

E-Navcon

Circuits and
Schematics

23 July 2015

Engineering Mgr.	Project Engr.	Checker

Rev	Description	Date	By

TABLE OF CONTENTS

1.0	E-Navcon XRF Circuit	4
1.1	E-Navcon XRF Schematic	5
1.1.1	3X Frequency Multiplier.....	6
1.1.2	Transmit Preamplifier	7
1.1.3	Transmit Driver Amplifier.....	8
1.1.4	RF Power Amplifier.....	9
1.1.5	Diplexar.....	10
1.1.6	Receive LNA and Mixer	11
1.1.7	DRO	12
1.1.8	Power and Control Ports	13
1.2	E-Navcon XRF Fabrication.....	14
1.3	E-Navcon XRF Artwork	15
2.0	E-Navcon DIF Module.....	34
2.1	E-Navcon DIF Schematic.....	36
2.1.1	X-Band Amplifier.....	37
2.1.2	S-Band Amplifier.....	38
2.1.3	Hybrid Coupler/Isolator	39
2.1.4	Threshold Logic	40
2.1.5	Peak RSSI Sum	41
2.1.6	RSSI A/D Converter	42
2.1.7	Power and Control Ports	43
2.2	E-Navcon DIF Fabrication	44
2.3	E-Navcon DIF Artwork.....	45
3.0	E-Navcon Power Supply.....	57
3.1	E-Navcon Power Supply Schematic.....	58
3.1.1	Input from Battery	59
3.1.2	Serial Port.....	60
3.1.3	V3P & V3N.....	61
3.1.4	V10P	62
3.1.5	Output to Backplane	63
3.2	E-Navcon Power Supply Fabrication	64
3.3	E-Navcon Power Supply Artwork.....	65
4.0	E-Navcon Backplane.....	78
4.1	E-Navcon Backplane Schematic	79
4.1.1	Backplane SRF & XRF	80
4.1.2	Backplane DIF & VCO.....	81
4.1.3	Backplane DSP & Power Supply.....	82
4.2	E-Navcon Backplane Fabrication.....	83
4.3	E-Navcon Backplane Artwork	84
5.0	E-Navcon DSP 68HC16	98
5.1	E-Navcon DSP Schematic.....	101

5.1.1	DSP CPU	102
5.1.2	DSP Memory.....	103
5.1.3	DSP FPGA Support	104
5.1.4	DSP Field Programmable Gate Array.....	105
5.1.5	DSP Analog Weather Station.....	106
5.1.6	DSP Beeper and Backplane Ports	107
5.2	E-Navcon DSP Fabrication	108
5.3	E-Navcon DSP Artwork.....	109
6.0	E-Navcon VCO Circuit.....	122
6.1	E-Navcon VCO Schematic.....	124
6.1.1	Limiting IF Amplifier	125
6.1.2	Discriminator	126
6.1.3	F2V A/D Converter.....	127
6.1.4	F2V D/A Converter.....	128
6.1.5	Oscillator & Prescaler	129
6.1.6	Buffer & Key.....	130
6.1.7	Power and Control Ports	131
6.1.8	Prescaler.....	132
6.2	E-Navcon VCO Fabrication	133
6.3	E-Navcon VCO Artwork.....	134
7.0	Informer V-10 AIS AtoN.....	146

NOTES: UNLESS OTHERWISE SPECIFIED

- BOARD ASSY SHALL MEET REQUIREMENTS OF IPC-A-610 CLASS 3.
- ASSEMBLE IN STATIC FREE AREA.
- MARK ASSEMBLY REVISION LETTER IN AREA SHOWN.
- MAX. COMPONENT HEIGHT TOP-6.4[.25], BOTTOM-6.4[.25] EXCEPT J4-10[.4].
- MAX. LEAD PROTRUSION: 2.3 [.09].
- FOR SCHEMATIC SEE 530.1556-SCH.
- REMOVED.
- DO NOT SOLDER U2, MUST BE BALL BONDED.
- CHECK Q8, Q12, Q23 FOR ANY SHORTS.
- DETAIL FOR TRANSISTORS Q1, Q4, Q5, Q7, Q10, Q15, Q17, Q19, & Q21:

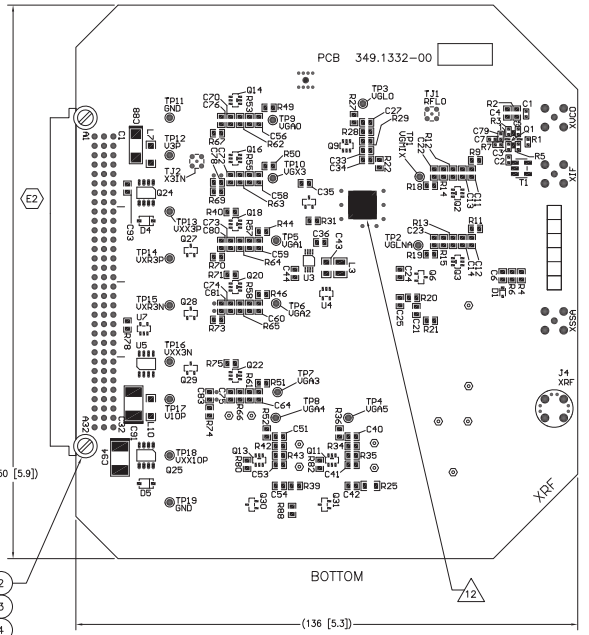
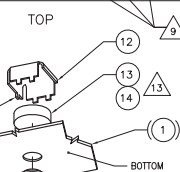
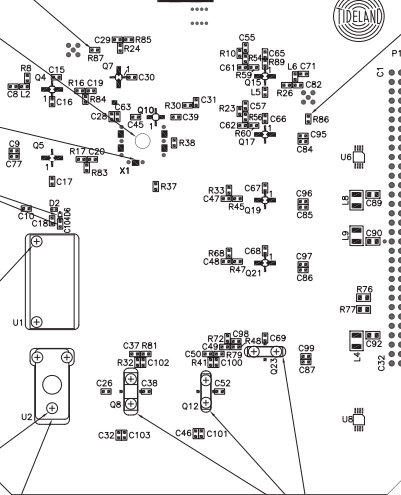


- DO NOT INSTALL T2, R86, R87, X1, C104, D6. T2, R86, R87, C104 & D6 ARE NOT USED. X1 IS INSTALLED AT TEST, REF DETAIL A.
- APPLY ADHESIVE (ITEM 9) TO FLANGE OF DRO TUNING DEVICE (ITEM 10). INSERT TUNING DEVICE IN COUNTERBORED HOLE. INSTALL SETSCREW (ITEM 11) AS INDICATED. DO NOT TOUCH TRANSMISSION LINE. (BY TSC ONLY)
- INSTALL OSCILLATOR (ITEM 13) ON TOP OF BOARD (ON THE SILKSCREENED WHITE CIRCLE) USING ADHESIVE (ITEM 14). (BY TSC ONLY)
- POSITION SHIELD ON PADS WITH OPEN SIDE UPWARD (TOWARD "TIDELAND SIGNAL CORPORATION"). HOLD SHIELD DOWN ON BOARD AND SOLDER TAB INDICATED AFTER ALIGNING ALL TABS WITH PADS. SOLDER REMAINING TABS WHILE HOLDING SHIELD IN PLACE. (BY TSC ONLY)

- THE FOLLOWING COMPONENTS TO HAVE GOLD REMOVED VIA HOT SOLDER DIP TO PREVENT GOLD RELATED SOLDER EMBRITTLEMENT. PARTS ARE TO BE TINNED WITH SN63/37, REF IPC J-STD-001: Q1, Q4, Q5, Q7, Q8, Q10, Q12, Q15, Q17, Q19, Q21, AND Q23.

- DENOTES REVISION SYMBOL.

TIDELAND SIGNAL CORPORATION
HOUSTON, TEXAS
PC ASSY 530.1556-00
MADE IN U.S.A.
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DASH NO.	DESCRIPTION
-00	XRF, SBCN-2 SYS 6 (UNTUNED)
-01	XRF, SBCN-2 SYS 6 (TUNED)

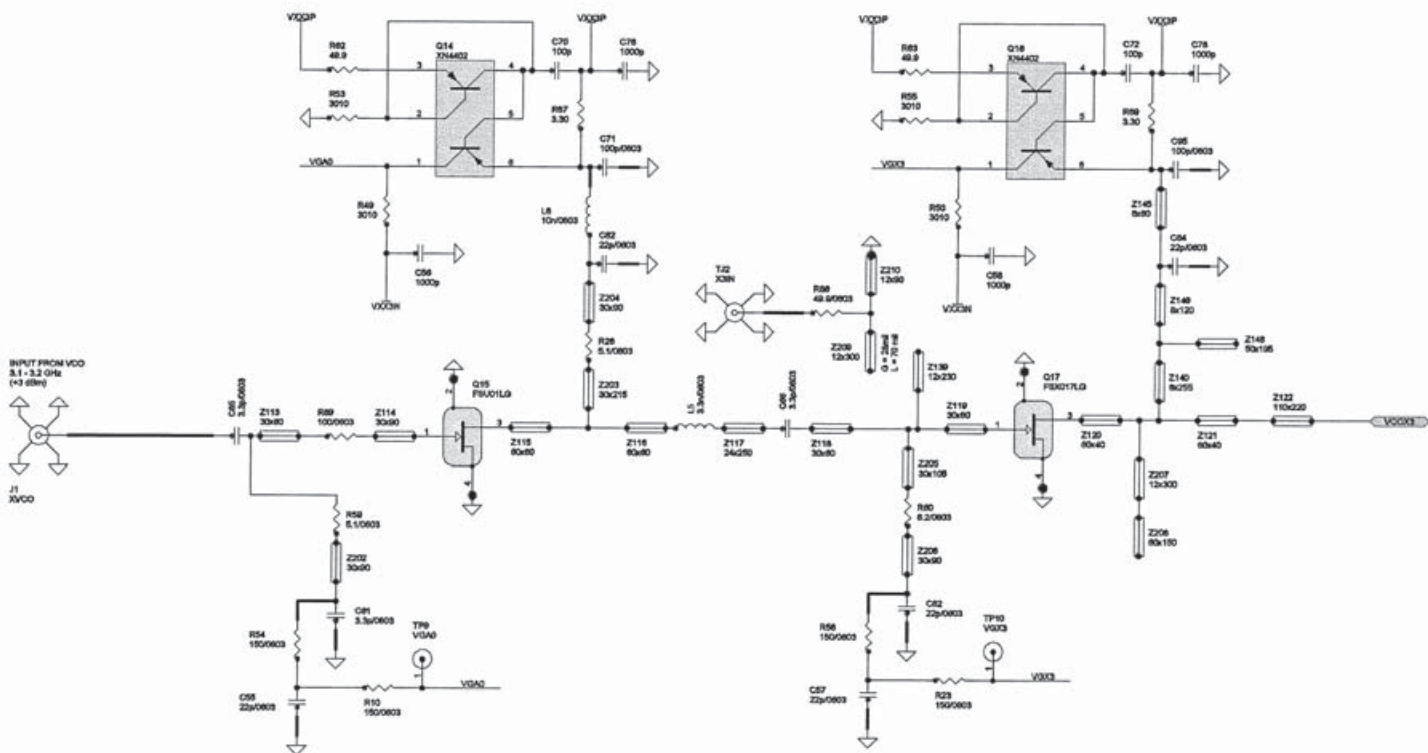
APPROVED FOR:
ONLY
INT. DATE

REV	EDN	ZONE	DESCRIPTION	BY	CHK	DATE	APVD
F	6351		1) ADDED DASH OPTION TABLE	HA	LM	18JAN13	PFM
E	6240	C4	2) DELETED NOTE 7	HA	FS	07SEP12	PFM
D	5509		1) REMOVED NOTE 7	KJN	KN	20OCT10	PFM
C	4612		ADDED NOTE 15	HA	HF	22JAN07	PFM
B	4398		REMOVED SOLDER MASK AT X1, Z151	HA	HF	08FEB04	PFM
A	---		ADDED ITEM 15	HA	HF	31MAR05	PFM
			X8 RELEASED AS REV. A	HA	HF		PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED.

UNLESS OTHERWISE SPECIFIED:	MATERIAL	SEE BOM	TIDELAND SIGNAL CORP.
1. TOLERANCE			4310 DIRECTORS ROW
2. DIMENSIONS ARE IN MILLIMETERS OR INCHES (IN PARENTHESES)			HOUSTON, TEXAS 77060
3. ALL DIMENSIONS ARE IN MILLIMETERS OR INCHES (IN PARENTHESES)			
4. TOLERANCES ARE NON-ACCUMULATIVE			
5. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS			
6. INTERPRET DIMS PER ASME Y14.5-2006			
7. SURFACE FINISH			
8. AND SHARP EDGES			

5301556F.DWG 21JAN13 1100

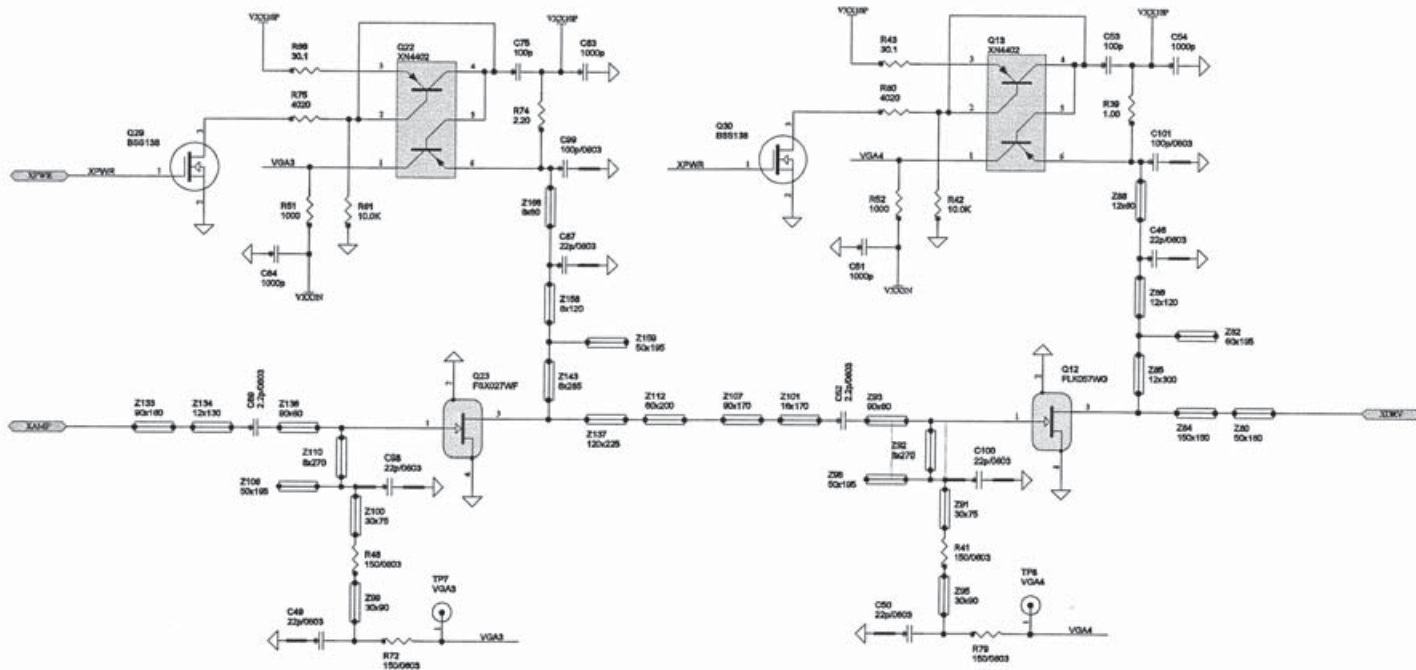


NOTES: RF SUBSTRATE IS ROGERS RO4003, E=3.38, H=18mil, T=2.8mil, C=400mil.
 RF VIAHOLE IS 32H ROUNDED PAD, 18H HOLE.
 RF VIAHOLE REFERENCE PLANE IS THROUGH CENTER OF PAD.
 DISTRIBUTED ELEMENT PARAMETERS ARE SPECIFIED IN MILS.
 CHIP R, L, C ARE 0805 FOOTPRINT UNLESS OTHERWISE NOTED.

RF TRACK WIDTHS: — W = 8 mils — W = 24 mils
 — W = 10 mils — W = 30 mils
 — W = 12 mils — W = 35 mils

	XRF Module - 3X Frequency Multiplier 530.1556-5CH 24-Mar-2005 050638	Tideland Signal Corp. 4310 Dinsmore Lane Houston, Texas 77062 713-981-9171 REV: A 050638 2 OF 8
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ORIGINAL



NOTES: RF SUBSTRATE IS ROGERS RO4003, E=3.38, H=1.8mm, T=2.5mm, C=600nm.
RF VIAHOLE IS 32mil ROUND PAD, 18mil HOLE.
RF VIAHOLE REFERENCE PLANE IS THROUGH CENTER OF PAD.
DISTRIBUTED ELEMENT PARAMETERS ARE SPECIFIED IN MILES.
CHIP R, L, C ARE 0805 FOOTPRINT UNLESS OTHERWISE NOTED.

RF TRACK WIDTHS: ——— W = 8 mils ——— W = 24 mils
————— W = 10 mils ——— W = 30 mils
————— W = 12 mils ——— W = 35 mils

X RF Module - Transmit Driver Amplifier
590 1558-SC11
24-Mar-2006
C:\TIDELAND\PROJECTS\1558-SC11\RF_MODULE\1558-SC11.XPR



Tideland Signal Corp.
4315 Chimney River
Houston, Texas 77062
713-961-8101
REV: A
253539
4 OF 8

ORIGINAL

X-BAND ENVELOPE
BASEBAND
(465MHz, +1045Hz)

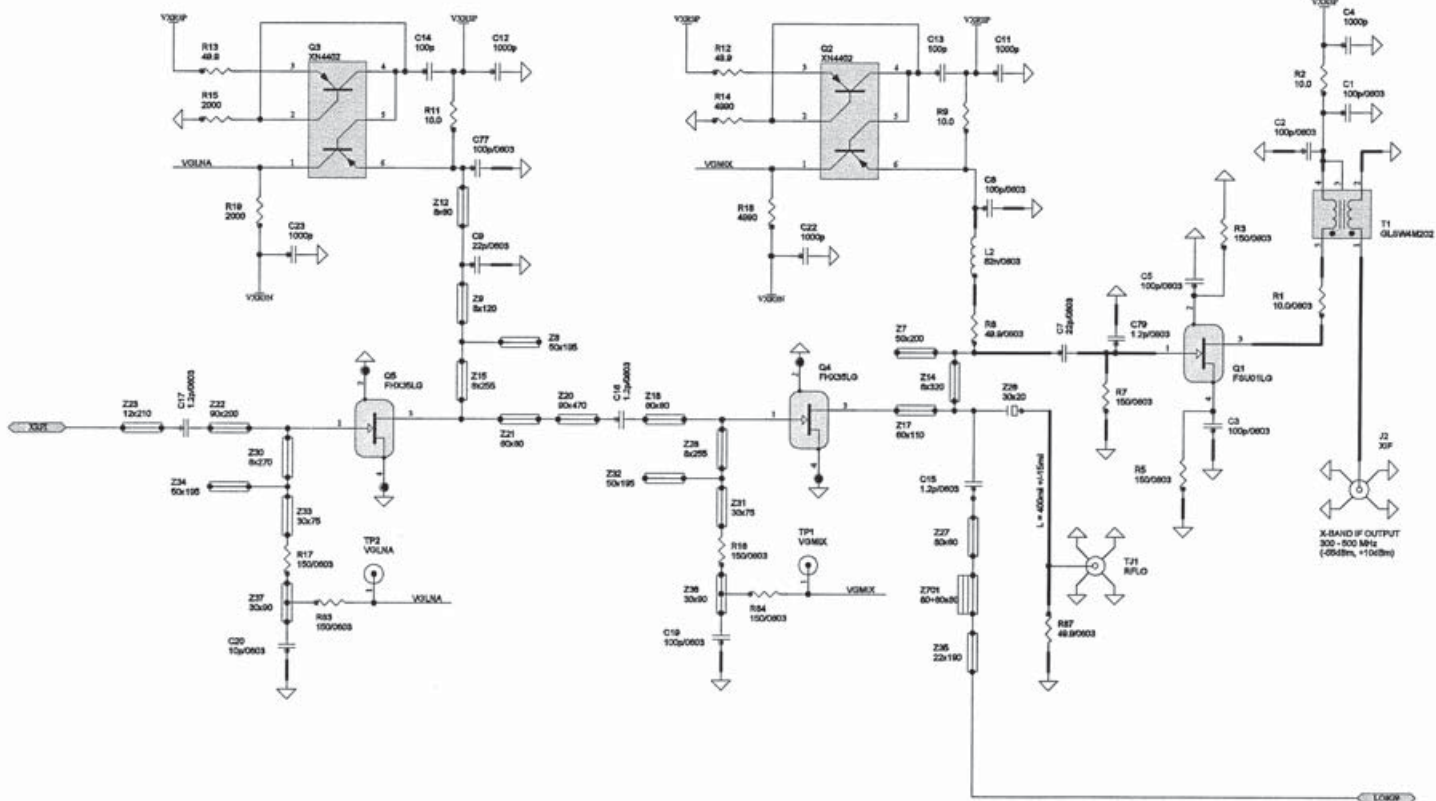
X-BAND ANTENNA PORT
9300 - 9500 MHz

NOTES: RF SUBSTRATE IS ROGERS RO4003, E=3.38, H=16mil, T=0.8mil, C=500mil.
RF VMAKRD IS 32mil ROUND PAD, 16mil HOLE.
RF VMAKRD REFERENCE PLANE IS THROUGH CENTER OF PAD.
DISTRIBUTED ELEMENT PARAMETERS ARE SPECIFIED IN MILS.
GSP B, L, C ARE 0605 FOOTPRINT UNLESS OTHERWISE NOTED.

RF TRACK WIDTHS:
W = 8 mils
W = 10 mils
W = 12 mils
W = 24 mils
W = 30 mils
W = 35 mils

XRF Module - Diplexer			Tideland Signal Corp. 4310 Cleveland Ave. Houston, Texas 77002 713-581-8100 REV: A 03/05/06 6 OF 8
530 1559-8CH			
24-Mar-2006			
017 TIDELAND/ACOM/0605/06-7007_NEW/0605/06/06/06			

ORIGINAL



NOTES: RF SUBSTRATE IS ROGERS 4003, $\epsilon = 3.38$, $H = 1.57\text{mm}$, $T = 2.0\text{mil}$, $C = 500\text{mils}$.
RF VIAHOLE IS 32MIL ROUND PAD, 16MIL HOLE.
RF VIAHOLE REFERENCE PLANE IS THROUGH CENTER OF PAD.
DISTRIBUTED ELEMENT PARAMETERS ARE SPECIFIED IN MILS.
QHP R, L, C ARE 0605 FOOTPRINT UNLESS OTHERWISE NOTED.

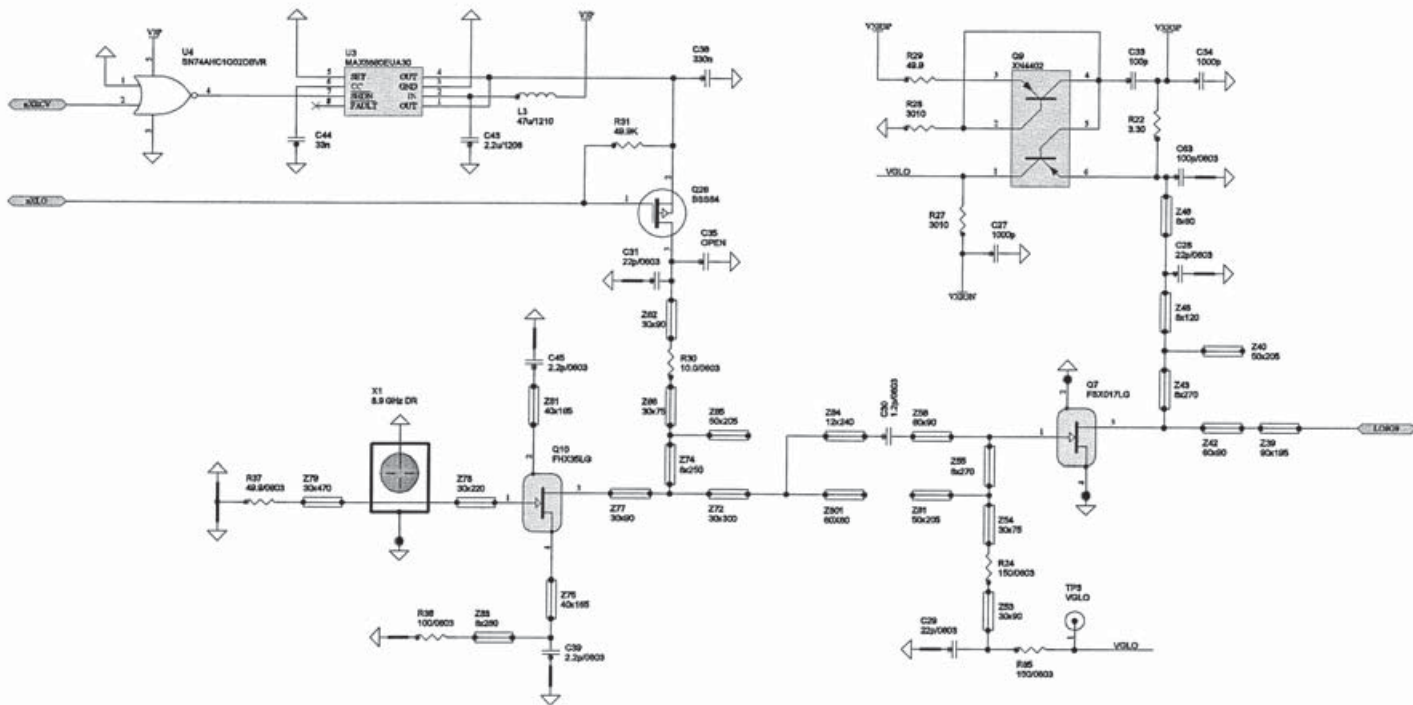
RF TRACK WIDTHS: $W = 8\text{mils}$ $W = 24\text{mils}$
 $W = 10\text{mils}$ $W = 30\text{mils}$
 $W = 12\text{mils}$ $W = 35\text{mils}$

XRF Module - Receive LNA and Mixer
590-1559-9CH
24-Mar-2005
C:\WORK\590-1559-9CH\590-1559-9CH.PCB



Tideland Signal Corp.
4310 Dinsmore Ave.
Houston, Texas 77062
713-581-5101
REV: A
01/05/05
7 OF 8

ORIGINAL



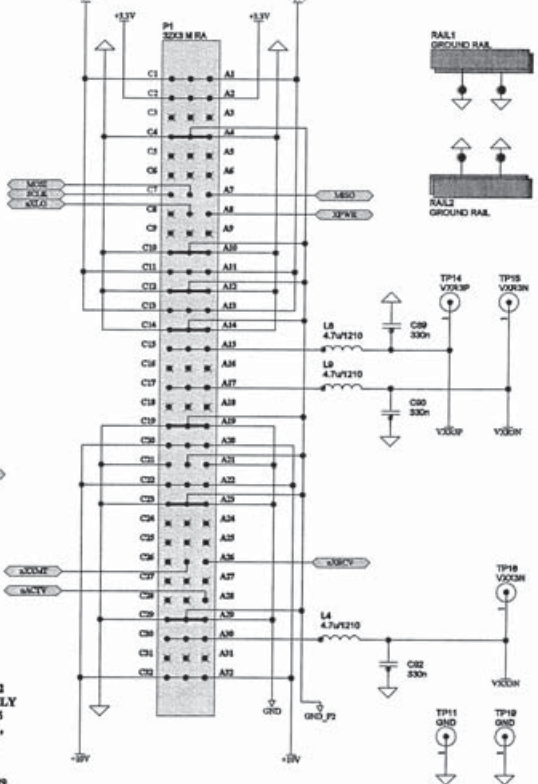
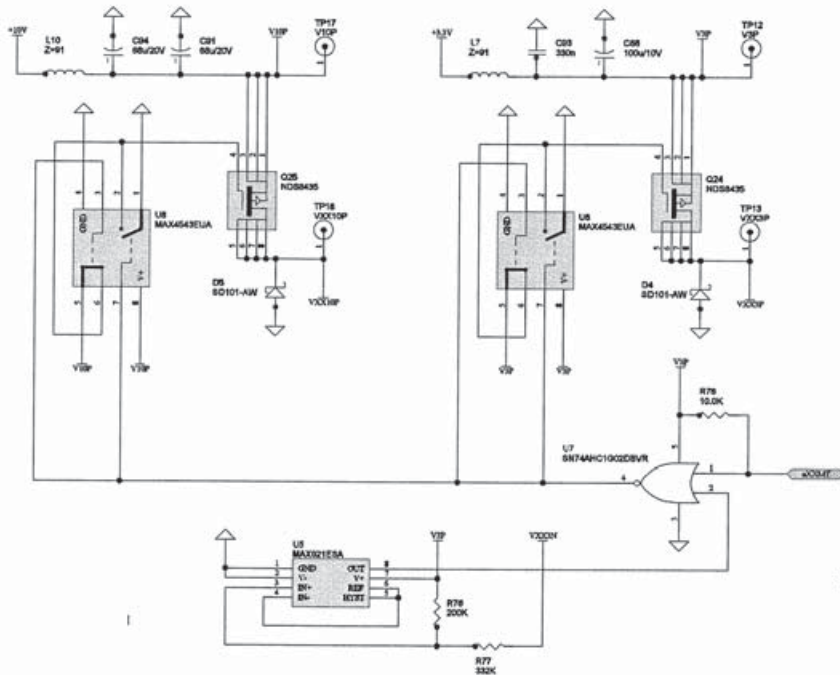
NOTES: RF SUBSTRATE IS ROGERS 5880, $\epsilon = 2.95$, $H = 0.005$ in, $T = 0.001$ in, $C = 1000$ nF.
 RF VIAHOLE IS 32nd ROUND PAD, 10th HOLE.
 RF VIAHOLE REFERENCE PLANE IS THROUGH CENTER OF PAD.
 DISTRIBUTED ELEMENT PARAMETERS ARE SPECIFIED IN MILS.
 GHP R, L, C ARE 0605 FOOTPRINT UNLESS OTHERWISE NOTED.

RF TRACKWIDTH: $W = 8$ mils $W = 24$ mils
 $W = 10$ mils $W = 30$ mils
 $W = 12$ mils $W = 35$ mils

APPROVED FOR:
 ONLY
 INT. DATE

XRF Module - DRO			Tideland Signal Corp. 4310 Oldhouse Road Houston, Texas 77052 REV: A 8/20/01 8 OF 8
530 1556-BCH			
24-Mar-2006			
D:\TIDELAND\PROJECTS\530-1556-BCH\530-1556-BCH.DOC			

ORIGINAL



INTERNAL PLANE 1 AND INTERNAL PLANE 2
ARE BOTH GROUND PLANES. PLANE 2 IS ONLY
CONNECTED AT J1 PINS 2,3,4,5 J2 PINS 2,3,4,5
J3 PINS 2,3,4,5 AND P1- B4,B10,B12,B14,B19,B21,
B23 AND B25.
THE TWO PLANES ARE ONLY CONNECTED
TOGETHER
AT CONNECTOR P1 ROWS 4,10,12,14,19,21,23,25.

NOTES: RF SUBSTRATE IS ROGERS RO4003, E=3.38, H=18mil, T=2.8mil, C=500nm.
RF VIAHOLE IS 32H ROUNDO PAD, 18H HOLE.
RF VIAHOLE REFERENCE PLANE IS THROUGH CENTER OF PAD.
DISTRIBUTED ELEMENT PARAMETERS ARE SPECIFIED IN MILS.
CHP R, L, C ARE 0605 FOOTPRINT UNLESS OTHERWISE NOTED.

DOT1 FIDUCIAL
DOT2 FIDUCIAL
DOT3 FIDUCIAL
DOT4 FIDUCIAL
DOT5 FIDUCIAL
DOT6 FIDUCIAL
DOT7 FIDUCIAL
DOT8 FIDUCIAL

XRF Module - Power and Control Ports

830.1508-BCH
24-MAR-2006
01106LNDVDRACORREKTRE-000F_NEWRECONPORT.BCH



Tideland Signal Corp.
4310 Greengrove Road
Houston, Texas 77052
713-981-9101

REV. A

010443

9

OF 9

ORIGINAL

1. ALL DIMENSIONS ARE BASIC.
2. THIS MANUFACTURER SHALL MEET THE REQUIREMENTS OF MIL-STD-883C, CLASS B, TEST 1000 AND TEST 1001.
3. MANUFACTURE USING ARMY/NAVY 3403-12-20-REV E, SIX COPPER LAYERS WITH SOLDER MASK, SUGROTECT, AND PASTE MASK ON BOTH OUTER LAYERS. FOR MANUFACTURING PURPOSES THIS ARMY/NAVY SHALL NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.
4. LAYER 1 (TOP GROUND) AND LAYER 2 (INTERNAL GROUND) TO BE 0.0125 OUNCES COPPER ON ROGERS RO4003 SUBSTRATE OF THICKNESS 0.014 [0.016] INCH. LAYER 3 (INTERNAL GROUND) TO BE 0.0125 OUNCES COPPER ON FR-4 SUBSTRATE OF THICKNESS 0.014 [0.016] INCH. LAYER 4 (INTERNAL GROUND) TO BE 0.0125 OUNCES COPPER ON FR-4 MATERIAL, SIZED TO MAKE OVERALL THICKNESS OF BOARD 2.39 [0.016] INCH. LAYER 5 (INTERNAL GROUND) TO BE 0.0125 OUNCES COPPER ON FR-4 SUBSTRATE OF THICKNESS 0.014 [0.016] INCH. LAYER 6 (BOTTOM GROUND) TO BE 0.0125 OUNCES COPPER ON FR-4 SUBSTRATE OF THICKNESS 0.014 [0.016] INCH. DIELECTRIC CONSTANT 3.38, MODULUS OF ELASTICITY 1.8E+11, TENSILE STRENGTH 100,000 PSI, TENSILE ELONGATION 2.0%, COPPER, COPPER CLAD LAMINATE AND PREPREG MATERIALS SHALL CONFORM TO MIL-PRC-131, MIL-PRC-138, MIL-PRC-170, MIL-PRC-171, MIL-PRC-172, MIL-PRC-173, AND LAYER ARRANGEMENTS SHALL BE IN ACCORDANCE WITH DETAIL A.
5. BOARD MUST BE PERMANENTLY MARKED, ON LAYER 6 (BOTTOM GROUND) WITH THE FOLLOWING INFORMATION:
 - A. BOARD PART NUMBER
 - B. PURCHASE ORDER IN COPPER IN AREA INDICATED BY "X"
 - C. CURRENTLY LISTED AS SUPPLIER MARK AS RECOGNIZED FOR DUTY LISTING
 - D. 100% DUTY CODE
 - E. WORK OF MANUFACTURE
6. MINIMUM CONDUCTOR WIDTH 0.025 [0.028] INCH.

8. TOP AND BOTTOM LAYERS TO BE FINISHED BY GOLD IMMERSION PROCESS, 0.0008 [0.00003] - 0.00020 [0.00008] GOLD OVER NICKEL (ENIG) PER IPC-4552.

9. ALL PLATED THRU HOLES SHALL HAVE A MINIMUM OF 0.00008 [.000003] - 0.00020 [.00008] GOLD.

10. ALL HOLE SIZES ARE AFTER PLATING, WITH TOLERANCE ± 0.05 [$\pm .002$].

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 1.00M OADR BOARD TESTED DRIVE TO DRIVE IN MANUFACTURING.

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 300mA MAX TEST CURRENT.

15. BOARD FLATNESS TO BE 0.25 [0.10] 25.40 [1.000] / 25.40 [1.000],

17. DIMENSIONS FOR 5 MILLED RECESSES ON TOP SIDE ARE BEFORE PLATING. TOP SIDE RECESSES PLATED WITH MINIMUM 0.03 [0.001] COPPER AND MAKE DIRECT CONTACT WITH GROUND PLANE ON LAYER 2. INSPECT TOP SIDE RECESSES IN AREAS MARKED BY A REMOVE ANY PLATING THAT

REMOVED

19. CRITICAL DIMENSION HOLD TOLERANCE AS MARKED.

20. THESE DIMENSIONS ARE USE TO SET THE BOARD EDGES, REFERENCED TO THE CENTER LINES OF TRACES AT U2.

11.94 [.470]

2X 4.70 [.185]

20.58 [.810]

2X 1.27 [.050] → 9.40^{+0.25}_{-.00} [.370^{+0.010}_{-.000}] Δ₁₉

DETAIL B
 $\nabla 1.40 \pm .08$ [.055 $\pm$.003]
 FROM TOP OF UNPLATED SUBSTRATE

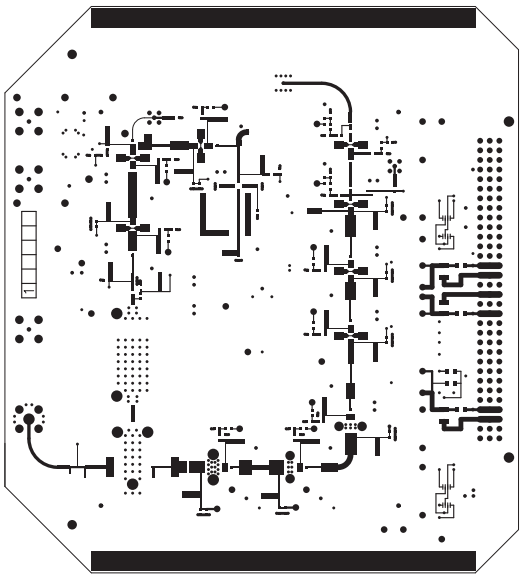
6100	REVISED NOTE 3	HA	FS	21MAY12
5988	REVISED SLOT TOLERANCE	HA	FS	30JAN12

5531	REVISED, ADDED A FIELD OF VIAS	HA	PM	09MAY11
4612	UPDATED AWK, SOLDER MASK	HA	HF	18JAN07
4593	ADDED "J" HOLE, REVISED NOTES	HA	HF	30NOV06
--	X6 RELEASED AS REV. A	HA	HF	31MAR05

EDN	DESCRIPTION	BY	CHK	DATE
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED.				
8		7		

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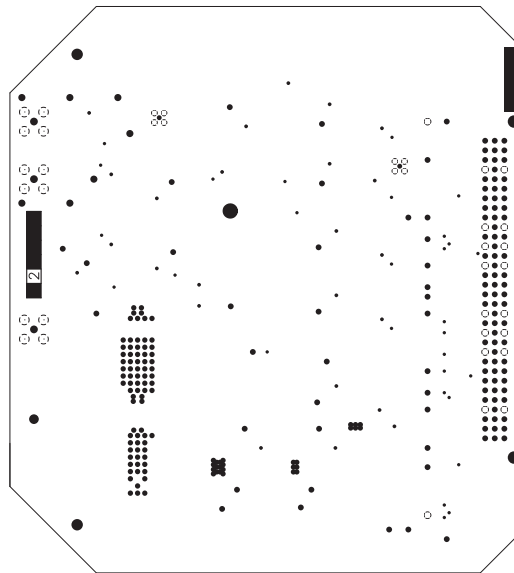
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Layer Name _____ TopLayer
Stacking Chart _____ 1

E	6100	DELETED DIMENSIONS, REMOVED UNUSED	LH	FS	14MAY12	PFM			
		PASTE MASK PADS							
D	5531	ADDED A FIELD OF VIAS	BM						
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFM			
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06				
A		X6 REL. AS A	JU	HF	10MAY02				
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD			
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED									

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION 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 THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
DRAWN		DATE	DESIGN BY:	DWG SIZE	PART NUMBER
Juanelli	10MAY02	ANALYSIS & DESIGN GROUP			
CHECKED	DATE	P.O. BOX 54430			
		HOUSTON, TEXAS 77234			
		(281) 481-4823			
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE
				SHEET 1	OF 15



Layer Name InternalPlane1

Stacking Chart 2

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFH
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PRESENTATION, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
DRAWN Jvanelli		DATE 10MAY02		SBCN2 SYS6	
CHECKED		DATE		REV	
DESIGN BY: ANALYSIS & DESIGN GROUP		DWG SIZE B		PART NUMBER 349.1332-AWK	
P.O. BOX 54430		HOUSTON, TEXAS 77234		E	
(281) 481-4823					
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE
				SHEET 2 OF 15	

11-May-2012
08:00:26
3491332EPCB

Layer Name _____ MidLayer1
Stacking Chart _____ 3 _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APUD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFH
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APUD
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

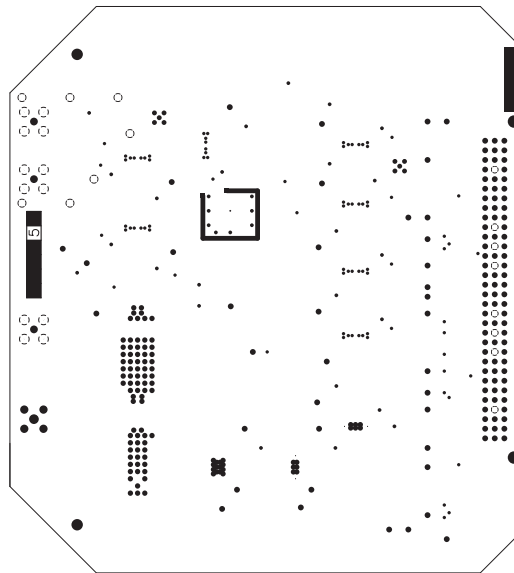
 TIDELAND SIGNAL CORP. 4310 DIRECTORS RD HOUSTON, TEXAS 77092		TITLE ARTWORK XRF MODULE SBCN2 SYS6	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PRESENTANCE, REPAIRS, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.		DRAWN Jvanelli 10MAY02	
DATE 10MAY02		DESIGN BY: ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	
CHECKED DATE		DWG SIZE B	
PROJ ENGR		DATE	
UL		EX	
DO NOT SCALE DRAWING		SCALE	
SHEET 3		OF 15	

Layer Name _____ MidLayer2

Stacking Chart _____ 4 _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED	LH	FS	14MAY12	PFH
PASTE MASK PADS						
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFH
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PRESENTANCE, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
				SBCN2 SYS6	
DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
Juanelli	10MAY02	ANALYSIS & DESIGN GROUP	B	349.1332-AWK	E
CHECKED	DATE	P.O. BOX 54430			
		HOUSTON, TEXAS 77234			
		(281) 481-4823			
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE
				SHEET 4 OF 15	



Layer Name InternalPlane2

Stacking Chart 5

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTM	HF	17JAN07	PFM
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTM	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PRESENTATION, REPAIRS, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
DRAWN		DATE	DESIGN BY:	DWG SIZE	PART NUMBER
Juanelli	10MAY02	ANALYSIS & DESIGN GROUP			
CHECKED	DATE	P.O. BOX 54430			
		HOUSTON, TEXAS 77234			
		(281) 481-4823			
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE
SHEET 5 OF 15					

11-May-2012
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Layer Name _____ BottomLayer
Stacking Chart _____ [6]

REV	ECN	DESCRIPTION	BY	CHK	DATE	APUD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFM
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFM
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP. 4310 DIRECTORS RD HOUSTON, TEXAS 77092		TITLE ARTWORK XRF MODULE SBCN2 SYS6	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT SHALL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PRESENTANCE, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.					
DRAWN Jvanelli	DATE 10MAY02	DESIGN BY: ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	DWG SIZE B	PART NUMBER 349.1332-AWK	REV E
CHECKED	DATE	PROJ ENGR	DATE	UL	EX
DO NOT SCALE DRAWING			SCALE		
SHEET 6			OF 15		

11-May-2012
08:00:27
3491332EPCB

Layer Name _____ Top Overlay
Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF UFAS		BM		
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFH
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

 TIDELAND SIGNAL CORP. 4310 DIRECTORS RD HOUSTON, TEXAS 77092		TITLE ARTWORK XRF MODULE SBCN2 SYS6	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT SHALL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN MAINTENANCE, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.			
DRAWN Jvanelli	DATE 10MAY02	DESIGN BY: ANALYSIS & DESIGN GROUP P.O. BOX 54430 HOUSTON, TEXAS 77234 (281) 481-4823	DWG SIZE B
CHECKED	DATE	PART NUMBER 349.1332-AWK	REV E
PROJ ENGR	DATE	DO NOT SCALE DRAWING	SCALE
		SHEET 7 OF 15	

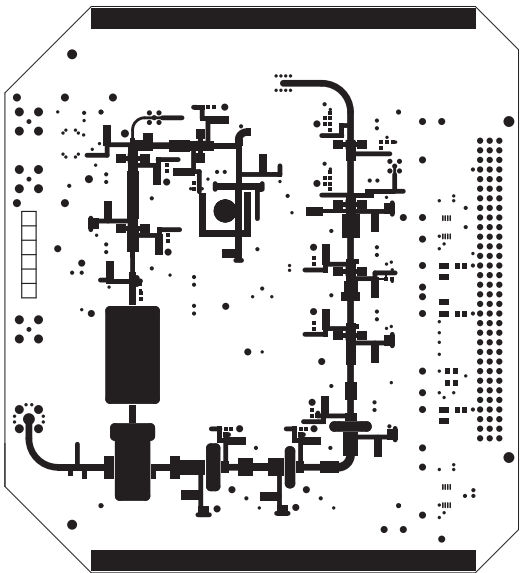
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3491332EPCB

Layer Name _____ Bottom Overlay

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFR
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFR
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT SHALL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PERFORMANCE, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
DRAWN		DATE	DESIGN BY:	DWG SIZE	PART NUMBER
JVanelli		10MAY02	ANALYSIS & DESIGN GROUP	B	349.1332-AWK
CHECKED		DATE	P.O. BOX 34430		
			HOUSTON, TEXAS 77234		
PROJ ENGR		DATE	UL	EX	DO NOT SCALE
					DRAWING
				SCALE	SHEET 8 OF 15



Layer Name _____ Top Solder Mask
Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFM
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTM	HF	17JAN07	PFM
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTM	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

 TIDELAND SIGNAL CORP. 4310 DIRECTORS RDW HOUSTON, TEXAS 77092		TITLE ARTWORK XRF MODULE SBCN2 SYS6			
		THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PRESENTATION, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.			
DRAWN Jvanelli	DATE 10MAY02	DESIGN BY: ANALYSIS & DESIGN GROUP P.O. BOX 54430 HOUSTON, TEXAS 77234 (281) 481-4823	DWG SIZE B	PART NUMBER 349.1332-AWK	REV E
CHECKED	DATE	PROJ ENGR	DATE	UL	EX
DO NOT SCALE DRAWING			SCALE		
SHEET 9			OF 15		

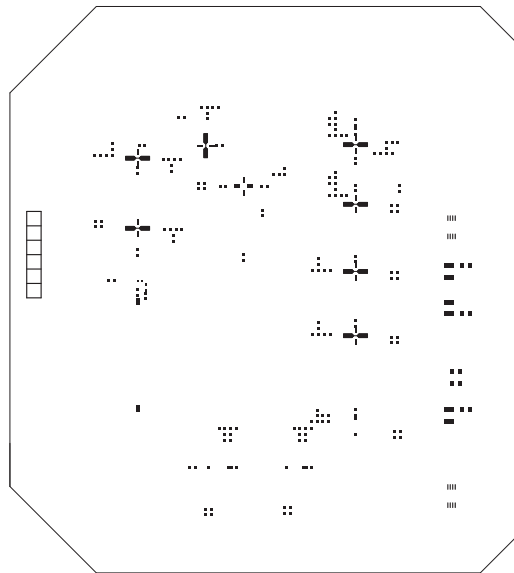
11-May-2012
08:00:27
3491332EPCB

Layer Name _____ Bottom Solder Mask

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFM
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTM	HF	17JAN07	PFM
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTM	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PRESENTANCE, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
DRAWN		DATE	DESIGN BY:	DWG SIZE	PART NUMBER
Juanelli	10MAY02	ANALYSIS & DESIGN GROUP			
CHECKED	DATE	P.O. BOX 34430			
		HOUSTON, TEXAS 77234			
		(281) 481-4823			
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE
				SHEET 10	OF 15



Layer Name _____ Top Paste

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTM	HF	17JAN07	PFM
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTM	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED OR PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PRESENTANCE, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
DRAWN		DATE	DESIGN BY:	DWG SIZE	PART NUMBER
Jvanelli		10MAY02	ANALYSIS & DESIGN GROUP	B	349.1332-AWK
CHECKED		DATE	P.O. BOX 54430		
			HOUSTON, TEXAS 77234		
			(281) 481-4823		
PROJ ENGR	DATE	UL	EX	DO NOT SCALE	SCALE
				DRAWING	
				SHEET 11	OF 15

11-May-2012
08:00:27
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Layer Name _____ Bottom Paste
Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFM
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTM	HF	17JAN07	PFM
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTM	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PRESENTANCE, REPAIRS, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
DRAWN Jvanelli		DATE 10MAY02		SBCN2 SYS6	
DESIGN BY: ANALYSIS & DESIGN GROUP		Dwg SIZE B		PART NUMBER	
P.O. BOX 34430		DO NOT SCALE		349.1332-AWK	
HOUSTON, TEXAS 77234		DRAWING		E	
(281) 481-4823		SCALE		SHEET 12 OF 15	
PROJ ENGR		DATE		UL	
EX		DO NOT SCALE		DRAWING	

280	16mil	0.4064mm	PTH
98	20mil	0.508mm	PTH
10	32mil	0.8128mm	PTH
3	42mil	1.0668mm	NPTH
135	42mil	1.0668mm	PTH
7	55mil	1.397mm	PTH
1	62mil	1.5748mm	NPTH
20	67mil	1.7018mm	PTH
7	80mil	2.032mm	PTH
2	100mil	2.54mm	NPTH
2	110mil	2.794mm	NPTH
565	Total		

Layer Name _____ DrillDrawing

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1,Z151	JTH	HF	17JAN07	PFH
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

 TIDELAND SIGNAL CORP. 4310 DIRECTORS ROW HOUSTON, TEXAS 77092		TITLE ARTWORK XRF MODULE SBCN2 SYS6	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PRESENTANCE, REPAIRS, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.			
DRAWN Jvanelli CHECKED DATE 10MAY02	DESIGN BY: ANALYSIS & DESIGN GROUP P.O. BOX 34430 HOUSTON, TEXAS 77234 (281) 481-4823	DWG SIZE B	PART NUMBER 349.1332-AWK
PROJ ENGR DATE UL	EX	DO NOT SCALE DRAWING	SCALE SHEET 13 OF 15

Components 432
Nets 171
Holes 567
11-May-2012
08:00:28
3491332EPCB

Layer Name Mechanical

Stacking Chart

REV	ECN	DESCRIPTION	BY	CHK	DATE	APUD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFH
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
REV	ECN	DESCRIPTION	BY	CHK	DATE	APUD
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

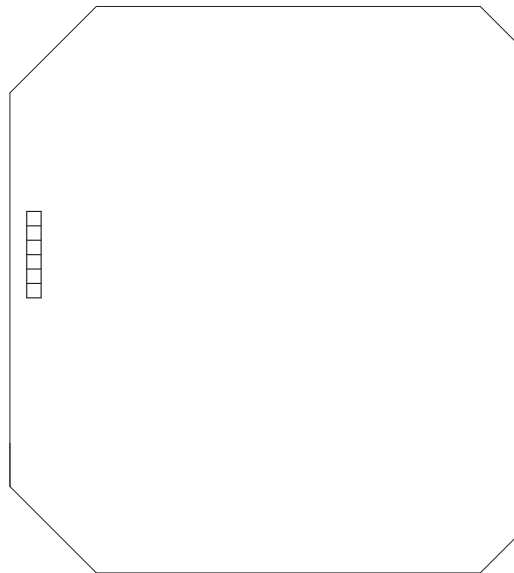
		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN MAINTENANCE, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
DRAWN		DATE	DESIGN BY:	DWG SIZE	PART NUMBER
Juanelli	10MAY02	ANALYSIS & DESIGN GROUP		B	349.1332-AWK
CHECKED		DATE	P.O. BOX 54430		REV
			HOUSTON, TEXAS 77234		E
			(281) 481-4823		
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SHEET 14 OF 15

11-May-2012
08:00:28
3491332EPCB

Layer Name _____ Mechanical4
Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFH
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED OR PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN MAINTENANCE, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
				SBCN2 SYS6	
DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
Juanelli	10MAY02	ANALYSIS & DESIGN GROUP	B	349.1332-AWK	E
CHECKED	DATE	P.O. BOX 54430			
		HOUSTON, TEXAS 77234			
		(281) 481-4823			
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE
				SHEET 15 OF 15	

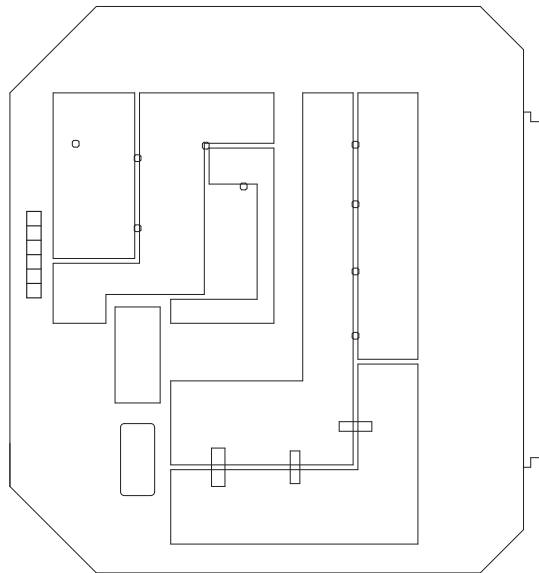


Layer Name _____

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF VIAS	BTM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTM	HF	17JAN07	PFM
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTM	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		4310 DIRECTORS RDW		HOUSTON, TEXAS 77092		TITLE	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN WHOLE OR IN PART FOR ANY PURPOSE OTHER THAN MAINTENANCE, REPAIRS, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.								ARTWORK	
								XRF MODULE	
								SBCN2 SYS6	
DRAWN		DATE		DESIGN BY:		DWG SIZE		PART NUMBER	
Juanelli		10MAY02		ANALYSIS & DESIGN GROUP		B		349.1332-AWK	
CHECKED		DATE		P.O. BOX 54430				REV	
				HOUSTON, TEXAS 77234				E	
				(281) 481-4823					
PROJ ENGR		DATE		UL		EX		DO NOT SCALE	
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								SCALE	
								SHEET	
								OF 15	

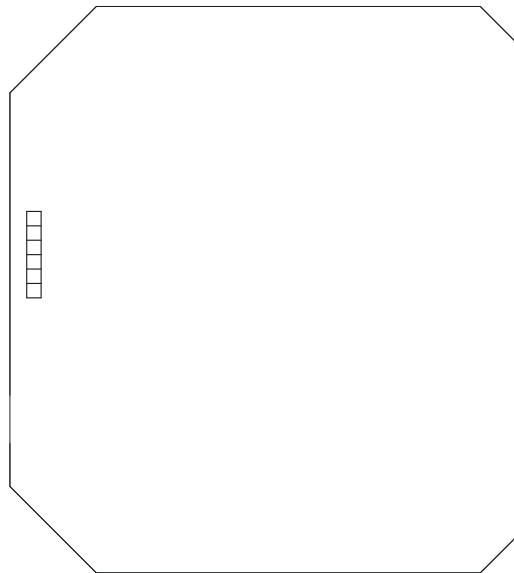


Layer Name _____

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFH
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION 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 THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
DRAWN		DATE	DESIGN BY:	DWG SIZE	PART NUMBER
Jvanelli		10MAY02	ANALYSIS & DESIGN GROUP	B	349.1332-AWK
CHECKED		DATE	P.O. BOX 54430		
			HOUSTON, TEXAS 77234		
			(281) 481-4823		
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SCALE
SHEET				OF	15

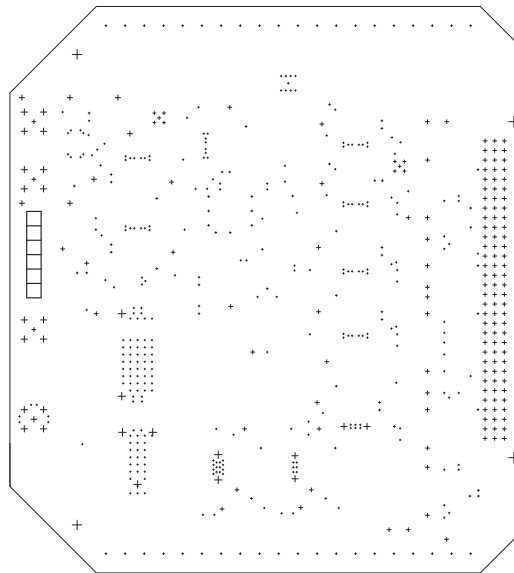


Layer Name _____

Stacking Chart _____

REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFH
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN MAINTENANCE, REPAIRS, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
				SBCN2 SYS6	
DRAWN	DATE	DESIGN BY:	DWG SIZE	PART NUMBER	REV
Juanelli	10MAY02	ANALYSIS & DESIGN GROUP			
CHECKED	DATE	P.O. BOX 54430			
		HOUSTON, TEXAS 77234	B	349.1332-AWK	E
		(281) 481-4823			
PROJ ENGR	DATE	UL	EX	DO NOT SCALE DRAWING	SHEET OF 15



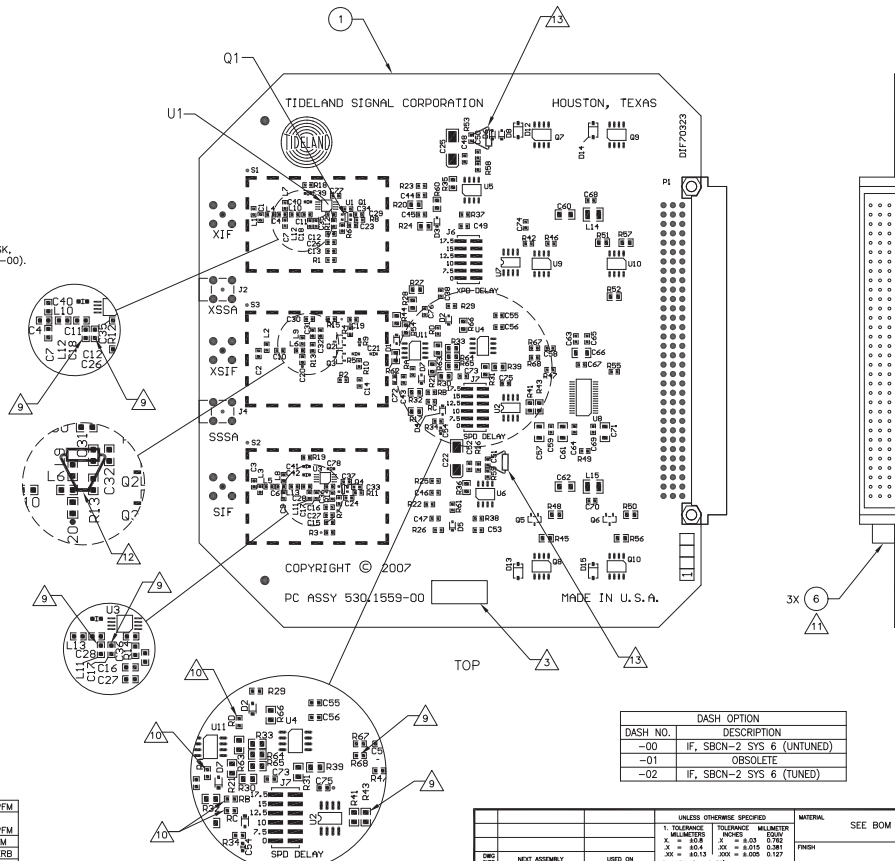
Layer Name _____ DrillGuide
Stacking Chart _____

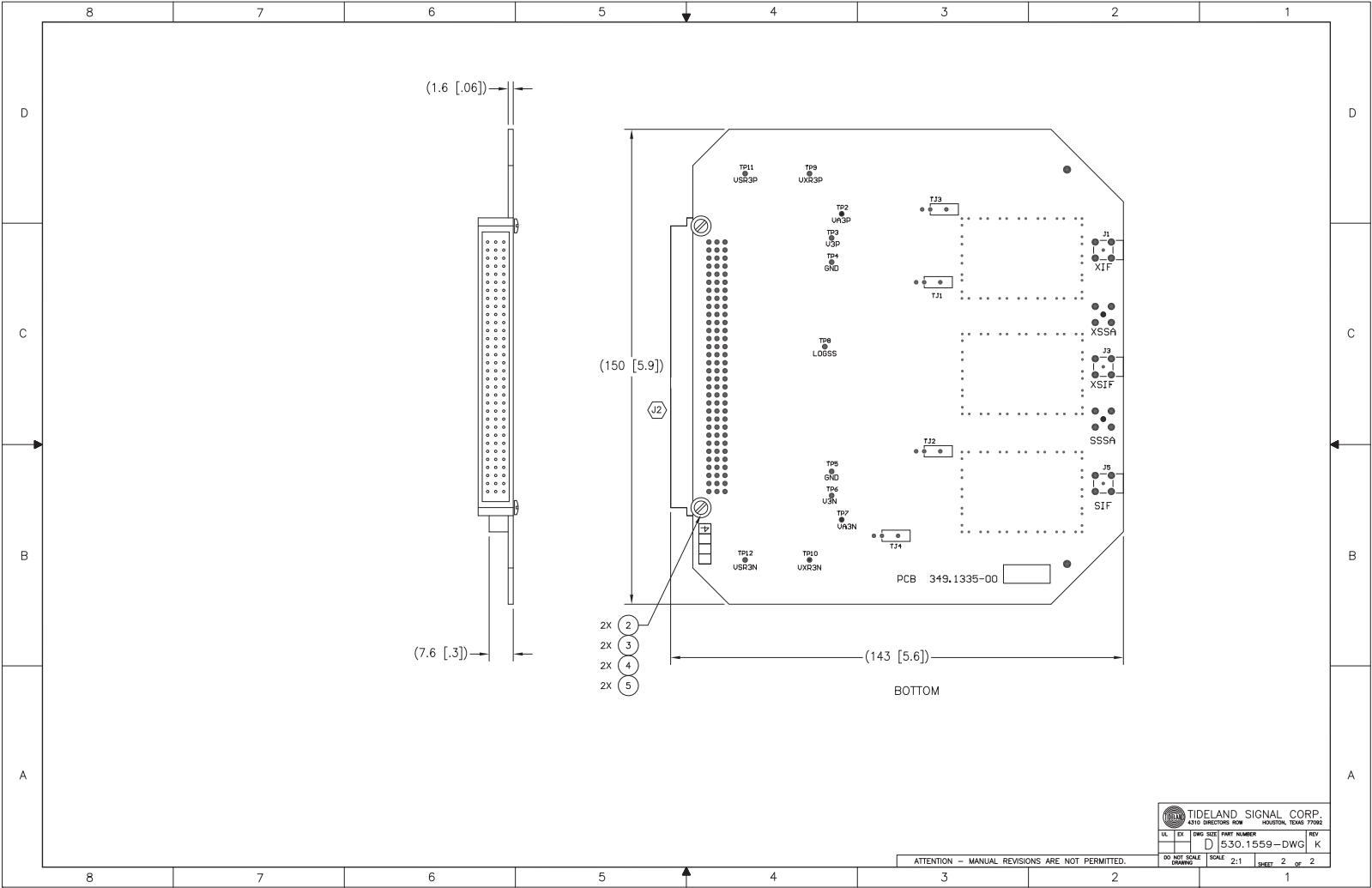
REV	ECN	DESCRIPTION	BY	CHK	DATE	APVD
E	6100	DELETED DIMENSIONS, REMOVED UNUSED PASTE MASK PADS	LH	FS	14MAY12	PFH
D	5531	ADDED A FIELD OF VIAS	BM			
C	4612	REMOVE SOLDER MASK AT X1, Z151	JTH	HF	17JAN07	PFH
B	4593	LARGER PAD AT J2, MORE CLEARANCE	JTH	HF	30NOV06	
A		X6 REL. AS A	JU	HF	10MAY02	
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

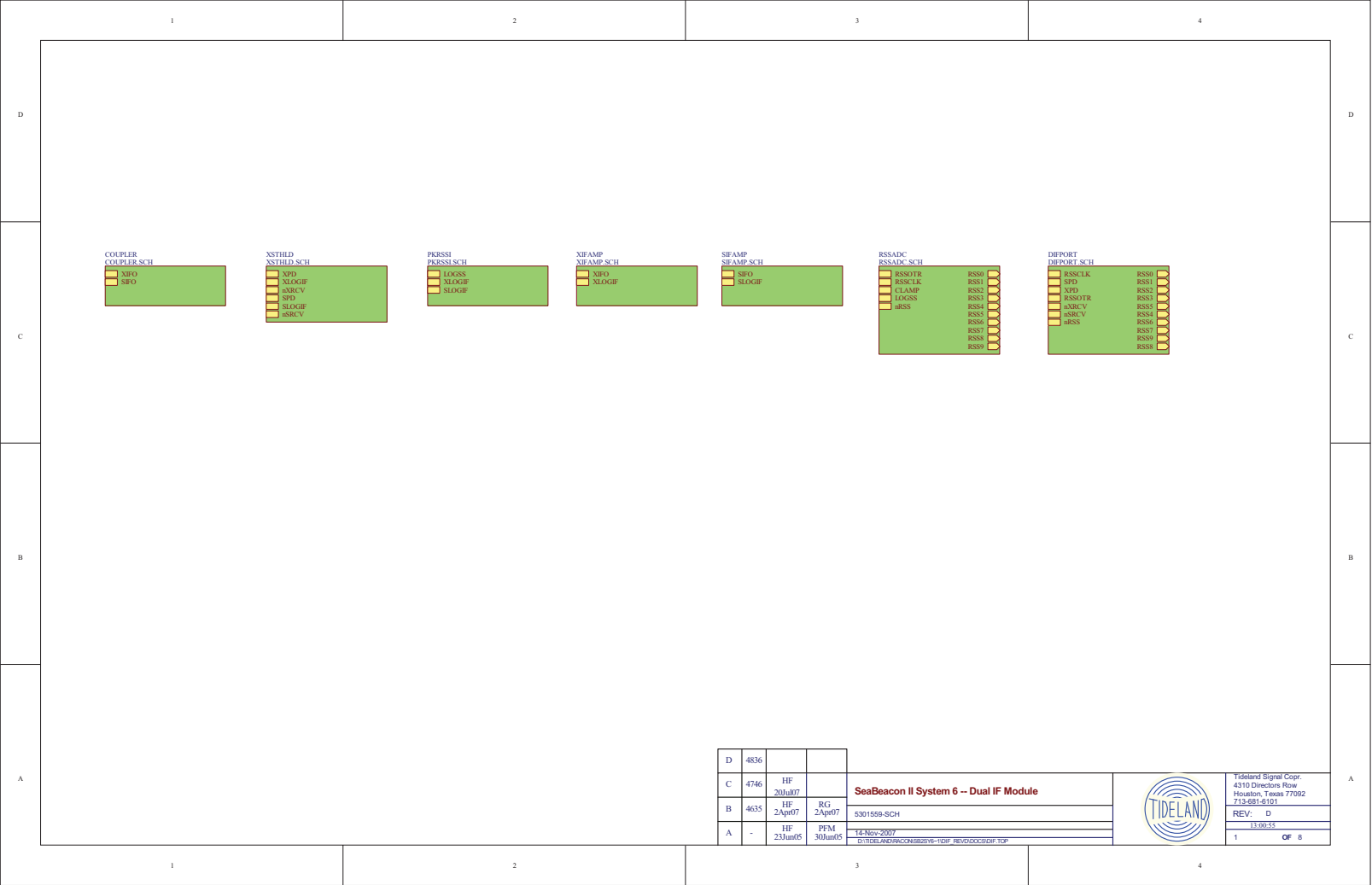
		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING EMBODIES PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN PART OR WHOLE OR USED FOR ANY PURPOSE OTHER THAN PRESENTANCE, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				XRF MODULE	
DRAWN		DATE	DESIGN BY:	DWG SIZE	PART NUMBER
Jvanelli		10MAY02	ANALYSIS & DESIGN GROUP	B	349.1332-AWK
CHECKED		DATE	P.O. BOX 54430		
			HOUSTON, TEXAS 77234		
PROJ ENGR		DATE	UL	EX	DO NOT SCALE DRAWING
					SCALE
					SHEET OF 15

NOTES: UNLESS OTHERWISE SPECIFIED

- SEE DRAWING 530.1559-SCH FOR SCHEMATIC.
- ASSEMBLE IN STATIC FREE AREA.
- MARK ASSEMBLY REVISION LETTER IN AREA SHOWN.
- MAX. COMP. HEIGHT: TOP = 5 [.2], EXCEPT P1 = 10 [.4]; J1 TO J5 = 6.1 [.24] BOTH SIDES; BOTTOM = 5 [.2].
- MAX. LEAD PROTRUSION: 2.3 [.09].
- BOARD ASSY SHALL MEET REQUIREMENTS OF IPC-A-610, CLASS 3.
- REMOVED.
- DO NOT INSTALL R43, R68, L11, L12, C17 & C18.
- RA, RB, RC AND RD VALUE DETERMINE AT TEST.
- SHIELD (6) INSTALLED BY VENDOR, 3 TOTAL.
- CUT TRACE BETWEEN L6 AND R13, SCRAPE OFF SOLDER MASK, TIN THE TRACES, AND INSERT A 100pf CAPACITOR (118.1037-00). (C5) POS # 160 ON BOM.
- PIGGY BACK 49.9 OHM RESISTOR 196-4990-10 (POS 870 ON BOM) ON C50 AND C51.
- DENOTES REVISION SYMBOL.







D	4836			
C	4746	HF		
B	4635	HF	RG	
A	-	HF	PTM	
		20Jul07	2Apr07	
		23Jun05	30Jun05	

SeaBeacon II System 6 -- Dual IF Module

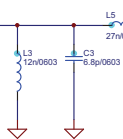
8301559-SCH

14-Nov-2007

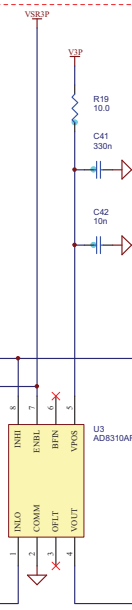
01TIDELAND\WAC\NAB\BSP6-TSP_WB2500XSDP.TSP

TIDELAND

Tideland Signal Corp.
4310 Directors Row
Houston, Texas 77052
713-681-6101
REV.: D
11/30/07
1 OF 8



* DO NOT INSTALL



NOTES: RF SUBSTRATE IS ROGERS R04003, E=3.38, H=16mils, T=2.8mil, C=500mils.
RF VIA/GND IS 32mil ROUND PAD, 16mil HOLE.
RF VIA/GND REFERENCE PLANE IS THROUGH CENTER OF PAD.
DISTRIBUTED ELEMENT PARAMETERS ARE SPECIFIED IN MILS.
CHIP R, L, C ARE 0805 FOOTPRINT UNLESS OTHERWISE NOTED.



Tideland Signal Copr. 4310 Directors Row Houston, Texas 77092 713-681-6101	
REV:	D
13-00-56	
3	OF 8



Dual IF Module: Hybrid Coupler/Isolator

5301559-SCH

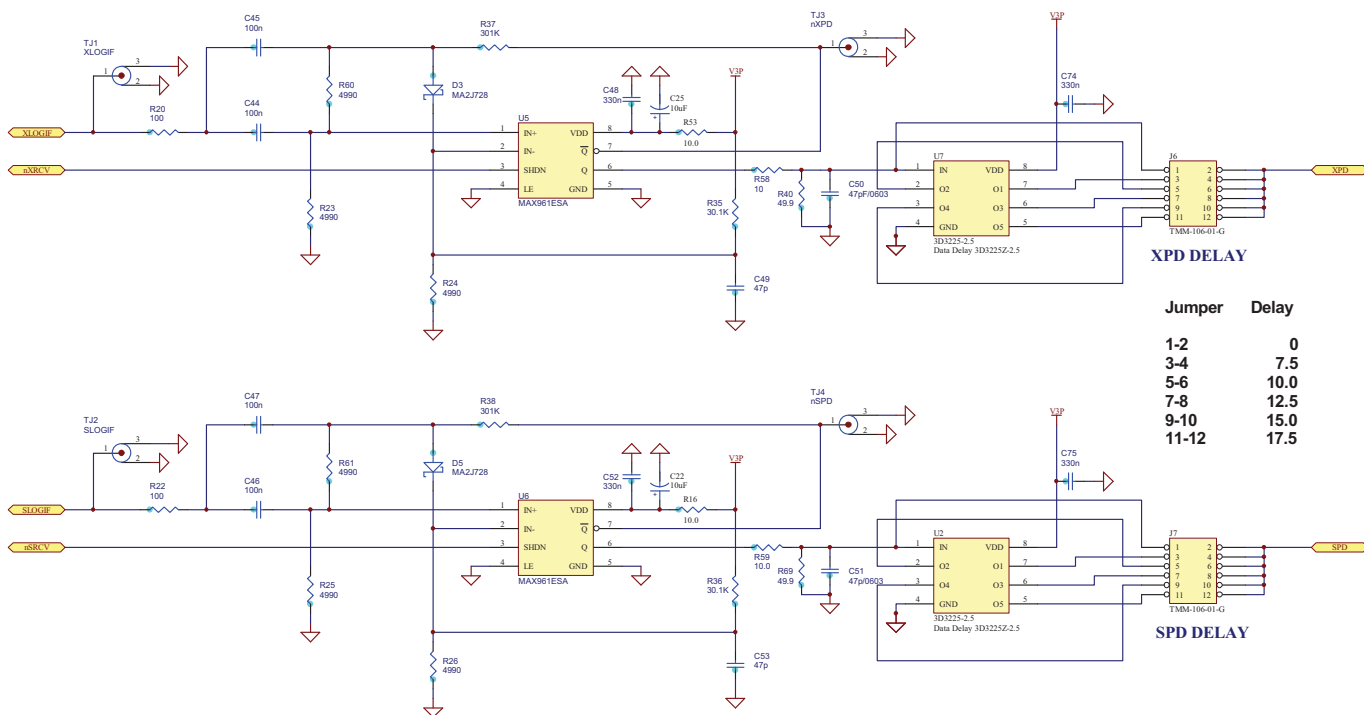
14-Nov-2007



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

REV: D

13:00:59



Jumper	Delay
1-2	0
3-4	7.5
5-6	10.0
7-8	12.5
9-10	15.0
11-12	17.5

NOTES: RF SUBSTRATE IS ROGERS RO4003, E=3.38, H=16mils, T=2.8mils, C=500mils.
 RF VIA/GND IS 32mil ROUND PAD, 16mil HOLE.
 RF VIA/GND REFERENCE PLANE IS THROUGH CENTER OF PAD.
 DISTRIBUTED ELEMENT PARAMETERS ARE SPECIFIED IN MILS.
 CHIP R, L, C ARE 0605 FOOTPRINT UNLESS OTHERWISE NOTED.

Dual IF Module - Threshold Logic

63011559-BCH

14-Nov-2007

0-TIDELAND\WORK\N3011559-PCB_REV000003011559.BCH

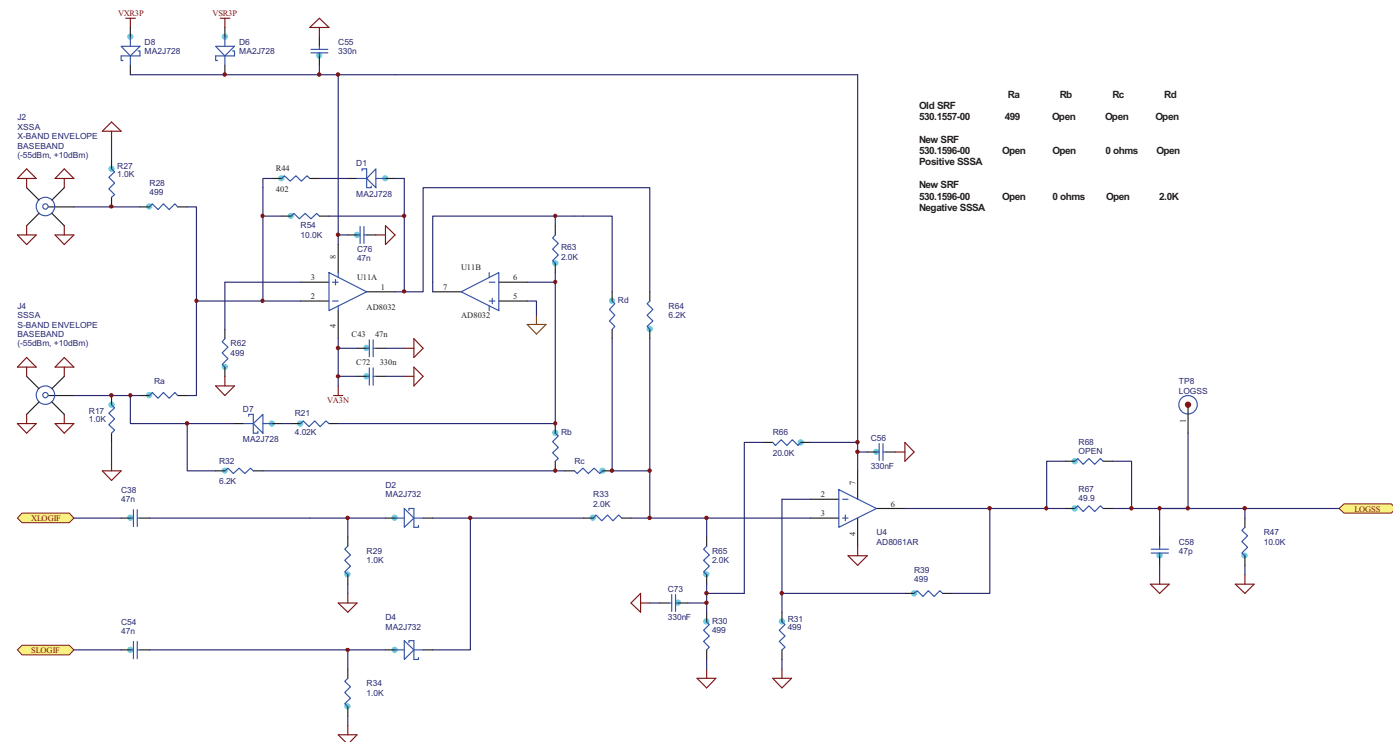


Tideland Signal Corp.
 4310 Directors Row
 Houston, Texas 77062
 713-681-6101

REV: D

11/30/07

5 OF 8



NOTES: RF SUBSTRATE IS ROGERS RO4003, E=3.38, H=16mils, T=2.9mils, C=500mils.
 RF VIA/ND IS 32mil ROUND PAD, 16mil HOLE.
 RF VIA/ND REFERENCE PLANE IS THROUGH CENTER OF PAD.
 DISTRIBUTED ELEMENT PARAMETERS ARE SPECIFIED IN MILS.
 CHIP R, L, C ARE 0805 FOOTPRINT UNLESS OTHERWISE NOTED.

	Ra	Rb	Rc	Rd
Old SRF 530.1557-00	499	Open	Open	Open
New SRF 530.1596-00 Positive SSSA	Open	Open	0 ohms	Open
New SRF 530.1596-00 Negative SSSA	Open	0 ohms	Open	2.0K

Dual IF Module - Peak RSSI Sum					Tideland Signal Corp. 4310 Directors Row Houston, Texas 77052 713-681-6101 REV: D 11/30/06 6 OF 8
5301559-SCH					
14-Nov-2007					
D:\TIDELAND\WORK\5301559-SCH\5301559-SCH.SCH					



PAD6
FIDUCIAL



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

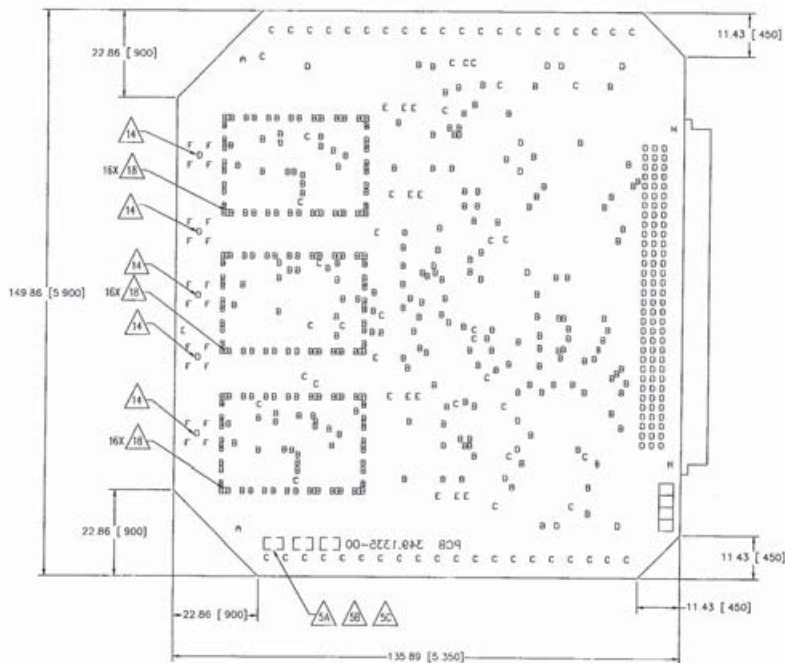
REV: D

13:00:57

8 OF 8

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE BASIC
2. THIS MULTI-LAYER BOARD SHALL MEET THE REQUIREMENTS OF IPC-6011, CLASS 3
3. MANUFACTURE USING ARTWORK 349.1335-AWK REV B, LAYER 1 THRU LAYER 4, TOP & BOTTOM SOLDERMASK, TOP & BOTTOM SUKSCREEN, AND PASTERMASK. 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 OF PER MIL-S-13849. 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 COTTER IN AREA INDICATED BY C
 - B. CURRENTLY LISTED UL SUPPLIER MARK AS RECORDED FOR UL LISTING
 - C. A FOUR DIGIT DATE YEAR AND WEEK OF MANUFACTURE
6. MINIMUM CONDUCTOR WIDTH: PER IPC-6011, CLASS 3
7. MINIMUM SPACING BETWEEN CONDUCTORS: PER IPC-6011, CLASS 3
8. MINIMUM ANNUAL RING PER IPC-6011
9. ALL PLATED THRU HOLES SHALL HAVE A MINIMUM OF 0.036 (0014) THK PLATED COPPER
10. ALL HOLE SIZES ARE AFTER PLATING
11. SOLDERMASK BOTH SIDES OF BOARD. R04003 COMPLIANT MATERIAL PER AMS/IPC-9M-840
12. SUKSCREENS SHALL BE APPLIED TO COMPONENT AND CONDUCTOR SIDE OF BOARD PER MASTER PATTERN SUKSCREENS USING R04003 COMPLIANT 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 300mA MAX TEST CURRENT
14. DO NOT PLATE THRU 5 HOLES TOTAL
15. LAYER #1 (TOP CIRCUIT) AND LAYER #2 (INTERNAL GND) TO BE 1 OUNCE COPPER ON ROGERS R04003 SUBSTRATE OF THICKNESS 0.406 (016) NOMINAL, DIELECTRIC CONSTANT 3.38 NOMINAL
16. TOP AND BOTTOM LAYERS PLATING TO BE R04003 COMPLIANT PER IPC-4552 ELECTROLESS NICKEL/AMMERSION GOLD (ENIG) 3-5 MICRO INCHES GOLD
17. LAYER #3 (INTERNAL SIGNAL & POWER) AND LAYER #4 (BOTTOM CIRCUIT) TO BE 1 OUNCE COPPER FR-4 MATERIAL, SIZED TO MAKE OVERALL THICKNESS OF BOARD 1.000 (003) NOMINAL. THE FR-4 MATERIAL TO BE R04003 COMPLIANT PER IPC-4101 WITH MINIMUM Tg 170° C OR HIGHER, 24 342° C OR HIGHER AND FLAME RATED UL 94V-0
18. DO NOT DRILL "C" HOLES 48 TOTAL



VIEWED FROM COMPONENT SIDE

LAYERS STACKED AS FOLLOWS:

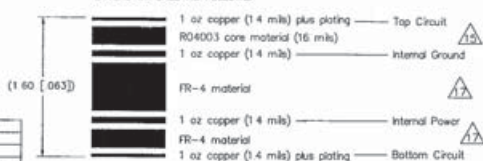


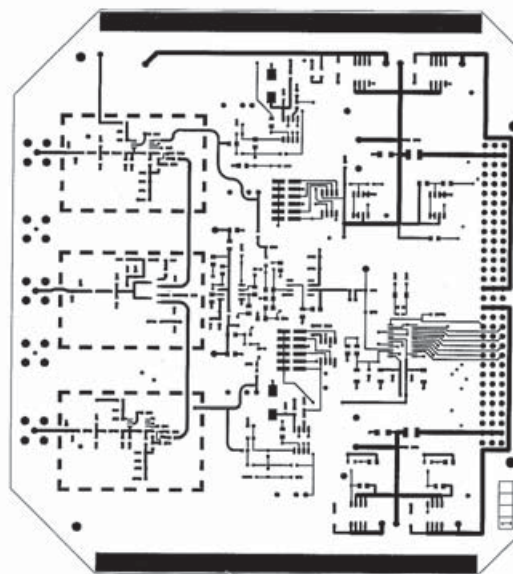
FIGURE 1
SCALE: NONE

HOLE SCHEDULE				
DIAMETER	QTY	SYM	PLTD	
#2.79 (A.110)	3	H	NO	
#2.54 (A.100)	2	A	NO	
#1.70 (A.067)	20	F	YES	
#1.07 (A.042)	110	D	YES	
#0.89 (A.035)	14	C	YES	
#0.76 (A.030)	48	O	YES	18
#0.51 (A.020)	68	C	YES	
#0.41 (A.016)	315	B	YES	
#1.07 (A.042)	5	D	NO	14

REV	DATE	DESCRIPTION	BY	CHK	DATE	APPROV
1	4748	ADDED NOTE 18	HA	AP	21 JUN 07	PPM
2	4835	REDESIGN INPUT & OUTPUT FILTERS	HA	AP	21 JUN 07	PPM
3	4730	33 RELEASED AS REV. A	HA	AP	21 JUN 07	PPM

UNLESS OTHERWISE SPECIFIED		TIDELAND SIGNAL CORP.	
1. DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES		DATE: 21 JUN 07	
2. DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS		DRAWN: [Signature]	
3. DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS		CHECKED: [Signature]	
4. DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS		APPROVED: [Signature]	
5. DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS		DATE: 21 JUN 07	
6. DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS		SCALE: 1:2	
7. DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS		SHEET: 1 OF 1	

3491335C.DWG 21 JUN 07 11:43



Layer Name _____ Top Layer

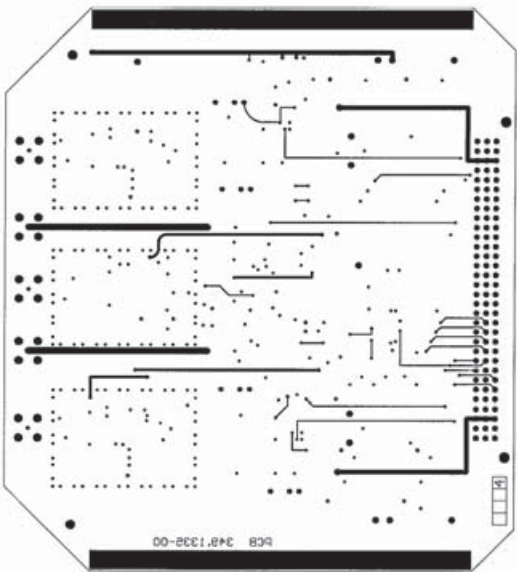
Stacking Chart _____

1			
---	--	--	--

B	4635	RECEIVE INPUT & OUTPUT FILTERS	27M	JP	2-93-00				
A	--	X3 RELEASED AS A	27M	HF	23Jun80				
REV	EDN	DESCRIPTION	BY	CNK	DATC				

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

	TIDELAND SIGNAL CORP.				FILE	
	1320 DIRECTORS AVE. HOUSTON, TEXAS 77002		DIF MODULE SBCN-2 SYS-6			
THIS DRAWING REPRESENTS WORK AND CONFIDENTIAL INFORMATION AND IS LOANED TO YOU BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED OR IN ANY MANNER OR USED FOR ANY PURPOSE OTHER THAN THE WORK, SERVICE, OR INSTALLATION FOR WHICH IT SHALL BE RETURNED ON DEMAND.						
DOMAIN:	DATE:	DESIGN BY:	OMB SIZE:	PART NUMBER:	REV	
JTN	02/29/92					
CHECKED:	DATE:	BRITTON VINCENT	B	349.1335-AWK	B	
JF	23Jun90					
PROJ ENGR	DATE	DL	EX	DO NOT SCALE	SCALE	
JF/TM	20Jun90			(DRAWING)		
					SHEET	1 of 12



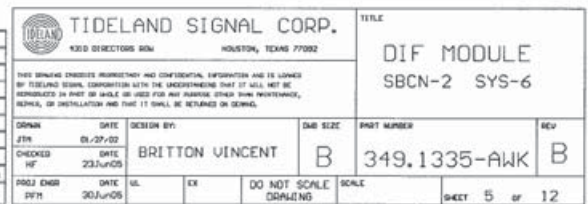
VERIFY PLOT
DATE MAR 02 2007

Layer Name Bottom Layer
Stacking Chart 4

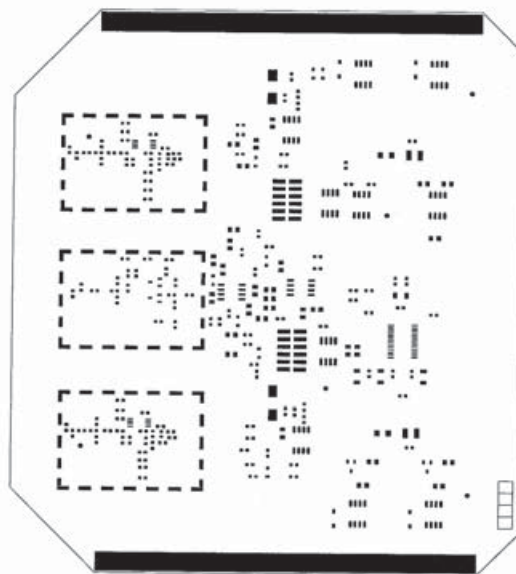
REV	CD	DESCRIPTION	BY	CHK	DATE	APPR
B	1436	REVISION INPUT & OUTPUT FILTERS	JTB	HF	2-12-07	
A		X3 RELEASED AS A	JTB	HF	23Jun08	
REV	CD	DESCRIPTION	BY	CHK	DATE	APPR

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

 TIDELAND SIGNAL CORP. 4300 DIRECTORS ROW HOUSTON, TEXAS 77002		TITLE DIF MODULE SBCN-2 SYS-6	
THIS DRAWING CONVEYS INFORMATION AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION 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 THAT IT SHALL BE RETURNED ON DEMAND.			
DESIGN JTB	DATE 01/27/02	DESIGN BY BRITTON VINCENT	DESIGN SIZE B
CHECKED HF	DATE 23Jun08	PART NUMBER 349.1335-AWK	REV B
PROJ ENGR PFT	DATE 30Jun08	DO NOT SCALE DRAWING	SCALE SHEET 4 of 12



D:\TIDELAND\RA\CON\S82SY6\1\DF_REV\PCB\1.3.35_B.PCB



VERIFY PLOT
DATE MAR 02 2007



Stacking Chart _____

--	--	--	--

B	4636	RECEIVED INQUIRY & OUTGOING FILTERS	JTN	MF	2/13/07				
A	--	X3 RELEASED AS A	JTN	MF	2/14/09				
REV	ECON	DESCRIPTION	BY	CNK	DTEC	APU			
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED									

 TIDELAND SIGNAL CORP. 1310 DIRECTORS AVE HOUSTON, TEXAS 77002				TITLE DIF MODULE SBCN-2 SYS-6	
THIS DRAWING PREPARED BY MECHANICAL AND ELECTRICAL ENGINEERS AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN WHOLE OR IN PART FOR USE FOR ANY PURPOSE OTHER THAN THE PROJECT, SPECIFIC, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.					
DRAWN JLN CHECKED HF	DATE 01/27/05 DATE 23Jun05	DESIGN BY BRITTON VINCENT	END SIZE B	PART NUMBER 349.1335-AWK	REV B
PLOT ENGR JFV	DATE 30Jun05	GL EX DO NOT SCALE DRAWING	SCALE SHEET 7 OF 12		

23-Mar-2007
11:29:24
D:\TDLAND\VRACONS\SB2SY6\1\WIF_REV\PCBN\335_B.PCB



VERIFY PLOT
DATE MAR 02 2007

Stacking Chart _____

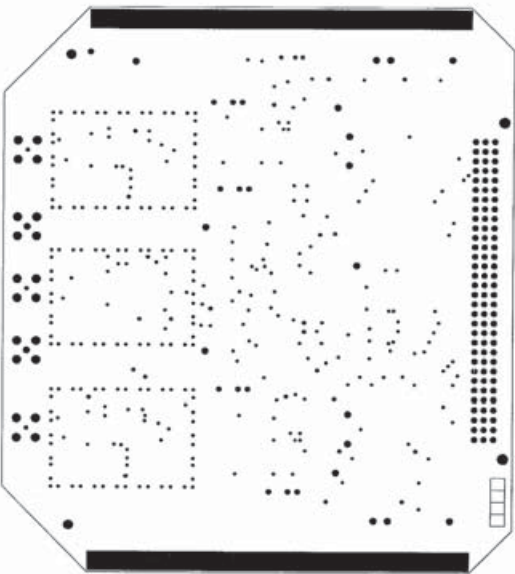
--	--	--	--

B	4638	REVISION INPUT & OUTPUT FILTERS	JTW	HPI	2/12-07				
A	--	X3 RELEASED AS A	JTW	HF	23JAN09				
REV	ECN	DESCRIPTION	BY	CNK	DTE	HOW			
ATTENTION - MANUAL REVISIONS ARE						NOT PERMITTED			

	TIDALAND SIGNAL CORP.				TERLE	
	1310 DIRECTORS AVE		HOUSTON, TEXAS 77092		DIF MODULE SBCN-2 SYS-6	
THIS SIGNALS ENCRYPTER AND DECRYPTER, ENCRYPTER AND DE-ENCRYPTER IS LOANED BY TIDALAND SIGNAL CORPORATION TO THE UNDERGOING TEST IT WILL NOT BE REPRODUCED IN WHOLE OR IN PART OR USED FOR ANY PURPOSE OTHER THAN PERFORMANCE, DEMO, OR INSTALLATION AND THAT IT SHALL BE SECURED ON DEMO.						
ORIGIN JTR	DATE 01/27/92	DESIGN BY BRITTON VINCENT	ENR SIZE B	PART NUMBER 349.1335-AWK	REV B	
CHECKED W	DATE 23JUN/95					
PROG ENBR DIFM	DATE 30JUN/95	SL EX	DO NOT SCALE DRAWING	SCALE	SHEET 8 of 12	

23-Mar-2007
11:29:25

D:\TIDELAND\RACON\SB2SY6\1\DF_REV\PCB\1335_B.PCB



VERIFY PLOT
DATE MAR 02 2007

Layer Name Bottom Solder Mask
Stacking Chart

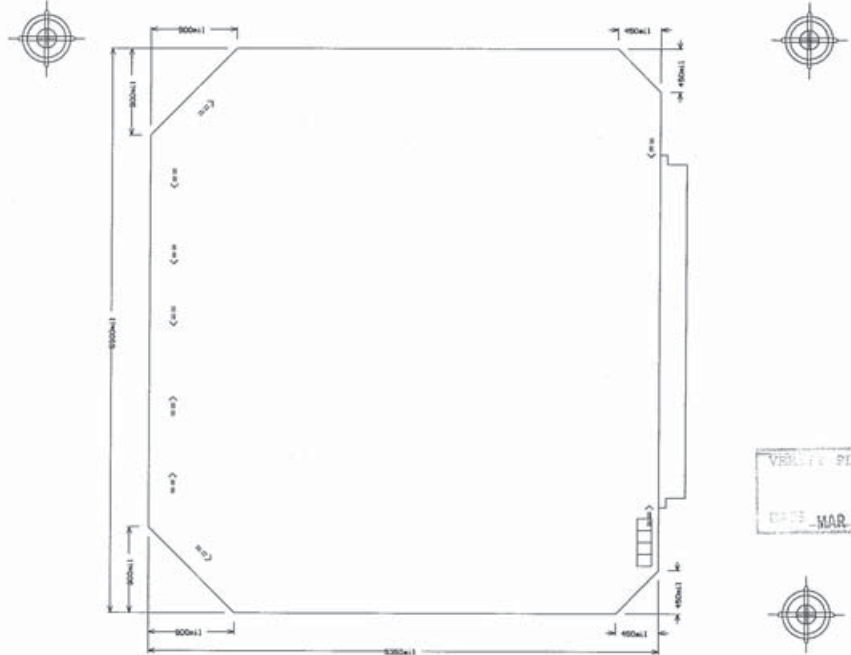
B	4635	DESIGN INPUT & OUTPUT FILTERS	JTB	HF	2-13-07
A	---	X3 RELEASED AS A	JTB	HF	23JUN08
REV	CON	DESCRIPTION	BY	CHK	DATE
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED					

 TIDELAND SIGNAL CORP. 4300 DIRECTORS ROW HOUSTON, TEXAS 77062		TITLE DIF MODULE SBCN-2 SYS-6	
THIS DRAWING IS THE PROPERTY OF TIDELAND SIGNAL CORP. AND IS LOANED TO YOU BY TIDELAND SIGNAL CORP. IT IS NOT TO BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF TIDELAND SIGNAL CORP. IT SHALL BE RETURNED TO TIDELAND SIGNAL CORP. UPON COMPLETION OF THE PROJECT FOR WHICH IT WAS LOANED.			
DESIGN JTB	DATE 01-27-02	DESIGN BY BRITTON VINCENT	REV B
CHECKED HF	DATE 23JUN08	DWG SIZE B	PART NUMBER 349.1335-AWK
PROJ ENGR JTB	DATE 30JUN08	DO NOT SCALE DRAWING	SHEET 10 of 12

23-Mar-2007
11:29:27
D:\TIDELAND\RACON\S82SY67\DF_REV\PCB\1335_B.PCB

NOTES:

1. MANUFACTURE USING ARROW CHILL-ON-AWK REVISION B, FOUR COPPER LAYERS WITH SOLDER MASK AND SUGARCOAT ON BOTH OUTER LAYERS.
2. LAYER # 1 (TOP CIRCUIT) AND LAYER # 2 (INTERNAL GROUND) TO BE 1 OUNCE COPPER ON ROUGHENED SUBSTRATE OF THICKNESS 5000 MICES NOMINAL, DIELECTRIC CONSTANT 3.38 NOMINAL.
3. LAYER # 3 (INTERNAL SIGNAL & POWER) AND LAYER # 4 (BOTTOM CIRCUIT) TO BE 1 OUNCE COPPER ON FR-4 MATERIAL, SIZE TO MATCH SIGNAL THICKNESS OF BOARD 5000 MICES NOMINAL. THE FR-4 MATERIAL TO BE RIGID COMPLIANT PER IPC-4101 WITH PENETRATION TO 175 DEGREES C OR HIGHER, TO 240 DEGREES C OR HIGHER AND FLAME RATED UL 94V-0.
4. EDGE CLEARANCE ON INTERNAL LAYERS NOT TO EXCEED 30 MILS.
5. LAYERS STACKED AS FOLLOWS:
- | | |
|-------------------------------------|-----------------|
| 1 oz copper (1.4 mils) plus plating | Top Circuit |
| 20450 core material (0.8 mils) | |
| 1 oz copper (1.4 mils) | Internal Ground |
| FR-4 material | |
| 1 oz copper (1.4 mils) | Internal Power |
| FR-4 material | |
| 1 oz copper (1.4 mils) plus plating | Bottom Circuit |
6. BOARD FINISHES TOLERANCE TO BE 5000 MICES NOMINAL.
7. MINIMUM CONDUCTOR WIDTH TO BE 5000 MICES.
8. SOLDERMASK BOTH SIDES OF BOARD WITH RIGID COMPLIANT MATERIAL PER ARROWPC-30-000.
9. DRILLED HOLES TO BE PLATED THROUGH WITH MINIMUM 5000 MICES COPPER.
10. DRILLED HOLE SIZES APPLY AFTER PLATING WITH TOLERANCE +/- 5000 MICES.
11. DO NOT PLATE THROUGH HOLES MARKED WITH ARROW (---) LINE PLACES:
--- UPPER LEFT CORNER AND LOWER LEFT CORNER OF BOARD.
--- J1, J2, J3, J4, J5 CORNER CONNECTORS.
--- P1 MOUNTING HOLES.
12. PLATING BOTH TOP AND BOTTOM LAYERS TO BE RIGID COMPLIANT PER IPC-4101, ELECTROLESS NICKEL, 240 DEGREES C OR HIGHER THICKNESS TO BE 2 TO 8 MICES THICK.
13. APPLY SUGARCOAT TO BOTH SIDES OF BOARD USING NON-CONDUCTIVE RIGID COMPLIANT WHITE EPOXY INK.
14. BOARD MUST BE PERMANENTLY MARKED ON SOLDER SIDE WITH:
--- REVISION LETTER SPECIFIED ON THIS DRAWING AND ON THE PURCHASE ORDER IN CORNER IN AREA INDICATED BY []
--- CURRENTLY LISTED UL SUPPLIER MARK AS REQUIRED FOR UL LISTING.
--- FOUR DIGIT DATE CODE TO SHOW YEAR AND WEEK OF MANUFACTURE.



VERIFIED PLOT
DATE MAR 02 2007

Layer Name _____Mechanical Layer 1

Stacking Chart _____

REV	EDN	DESCRIPTION	BY	CHK	DATE	APPROV
B	1635	REDESIGN INPUT & OUTPUT FILTERS	JTH	MF	2-12-07	
A	--	X3 RELEASED AS A	JTH	MF	23-Jun-05	DFM
REV	EDN	DESCRIPTION	BY	CHK	DATE	APPROV

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

TIDELAND SIGNAL CORP. 4350 DIRECTORS ROW HOUSTON, TEXAS 77062		TITLE DIF MODULE SBCN-2 SYS-6	
THIS DRAWING CONTAINS PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY RECEIVING PARTY. REPRODUCTION OR THE UNAUTHORIZED USE OF THIS DRAWING IS PROHIBITED. IT IS TO BE USED FOR THE PURPOSES SPECIFIED IN THE ORDER. IT IS TO BE RETURNED TO THE ORIGINATOR.			
DESIGN BY JTH	DATE 02-27-07	DESIGN BY BRITTON VINCENT	DATE 23-Jun-05
CHECKED MF	DATE 23-Jun-05	DWG SIZE B	PART NUMBER 349.1335-AWK
FILED ENGR PVT	DATE 30-Jun-05	EX	DO NOT SCALE DRAWING
SCALE		SHEET 11 OF 12	

Components _____ 230
Nets _____ 173
Holes _____ 584
29-Mar-2007
13:45:57
d:\tideland\vocon\lab2sy6\1\idf_rev0\pcb\1335_b1.pcb



VERIFY PLOT
DATE MAR 02 2007

H	2	110m	2.794mm
A	2	100m	2.54mm
F	20	67m	1.7018mm
D	115	42m	1.0668mm
E	14	35m	0.889mm
G	48	30m	0.762mm
C	68	20m	0.508mm
B	315	16m	0.4064mm
	584	Total	

Layer Name _____ Drill Drawing for Through Hole

Stacking Chart _____

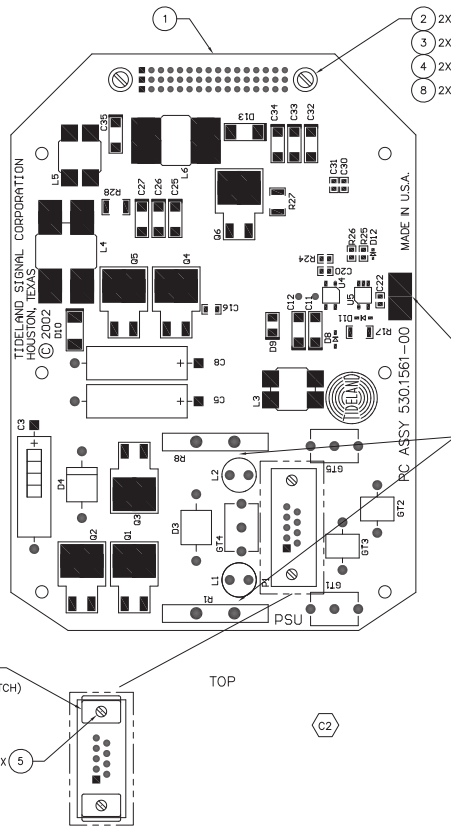
B	4626	REVISION HUNT & BURNOUT FILTER	27H	WF	2/23/87				
A	--	X3 RELEASED AS A	27H	WF	2/24/88				
REV	EDN	DESCRIPTION	BY	CHK	DATE				REV

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

	TIDELAND SIGNAL CORP.				FILE	
	4310 DIRECTORS ROW HOUSTON, TEXAS 77002				DIF MODULE SBCN-2 SYS-6	
THIS DRAWING CONVEYS INFORMATION AND CONFIDENTIAL INFORMATION HAS BEEN LOANED TO TIDELAND SIGNAL CORP. WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN WHOLE OR IN PART OR USED FOR ANY PURPOSE OTHER THAN PURCHASING, RENTING OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.						
DRAWN JTB	DATE 01-27-82	DESIGN BY BRITTON VINCENT	OMB SIZE B	PART NUMBER 349.1335-AW	REV B	
CHECKED ME	DATE 23-Mar-82					
PLOTTED BY DFM	DATE 30-Jun-83	INL	EX	DO NOT SCALE DRAWING	SCALE	SHEET 12 OF 12

NOTES: UNLESS OTHERWISE SPECIFIED

- FOR SCHEMATIC SEE 530.1561-SCH.
- ASSEMBLE IN STATIC FREE AREA.
- MARK ASSEMBLY REVISION LETTER IN AREA SHOWN.
- MAX. COMPONENT HEIGHT TOP & BOTTOM IS 5MM, EXCEPT C3,C5,C8,D4,G11-GT5 IS 10MM, J1 IS 12MM, & 31MM FOR R1 & R8.
- MAX. LEAD PROTRUSION: 2.3 [.09].
- APPLY ITEM 9 TO R1 & R8, FASTENING TO L1 & L2.
- BOARD ASSY SHALL MEET REQUIREMENTS OF IPC-A-610B CLASS 3.
- DENOTES REVISION SYMBOL.



DASH OPTION	
DASH NO.	DESCRIPTION
-00	PWR SUPPLY, SBCN-2 SYS 6 (UNTUNED)
-01	OBSELETE
-02	PWR SUPPLY, SBCN-2 SYS 6 (TUNED)

REV	ECO	ZONE	DESCRIPTION	BY	CHK	DATE	APPD
D	0014	A6	3) ADDED ITEM (5)	CS	AZ	18DEC14	AD
B	5840	A5	2) ADDED ITEM (10)	HA	LM	18JAN13	PFM
A	--	A4	1) ADDED FIXED LATCH	JD	KN	21JUL11	MK
		A3	2) REMOVED VIEW OF -D1	HA	HF	26APR05	PFM
		A2	1) ADDED DASH OPTION TABLE	JD	KN	21JUL11	MK
		A1	ADDED -01	HA	HF	26APR05	PFM
		A0	X4 RELEASED AS REV. A	HA	HF	26APR05	PFM

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED.

UNLESS OTHERWISE SPECIFIED		MATERIAL		TIDELAND SIGNAL CORP.	
1. TOLERANCE	TOLERANCE	SEE BOM		4310 DIRECTORS ROW	HOUSTON, TEXAS 77060
2. DIMENSIONS	DIMENSIONS				
3. ANGULAR & 90°	ANGULAR & 90°				
4. TOLERANCES ARE NON-ACCUMULATIVE	TOLERANCES ARE NON-ACCUMULATIVE				
5. UNMOUNTED INSIDE COMPONENTS 0.59 MAX.	UNMOUNTED INSIDE COMPONENTS 0.59 MAX.				
6. INTERPRET DIMS FOR ASME Y14.5-2009	INTERPRET DIMS FOR ASME Y14.5-2009				
7. SURFACE FINISH	SURFACE FINISH				
8. REMOVE BURRS AND SHARP EDGES	REMOVE BURRS AND SHARP EDGES				
9. PROU ENGR	PROU ENGR				
10. DATE	DATE				
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5301561C.DWG 21JAN13 15:00



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☐ VIN
☐ GO MOOD
☐ GO MOOD
☐ B'ANG
☐ LUXIX
☐ LUXIX
☐ K'BAT

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0000000
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LX 100
LX 100
BANK
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LX 100

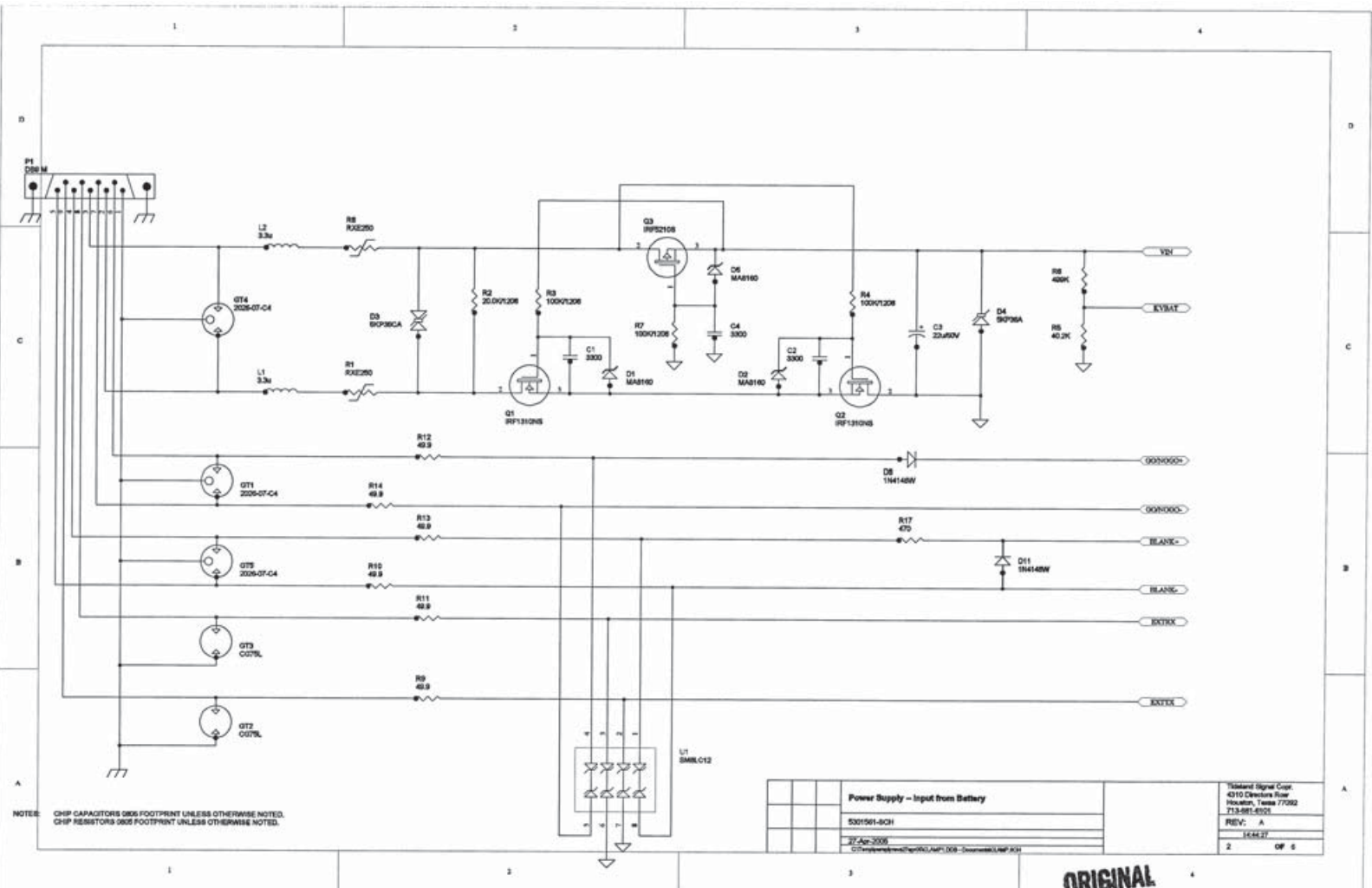
☐ 0.15M
☐ 0.25M
☐ 0.5M
☐ 1.0M
☐ 2.0M

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PORT: SCPI
+ACTV
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MODE
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SCJE
LSISQ
WIFI
007000
MAIL
TOD
OJD
# ANK
PCSI
CWDG
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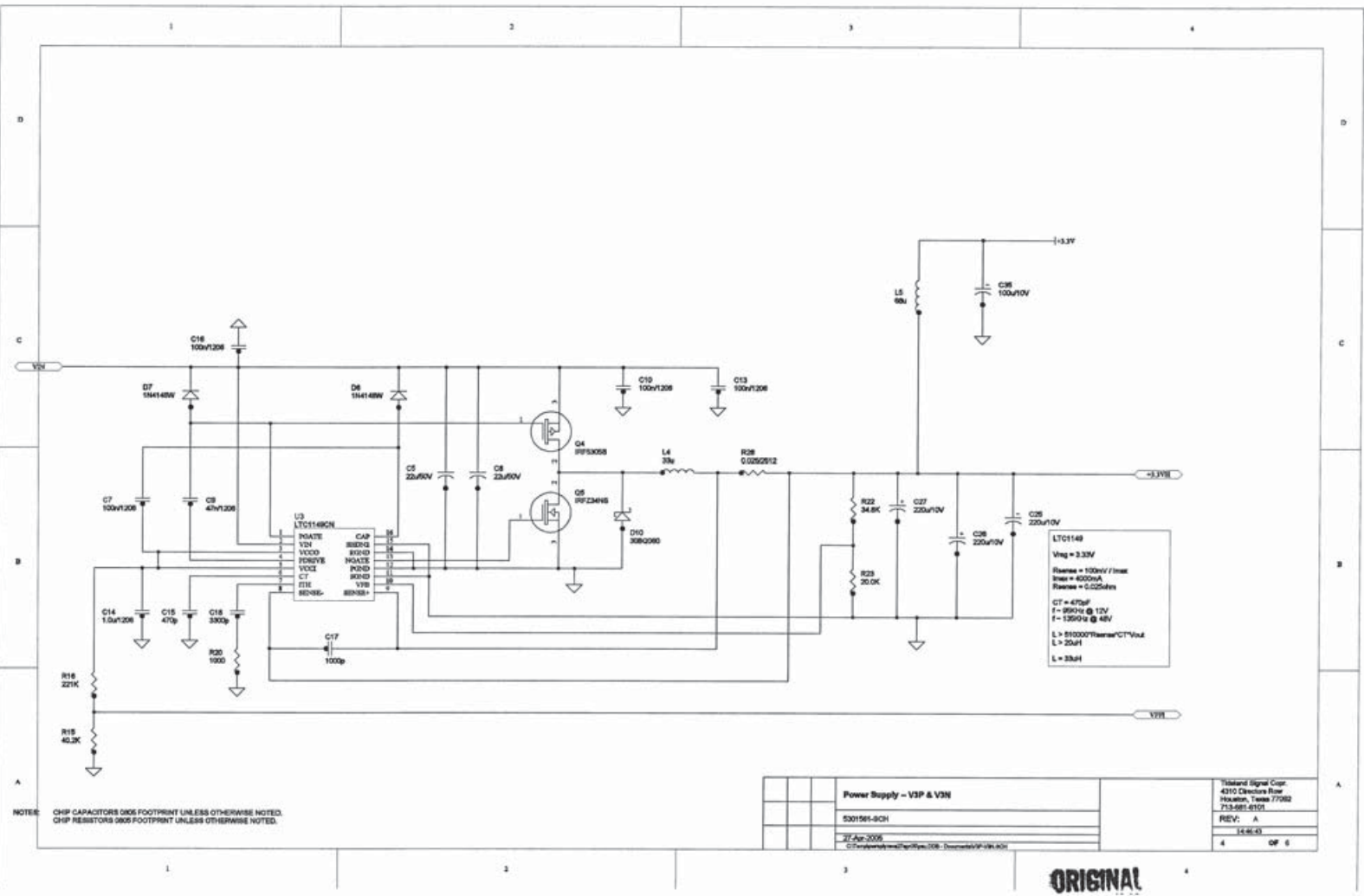
XXXXXXX ONLY
XXX INT. XXXXXX DATE

3/26/2008 Rev. 1/2/2008 SeaBacon 2 System 6 - Power Supply 5301981-GCH 1.1.2 - 2008 1.1.2 - 2008		TideLand Signal Corp. 4310 Directors Row Houston, Texas 77092 713-681-8101 Rev. A 05/06/08
1 CP 6		

ORIGINAL



ORIGINAL



NOTE: CHIP CAPACITORS 0605 FOOTPRINT UNLESS OTHERWISE NOTED.
CHIP RESISTORS 0605 FOOTPRINT UNLESS OTHERWISE NOTED.

MAX1771
 $V_{in} = 3.3V$
 $V_{out} = 10.0V$
 $I_{max} = 1.0A$
 $R_{sense} = 0.025\Omega$ (per design choice)
 $L = V_{in} \cdot 0.00002 / (I_{max} / 2)$
 $L > 3.3V \cdot 0.00002 / (1.0 / 2)$
 $L = 13\mu H$
 $L = 22\mu H$

MAX764
 $V_{out} = -3.3V$
 $I_{out} < 100mA$
 $L = 69\mu H$

NOTE: CHIP CAPACITORS 0805 FOOTPRINT UNLESS OTHERWISE NOTED.
 CHIP RESISTORS 0805 FOOTPRINT UNLESS OTHERWISE NOTED.

Power Supply - V1SP

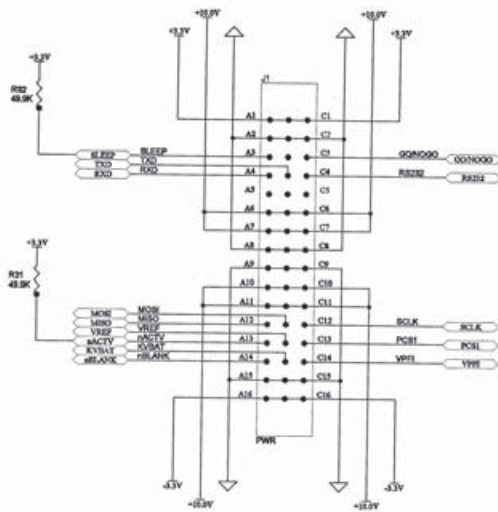
5301561-8CH

1/1 Apr-2008

C:\Temp\proj\max2\proj\max2\008_00000001\SP_008

Yellow Signal Corp.
 4310 Devonshire Blvd.
 Houston, Texas 77062
 713-467-4500
 REV: A
 144631
 5 OF 6

ORIGINAL



NOTE: CHIP CAPACITORS 0805 FOOTPRINT UNLESS OTHERWISE NOTED.
CHIP RESISTORS 0805 FOOTPRINT UNLESS OTHERWISE NOTED.

Power Supply - Output to Backplane		Triad Signal Corp. 4310 Cleburne Road Houston, Texas 77052 Z13-581-5101 REV: A 144434 6 OF 6
	5001561-5CH	
	AT-2005	
	5001561-5CH	

ORIGINAL

NOTES: UNLESS OTHERWISE SPECIFIED

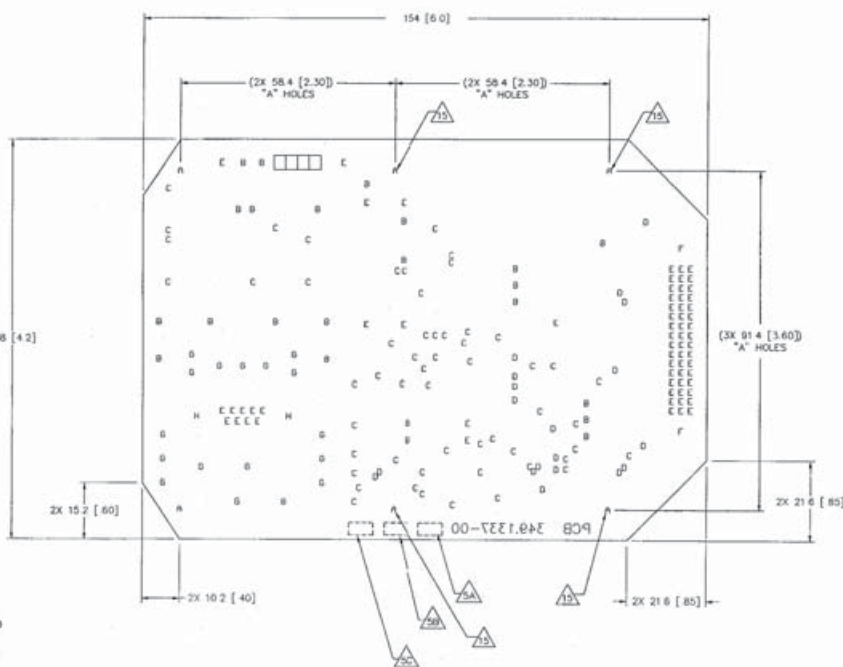
- ALL DIMENSIONS ARE BASIC
- THIS MULTILAYER BOARD SHALL MEET THE REQUIREMENTS OF IPC-6011 & IPC-6013A, TYPE 3, CLASS 3
- MANUFACTURE USING ARTWORK 349.1337-000 REV A, FOUR COPPER LAYERS WITH SOLDER MASK, SILKSREEN, AND PASTE MASK ON BOTH OUTER LAYERS. FOR MANUFACTURING PURPOSES THIS ARTWORK SHALL NOT BE REPRODUCED TO OR FROM A REPRODUCIBLE MEDIA THAT IS LESS THAN A STABLE BASE MATERIAL
- COPPER CLAD LAMINATE AND PREPREG MATERIALS SHALL CONFORM TO TYPE OF PER MIL-S-13949. SPECIFIC MATERIAL REQUIREMENTS, THICKNESS AND LAYER ARRANGEMENTS SHALL BE IN ACCORDANCE WITH FIGURE 1
- 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 []
 - A FOUR DIGIT DATE CODE YEAR AND WEEK OF MANUFACTURE []
- MINIMUM CONDUCTOR WIDTH, MINIMUM SPACING BETWEEN CONDUCTORS, & MINIMUM ANNUAL RING PER IPC-6011 & 6013A, TYPE 3, CLASS 3
- ALL PLATED THRU HOLES SHALL HAVE A MINIMUM OF 0.00008 [0.00003] - 0.00020 [0.00008] GOLD
- ALL HOLE SIZES ARE AFTER PLATING, TOLERANCE ± 0.05 [± 0.002]
- SOLDERMASK: GREEN
- SILKSREEN SHALL BE APPLIED TO BOTH SIDES OF BOARD PER MASTER PATTERN SILKSREENS, USING NON-CONDUCTIVE WHITE EPOXY INK
- BOARD MUST BE 100% BARE BOARD TESTED POINT TO POINT ON MANA 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
- BOARD FLATNESS TO BE 0.25 [0.0] 25.4 [1.00]
- USE PCB LAMINATE WITH A WATER ABSORPTION LESS THAN OR EQUAL TO 0.13%
- TOP AND BOTTOM LAYERS TO BE FINISH BY GOLD IMMERSION PROCESS 0.00008 [0.00003] - 0.00020 [0.00008] GOLD OVER NICKEL (DNG) PER IPC-4552
- PLATED THRU HOLES "A", 4 TOTAL

HOLE SCHEDULE			
SIZE	QTY	STN	PLTS
1.30 [1.30]	2	A	NPLTD
5.05 [5.05]	2	H	NPLTD
2.79 [2.79]	2	F	NPLTD
1.52 [1.52]	2	B	PLTD
1.27 [1.27]	2	C	PLTD
1.07 [1.07]	2	E	PLTD
0.71 [0.71]	2	G	PLTD
0.51 [0.51]	2	D	PLTD
1.30 [1.30]	4	A	PLTD

LAYERS TO BE STACKED AS FOLLOWS:



FIGURE 1
SCALE: NONE



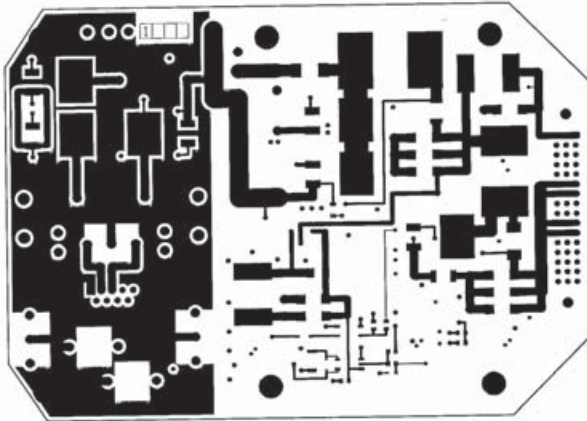
REV	DATE	DESCRIPTION	BY	CHK	DATE	APPROV
1						
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3						
4						
5						
6						
7						
8						
9						
10						

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED.

UNLESS OTHERWISE SPECIFIED:		MATERIAL:	
1. TOLERANCE	2. TOLERANCE	3. TOLERANCE	4. TOLERANCE
5. TOLERANCE	6. TOLERANCE	7. TOLERANCE	8. TOLERANCE
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349.1337-000 26 JUN 07 14:00

TIDELAND SIGNAL CORP.	
PC FAB, POWER SUPPLY	
SBCN-2 SYS 6	
REV	349.1337-00
SCALE	2:1
SHEET	1 OF 1



VERIFY PLOT
DATE APR 08 2005

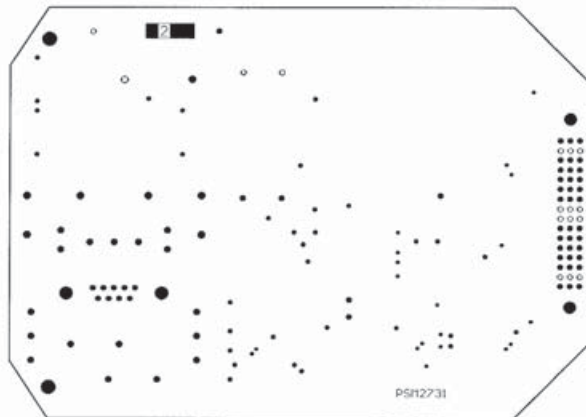


Layer Name _____ Top Layer

Stacking Chart _____ 1 1 1 1

REV	CDN	DESCRIPTION	BY	CHK	DATE	APPROV
A		13 REL. AS A	JM	MF	4/8/05	JFM
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4300 DIRECTORS RD.		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING CONTAINS PROPRIETARY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT SHALL NOT BE REPRODUCED OR IN ANY MANNER OR USED FOR ANY PURPOSE OTHER THAN PERFORMANCE, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				POWER SUPPLY	
DESIGN		DATE		DESIGN BY	
JFM		04/23/02		ANALYSIS & DESIGN GROUP	
CHECKED		DATE		P.O. BOX 24430	
MF		04/23/05		HOUSTON, TEXAS 77234	
PROJ ENGR		DATE		(281) 461-1023	
JFM		04/23/05			
DO NOT SCALE		SCALE		PART NUMBER	
DRAWING				B 349.1337-AWK A	
				SHEET 1 OF 12	



DATE APR 08 2005



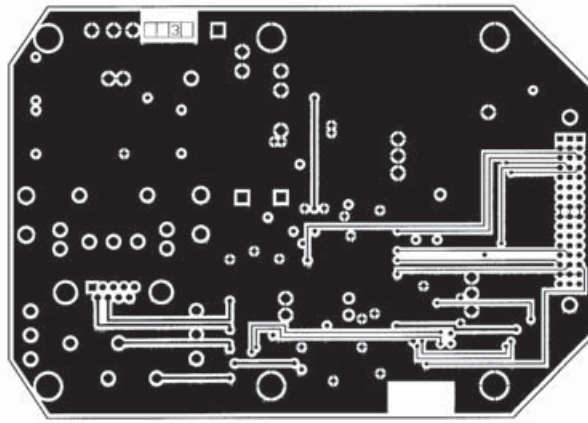
Layer Name Internal Plane 1

Stacking Chart 2 1

REV	EDN	DESCRIPTION	BY	CHK	DATE	APPROV
A		X3 REL. AS A	JM	HF	4/8/05	HF

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS SQ.		HOUSTON, TEXAS 77092		ARTWORK	
THIS DRAWING CONVEYS INFORMATION AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT WILL NOT BE REPRODUCED IN WHOLE OR IN PART OR USED FOR ANY PURPOSE OTHER THAN PERFORMANCE, REPAIR, OR INSTALLATION AND THAT IT SHALL BE RETURNED ON DEMAND.				POWER SUPPLY	
DESIGN		DATE	DESIGN BY	QMS SIZE	PRINT NUMBER
Jvanelli		09-21-02	ANALYSIS & DESIGN GROUP	B	349.1337-AWK
CHECKED		DATE	P.O. BOX 34430	REV	
HF		08/08/05	HOUSTON, TEXAS 77234	A	
			(281) 485-1923		
PROJ ENGR	DATE	UL	EX	DO NOT SCALE	SCALE
JM	04/08/05			DRAWING	SHEET 2 OF 12

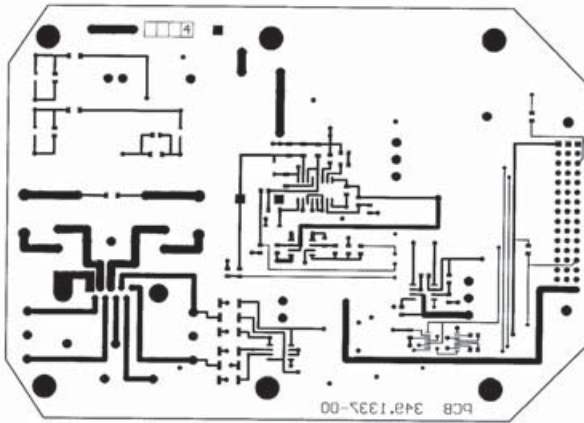


VERIFY PLOT
DATE APR 08 2005

Layer Name _____ Mid Layer 1
Stacking Chart _____ 3

REV	CDN	DESCRIPTION	BY	CHK	DATE	NOV
A		33.881. AS A	Jm	WF	4/04/05	33
ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED						

		TIDELAND SIGNAL CORP.		TITLE	
4310 DECEMBER RD		HOUSTON, TEXAS 77052		ARTWORK	
THIS DRAWING IS THE PROPERTY OF TIDELAND SIGNAL CORP. AND IS LOANED TO YOU FOR YOUR INFORMATION ONLY. IT IS NOT TO BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF TIDELAND SIGNAL CORP.				POWER SUPPLY	
SB2				SYS6	
DESIGN	DATE	DESIGN BY	QWS SIZE	PART NUMBER	REV
JPM/111	08/21/02	ANALYSIS & DESIGN GROUP	B	349.1337-AWK	A
CHECKED	DATE	P.O. BOX 31100			
HF	08/21/05	HOUSTON, TEXAS 77231			
PROJ	ENG	DATE	UL	EX	DO NOT SCALE
JPM	08/21/05				DRAWING
				SCALE	SHEET 3 of 12



DATE: APR 08 2005

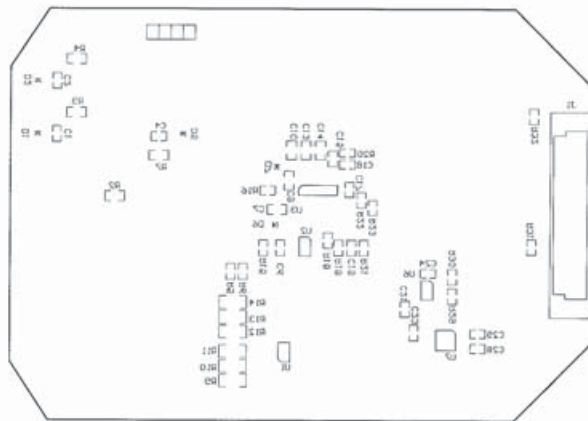
Layer Name Bottom Layer

Stacking Chart

REV	EDN	DESCRIPTION	BY	CHK	DATE	APPR
A		K3 DEL. AS *	JTM	HF	4/04/05	LF

ATTENTION - MANUAL REVISIONS ARE NOT PERMITTED

		TIDELAND SIGNAL CORP.		TITLE	
4310 DIRECTORS RD.		HOUSTON, TEXAS 77032		ARTWORK	
THIS DRAWING ENCLOSED REPRESENTS THE DESIGN AND CONSTRUCTION INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT SHALL NOT BE REPRODUCED IN ANY FORM OR MANNER OR USED FOR ANY PURPOSE OTHER THAN FOR WHICH IT WAS ORIGINALLY PREPARED, FOR INFORMATION AND THAT IT SHALL BE RETURNED TO ORIGINATOR.				POWER SUPPLY	
DRAWN JTM/05				DATE 05/21/05	DESIGN BY ANALYSIS & DESIGN GROUP
CHECKED HF				DATE 05/21/05	ANALYSIS & DESIGN GROUP
PLOT EVP				DATE 05/21/05	SCALE 1:1
UL				EX	DO NOT SCALE
DRAWING				SCALE	DO NOT SCALE
SHEET 4				OF 12	REV A



Layer Name _____ Bottom Overlay

Stacking Chart _____

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[illegible]

	TIDELAND SIGNAL CORP. 4310 DIRECTORS ROW HOUSTON, TEXAS 77092		TITLE ARTWORK		
	THIS DRAWING CARRIES PROPERTY AND CONFIDENTIAL INFORMATION AND IS LOANED BY TIDELAND SIGNAL CORPORATION WITH THE UNDERSTANDING THAT IT IS NOT TO BE REPRODUCED OR IN ANY MANNER USED FOR ANY PURPOSE OTHER THAN THE INTENDED PURPOSE. REPAIR, OR MODIFICATION AND THAT IT SHALL BE RETURNED ON DEMAND.		POWER SUPPLY SB2 SYS6		
DRAWN J. W. H.	DATE 09-27-02	DESIGN BY ANALYSIS & DESIGN GROUP P.O. BOX 334-02 HOUSTON, TEXAS 77224 (281) 444-4823	DWG. SIZE B	PRINT NUMBER 349.1337-AWK	REV A
CHECKED H. F.	DATE 09-27-02	IN CHARGE J. W. H.	DO NOT SCALE DRAWINGS	SHEET 6	OF 12