



Beta™ SW Series

SW-12 Subwoofer

PRELIMINARY SERVICE MANUAL



Infinity Systems, Inc.
250 Crossways Park Dr.
Woodbury, New York 11797

- CONTENTS -

BASIC SPECIFICATIONS	1
DETAILED SPECIFICATIONS	2
CONTROLS AND CONNECTIONS.....	4
OPERATION.....	6
BASS OPTIMIZATION SYSTEM.....	7
EXTERNAL/MECHANICAL PARTS LIST	8
BLOCK DIAGRAM.....	9
ELECTRICAL PARTS LIST (120v)	10
ELECTRICAL PARTS LIST (230v)	15
PCB DRAWINGS.....	20
SEMICONDUCTOR PINOUTS.....	29
SCHEMATICS (120v).....	30
SCHEMATICS (230v).....	34

Basic Specifications SW-12 Powered Subwoofer

Frequency Range:	28Hz – 150Hz (±3dB)
Max Amplifier Output:	500 watts RMS
Low-Frequency Driver:	12" (305mm) C.M.M.D.
Crossover Frequency:	50 -150 Hz (24dB/octave, continuously variable)
Dimensions (H x W x D):	16-3/4" x 14-7/8" x 19-7/8" (425mm x 378mm x 505mm)
Weight:	45 lb (20.5 kg)

Infinity continually strives to update and improve existing products, as well as create new ones. The specifications and construction details in this and related Infinity publications are therefore subject to change without notice.

SW-12 300W Powered Sub/ Plate Amp

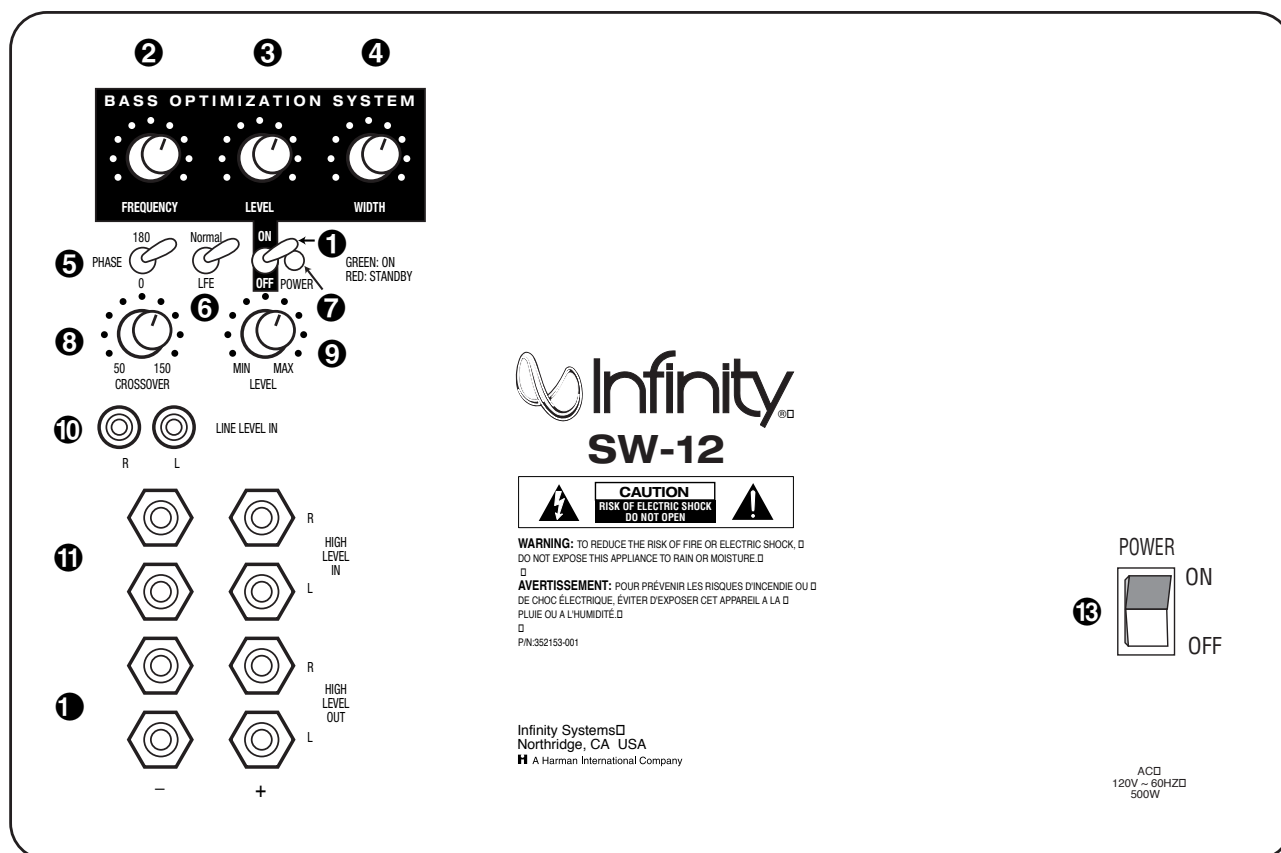
LINE VOLTAGE	Yes/No	Hi/Lo Line	Nom.	Unit	Notes
US 120vac/60Hz	Yes	108-132	120	Vrms	Normal Operation
EU 230vac/50-60Hz	Yes	207-264	230	Vrms	Normal operation, MOMS required

Parameter	Specification	Unit	QA Test Limits	Conditions	Notes
Amp Section					
Type (Class AB, D, other)	D	n/a	n/a		Bridge type amplifier, None of the speaker terminals must be connected to system GND at any time.
Load Impedance (speaker)	6	Ohms	n/a	Nominal	
Rated Output Power	250	Watts	225	1 input driven	Limiter prevents continuous power to exceed 240 Watts, amplifier delivering power in excess of 300 Watts at 4 Ohms of load impedance.
THD @ Rated Power	0.1	%	1	22K filter	
THD @ 1 Watt	0.1	%	0.2	22K filter	
Dynamic Power	400	Watts	380	Power is the average measurement of the first consecutive cycles of the burst signal	3/20 Cycles @ 50 Hz, burst test into 4 Ohms, input driven 6dB above its maximum sensitivity, volume level at Maximum, RABOS Section OFF
DC Offset	10	mV-DC	60	@ Speaker Outputs	
Damping factor	>50	DF	23	Measured at amplifier board	Measured at the speaker cable. 200 Watts, measured at speaker output terminals located at the amp board.
Input Sensitivity					
Input Frequency	30	Hz	30	Nominal Freq.	
L&R	14.7	mVrms	±2dB	To 1 Watt	Single input driven, Ap Zo=600 Ohms, LP ON, RABOS OFF, Volume ctrl & crossover at max
LP Off Mode selected	14.7	mVrms	±2dB	To 1 Watt	Single input driven, Ap Zo=600 Ohms, LP OFF, RABOS OFF, Volume ctrl & crossover at max
Speaker/Hi Level Input	0.206	Vrms	±2dB	To 1 Watt	Single input driven, Ap Zo=25 Ohms, LP ON, RABOS OFF, Volume ctrl & crossover at max
Signal to Noise					
SNR-A-Weighted	100	dBA	90	Relative to rated power	A-Weighting filter
SNR-unweighted	90	dBr	85	Relative to rated power	22K filter
SNR rel. 1W-unweighted	60	dBr	55	Relative to 1W Output	22K filter
Residual Noise Floor	0.5	mVrms	1	Volume @max, using RMS reading DMM/VOM (or A/P)	
Residual Noise Floor	0.5	mVrms(max)	1	Volume @max, w/ A/P Swept Bandpass Measurement (Line freq.+ harmonics)	
Input Impedance					
Line Input (L, R,LFE)	10K	ohms	n/a	Nominal	
Speaker/Hi Level Input	10K	ohms	n/a	Nominal	
Filters					
LP 4th order variable	50-150	Hz	± 10		
Subsonic filter (HPF) 2nd Order	Fixed	Hz	± 10		
Low pass filter OFF	Fixed	Hz	± 10	L or R input driven, LP Filter OFF	
BOS					
Frequency Control					
Range	20-80	Hz	functional	21 detent pot (0.1 oct. steps)	
Level Control					
Range	-14.1 to 0	dB	functional	21 detent pot (0.5dB steps)	
Width(Q) Control					
Range	4.5% to 49.5%	octave	functional	21 detent pot (5steps/0.1 octave)	
Limiter					
THD at Max. Output Power	YES	n/a	functional		
Features					
Auto - On -Off	YES	--	functional		No switch to select the ATO mode is provided, Refer to ATO section
Phase switch	0-180	deg	functional		
Volume pot Taper (lin/log)	LOG	--	functional		A Taper
Variable crossover 50-150 Hz	YES		functional		4th Order LP Variable crossover
HP Speaker out	YES		functional		Pass through from the speaker input section
LP On- Off Select switch	YES	--	functional		Disables LP filter, intended for LFE
Input Configuration					

Parameter	Specification	Unit	QA Test Limits	Conditions	Notes
Line In (L,R) & LFE	YES	--	functional		Dual RCA jack, Lor R is used in LFE mode
Spkr/Hi Level In	YES	--	functional		Binding post connector L&R
Signal Sensing (ATO)					
Auto-Turn-On (yes/no)	YES		functional	Auto - on selection switch in Auto	
ATO Input test frequency	50	Hz	functional	"	
ATO Level LFE Input	2	mV	functional	"	
ATO Level Speaker in	50	mV	functional	"	
ATO Turn-on time	2	seconds	functional	Amp connected and AC on, then input signal applied	
Auto Mute/ Turn-OFF Time	15	minutes	17	(T) Time before muting, after input signal is removed	Auto turn of time (T) must be 10 > T < 17 Minut
Power on Delay time	3	sec.	4	AC Power Applied	
Transients/Pops					
ATO Transient	5	mV-peak	n/a	@ Speaker Outputs	
Turn-on Transient	50	mV-peak	1V-pk-pk	@ Speaker Outputs	AC Line cycled from OFF to ON
Turn-off Transient	50	mV-peak	1V-pk-pk	@ Speaker Outputs	AC Line cycled from ON to OFF
Efficiency					
Efficiency	70	%	65	Rated power	Nominal Line voltage 120 VAC
Stand-by Input Power	10		10	@ nominal line voltage, Amp in OFF state, RED LED activated	Maximum allowable input power LED in RED, Class D inactive
Stand-by Input Power	12	Watts	15	@ nom. line voltage, Amp in On state, Green LED activated	Maximum allowable input power under nominal Input voltage and frequency, in stand-by mode (HOT or COLD operation, LED GREEN). Class D active but no signal applied.
Power Cons. @ rated power	325	Watts	338	@ nom. line voltage	220 Watts @ 6.0 Ohms nominal line voltage
Protection					
Short Circuit Protection	YES		functional	Direct short at output	Amplifier should resume operation after short circuit condition removal
Thermal Protection	YES		functional	@ 1/8 max unclipped Power	Temperature rise in accessible metal parts should not exceed 35K rise for domestic version or 30K rise for European versions (refer to requirements sheet). Unit is protected for over-temperature conditions
DC Offset Protection	YES		-	DC present at Speaker Out leads	Relay opens dusing a DC output condition
Line Fuse Rating					
USA-Domestic	4	Amps		Type-T or Slo Blo-250 V	
EU	2	Amps		Type-T or Slo Blo-250 V	Internal fuse with UL/SEMKO rated holder

CONTROLS AND CONNECTIONS

Rear Panel



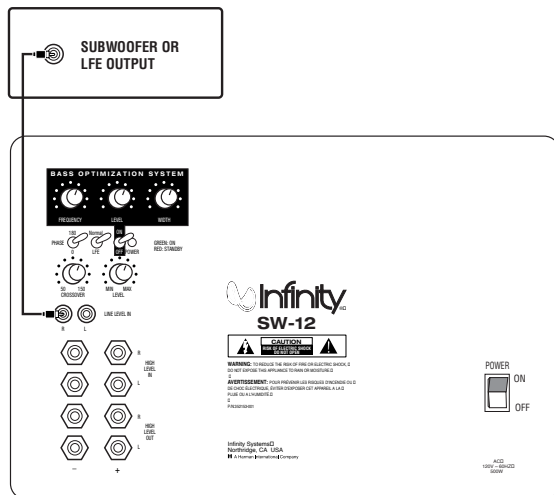
Bass Optimization Controls (see page 5)

- 1 Bass Optimization System Selector
- 2 Center-Frequency Adjustment
- 3 Bass Optimization System Level Adjustment
- 4 Bass Optimization System Bandwidth Adjustment

- 5 Phase Switch
- 6 Normal/LFE Selector
- 7 Power Indicator
- 8 Crossover Adjustment
- 9 Subwoofer Level (Volume) Control
- 10 Line-Level Inputs
- 11 High-Level (Speaker) Inputs
- 1 High-Level (Speaker) Outputs
- 13 Power Switch

CONNECTIONS

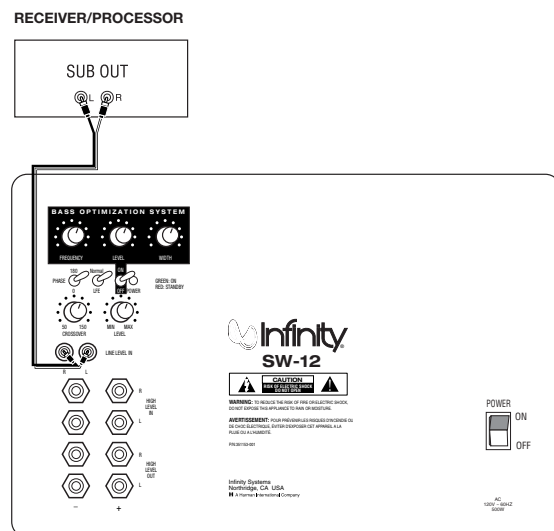
If you have a Dolby® Digital or DTS® receiver/processor with a low-frequency-effects (LFE) output:



- Set Normal/LFE Switch to LFE.

NOTE: In this case, you do not need to use a Y connector. Simply connect the LFE output on your receiver/processor to either the left or right input on the subwoofer.

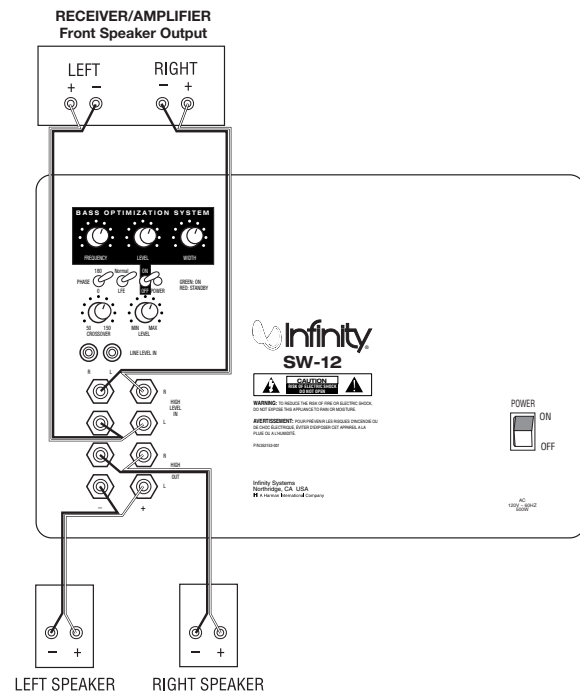
If your receiver/processor has subwoofer outputs for the left and right channels:



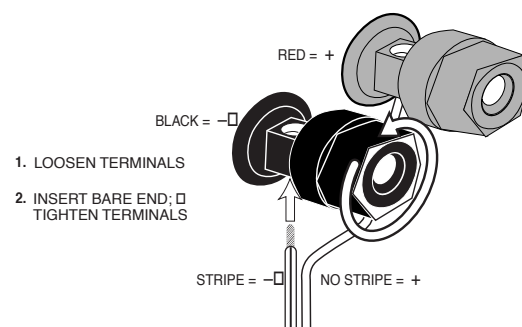
- Set Normal/LFE Switch to Normal.

NOTE: Some receivers have a single subwoofer output (do not confuse this with a single LFE output as described below). In that case, it is recommended that you use a Y connector (not included) to maximize performance.

If your receiver/amplifier does not have subwoofer outputs for the left and right channels or an LFE output:



- Set Normal/LFE Switch to Normal.



OPERATION

Power On

Plug your subwoofer's AC cord into a wall outlet. Do not use the outlets on the back of the receiver.

Initially set the Subwoofer Level (Volume) Control **9** to the "min" position.

Turn on your sub by pressing the Power Switch **13** on the rear panel.

Auto On/Standby

With the Power Switch **13** in the ON position, the Power Indicator LED **7** will remain backlit in red or green to indicate the On/Standby mode of the subwoofer.

RED = STANDBY (No signal detected, Amp Off)

GREEN = ON (Signal detected, Amp On)

The subwoofer will automatically enter the Standby mode after approximately 10 minutes when no signal is detected from your system. The subwoofer will then power ON instantly when a signal is detected. During periods of normal use, the Power Switch **13** can be left on. You may turn off the Power Switch **13** for extended periods of nonoperation, e.g., when you are away on vacation.

Adjust Gain

Turn on your entire audio system and start a CD or movie soundtrack at a moderate level. Turn up the Subwoofer Level (Volume) Control **9** about half way. If no sound emanates from the subwoofer, check the AC-line cord and input cables. Are the connectors on the cables making proper contact? Is the AC plug connected to a "live" receptacle? Has the Power Switch **13** been pressed to the "On" position? Once you have confirmed that the subwoofer is active, proceed by playing a CD, record or cassette. Use a selection that has ample bass information.

Set the overall volume control of the preamplifier or stereo to a comfortable level. Adjust the Subwoofer Level (Volume) Control **9** until you obtain a pleasing blend of bass. Bass response should not overpower the room but rather be adjusted so there is a harmonious blend across the entire musical range. Many users have a tendency to set the subwoofer volume too loud, adhering to the belief that a subwoofer is there to produce lots of bass. This is not entirely true. A subwoofer is there to enhance bass, extending the response of the entire system so the bass can be felt as well as heard. However, overall balance must be maintained or the music will not sound natural. An experienced listener will set the volume of the subwoofer so its impact on bass response is always there but never obtrusive.

Crossover Adjustments

NOTE: This control will have no effect if the Normal/LFE Selector Switch **6** is set to "LFE." If you have a Dolby Digital or DTS processor/receiver, the Crossover Frequency is set by the processor/receiver. Consult your owner's manual to learn how to view or change this setting.

The Crossover Adjustment Control **8** determines the highest frequency at which the subwoofer reproduces sounds. If your main speakers can comfortably reproduce some low-frequency sounds, set this control to a lower frequency setting, between 50Hz and 100Hz. This will concentrate the subwoofer's efforts on the ultradeep bass sounds required by today's films and music. If you are using smaller bookshelf speakers that do not extend to the lower bass frequencies, set the Crossover Adjustment Control to a higher setting, between 120Hz and 150Hz.

Phase Control

The Phase Switch **5** determines whether the subwoofer speaker's piston-like action moves in and out with the main speakers, 0°, or opposite the main speakers, 180°. Proper phase adjustment depends on several variables such as room size, subwoofer placement and listener position. Adjust the phase switch to maximize bass output at the listening position.

BASS OPTIMIZATION SYSTEM™

Infinity's Bass Optimization System is a simple-to-use, yet sophisticated, low-frequency calibration system. The subwoofer contains a parametric equalizer that you can adjust following the directions below. By following these instructions, you can improve the sound of your system.

The Bass Optimization System Goal

It is a fact of audio that what we hear at low frequencies is determined as much or more by the listening room than by the loudspeaker itself. Placement of the loudspeakers and listeners and the acoustical characteristics of the room surfaces are all important determinants of bass quantity and quality. In most practical situations, there is little that can be done about this, except for patient trial-and-error repositioning of the loudspeakers and listeners. Usually, the practical constraints of a living space and the impracticality of massive acoustical treatment mean that equalization is the only practical solution.

Professional sound engineers routinely employ sophisticated measurement systems and equalizers to optimize speakers to the installation. This was never practical for the home audiophile. This is why the Bass Optimization System was created. It enables you to identify the dominant low-frequency response characteristic of your room. Once you know the problem, the Bass Optimization System provides the tools needed to optimize the low-frequency characteristics of the speakers to the room they are in, exactly as the professional sound engineers do it.

Preparations

Before beginning the bass tests, please check the following:

- Make sure all three Bass Optimization System controls on the subwoofer are turned fully clockwise.
- Make sure the loudness contour (if any) on your receiver/processor/preamp is turned off.
- Set the receiver's/processor's tone controls (Bass and Treble) to their center or flat positions.
- Bypass all surround and effects features of your receiver/processor/preamp or set to Stereo Bypass.
- If you are using a multichannel surround processor or receiver, make sure all bass-management features are properly set. The Audio channels should all be set to "Small" or "High-Pass" and the subwoofer set to "On."
- Set the Bass Optimization System Selector **1** to "On."

For best results, it is recommended that all major furnishings are in place and that all doors and windows in the listening area are in their normal positions. That is, if you normally listen to music with all doors closed, then this is how they should be during this procedure.

To solve a problem, it helps to first identify whether you have one and, if so, what it is. First, play a variety of music and films with energetic bass sounds, like bass guitar, kick drum, keyboards, etc. A kick drum should produce a tight "thump," not a flabby "boom." Bass melody or harmony lines should have notes that are about equally loud. If some notes disappear, or stand out because they are consistently too loud, there is a problem. Disappearing notes have to be handled by moving the listening position, or the loudspeakers, to slightly different locations. Often, but sadly not always, this will be enough. Excesses in bass tend to be most annoying, and energetic resonances that cause "boomy" or "lumpy" bass can be truly aggravating over a period of time. Infinity's Bass Optimization System can fix this.

So, the first step is to exercise your music collection, and listen for low-frequency problems that crop up in several different recordings. Something that only happens in one recording is likely to be a problem in the recording — it happens! If you identify something that is consistently wrong, select a record that shows it very clearly, and put your CD/DVD player into a repeat mode (A-B repeat is especially helpful, because you can isolate a short musical passage).

Set the Bass Optimization System Bandwidth Adjustment Control **4** to a middle position (10 clicks from a fully clockwise position) and set the Level Adjustment **3** for a -6dB (8 clicks from a fully clockwise position). Then, while the music is playing, sit in your favorite chair and have somebody else slowly adjust the Center-Frequency control **2** from fully clockwise to fully counterclockwise. At a certain frequency, you should hear the problem lessen and the overall bass performance improve. When you are satisfied that you have found the best frequency, have your assistant vary the Level **3** slowly up and down until you have maximized the improvement. If you have really keen ears, you can also have the Bandwidth Adjustment control **4** adjusted for maximum benefit.

While the Bass Optimization System allows the listener to fine-tune the bass response to sound best in a particular room, some listeners don't have the skill or desire to adjust their system by ear. In order to facilitate quicker and more accurate results, Infinity has developed an optional test and measurement kit that allows the user to perform a series of measurements and aids him/her in properly setting the Bass Optimization System controls. With the addition of this kit, the Bass Optimization System becomes truly room-adaptive. The kit consists of the following: a test CD, a sound-level meter that is specifically calibrated for low frequencies, and something we call a "Q-Finder," a device to help find the width of the measured curve and, finally, a measurement template. It works as follows. The listener plays the tones from the test CD and records the relative output level of each test tone, using the sound-level meter, on the provided measurement template. After all the tones are complete, the template contains a response curve for the frequencies below 100Hz. The user simply notes the frequency of the largest bass peak, calculates the correct amount of attenuation, and uses the "Q-Finder" to determine the width of the curve. These three values are dialed into the Bass Optimization System controls located on the speaker. The entire process takes less than twenty minutes.

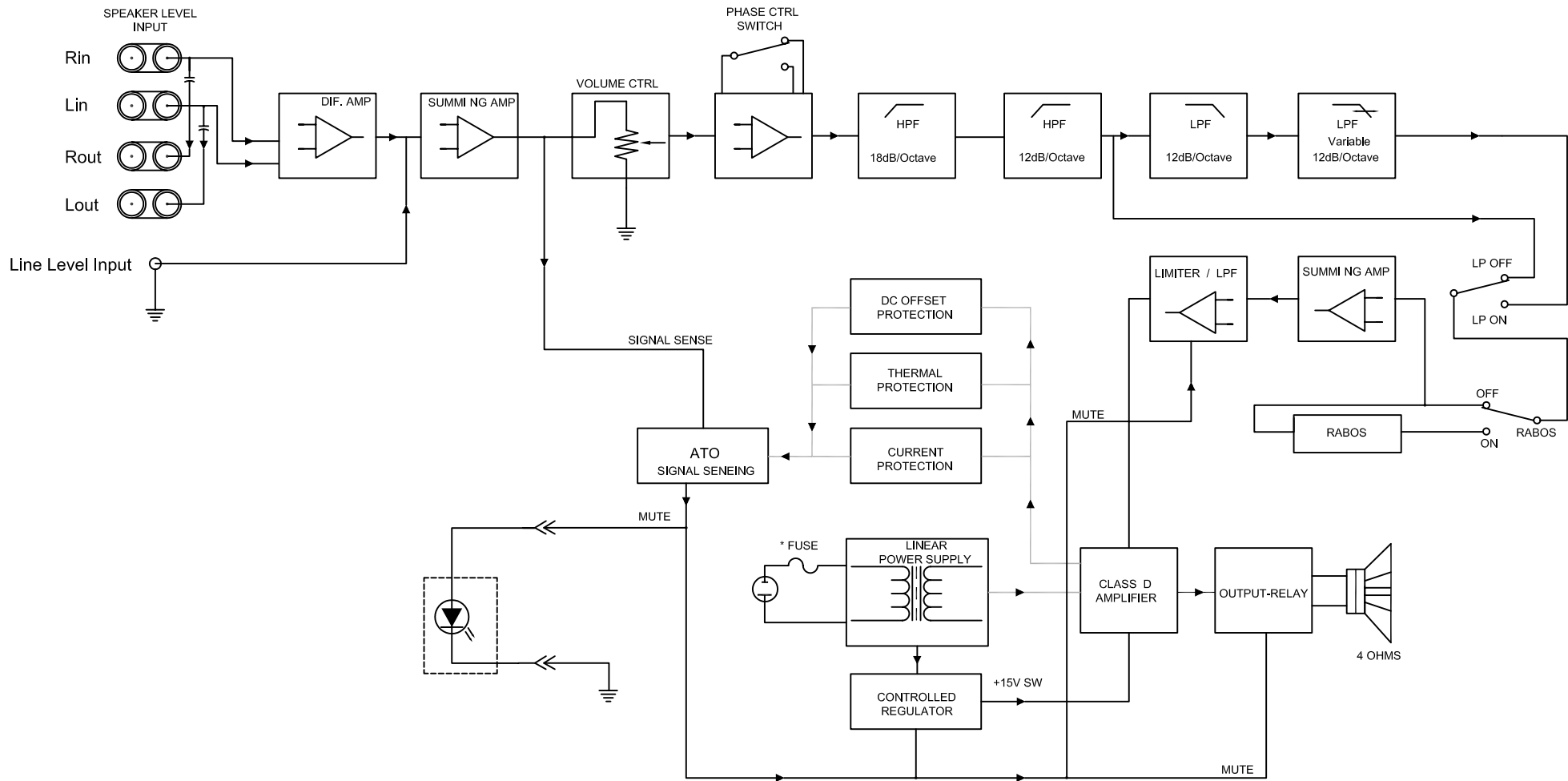
If your dealer does not stock the Bass Optimization System test and measurement kit, you may purchase it directly from Infinity. U.S. residents can visit our Web site at www.infinitysystems.com or call 1.516.674.4INF.

SW-12 EXTERNAL/MECHANICAL PARTS LIST

Part Number	Description	Qty
Not For Sale	SW-12 AMPLIFIER	1 EA
Not For Sale	SW-12 CABINET	1 EA
351942-001	TRIM RING, 12"- SW-12 (BLACK)	1 EA
351942-001	TRIM RING, 12"- SW-12 (BEECH) (CHERRY)	
333249-001	CUP, GRILLE (BLACK)	4 EA
333249-003	CUP, GRILLE (BEECH) (CHERRY)	
351617-001	LOGO - SW-12	1 EA
338037-002	FOOT ASS'Y, RUBBER, BLK W/ THREADED INSERT	4 EA
72216	SCR, 8 X 3/4, PAN,PH,PB,BLK ZINC,LCS WFR (BLACK)	6 EA
903802-016	SCR, 8 X 3/4, PAN,PH,PB,BLK ZINC,LCS WFR (BEECH) (CHERRY)	
882-41110-12	SCR, 6 X 3/4,PAN,PH,PB,BLK ZINC,LCS AMPLIFIER	10 EA
351511-001	WOOFER,12",SUB DCR = 3.4 ohms ±10%	1 EA
352050-003	ASY,GRILLE, BLK, FRNT, SW-12 (BLACK)	1 EA
352050-004	ASY,GRILLE, BLK, FRNT, SW-12 (BEECH) (CHERRY)	
352179-001	PORT TUBE SW-12	1 EA

Package

Part Number	Description	Qty
352050-003	ASY,GRILLE, BLK, FRNT, SW-12 (BLACK)	1 EA
352050-004	ASY,GRILLE, BLK, FRNT, SW-12 (BEECH) (CHERRY)	
352614-001	MANUAL,OWNERS – SW-12	1 EA
352151-001	CARTON, OUTER – SW-12 (BLACK)	1 EA
352151-002	CARTON, OUTER – SW-12 (BEECH)	
352151-003	CARTON, OUTER – SW-12 (CHERRY)	
352152-001	PAD,END,TOP & BOT- SW-12	2 EA
352004-001	WARRANTY,CARD, 3/5YR,INFINITY	1 EA
338076-001	SPIKE FOOT SET	1 set



NOTE :
 120 VAC T4A-250V
 230 VAC T2A-250V

SW-12 120V Electrical parts list			
Part number		Description	Reference Designator
<i>Resistors</i>			
021-100398-100	Metal Film Resistor	100R 1/8W F	R339
021-100401-020	MOF Resistor	1K 1W J FK TYPE	R173
021-100498-100	Metal Film Resistor	1K 1/8W F	R363,381
021-100598-100	Metal Film Resistor	10K 1/8W F	R338,342,343,346,348,353,
021-100698-100	Metal Film Resistor	100K 1/8W F	R383
021-100798-100	Metal Film Resistor	1M 1/8W F	R356
021-100898-100	Metal Film Resistor	10M 1/8W F	R362
021-110698-100	Metal Film Resistor	110K 1/8W F	R347
021-121598-100	Metal Film Resistor	12K1 1/8W F	R354,369
021-140598-100	Metal Film Resistor	14K 1/8W F	R380
021-150198-100	Metal Film Resistor	1K5 1/8W F	R341
021-162398-100	Metal Film Resistor	162R 1/8W F	R384
021-220598-100	Metal Film Resistor	22K 1/8W F	R382
021-267498-100	Metal Film Resistor	2K67 1/8W F	R336
021-340398-100	Metal Film Resistor	340R 1/8W F	R357,371
021-357498-100	Metal Film Resistor	3K57 1/8W F	R335
021-430498-100	Metal Film Resistor	4K3 1/8W F	R204
021-470305-021	MOF Resistor	470R 5W J	R78
021-549398-100	Metal Film Resistor	549R 1/8W F	R344
021-560305-020	MOF Resistor	560R 5WS J 8x25	R76
021-619498-100	Metal Film Resistor	6K19 1/8W F	R359,374
021-620598-100	Metal Film Resistor	62K 1/8W F	R214
021-680398-100	Metal Film Resistor	680R 1/8W F	R360
021-787398-100	Metal Film Resistor	787R 1/8W F	R350,364
021-909398-100	Metal Film Resistor	909R 1/8W F	R385
021-931498-100	Metal Film Resistor	9K31 1/8W F	R351
022-005105-020	Resistor	PN:SQM 0R05 5W J 25x13	R2
024-000097-120	SMD Resistor	0R 1/4W J 1206	R301-303,309,296,297
024-000098-120	SMD Resistor	0R 1/8W J 0805	R8,193
024-000098-120	SMD Resistor	0R 1/8W J 0805	R313,314,318,320
024-100298-120	SMD Resistor	10R 1/8W J 0805	R89,90,140,150
024-100398-121	SMD Resistor	100R 1/4W J 1206	R249
024-100498-120	SMD Resistor	1K 1/8W J 0805	R110
024-100498-120	SMD Resistor	1K 1/8W J 0805	R81,85,96,97,131,137,142,
024-100498-121	SMD Resistor	1K 1/4W J 1206	R238,264
024-100598-101	SMD Resistor	10K 1/4W F 1206	R200B,201B,218B,219B,298
024-100598-120	SMD Resistor	10K 1/8W J 0805	R5,7,16,118,121,122,125,1,
024-100598-120	SMD Resistor	10K 1/8W J 0805	R75,82,83,92,98,132,133,
024-100598-121	SMD Resistor	10K 1/4W J 1206	R202,205-207,212,217,222,
024-100698-101	SMD Resistor	100K 1/8W F 1206	R200,201,218,219
024-100698-120	SMD Resistor	100K 1/8W J 0805	R15,120
024-100798-120	SMD Resistor	1M 1/8W J 0805	R32,33
024-110598-120	SMD Resistor	11K 1/8W J 0805	R187,188,190,191
024-110598-120	SMD Resistor	11K 1/8W J 0805	R74,99
024-120498-120	SMD Resistor	1K2 1/8W J 0805	R189,192
024-130498-100	SMD Resistor	1K3 1/8W F 0805	R119

Part number		Description	Reference Designator
024-150498-121	SMD Resistor	1K5 1/4W J 1206	R251
024-150598-120	SMD Resistor	15K 1/8W J 0805	R20,21
024-150598-121	SMD Resistor	15K 1/4W J 1206	R223
024-160598-100	SMD Resistor	16K 1/8W F 0805	R13,13B
024-200598-120	SMD Resistor	20K 1/8W J 0805	R95,141
024-200598-121	SMD Resistor	20K 1/4W J 1206	R256
024-220298-120	SMD Resistor	22R 1/8W J 0805	R28,29
024-220398-120	SMD Resistor	220R 1/8W J 0805	R136,167
024-220498-121	SMD Resistor	2K2 1/8W J 0805	R17,31
024-220498-121	SMD Resistor	2K2 1/8W J 0805	R134
024-220598-120	SMD Resistor	22K 1/8W J 0805	R127
024-220598-120	SMD Resistor	22K 1/8W J 0805	R37
024-220798-120	SMD Resistor	2M2 1/8W J 0805	R87,93
024-226598-100	SMD Resistor	22K6 1/4W F 1206	R208,209,231,232
024-237597-100	SMD Resistor	23K7 1/4W F 1206	R281
024-270498-120	SMD Resistor	2K7 1/8W J 0805	R80,84,157
024-270498-121	SMD Resistor	2K7 1/4W J 1206	R237
024-300398-121	SMD Resistor	300R 1/4W J 1206	R258
024-300598-121	SMD Resistor	30K 1/4W J 1206	R260
024-330498-101	SMD Resistor	3K3 1/4W F 1206	R203,215
024-330498-120	SMD Resistor	3K3 1/8W J 0805	R77,79,22,169
024-330498-121	SMD Resistor	3K3 1/4W J 1206	R240
024-330598-120	SMD Resistor	33K 1/8W J 0805	R4,6,60,60B
024-390498-120	SMD Resistor	3K9 1/8W J 0805	R130,161
024-390598-120	SMD Resistor	39K 1/8W J 0805	R86,94
024-412498-100	SMD Resistor	4K12 1/8W F 0805	R63
024-430598-120	SMD Resistor	43K 1/8W J 0805	R14
024-470298-120	SMD Resistor	47R 1/8W J 0805	R24-27
024-470398-120	SMD Resistor	470R 1/8W J 0805	R145,155,177,186
024-470398-120	SMD Resistor	470R 1/8W J 0805	R91
024-470498-120	SMD Resistor	4K7 1/8W J 0805	R151-153,183,34,36
024-470498-121	SMD Resistor	4K7 1/4W J 1206	R210
024-470598-120	SMD Resistor	47K 1/8W J 0805	R3,171
024-470598-120	SMD Resistor	47K 1/8W J 0805	R35
024-470598-120	SMD Resistor	47K 1/8W J 0805	R280,283
024-470698-121	SMD Resistor	470K 1/4W J 1206	R259
024-470798-121	SMD Resistor	4M7 1/4W J 1206	R243 ,244
024-510398-121	SMD Resistor	510R 1/4W J 1206	R261
024-510498-120	SMD Resistor	5K1 1/8W J 0805	R48A,48B,48C,48D,48E
024-560498-120	SMD Resistor	5K6 1/8W J 0805	R30
024-560598-120	SMD Resistor	56K 1/8W J 0805	R38
024-560598-121	SMD Resistor	56K 1/4W J 1206	R224
024-620398-121	SMD Resistor	620R 1/4W J 1206	R221,226
024-680498-120	SMD Resistor	6K8 1/8W J 0805	R23
024-680498-120	SMD Resistor	6K8 1/8W J 0805	R135,166
024-680498-121	SMD Resistor	6K8 1/4W J 1206	R247
024-680598-121	SMD Resistor	68K 1/4W J 1206	R250
024-820598-121	SMD Resistor	82K 1/4W J 1206	R263
025-010300-000	Thermister	TSE-103 K L:50mm	TH1
026-100595-001	VR 10KAx2	XV012311YGPJ25F15A10K-21PC/1	VR302,303
026-100595-002	VR 10KCx2	XV012311YGPJ25F15C10K-21PC/1	VR301

Part number		Description	Reference Designator
026-500595-254	VR 50KA	P/N:RK163111R405-EJ	R216
026-500595-267	VR 50KBx4	PN:RD1631411001D-50KBx4 (EJ)	R233
<i>Capacitors</i>			
031-100184-100	SMD Capacitor	0u01/250V K 0805 X7R	C104,119
031-100244-100	SMD Ceramic Capacitor	0u01/50V K 0805 X7R	C27,28
031-100244-100	SMD Ceramic Capacitor	0u01/50V K 0805 X7R	C108,118,131,140
031-100244-101	SMD Capacitor	0u01/50V K 1206 X7R	C12,13,224,280
031-100343-100	SMD Capacitor	100pF/50V J 0805 NPO	C81,84
031-100344-100	SMD Capacitor	0u1/50V K 0805 X7R	C10,69,112,115,135,138
031-100344-100	SMD Capacitor	0u1/50V K 0805 X7R	C75-78,82,85
031-100344-102L	SMD Capacitor	0u1/50V K 1206 X7R	C227,229,230,232-235
031-100344-104	SMD Capacitor	100pF/50V K NPO 1206	C204,222
031-100345-300	SMD Capacitor	0u1/50V M 1206 X7R	C305,306
031-100384-100R	SMD Capacitor	0u1/250V K 1206 X7R	C5,6
031-180344-100	SMD Capacitor	0u18/50V K 0805 X7R	C80,83
031-220344-103	SMD Capacitor	220pF/50V K NPO 1206	C200,210,215,216
031-220344-300	SMD Capacitor	220pF/50V K 0805 NPO	C40
031-330445-100	SMD Capacitor	3300pF/50V M 1206 X7R	C281
031-470144-101	SMD Capacitor	0u0047/50V K 0805 X7R	C1G1
031-470244-102	SMD Capacitor	0u047/50V K 0805 X7R	C93,94,101,124
031-470444-101	SMD Capacitor	4700pF/50V K X7R 1206	C2G1
031-560243-100	SMD Capacitor	56pF/50V J 0805 NPO	C92,102,105,125
031-560343-102	SMD Capacitor	560pF/50V J 0805 NPO	C79
031-680444-100	SMD Capacitor	6800pF/50V K X7R 1206	C212
032-100484-200	END Mylar Capacitor	1uF/250V K P:15	C37,39,30
033-330444-270	NPE Capacitor	3u3/50V K10 (R)8x13 SBE	C114,137
033-680464-270	NPE Capacitor	6u8/100V K10 (R)1020 GNE	C113,136
034-100515-300G	Electrolytic Capacitor	10uF/16V M (R)0511 P:2	C220
034-100614-300	Electrolytic Capacitor	100uF/16V M (R)0611 P:2.5	C8
034-100615-301	Electrolytic Capacitor	100uF/16V M (R)0611 P:5	C221
034-100625-300	Electrolytic Capacitor	100uF/25V M (R)6.3x11 P:5	C62
034-100625-303	Electrolytic Capacitor	100uF/25V M (R) P:2.5	C117
034-100695-300	Electrolytic Capacitor	100uF/63V M (R)1012 P:5	C142
034-100715-202	Electrolytic Capacitor	1000uF/16V M (R)1017 P:5	C109,132
034-100895-204	Electrolytic Capacitor	10000uF/63V M (R)30x51	C1,4
034-220516-301	Electrolytic Capacitor	22uF/16V M (R)0511 P:2	C223,225
034-220525-300	Electrolytic Capacitor	22uF/25V M (R)5x11 P:2.5	C25,26
034-220525-300	Electrolytic Capacitor	22uF/25V M (R)5x11 P:2.5	C303,304,14,15
034-330615-301	Electrolytic Capacitor	330uF/16V M (R)0812 P:3.5	C32
034-330625-300	Electrolytic Capacitor	330uF/25V M (R)1013 P:5	C11,100
034-470415-300	Electrolytic Capacitor	4u7/50V M (R)0511 P:2.0	C7
035-100363-300	PE Capacitor	0u1/100V J P:5m/m	C322,323,328
035-220243-100	PE Capacitor	0u022/63V J P:5m/m	C202
035-330293-300	PE Capacitor	0u033/63V J P:5	C209,218
035-330393-300	ESK Mylar Capacitor	0u33/63V J P:5	C207,208
035-680253-300	PE Capacitor	0u068/63V J P:5m/m	C201,213,380,381
039-220180-100	Safety Capacitor	18x16.5x8.5mm PN:XG275M224VHS2	CXAC1

Part number		Description	Reference Designator
<i>Semiconductors</i>			
050-505200-001	LED	PN:LT-2402-21	LED1
051-000600-100	NPN Transistor	PN:MPSW06RLRA TO-92 (ON)	Q6
051-000600-100	NPN Transistor	PN:MPSW06RLRA TO-92 (ON)	Q31
051-005600-100	PNP Transistor	PN:MPSW56RLRA TO-92 (ON)	Q8
051-222200-100	NPN Transistor	PN:MPS2222ARLRA TO-92	Q20,22
051-290700-100	PNP Transistor	PN:MPS2907A RLRA TO-92	Q12,14,16,18
051-540101-000	PNP Transistor	PN:2N5401 TO-92	Q3
051-555100-000	NPN Transistor	PN:2N5551 TO-92	Q21,23
051-640001-000	Mosfet N-Channel	PN:IRF640N TO-220 (IR)	Q11,13,15,17
052-400080-000	Bridge Regulator	PN:RS804 400V,8A	BR1
053-211100-000	IC;DIP,Driver	PN:IR2111 8PIN (IR)	U7,8
053-257400-100	IC;DIP,Regulator	PN:LM2574 HVN-15V 8PIN (NS)	U6
054-000100-100	SMD Diode	PN:ES1D 200V 1A	D1,23,37,40,44,47
054-000100-100	SMD Diode	PN:ES1D 200V 1A	D35,43
054-001002-100	SMD Zener Diode	PN:BZX84C10 10V SOT-23	D32
054-001002-100	SMD Zener Diode	PN:BZX84C10 10V SOT-23	D42,49
054-001501-100	SMD Zener Diode	PN:BZX84C15 15V SOT-23	D2,3
054-005501-100	SMD Zener Diode	PN:BZV55C3V6 (PHILIPS)	D60
054-007200-100L	SMD IC;	PN:M072M-TE1 DMP8 (JRC)	U9,10
054-007200-100L	SMD IC;	PN:M072M-TE1 DMP8 (JRC)	U200-205,301
054-007400-100	SMD IC;(OP)	PN:TL074CDR (TI)	U300
054-011400-100	SMD Transistor	PN:DTC114TKA SMT3 (ROHM)	Q202
054-033904-100	SMD Transistor	PN:MMBT3904LT1 SOT23 (ON)	Q25,28,29,37,50,51
054-033904-100	SMD Transistor	PN:MMBT3904LT1 SOT23 (ON)	Q203,204
054-033906-100	SMD Transistor	PN:MMBT3906LT1 SOT23 (ON)	Q26,27,30,36,52
054-033906-100	SMD Transistor	PN:MMBT3906LT1 SOT23 (ON)	Q34,35
054-050601-100	SMD Zener Diode	PN:BZX84C5V6 5.6V SOT-23 TAPIN	D30
054-050601-100	SMD Zener Diode	PN:BZX84C5V6 5.6V SOT-23 TAPIN	Z7,8
054-414803-100	SMD Diode	PN:LL4148 (Wishay)	D4-5,13,14,21,22,31,33,38,
054-414803-100	SMD Diode	PN:LL4148 (Wishay)	D36,39,46,52,61
054-414803-100	SMD Diode	PN:LL4148 (Wishay)	D200-205,207,209,212,216,
054-540100-100	SMD Transistor	PN:MMBT5401 LT1 SOT-23	Q1
054-540100-100	SMD Transistor	PN:MMBT5401 LT1 SOT-23	Q33,40
054-555100-100	SMD Transistor	PN:MMBT5551 LT1 (ON)	Q2
054-555100-100	SMD Transistor	PN:MMBT5551 LT1 (ON)	Q32
<i>Miscellaneous</i>			
061-001021-000	Knob	PN49001-WD7 ϕ 16x14	VR301-303
061-001052-000	Knob	PN:49001-W D=15.1 H=14.5	R233,216
061-100016-000	Partition Post	PN:BCMS-8 L=8mm Nylon 66(UL)	
061-314002-000	Strain Relief	P/N SB4F-2	PANEL,COVER
061-700044-000	Mycar	13x18mm TO-220	Q13,17
061-700090-900	Washer	16x21mm t=2mm	Q11,15
063-010010-000	Bracket for Power Transistor	P/N:TRK-2	Q11,13,15,17,TH1
063-332101-000	Bucket	12.83"x8.33"x3.93" ABS 94V0	
063-332108-900	Panel	12.83x8.33" t=.984" SPCC	
071-060280-500	Washer	8#-32 8.5 t=3m/m	
071-100606-060	Washer	PN:WS3-2 OD=6 ID=3.t=2mm	Q11,13

Part number		Description	Reference Designator
072-010058-000	RCA Jack	PN:0502000W1G (Red,White)	J201
072-040007-000	Connector	JS-1001-07	P3,4
072-040008-110	Connector	JS-1001-08	P1
072-040008-110	Connector	JS-1001-08	P2
072-040039-000	Terminal	PC205 (t=0.8m/m) T205MA	T1
072-040064-000	Terminal	PC250(t=0.8),T250MA	T2,TER6
072-040064-000	Terminal	PC250(t=0.8),T250MA	TER2
072-040096-000	Terminal	(t=0.8mm) PC187(0.8)	TER5,TER7
072-040096-000	Terminal	(t=0.8mm) PC187(0.8)	TER1,3,4
072-040229-000	Header Right Angle	PN:211-107-000-400 7PIN	PIN2
072-040230-000	Header Right Angle	PN:211-111-000-400 11PIN	PIN1
072-040253-000	Header Right Angle	PN:211-103-000-400 3PIN	M3
072-040337-000	Header Right Angle	PN:211-110-000-400 10PIN	M4
072-040338-000	Header Right Angle	PN:211-105-000-400 5PIN	M3
072-060219-000	Binding Post	PN:A807A-RB 8PIN	J200
073-010021-000	Screw	PN:PCB-2(M3) 4PIN	T1,2,3
073-014044-000	Bracket	6.64"x3.50"x3.20" SPCC	
073-050001-000	FUSE CLIP	P/N:CFFH1206	F1,B1
073-111003-000	Shorting Strap	54.9x13.6x1mm	J7
073-111004-000	Shorting Strap	29.5x12.4x0.8m/m	J4,9
074-020018-000	Rocker SW	PN:RF1003-BB4-0	
074-030002-000	Toggle SW	PN:L101-T2B4QE	SW200-202
074-300018-000	Relay	PN:943-1C-48D	RLY1
082-022611-000	Wire Set #26 UL1007	L=110mm blk+wht x6 XH7Px2	P3
082-082620-000	Wire Set #26 UL1007	L=200mm XH8Px2 blk/wht	P2
086-021836-000	Power Cable	SPT-2 #18 +T187	
091-000128-000	Fuse	T4A/250V ϕ 5x20m/m	
181-911800-338	Wire Set #18AWG UL1007	blk L=110mm	C211
181-921422-002	Wire Set #14AWG UL1015	Red 625mm	SPE+
181-921600-000	BLK Wire #16 UL1015	T187 L:140mm	
181-921699-000	WHT Wire #16 UL1015	T187 L:160mm	
008-060302-000	Gasket(UL)	C4305 25x22x1m/m BLK	
008-060302-072	Gasket(UL)	PN:MO-48C 25x18 t=5mm	
008-061215-000	Gasket C4305	12x15 t=5mm CR	
008-062001-000	Gasket CR C4305	196x10mm t=1mm	
008-063001-000	Gasket CR C4305	320x10mm t=1mm	
042-014107-001	Transformer	EI-125 YT-9313-2	
043-300101-000	Inductor	PN:YT-10033 30uH	L9,10
043-324300-000	Inductor	324uH YT-10778	L13
043-560200-000	Inductor	56uH YT-10779	L12
043-700100-000	Inductor	70uHx2 YT-10024	L8
043-820300-000	Inductor	820uH YT-10034	L1
044-100100-000	SMD Ferrite Bead	PN:321611 600R/100MHz 1206	FB1,FB2

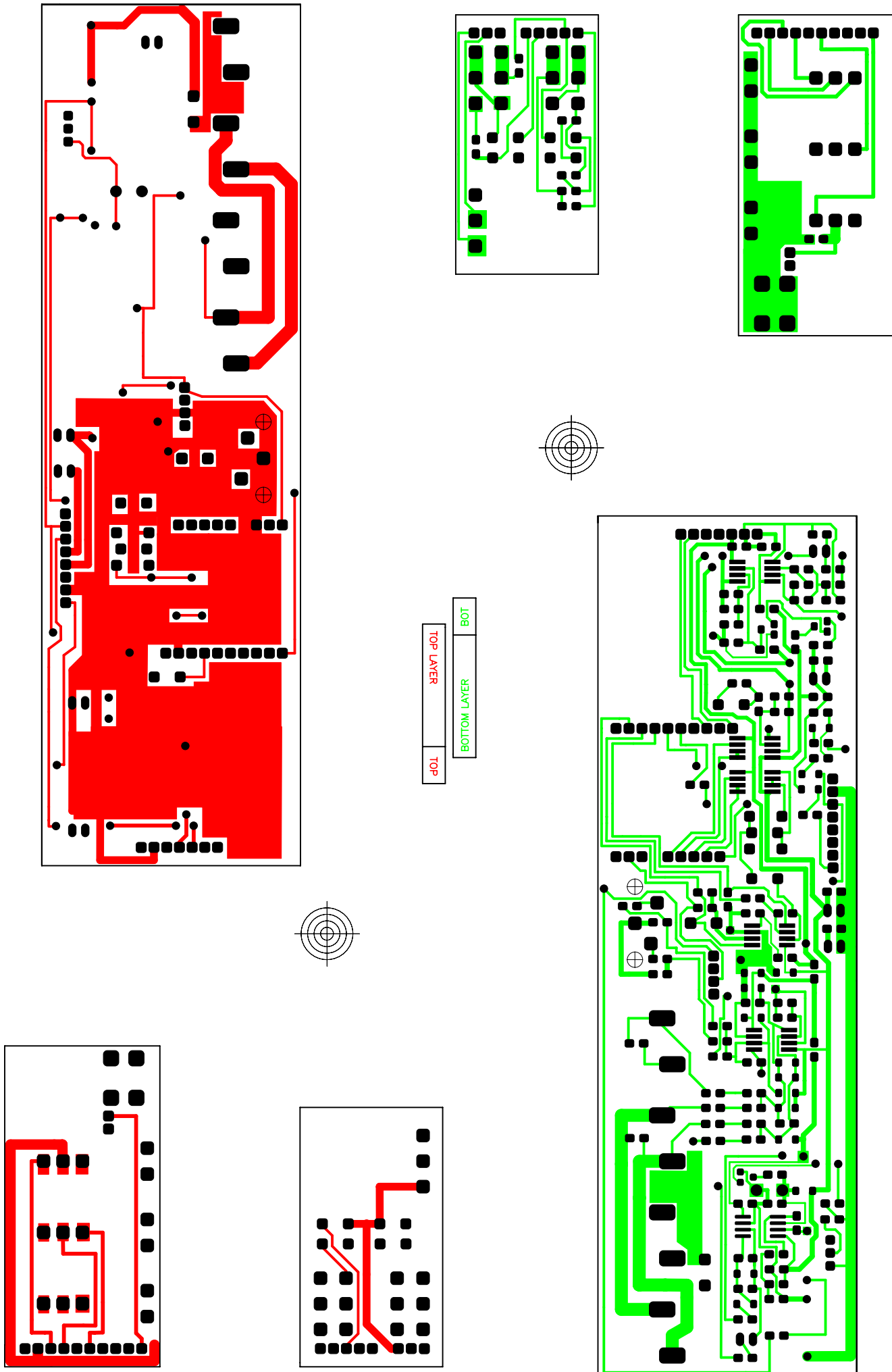
SW-12 230V Electrical parts list			
Part number		Description	Reference Designator
<i>Resistors</i>			
216-0300201-000	MOF Resistor	1K 1W J FK TYPE	R173
216-0300201-000	MOF Resistor	470R 5W J (NORMAL SIZE) □□	R78
216-0300201-000	MOF Resistor	560R 5WS J 8x25 □□□KINK	R76
216-0300201-000	Resistor	PN:SQM 0R05 5W J 25x13	R2
216-0300201-000	SMD Resistor	0R 1/8W J 0805	R8,193
216-0300201-000	SMD Resistor	1K 1/8W J 0805	R110
216-0300201-000	SMD Resistor	10K 1/8W J 0805	R5,7,16,118,121,122,125,1,
216-0300201-000	SMD Resistor	100K 1/8W J 0805	R15,120
216-0300201-000	SMD Resistor	11K 1/8W J 0805	R187,188,190,191
216-0300201-000	SMD Resistor	1K2 1/8W J 0805	R189,192
216-0300201-000	SMD Resistor	1K3 1/8W F 0805	R119
216-0300201-000	SMD Resistor	15K 1/8W J 0805	R20,21
216-0300201-000	SMD Resistor	16K 1/8W F 0805	R13,13B
216-0300201-000	SMD Resistor	22R 1/8W J 0805	R28,29
216-0300201-000	SMD Resistor	2K2 1/8W J 0805	R17,31
216-0300201-000	SMD Resistor	22K 1/8W J 0805	R127
216-0300201-000	SMD Resistor	3K3 1/8W J 0805	R77,79,22,169
216-0300201-000	SMD Resistor	33K 1/8W J 0805	R4,6,14,60,60B
216-0300201-000	SMD Resistor	4K12 1/8W F 0805	R63
216-0300201-000	SMD Resistor	47R 1/8W J 0805	R24-27
216-0300201-000	SMD Resistor	470R 1/8W J 0805	R145,155,177,186
216-0300201-000	SMD Resistor	47K 1/8W J 0805	R3,171
216-0300201-000	SMD Resistor	5K1 1/8W J 0805	R48A,48B,48C,48D,48E
216-0300201-000	SMD Resistor	5K6 1/8W J 0805	R30
216-0300201-000	SMD Resistor	6K8 1/8W J 0805	R23
216-0300202-000	SMD Resistor	0R 1/8W J 0805	R313,314,318,320
216-0300202-000	SMD Resistor	10R 1/8W J 0805	R89,90,140,150
216-0300202-000	SMD Resistor	1K 1/8W J 0805	R81,85,96,97,131,137,142,
216-0300202-000	SMD Resistor	10K 1/8W J 0805	R75,82,83,92,98,132,133,
216-0300202-000	SMD Resistor	1M 1/8W J 0805	R32,33
216-0300202-000	SMD Resistor	11K 1/8W J 0805	R74,99
216-0300202-000	SMD Resistor	20K 1/8W J 0805	R95,141
216-0300202-000	SMD Resistor	220R 1/8W J 0805	R136,167
216-0300202-000	SMD Resistor	2K2 1/8W J 0805	R134
216-0300202-000	SMD Resistor	22K 1/8W J 0805	R37
216-0300202-000	SMD Resistor	2M2 1/8W J 0805	R87,93
216-0300202-000	SMD Resistor	2K7 1/8W J 0805	R80,84,157
216-0300202-000	SMD Resistor	3K9 1/8W J 0805	R130,161
216-0300202-000	SMD Resistor	39K 1/8W J 0805	R86,94
216-0300202-000	SMD Resistor	470R 1/8W J 0805	R91
216-0300202-000	SMD Resistor	4K7 1/8W J 0805	R151-153,183,34,36
216-0300202-000	SMD Resistor	47K 1/8W J 0805	R35
216-0300202-000	SMD Resistor	56K 1/8W J 0805	R38
216-0300202-000	SMD Resistor	6K8 1/8W J 0805	R135,166
216-0300203-001	Metal Film Resistor	100R 1/8W F	R339
216-0300203-001	Metal Film Resistor	1K 1/8W F	R363,381
216-0300203-001	Metal Film Resistor	10K 1/8W F	R338,342,343,346,348,353,
216-0300203-001	Metal Film Resistor	100K 1/8W F	R383
216-0300203-001	Metal Film Resistor	1M 1/8W F	R356
216-0300203-001	Metal Film Resistor	10M 1/8W F	R362
216-0300203-001	Metal Film Resistor	110K 1/8W F	R347

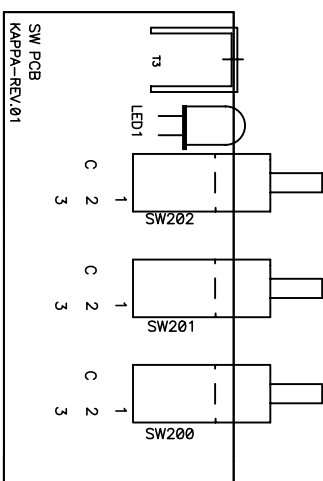
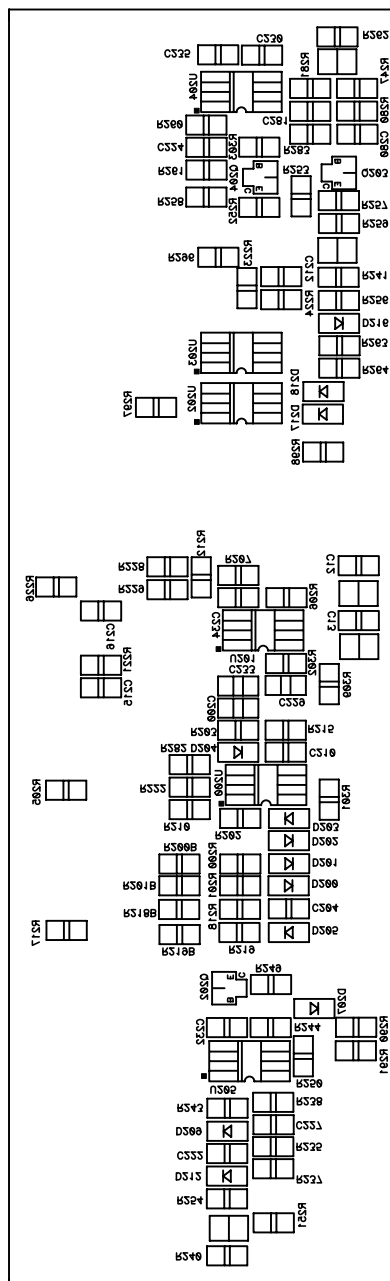
Part number		Description	Reference Designator
216-0300203-001	Metal Film Resistor	12K1 1/8W F	R354,369
216-0300203-001	Metal Film Resistor	14K 1/8W F	R380
216-0300203-001	Metal Film Resistor	1K5 1/8W F	R341
216-0300203-001	Metal Film Resistor	162R 1/8W F	R384
216-0300203-001	Metal Film Resistor	22K 1/8W F	R382
216-0300203-001	Metal Film Resistor	2K67 1/8W F	R336
216-0300203-001	Metal Film Resistor	340R 1/8W F	R357,371
216-0300203-001	Metal Film Resistor	3K57 1/8W F	R335
216-0300203-001	Metal Film Resistor	4K3 1/8W F	R204
216-0300203-001	Metal Film Resistor	549R 1/8W F	R344
216-0300203-001	Metal Film Resistor	6K19 1/8W F	R359,374
216-0300203-001	Metal Film Resistor	62K 1/8W F	R214
216-0300203-001	Metal Film Resistor	680R 1/8W F	R360
216-0300203-001	Metal Film Resistor	787R 1/8W F	R350,364
216-0300203-001	Metal Film Resistor	909R 1/8W F	R385
216-0300203-001	Metal Film Resistor	9K31 1/8W F	R351
216-0300203-001	SMD Resistor	0R 1/4W J 1206	R301-303,309,296,297
216-0300203-001	SMD Resistor	100R 1/4W J 1206	R249
216-0300203-001	SMD Resistor	1K 1/4W J 1206	R238,264
216-0300203-001	SMD Resistor	10K 1/4W F 1206	R200B,201B,218B,219B,298
216-0300203-001	SMD Resistor	10K 1/4W J 1206	R202,205-207,212,217,222,
216-0300203-001	SMD Resistor	100K 1/8W F 1206	R200,201,218,219
216-0300203-001	SMD Resistor	1K5 1/4W J 1206	R251
216-0300203-001	SMD Resistor	15K 1/4W J 1206	R223
216-0300203-001	SMD Resistor	20K 1/4W J 1206	R256
216-0300203-001	SMD Resistor	22K6 1/4W F 1206	R208,209,231,232
216-0300203-001	SMD Resistor	23K7 1/4W F 1206	R281
216-0300203-001	SMD Resistor	2K7 1/4W J 1206	R237
216-0300203-001	SMD Resistor	300R 1/4W J 1206	R258
216-0300203-001	SMD Resistor	30K 1/4W J 1206	R260
216-0300203-001	SMD Resistor	3K3 1/4W F 1206	R203,215
216-0300203-001	SMD Resistor	3K3 1/4W J 1206	R240
216-0300203-001	SMD Resistor	4K7 1/4W J 1206	R210
216-0300203-001	SMD Resistor	47K 1/8W J 0805	R280,283
216-0300203-001	SMD Resistor	470K 1/4W J 1206	R259
216-0300203-001	SMD Resistor	4M7 1/4W J 1206	R243,244
216-0300203-001	SMD Resistor	510R 1/4W J 1206	R261
216-0300203-001	SMD Resistor	56K 1/4W J 1206	R224
216-0300203-001	SMD Resistor	620R 1/4W J 1206	R221,226
216-0300203-001	SMD Resistor	6K8 1/4W J 1206	R247
216-0300203-001	SMD Resistor	68K 1/4W J 1206	R250
216-0300203-001	SMD Resistor	82K 1/4W J 1206	R263
216-0300203-001	VR 10KAx2 (NOBLE)	XV012311YGPJ25F15A10K-21PC/1	VR302,303
216-0300203-001	VR 10KCx2 (NOBLE)	XV012311YGPJ25F15C10K-21PC/1	VR301
216-0300203-001	VR 50KA	P/N:RK163111R405-EJ	R216
216-0300203-001	VR 50KBx4	PN:RD1631411001D-50KBx4 (EJ)	R233
216-0300201-000	Thermister	TSE-103 K L:50mm	TH1
<i>Capacitors</i>			
216-0300201-000	SMD Capacitor	0u01/250V K 0805 X7R	C104,119
216-0300201-000	SMD Ceramic Capacitor	0u01/50V K 0805 X7R	C27,28
216-0300201-000	SMD Capacitor	0u1/50V K 0805 X7R	C10,69,112,115,135,138
216-0300201-000	SMD Capacitor	0u1/250V K 1206 X7R	C5,6

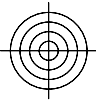
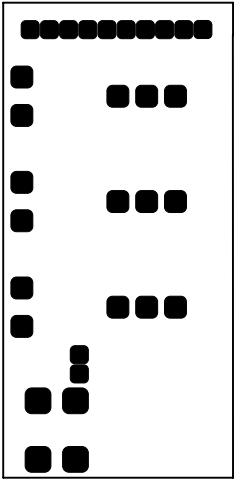
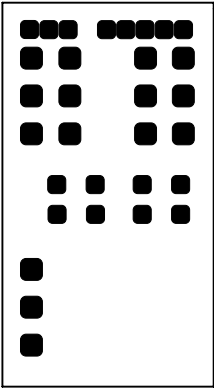
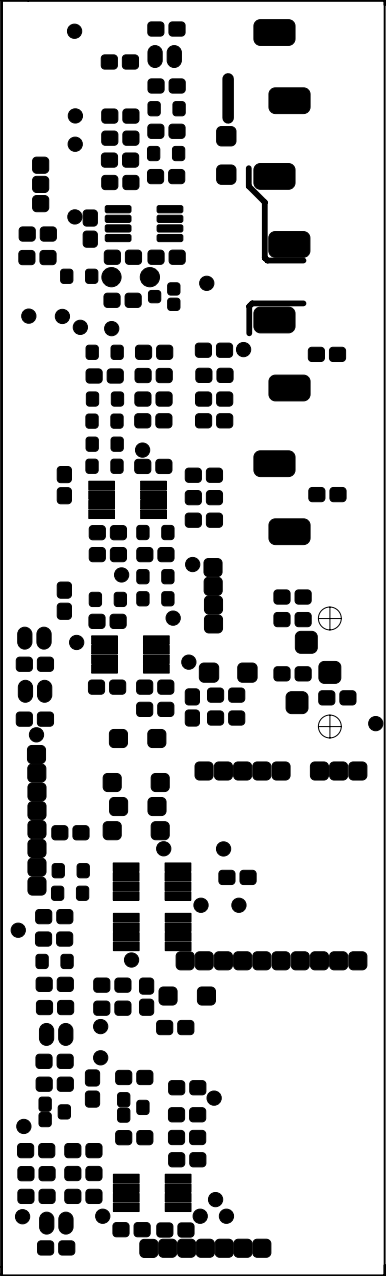
Part number		Description	Reference Designator
216-0300201-000	SMD Capacitor	220pF/50V K 0805 NPO	C40
216-0300201-000	SMD Capacitor	0u0047/50V K 0805 X7R	C1G1
216-0300201-000	END Mylar Capacitor	1uF/250V K P:15	C37,39,30
216-0300201-000	NPE Capacitor	3u3/50V K10 (R)8x13 SBE	C114,137
216-0300201-000	NPE Capacitor	6u8/100V K10 (R)1020 GNE	C113,136
216-0300201-000	Electrolytic Capacitor	100uF/16V M (R)0611 P:2.5	C8
216-0300201-000	Electrolytic Capacitor	100uF/25V M (R)6.3x11 P:5	C62
216-0300201-000	Electrolytic Capacitor	100uF/63V M (R)1012 P:5	C142
216-0300201-000	Electrolytic Capacitor	10000uF/63V M (R)35x52	C1,4
216-0300201-000	Electrolytic Capacitor	22uF/25V M (R)5x11 P:2.5 TAPIN	C25,26
216-0300201-000	Electrolytic Capacitor	330uF/25V M (R)1013 P:5	C11,100
216-0300201-000	Electrolytic Capacitor	4u7/50V M (R)0511 P:2.0	C7
216-0300202-000	SMD Ceramic Capacitor	0u01/50V K 0805 X7R	C108,118,131,140
216-0300202-000	SMD Capacitor	100pF/50V J 0805 NPO	C81,84
216-0300202-000	SMD Capacitor	0u1/50V K 0805 X7R	C75-78,82,85
216-0300202-000	SMD Capacitor	0u18/50V K 0805 X7R	C80,83
216-0300202-000	SMD Capacitor	0u047/50V K 0805 X7R	C93,94,101,124
216-0300202-000	SMD Capacitor	56pF/50V J 0805 NPO	C92,102,105,125
216-0300202-000	SMD Capacitor	560pF/50V J 0805 NPO	C79
216-0300202-000	Electrolytic Capacitor	100uF/25V M (R) P:2.5	C117
216-0300202-000	Electrolytic Capacitor	1000uF/16V M (R)1017 P:5	C109,132
216-0300202-000	Electrolytic Capacitor	330uF/16V M (R)0812 P:3.5 □□	C32
216-0300203-001	SMD Capacitor	0u01/50V K 1206 X7R	C12,13,224,280
216-0300203-001	SMD Capacitor	0u1/50V K 1206 X7R	C227,229,230,232-235
216-0300203-001	SMD Capacitor	100pF/50V K NPO 1206	C204,222
216-0300203-001	SMD Capacitor	0u1/50V M 1206 X7R	C305,306
216-0300203-001	SMD Capacitor	220pF/50V K NPO 1206	C200,210,215,216
216-0300203-001	SMD Capacitor	3300pF/50V M 1206 X7R	C281
216-0300203-001	SMD Capacitor	4700pF/50V K X7R 1206	C2G1
216-0300203-001	SMD Capacitor	6800pF/50V K X7R 1206	C212
216-0300203-001	Electrolytic Capacitor	10uF/16V M (R)0511 P:2	C220
216-0300203-001	Electrolytic Capacitor	100uF/16V M (R)0611 P:5	C221
216-0300203-001	Electrolytic Capacitor	22uF/16V M (R)0511 P:2	C223,225
216-0300203-001	Electrolytic Capacitor	22uF/25V M (R)5x11 P:2.5 TAPIN	C14,15,303,304
216-0300203-001	PE Capacitor	0u1/100V J P:5m/m	C322,323,328
216-0300203-001	PE Capacitor	0u022/63V J P:5m/m	C202
216-0300203-001	PE Capacitor	0u033/63V J P:5	C209,218
216-0300203-001	ESK Mylar Capacitor	0u33/63V J P:5	C207,208
216-0300203-001	PE Capacitor	0u068/63V J P:5m/m	C201,213,380,381
216-0300204-000	Capacitor 0u22/250V	18x16.5x8.5mm PN: XG275M224VHS2	CXAC1
Semiconductors			
216-0300201-000	NPN Transistor	PN:MPSW06RLRA TO-92 (ON)	Q6
216-0300201-000	PNP Transistor	PN:MPSW56RLRA TO-92 (ON)	Q8
216-0300201-000	PNP Transistor	PN:MPS2907A RLRA TO-92	Q12,14,16,18
216-0300201-000	PNP Transistor	PN:2N5401 TO-92	Q3
216-0300201-000	MOSFET N-Channel	PN:IRF640N TO-220 (IR)	Q11,13,15,17
216-0300201-000	Bridge Regulator	PN:RS804 400V,8A	BR1
216-0300201-000	IC;DIP,Regulator	PN:LM2574 HVN-15V 8PIN (NS)	U6
216-0300201-000	SMD DIODE	PN:ES1D 200V 1A	D1,23,37,40,44,47
216-0300201-000	SMD ZENER DIODE	PN:BZX84C10 10V SOT-23	D32
216-0300201-000	SMD ZENER DIODE	PN:BZX84C15 15V SOT-23	D2,3
216-0300201-000	SMD NPN Transistor	PN:MMBT3904LT1 SOT23 (ON)	Q25,28,29,37,50,51

Part number		Description	Reference Designator
216-0300201-000	SMD PNP Transistor	PN:MMBT3906LT1 SOT23 (ON	Q26,27,30,36,52
216-0300201-000	SMD ZENER DIODE	PN:BZX84C5V6 5.6V SOT-23 TAPIN	D30
216-0300201-000	SMD DIODE	PN:LL4148 (Wishay)	D4-5,13,14,21,22,31,33,38,
216-0300201-000	SMD PNP Transistor	PN:MMBT5401 LT1 SOT-23	Q1
216-0300201-000	SMD NPN Transistor	PN:MMBT5551 LT1 (ON)	Q2
216-0300202-000	NPN Transistor	PN:MPSW06RLRA TO-92 (ON)	Q31
216-0300202-000	NPN Transistor	PN:MPS2222ARLRA TO-92	Q20,22
216-0300202-000	NPN Transistor	PN:2N5551 TO-92	Q21,23
216-0300202-000	IC;DIP,DRIVER	PN:IR2111 8PIN (IR)	U7,8
216-0300202-000	SMD DIODE	PN:ES1D 200V 1A	D35,43
216-0300202-000	SMD ZENER DIODE	PN:BZX84C10 10V SOT-23	D42,49
216-0300202-000	SMD ZENER DIODE	PN:BZV55C3V6 (PHILIPS)	D60
216-0300202-000	SMD IC; Dual Op-Amp	PN:M072M-TE1 DMP8 (JRC)	U9,10
216-0300202-000	SMD PNP Transistor	PN:MMBT3906LT1 SOT23 (ON	Q34,35
216-0300202-000	SMD ZENER DIODE	PN:BZX84C5V6 5.6V SOT-23 TAPIN	Z7,8
216-0300202-000	SMD DIODE	PN:LL4148 (Wishay)	D36,39,46,52,61
216-0300202-000	SMD PNP Transistor	PN:MMBT5401 LT1 SOT-23	Q33,40
216-0300202-000	SMD NPN Transistor	PN:MMBT5551 LT1 (ON)	Q32
216-0300203-001	LED	PN:LT-2402-21	LED1
216-0300203-001	SMD IC; Dual Op-Amp	PN:M072M-TE1 DMP8 (JRC)	U200-205,301
216-0300203-001	SMD IC;(Quad Op-Amp)	PN:TL074CDR (TI)	U300
216-0300203-001	SMD NPN Transistor	PN:DTC114TKA SMT3 (ROHM	Q202
216-0300203-001	SMD NPN Transistor	PN:MMBT3904LT1 SOT23 (ON	Q203,204
216-0300203-001	SMD DIODE	PN:LL4148 (Wishay)	D200-205,207,209,212,216-
Miscellaneous			
216-0300201-000	8P Connector	JS-1001-08	P1
216-0300201-000	Terminal	PC205 (t=0.8m/m) T205MA	T1
216-0300201-000	Terminal	PC250(t=0.8),T250MA	T2,TER6
216-0300201-000	□□T187MA(PCB TYPE)	(t=0.8mm) PC187(0.8)	TER5,TER7
216-0300201-000	Shorting Strap	54.9x13.6x1mm	J7
216-0300201-000	Shorting Strap	29.5x12.4x0.8m/m	J4,9
216-0300201-000	RELAY	PN:943-1C-48D	RLY1
216-0300202-000	□□□;FR-4 3□□	109x42x1.6mm(KAPPA/SW12 DRIVE)	
216-0300201-000	INDUCTOR	PN:YT-10033 30uH	L9,10
216-0300201-000	INDUCTOR	56uH YT-10779	L12
216-0300201-000	INDUCTOR	70uHx2 YT-10024	L8
216-0300201-000	INDUCTOR	820uH YT-10034	L1
216-0300201-000	SMD FERRITE BEAD	PN:321611 600R/100MHz 1206	FB1,FB2
216-0300202-000	HEADER Right Angle	PN:211-107-000-400 7PIN	PIN2
216-0300202-000	HEADER Right Angle	PN:211-111-000-400 11PIN	PIN1
316-0300201-001	SW-12 PRE PCB ASS'Y	230V ASS'Y	
216-0300203-001	□□□;FR-4	168.5x114x1.6mm;(KAPPA/SW12)	
216-0300203-001	RCA JACK 2P	PN:0502000W1G (Red,White)	J201
216-0300203-001	7P □□□ SWA101	JS-1001-07	P3,4
216-0300203-001	8P □□□	JS-1001-08	P2
216-0300203-001	HEADER Right Angle	PN:211-103-000-400 3PIN	M3
216-0300203-001	HEADER Right Angle	PN:211-110-000-400 10PIN	M4
216-0300203-001	HEADER Right Angle	PN:211-105-000-400 5PIN	M3
216-0300203-001	BINDING POST (□□)	PN:A807A-RB 8PIN □K(□□□□)	J200
216-0300203-001	□□□□□	PN:PCB-2(M3) 4PIN	T1,2,3
216-0300203-001	TOGGLE SW	PN:L101-T2B4QE (□□)	SW200-202
316-0300201-001	SW-12 FUSE SET PCB	PCB 230V ASS'Y	

Part number		Description	Reference Designator
216-0300204-000	□□□;FR-4 6□□	63.5x31x1.6mm;(KAPPA/SW12 FUSE	
216-0300204-000	INDUCTOR	324uH YT-10778	L13
216-0300204-000	□□(PCB TYPE)	PC250(t=0.8),T250MA	TER2
216-0300204-000	□□T187MA(PCB TYPE)	(t=0.8mm) PC187(0.8)	TER1,3,4
216-0300204-000	FUSE CLIP	P/N:CFFH1206	F1,B1
216-0300204-000	FUSE	P/N:S506 T2A/250V 5x20mm	
416-0300201-001	□□(□□)	54.5x38.5x41cm	
416-0300201-001	PE□	4"x10"x0.08m/m	
416-0300201-001	PE□	16"x24"x0.08mm	
416-0300201-001	□□□	13x34cm t=2cm	
416-0300201-001	□□□	21x34cm t=2cm	
416-0300201-001	□□□	53x37x20cm	
416-0300201-001	□□□(□□)	(53x34xP22cm)x4(37x34xP14cm)x4	
416-0300201-001	□□(□□)	53x37cm	
416-0300201-001	□□□	800x450mm t=1.0mm	
316-0300201-001	MODEL 88 GASKET(UL)	C4305 25x22x1m/m □□□□ BLK	R233(VR)
316-0300201-001	GASKET (UL) PORON	PN:MO-48C 25x18 t=5mm □□□□	X'FORMER
316-0300201-001	GASKET C4305	12x15 t=5mm CR □□□□	□□□□□
316-0300201-001	GASKET CR C4305	196x10mm t=1mm □□□□	COVER(□)x2,COVER(□)x2
316-0300201-001	GASKET CR C4305	320x10mm t=1mm □□□□	COVER(□)x2,COVER(□)x2
316-0300201-001	Transformer 230V/50Hz	EI-125 YT-10145	PT1
316-0300201-001	Knob	PN49001-WD7(46077 □□□φ16x14	for VR301-303
316-0300201-001	Knob	PN:49001-W (18□)D=15.1 H=14.5	for R233,216
316-0300201-001	□□□	PN:BCMS-8 L=8mm NYLON 66(UL)	□□PCB
316-0300201-001	Strain Relief	P/N SB4F-2	PANEL,COVER
316-0300201-001	Mylar	13x18mm TO-220	for Q13,17
316-0300201-001	Washer	16x21mm t=2mm	for Q11,15
316-0300201-001	□□ (KAPPA1000)	12.83x8.33x3.93"ABS 94V0 □□□	
316-0300201-001	Bracket for Power Transistor	P/N:TRK-2	for Q11,13,15,17,TH1
316-0300201-001	PANEL (SW-12 230V)	12.83x8.33" t=.984" SPCC □□□	
316-0300201-001	UL PVC□□300V 105□	φ1mm □□ (□□500□)	
316-0300201-001	□□□□□□□	PMS-H;M3x10mm □□□□□□□□	TRx5
316-0300201-001	□□□□□□□	M3x8mm □□□	PRE PCB
316-0300201-001	□□□□□□□	#6-32x1/4" □□□	MAIN PCB+□□
316-0300201-001	□□□□□□□	#6-32x5/16" □□□	□□+PANEL
316-0300201-001	□□□□□□□	8#-32x1/2" □□□	□□□
316-0300201-001	□□□□□□□□	PTS-4;3.5x12mm □□□	BPx2
316-0300201-001	□□□□□□□□	3x8 □□□	□□PCB
316-0300201-001	□□□□□□□□	PTS-4;3x12 □□□	RCAx1
316-0300201-001	□□□□□□□□	4x12mm □□□	COVERx4
316-0300201-001	□□□□□ (42-08K)	8#-32 □□ □□8.5 t=3m/m	□□□
316-0300201-001	Washer	PN:WS3-2 OD=6 ID=3,t=2mm □□	Q11,13
316-0300201-001	□□ (S12P)	6.64"x3.50"x3.20" SPCC □□□	
316-0300201-001	ROCKER SW (POWER)	PN:RF1003-BB4-0	
316-0300201-001	Wire Set #26 UL1007	L=110mm □+□x6 XH7Px2	P3
316-0300201-001	Wire Set #26 UL1007	L=200mm XH8Px2 □/□+CORE	P2
316-0300201-001	VDE□□□□□ LF2-75	6□ 2PIN □□ □□T187F□□x2	
316-0300201-001	UL PVC□□□□□	φ1x5mm □□ 105□	Q17,15,13,11x2
316-0300201-001	□□ #18AWG UL1007	□ L=110mm □□□□+7mm□□	C211
316-0300201-001	□□ #14AWG UL1015	□ 625mm T205/T205(t=0.8)+□□	SPE-
316-0300201-001	□□ #14AWG UL1015	□ 625mm T250/T250+□□	SPE+
316-0300201-001	BLK□ #16 UL1015	□□T187□□□□ L:140mm	
316-0300201-001	WHT □ #16 UL1015	□□T187□□□□ L:160mm	
216-0300201-000	□□□;FR-4	168.5x84x1.6mm(KAPPA/SW12 MB)	

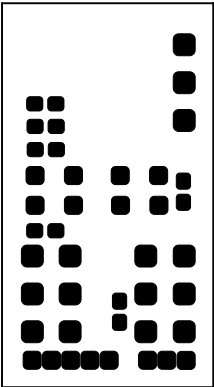
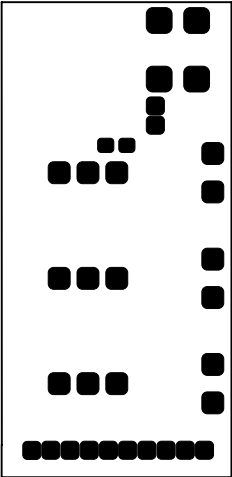
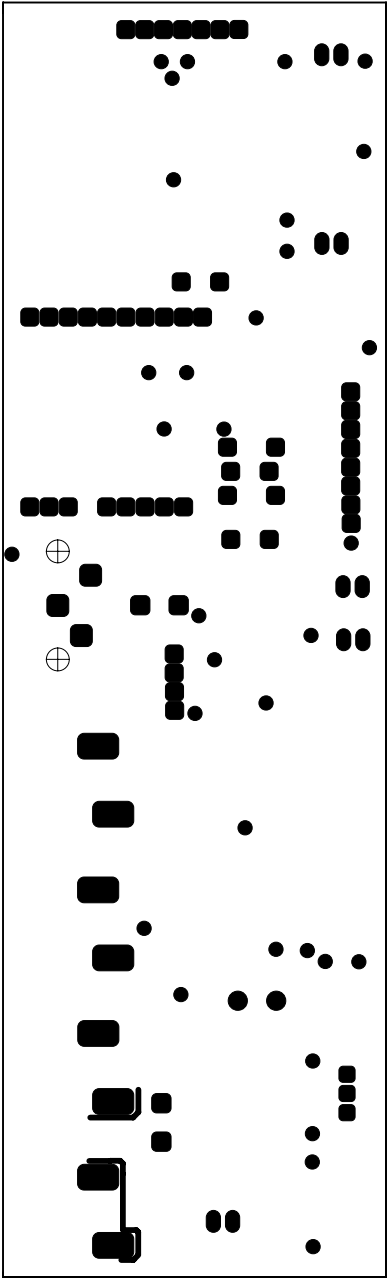
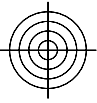


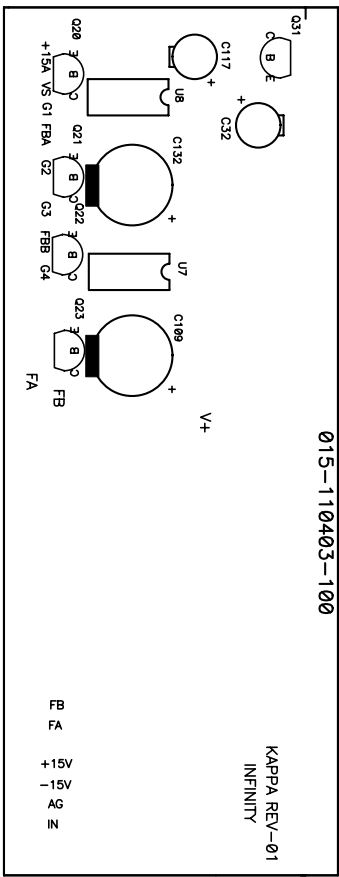
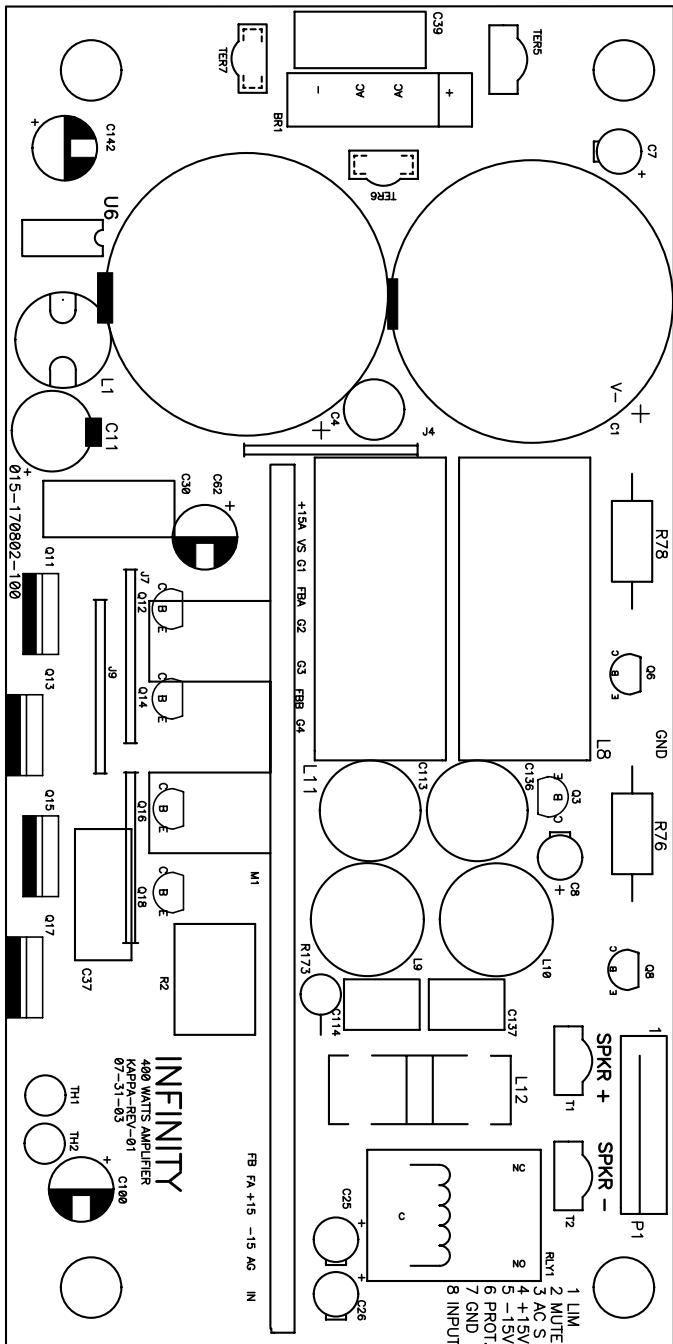


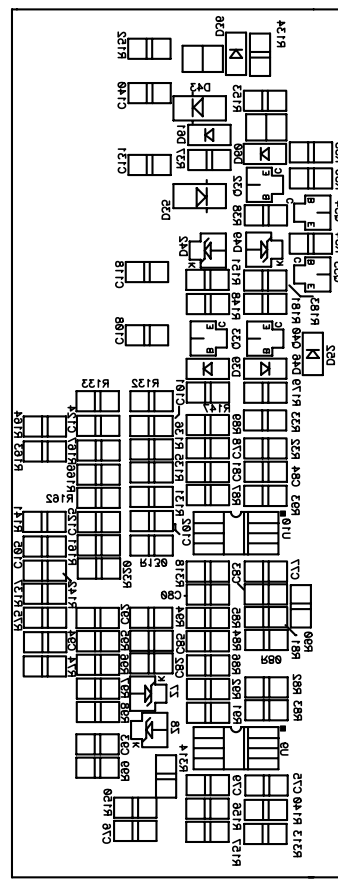
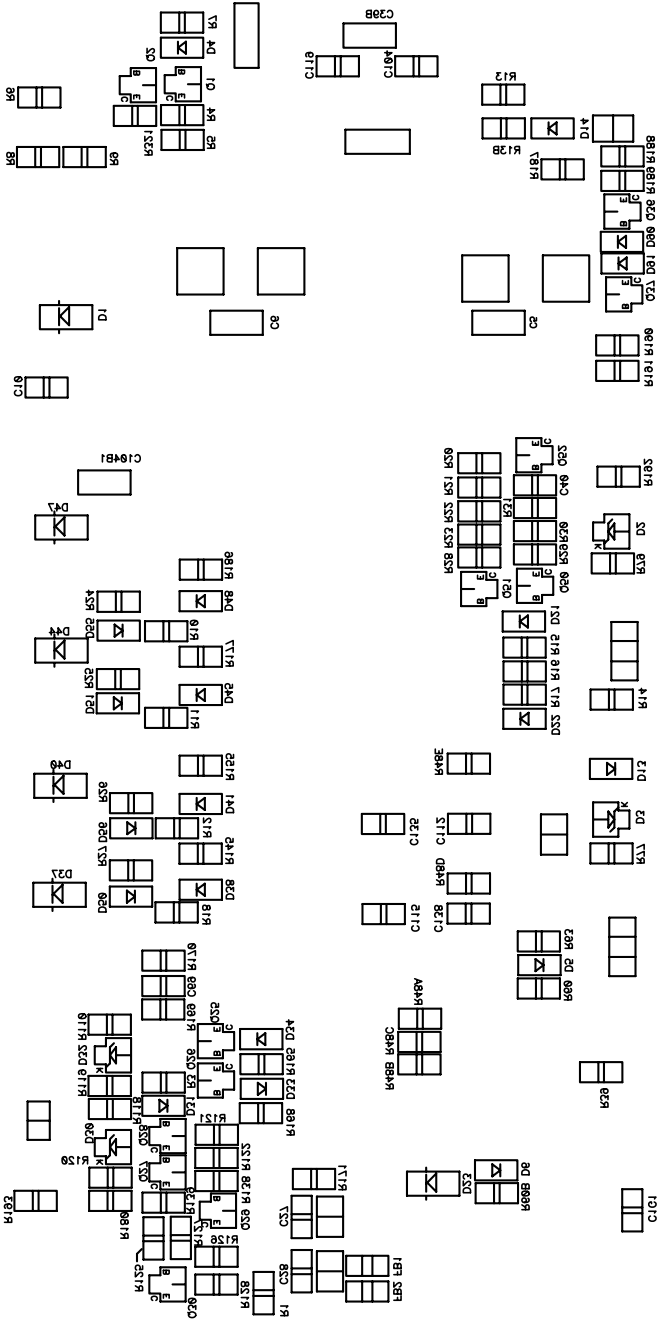


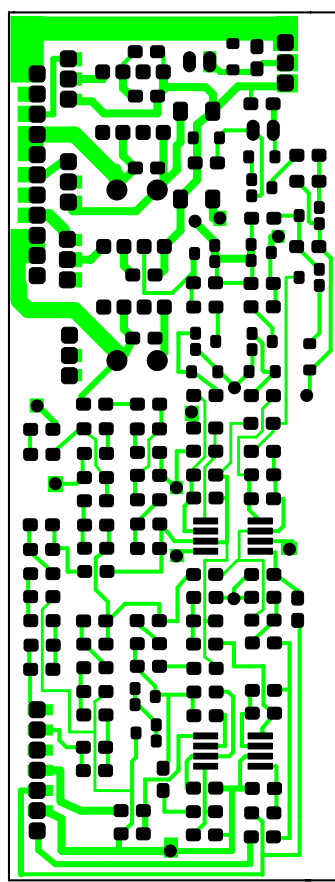
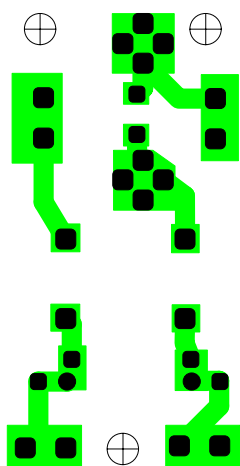
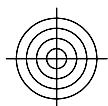
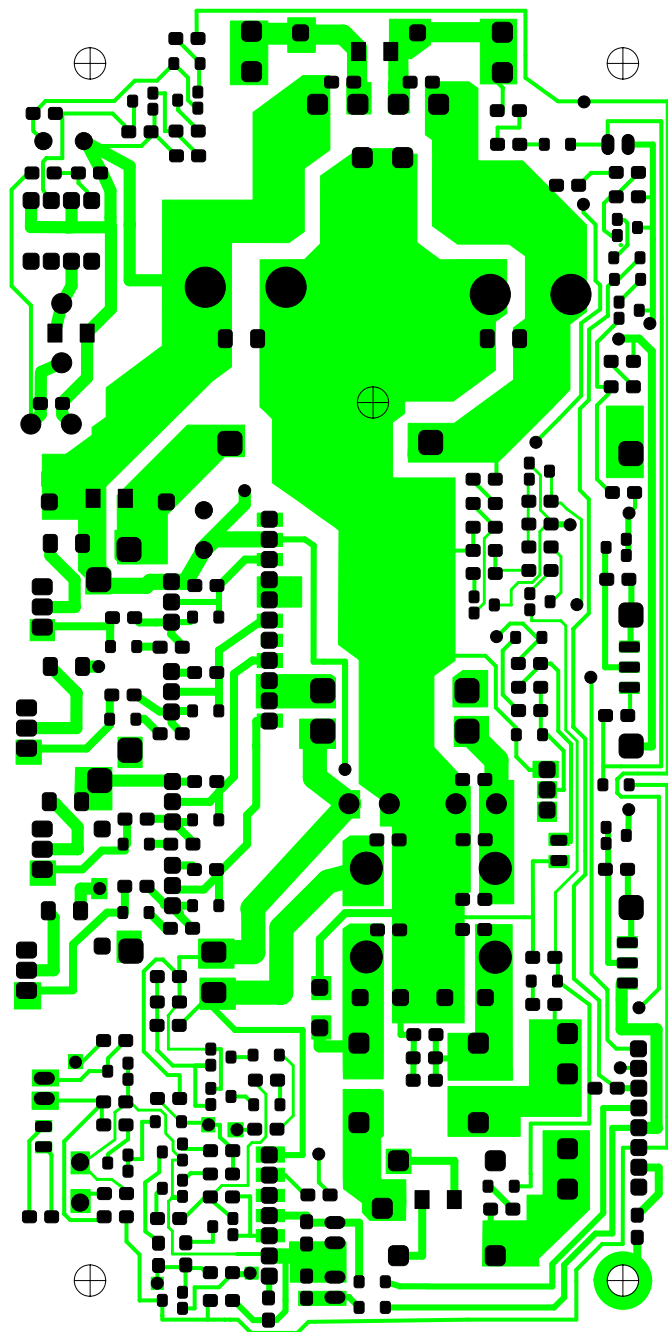
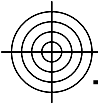
BOTTOM SOLDERMASK
BMK

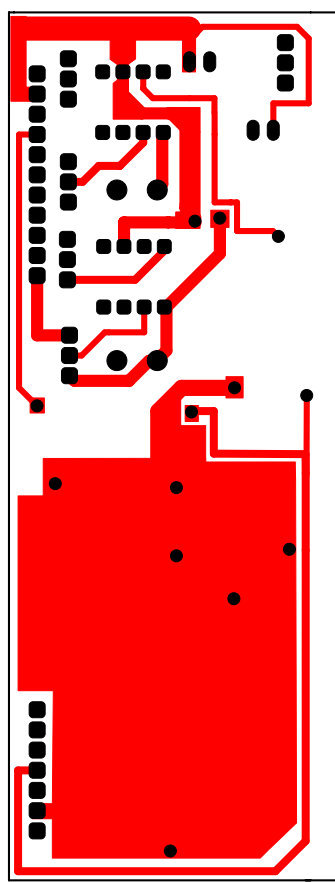
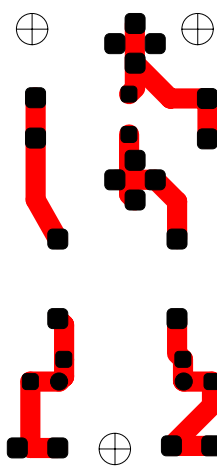
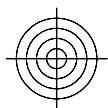
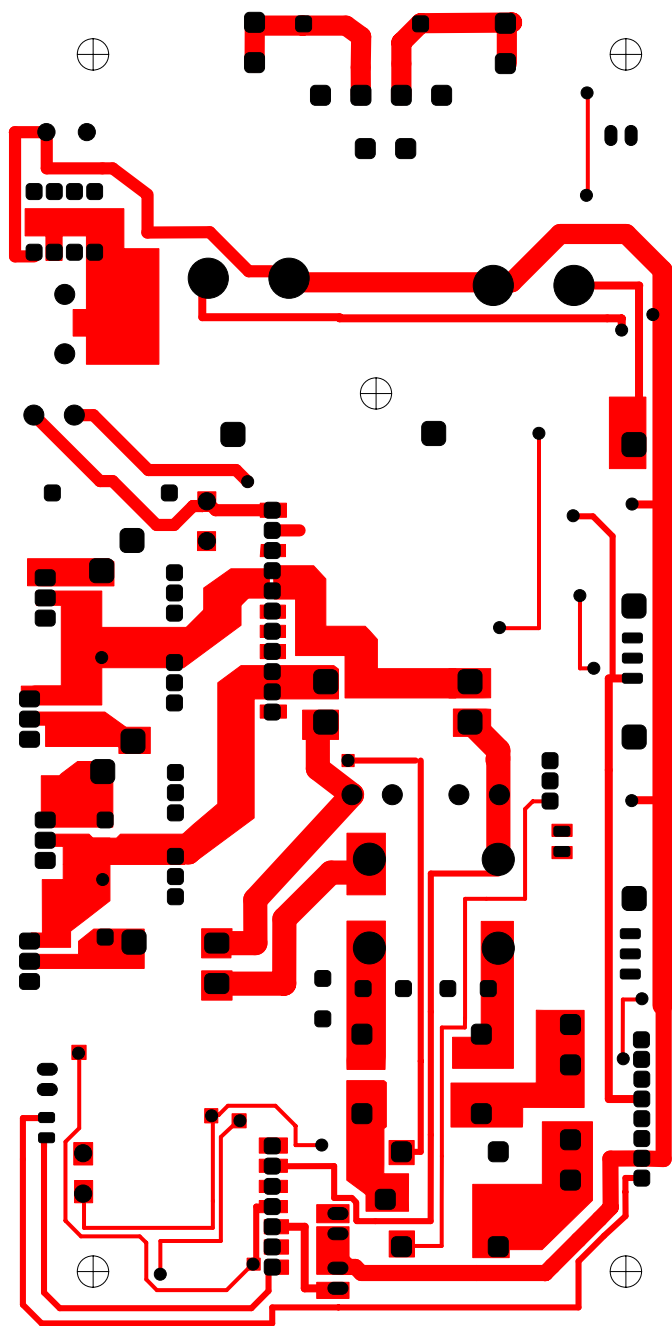
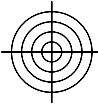
TOP MASK
TMK

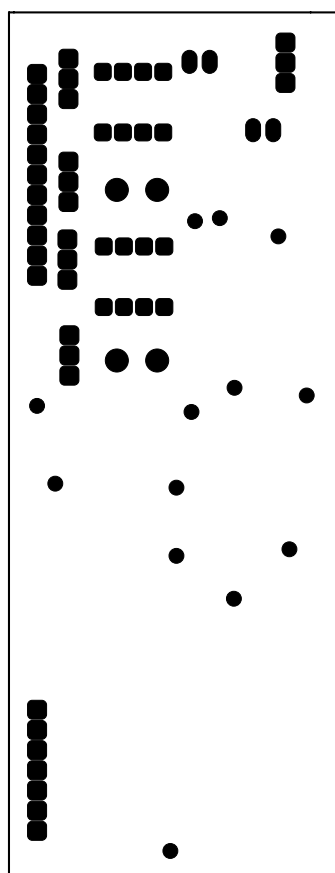
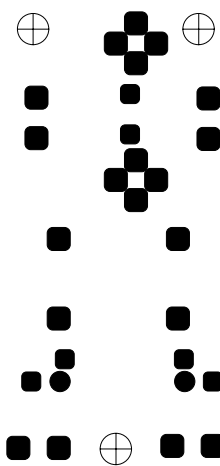
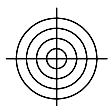
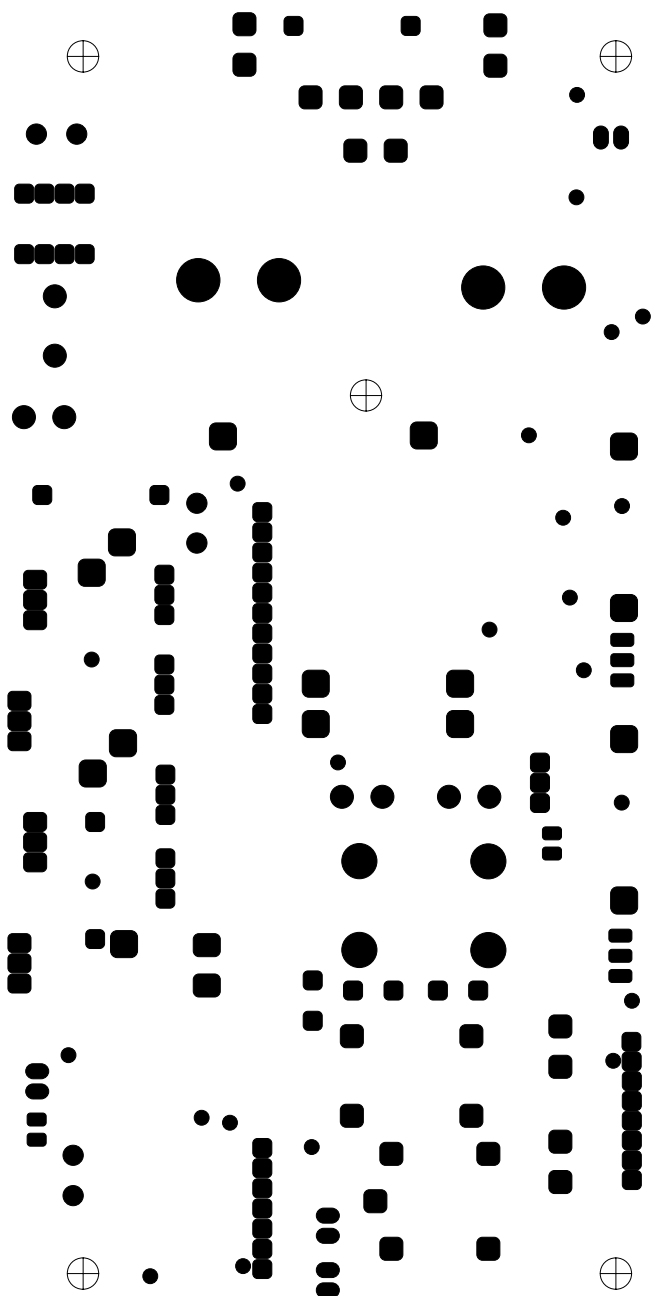
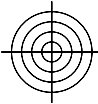


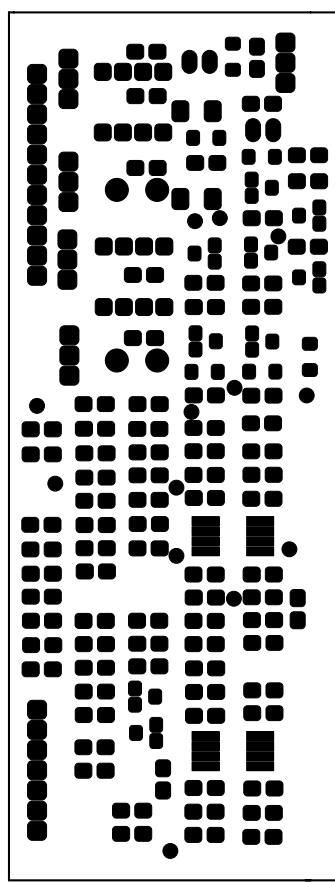
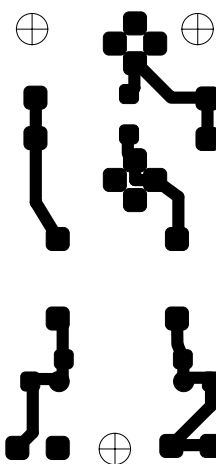
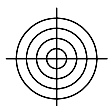
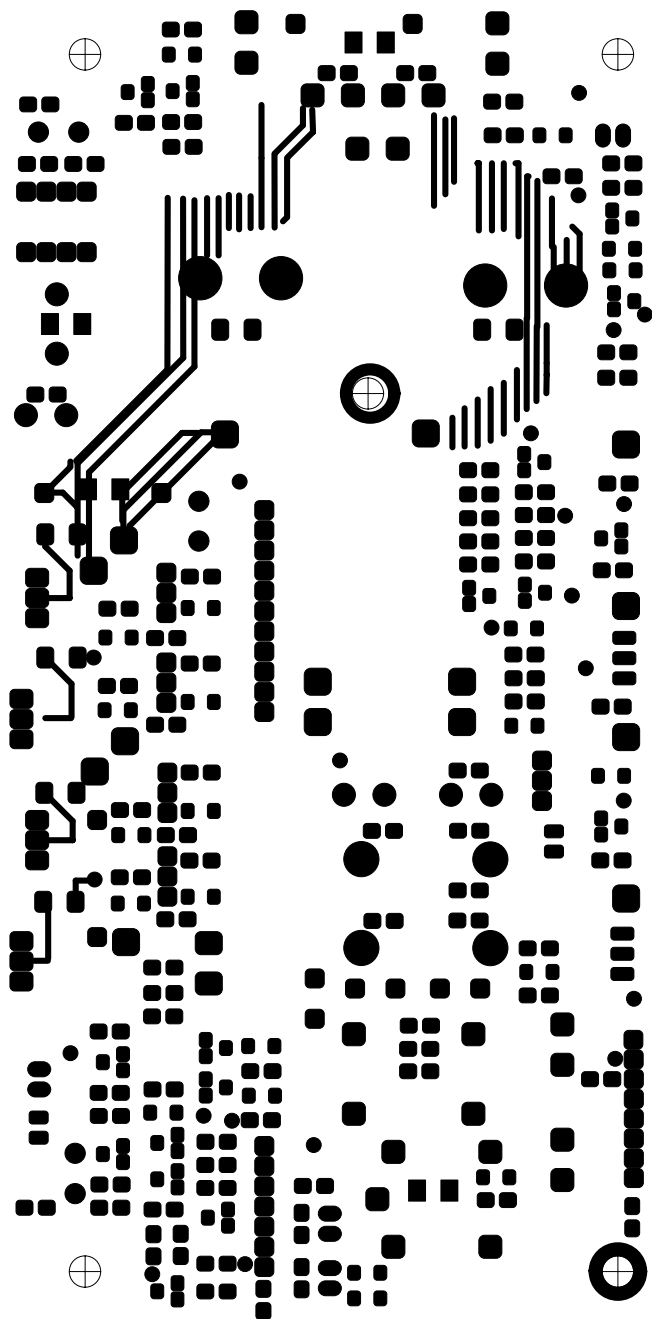
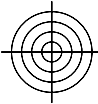








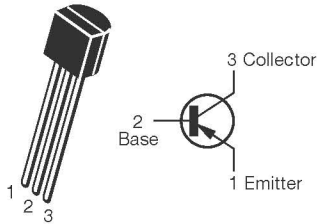




Integrated Circuit/Transistor Diagrams

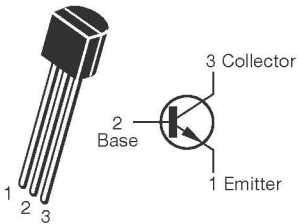
MPSW56, 2N2709A,
2N5401

Q3,8,12,14,16,18



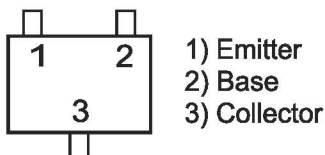
MPS2N222
MPSW06, 2N5551

Q6,20-23,31

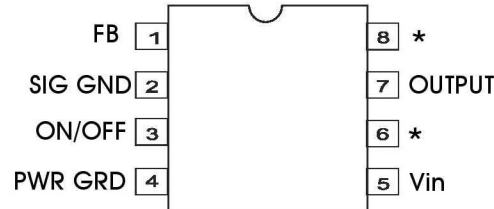


* MMBT3904LTI SOT23,
* MMBT3906LTI SOT23,
* DTC114TK SMT3,
* MMBT5401 LTI,
* MMBT5551 LTI

Q1,2,25-30, 32,
33-37,40,50-52,40,202-204

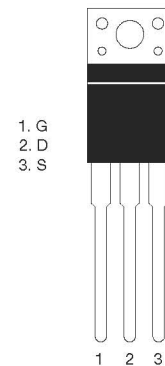


LM2574
U6

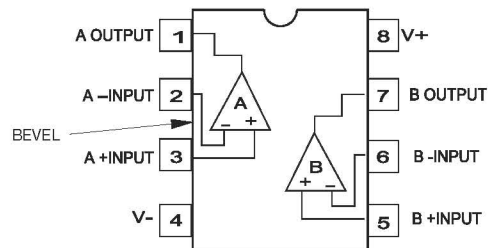


* No internal connection, but should be soldered to PC board for best heat transfer.

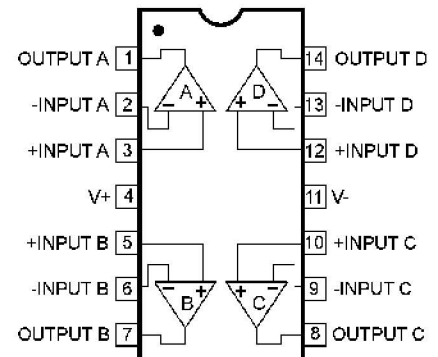
MOSFET IRF640
Q11,13,15,17



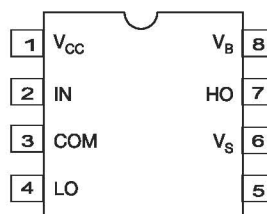
OPAMP, DUAL
TL072CDR SO-8,
U9,10,200-205,301



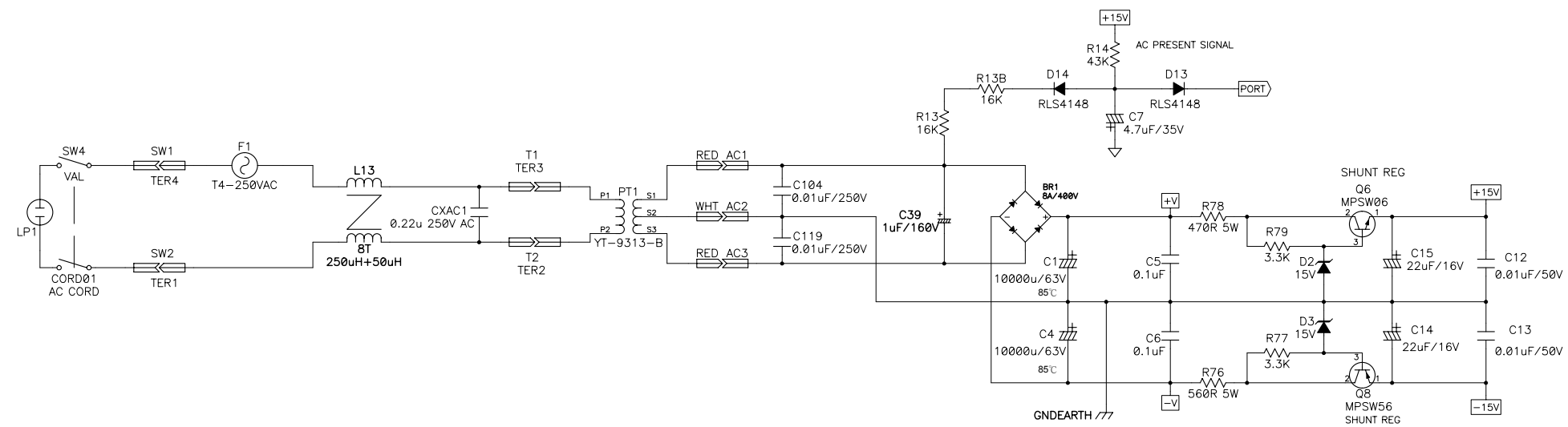
OPAMP, QUAD 14P DIL TL074
U300



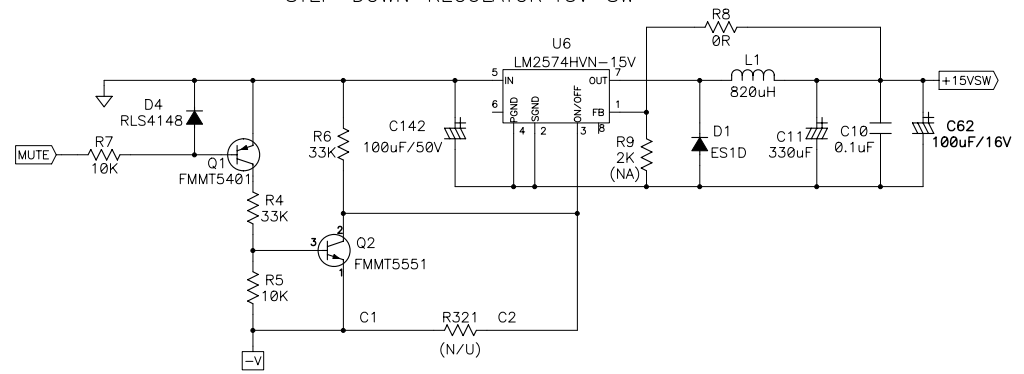
IR2111 HALF-BRIDGE
DRIVER
U7,8



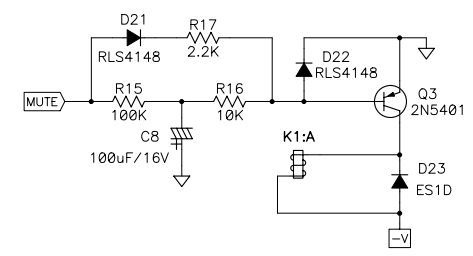
* PREFIX MAY BE "FMMT"



STEP-DOWN-REGULATOR 15V-SW



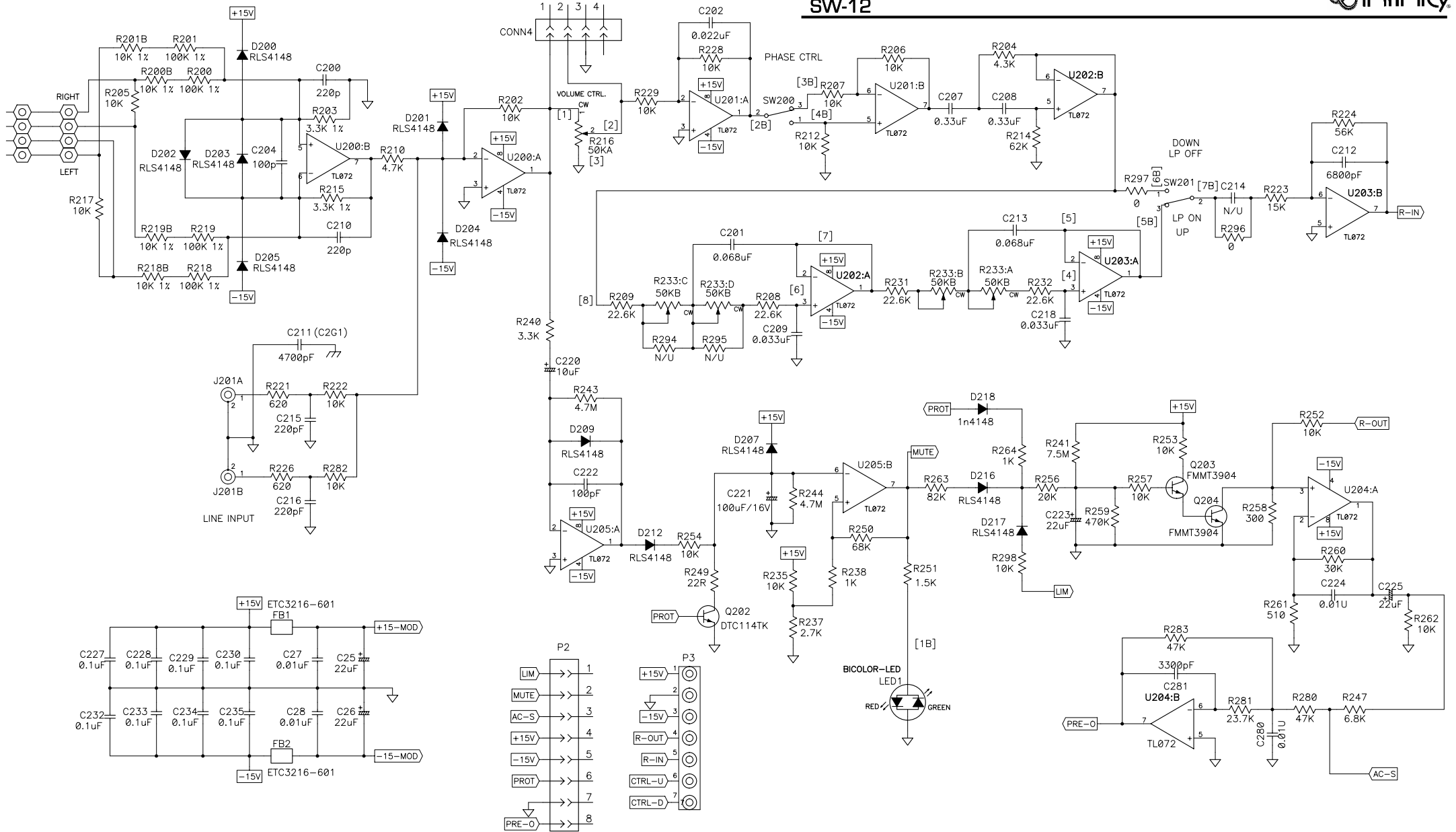
RELAY CIRCUIT



Rev:	Notes:	Date:	Rev:	Notes:	Draw by	Designed by	Checked by	Approved By	
01	New DESIGN	2004/04/26							: 416-0390901-000
									Model no: SW-12-120V
									Sch name: SW-12-120V.sch
									Issue no: ET-01-21-4691
									Date: 2004/04/26
									Sheet: 18 Rev: 01
									Size: A2 Author: Belle

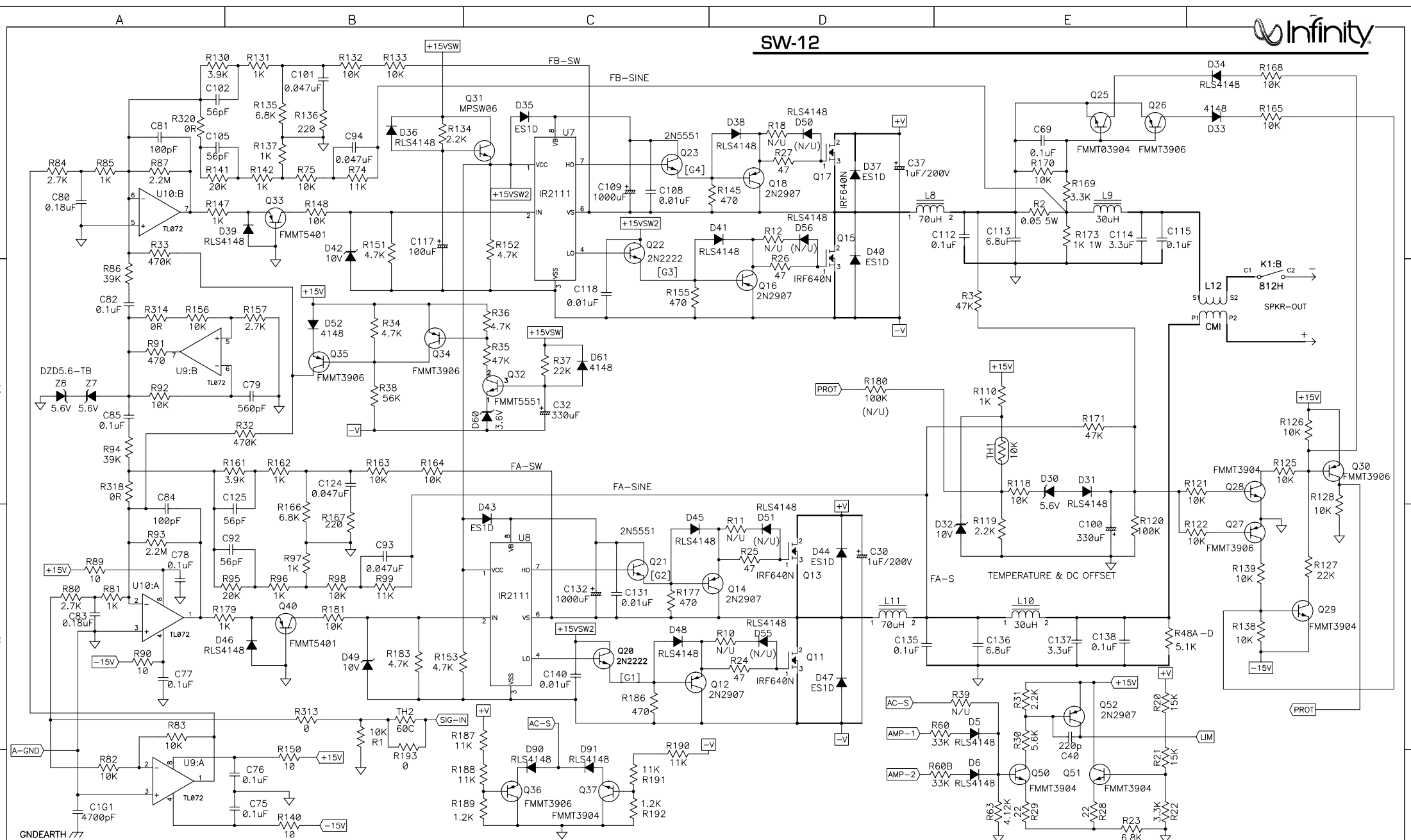
OPTIONAL EXTERNAL VOLUME CTRL NOT USED IN SW-12 MODEL

SW-12

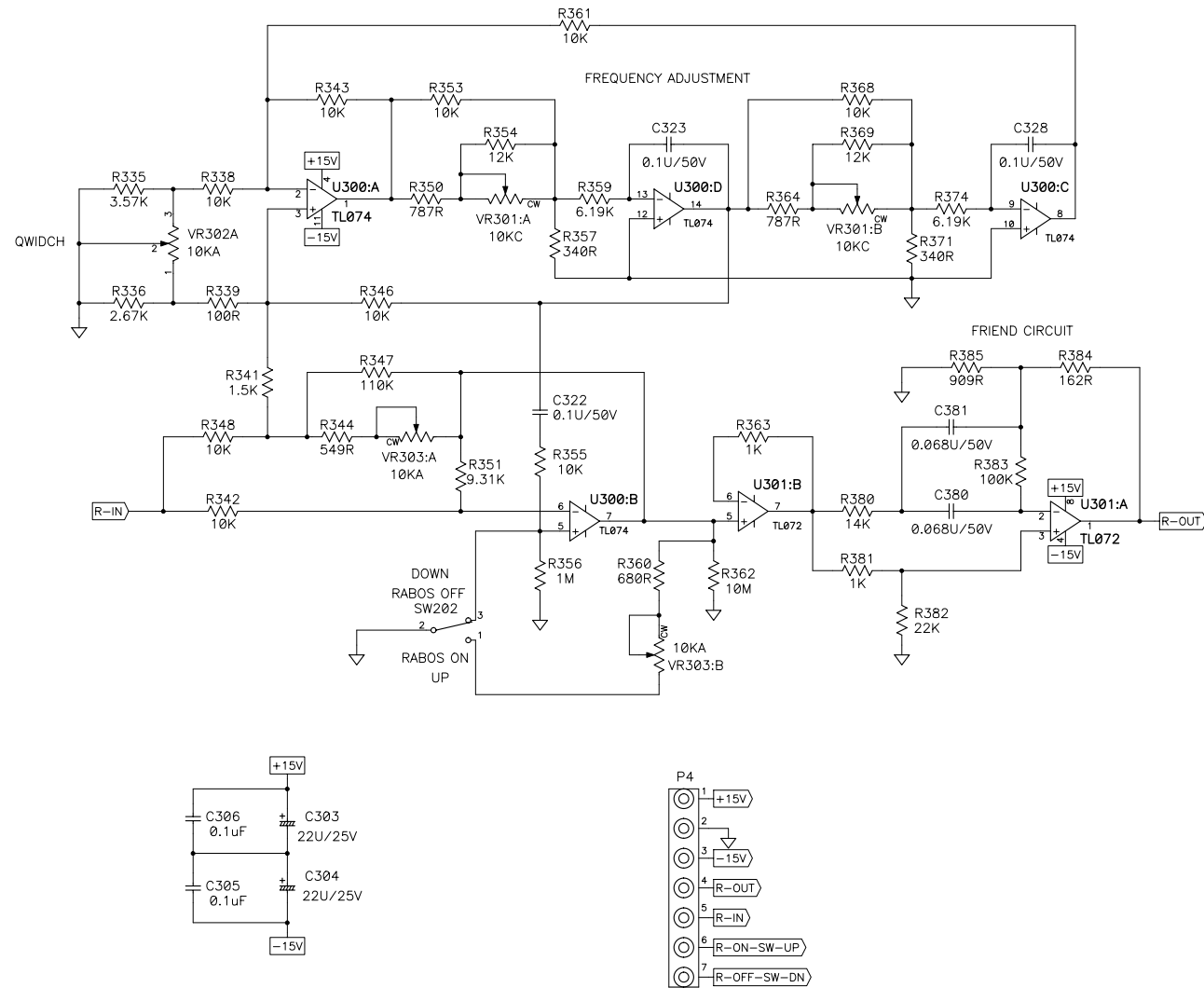


Rev:	Notes:	Date:	Rev:	Notes:	Draw by	Designed by	Checked by	Approved By	
01	New DESIGN	2004/04/26							: 416-0390901-000
									Model no: SW-12-120V
									Sch name: SW-12-120V.sch
									Issue no: ET-01-21-4691
									Date: 2004/04/26
									Sheet: 19 Rev: 01
									Size: A2 Author: Belle

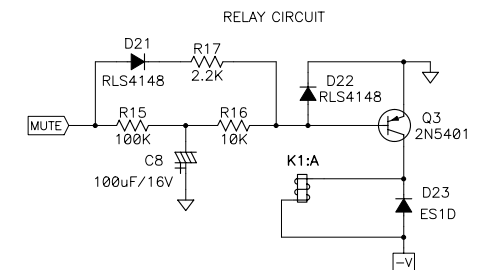
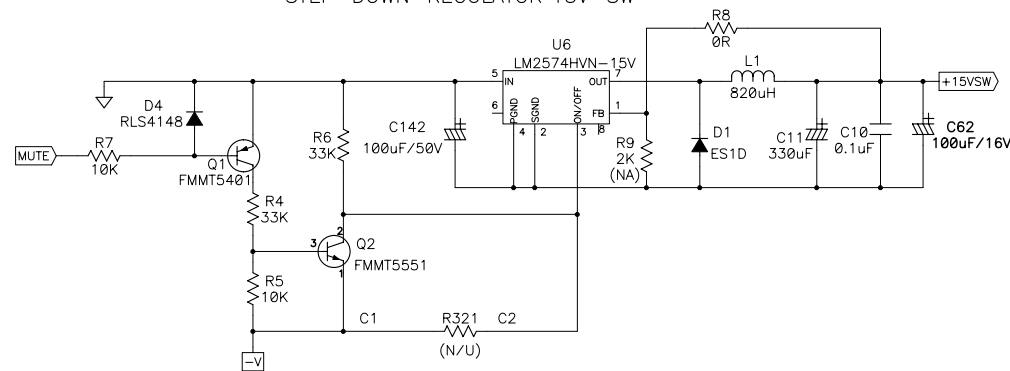
SW-12



Rev:	Notes:	Date:	Rev:	Notes:	Draw by	Designed by	Checked by	Approved By	JBL Prof
01	New DESIGN	2004/04/26							: 416-0390901-000
									Model no: SW-12-120V
									Sch name: SW-12-120V.sch
									Issue no: ET-01-21-4691
									Date: 2004/04/26
									Sheet: 20 Rev: 01
									Size: A2 Author: Belle



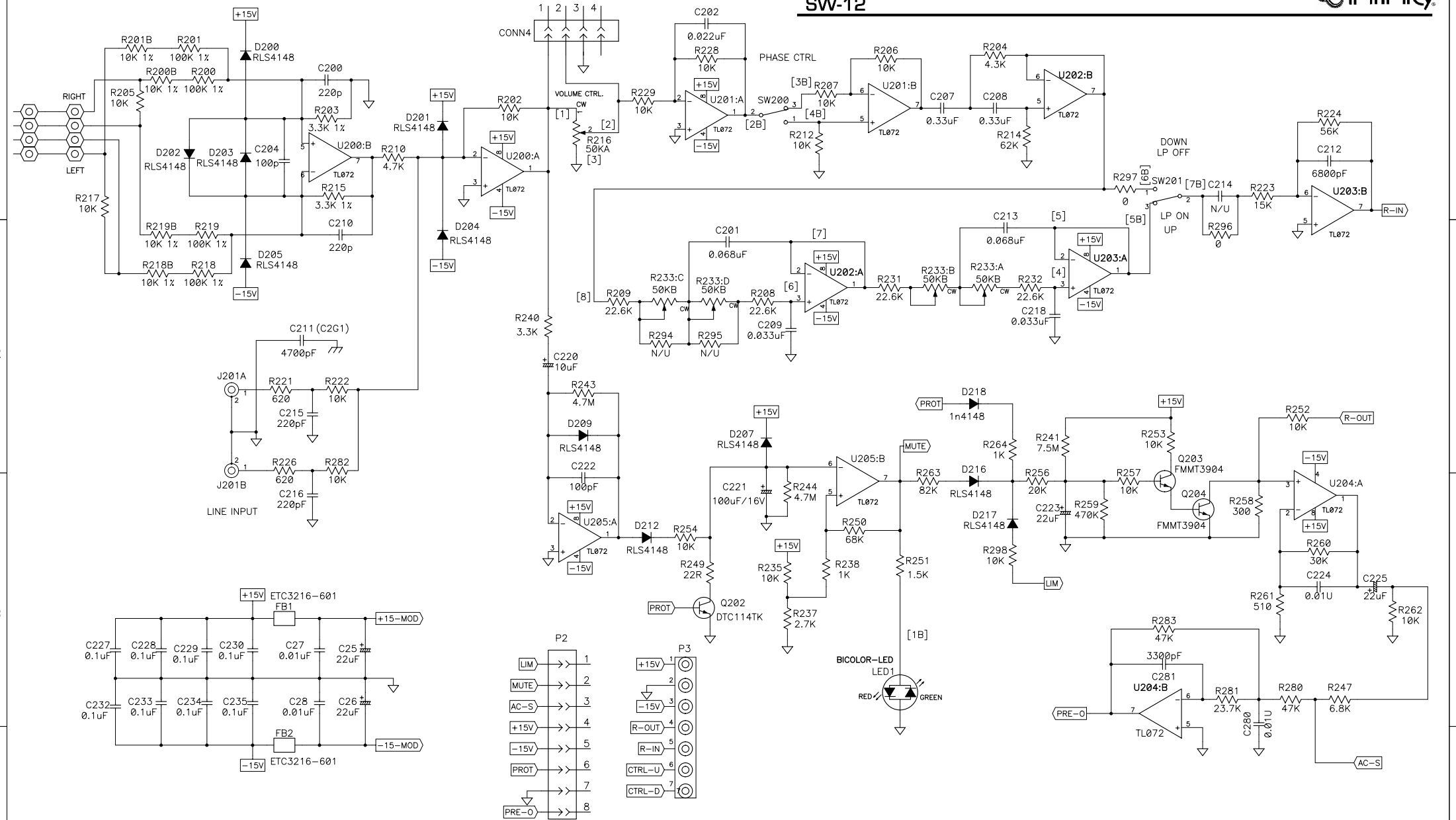
Rev:	Notes:	Date:	Rev:	Notes:	Draw by	Designed by	Checked by	Approved By	
01	New DESIGN	2004/04/26							: 416-0390901-000
									Model no: SW-12-120V
									Sch name: SW-12-120V.sch
									Issue no: ET-01-21-4691
									Date: 2004/04/26
									Sheet: 21 Rev: 01
									Size: A2 Author: Belle



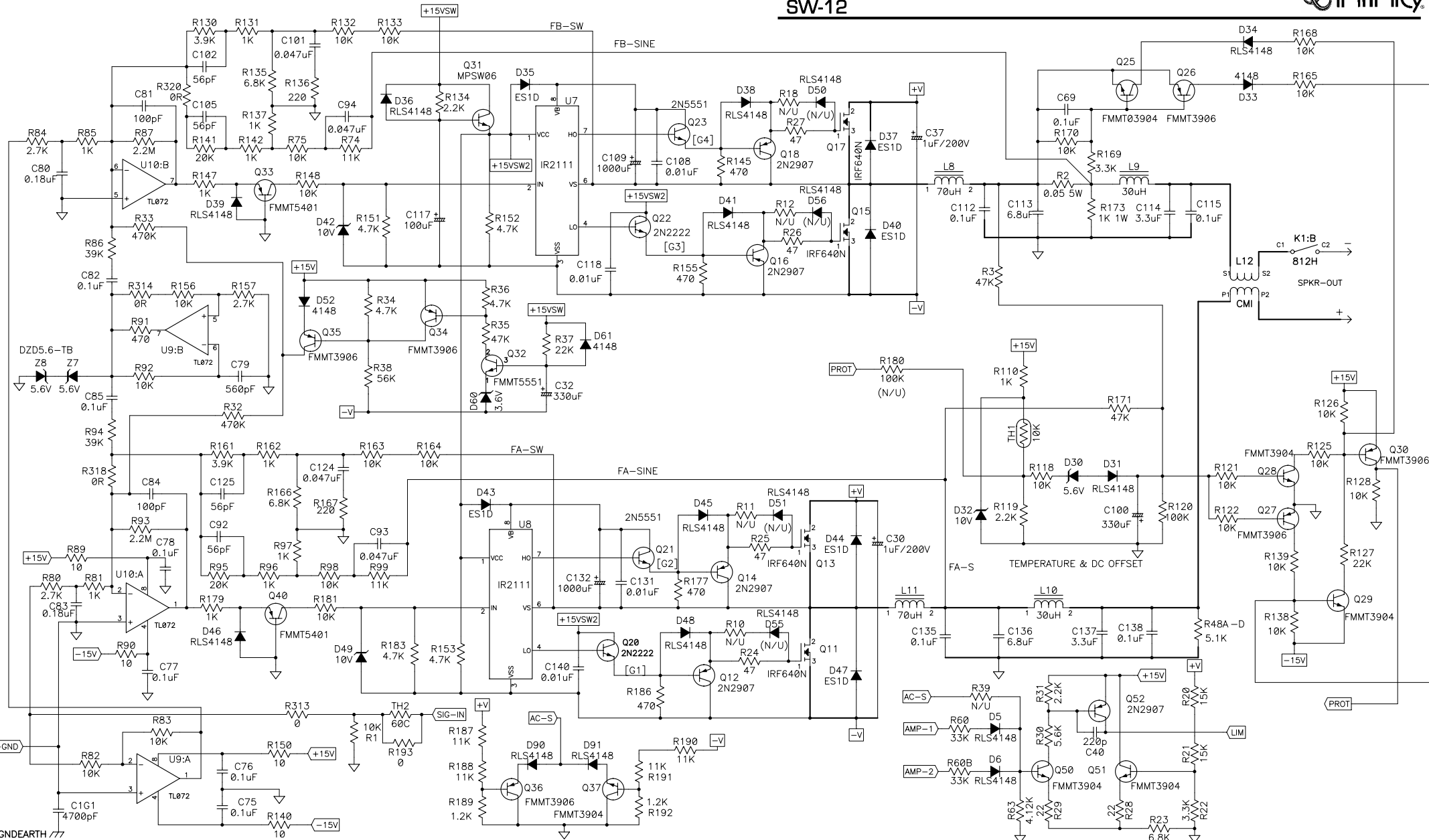
34

SW-12

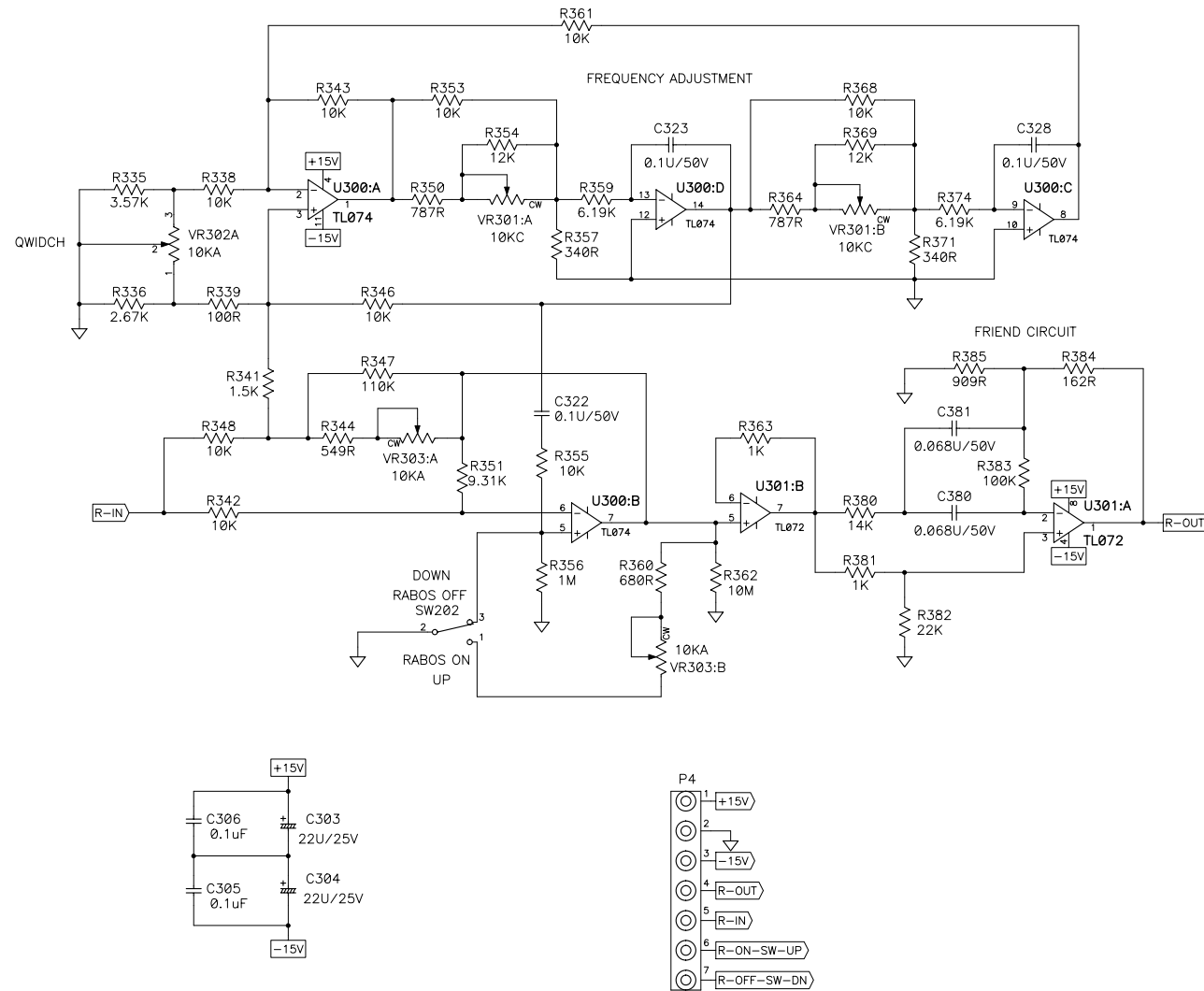
OPTIONAL EXTERNAL VOLUME CTRL NOT USED IN SW-12 MODEL



Rev:	Notes:	Date:	Rev:	Notes:	Draw by	Designed by	Checked by	Approved By	
01	New DESIGN	2003/10/29							: 416-0300201-000
02	CHANGE:R14,F1,C1,C4	2004/04/26							Model no: SW-12-230V
									Sch name: SW-12-230V-2.sch
									Issue no: ET-01-21-4693
									Date: 2004/04/26
									Sheet: 19 Rev: 02
									Size: A2 Author: Belle



Rev:	Notes:	Date:	Rev:	Notes:	Draw by	Designed by	Checked by	Approved By	JBL Prof
01	New DESIGN	2003/10/29							: 416-0300201-000
02	CHANGE:R14,F1,C1,C4	2004/04/26							Model no: SW-12-230V
									Sch name: SW-12-230V-2.sch
									Issue no: ET-01-21-4693
									Date: 2004/04/26
									Sheet: 20 Rev: 02
									Size: A2 Author: Belle



Rev:	Notes:	Date:	Rev:	Notes:	Draw by	Designed by	Checked by	Approved By	
01	New DESIGN	2003/10/29							: 416-0300201-000
02	CHANGE:R14,F1,C1,C4	2004/04/26							Model no: SW-12-230V
									Sch name: SW-12-230V-2.sch
									Issue no: ET-01-21-4693
									Date: 2004/04/26
									Sheet: 21 Rev: 02
									Size: A2 Author: Belle