley	03/04/10	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1345-AWK	G
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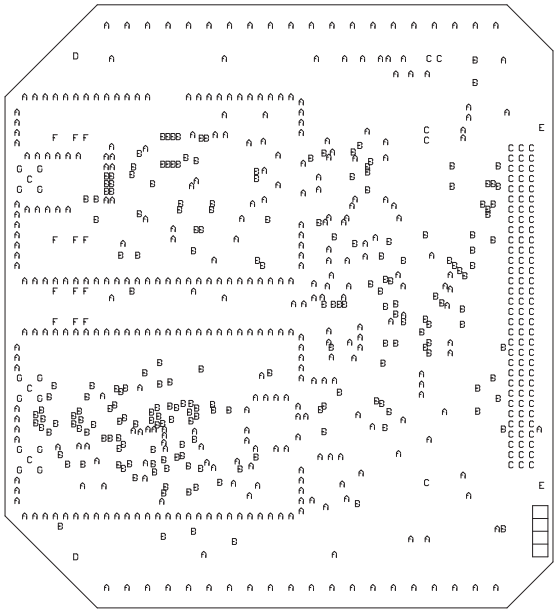

E	2	110mil	2.794mm
D	2	100mil	2.54mm
G	12	67mil	1.7018mm
C	104	42mil	1.0668mm
F	12	35mil	0.889mm
A	370	20mil	0.508mm
B	203	16mil	0.4064mm
	705	Total	

Layer Name_____Drill Drawing for Through Hole

Stacking Chart_☐☐☐☐

G	5069	New Prescaler Circuit	WBM		100304	
F	4821	X5 REL. AS F	JTM		100107	
X5	3923	CHANGED INPUT TO U6	JTM		80304	
X4	3923	CHANGE TOP SOLDER MASK	JTM		71404	
X3	3923		JTM		51004	
X2	3923		JU		30304	
X1	3923		JU		90803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

8-Mar-2010
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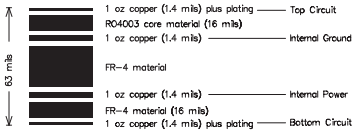
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
ARTWORK
VCO MODULE
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
BMcginley	03/04/10	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1345-AWK	G
CHECKED	DATE				
PROJ ENGR	DATE	UL / EX: DO NOT SCALE DRAWING	SCALE	SHEET 11 OF 12	

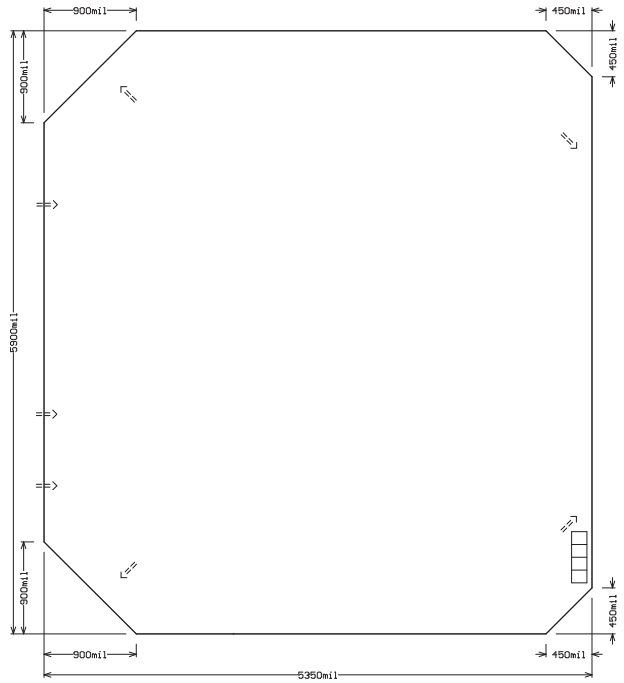
FABRICATION NOTES:

1. MANUFACTURE USING ARTWORK 349.1345-AWK REVISION G, FOUR COPPER LAYERS WITH SOLDER MASK AND SILKSCREEN ON BOTH OUTER LAYERS.
2. LAYER # 1 (TOP CIRCUIT) AND LAYER # 2 (INTERNAL GROUND) TO BE 1 OUNCE COPPER ON ROGERS RO4003 SUBSTRATE OF THICKNESS 0.016 INCHES NOMINAL, DELECTRIC CONSTANT 3.38 NOMINAL.
3. LAYER # 3 (INTERNAL SIGNAL & POWER) AND LAYER # 4 (BOTTOM CIRCUIT) TO BE 1 OUNCE COPPER ON FR-4 MATERIAL OF THICKNESS 0.016 INCHES NOMINAL, DELECTRIC CONSTANT 4.2 TO 4.8 TYPICAL.
4. CORE TO BE FR-4 MATERIAL, SIZED TO MAKE OVERALL BOARD THICKNESS 0.063 INCHES NOMINAL.
5. LAYERS TO BE STACKED AS FOLLOWS:



6. EDGE CLEARANCE ON INTERNAL LAYERS NOT TO EXCEED 30 MILS.
7. BOARD FLATNESS TOLERANCE TO BE 0.010 INCH/INCH.
8. MINIMUM CONDUCTOR WIDTH TO BE 0.008 INCH.
9. PHOTOIMAGEABLE LIQUID SOLDER MASK OVER BARE COPPER (SMOBC) ON TOP AND BOTTOM LAYERS.
10. DRILLED HOLES TO BE PLATED THROUGH WITH MINIMUM 0.001 INCHES COPPER.
11. DRILLED HOLE SIZES APPLY AFTER PLATING, WITH TOLERANCE +/- 0.002 INCHES.
12. DO NOT PLATE THROUGH HOLES MARKED WITH ARROW (==>, SEVEN PLACES):
    -- UPPER LEFT CORNER AND LOWER LEFT CORNER OF BOARD,
    -- J1, J2, J3 CENTER CONDUCTORS,
    -- P1 MOUNTING HOLES.
13. TOP AND BOTTOM LAYERS TO BE FINISHED BY GOLD IMMERSION PROCESS, 3 TO 8 MICROINCHES GOLD SURFACE OVER EXPOSED COPPER.
14. SILKSCREEN BOTH SIDES WITH NON-CONDUCTIVE WHITE INK.

    BOARD MUST BE PERMANENTLY MARKED ON SOLDER SIDE WITH:
    -- REVISION LETTER SPECIFIED ON THIS DRAWING AND ON THE PURCHASE ORDER IN COPPER IN AREA INDICATED BY [ ].
    -- CURRENTLY LISTED UL SUPPLIER MARK AS RECOGNIZED FOR UL LISTING,
    -- FOUR DIGIT DATE CODE TO SHOW YEAR AND WEEK OF MANUFACTURE.



Layer Name_____ Mechanical Layer 1

Stacking Chart_ [ ][ ][ ][ ]

G	5069	New Prescaler Circuit	WBM		100304	
F	4821	X5 REL. AS F	JTM		100107	
X5	3923	CHANGED INPUT TO U6	JTM		80304	
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X3	3923		JTM		51004	
X2	3923		JU		30304	
X1	3923		JU		90803	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

Components _____ 327
Nets _____ 208
Holes _____ 705
8-Mar-2010
22:56:29
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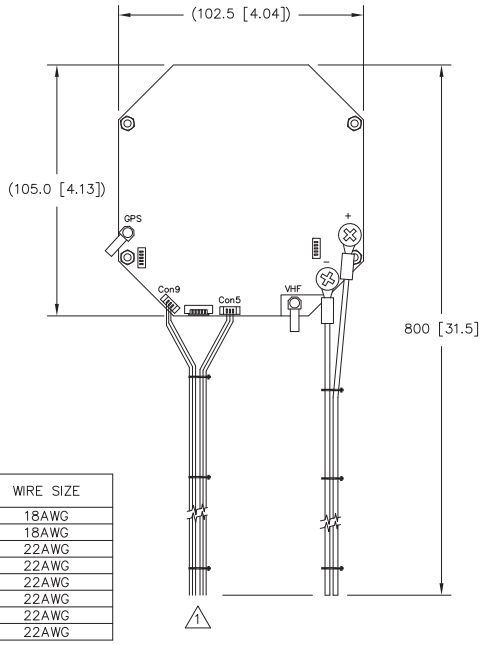
TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

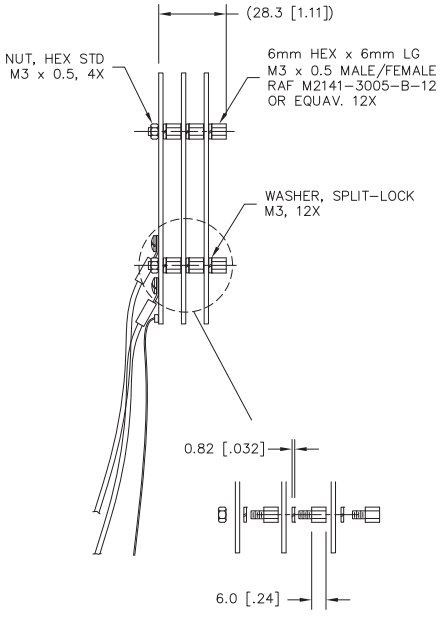
TITLE
ARTWORK
VCO MODULE
SB2 SYS6

DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
BMcginley	03/04/10	ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	B	349.1345-AWK	G
CHECKED	DATE				
PROJ ENGR	DATE	UL / EX	DO NOT SCALE DRAWING	SCALE	SHEET 12 OF 12

NOTES: UNLESS OTHERWISE SPECIFIED

1. MAKE ONE BUNDLE OF 6 WIRES FROM " Con5 " AND " Con9 ".





DETAIL "A"

AIS INFORMER V10 CONNECTOR		WIRE SIZE
-VDC	BLK	18AWG
+VDC	RED	18AWG
CON5-2	BLK	22AWG
CON5-1	BRN	22AWG
CON5-3	RED	22AWG
CON9-2	GRN	22AWG
CON9-1	BLK	22AWG
CON9-3	BRN	22AWG

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
A	6109	RLSE FOR PRODUCTION	HA	FS	16APR12	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED.

DWG SIZE	NEXT ASSEMBLY	USED ON

UNLESS OTHERWISE SPECIFIED

1. TOLERANCE MILLIMETERS: X = ±0.8, .X = ±0.4, .XX = ±0.13; TOLERANCE INCHES EQUIV: .X = ±.03 0.762, .XX = ±.015 0.381, .XXX = ±.005 0.127
2. ANGULAR ± 0° 30'
3. ALL DIMENSIONS ARE IN MILLIMETERS OR MILLIMETER [INCHES]
4. TOLERANCES ARE NON-ACCUMULATIVE.
5. MACHINED INSIDE CORNERS 0.5R MAX.
6. INTERPRET DWG PER ASME Y14.5-2009

SURFACE FINISH 125 / REMOVE BURRS AND SHARP EDGES

MATERIAL

FINISH

DRAWN	DATE	ENGRG MGR	DATE
HA	12SEP11	MK	17APR12
CHECKED	DATE	MFG MGR	DATE
FS	16APR12	PCTO	17APR12
PROJ ENGR	DATE	QA MGR	DATE
PFM	16APR12	DRW	17APR12

TIDELAND SIGNAL CORP.
4310 DIRECTORS ROW HOUSTON, TEXAS 77092

TITLE
INFORMER, V-10 EMBEDDED
AIS ATON

UL	EX	DWG SIZE	PART NUMBER	REV
		C	560.1072-DWG	A

DO NOT SCALE DRAWING | SCALE 1:1 | SHEET 1 OF 1

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