

JBL

GTO 14001

1 CHANNEL POWER AMPLIFIER

SERVICE MANUAL



JBL Consumer Products
250 Crossways Park Dr.

Woodbury, New York 11797

Rev0 3/2008

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Discontinued XXXX

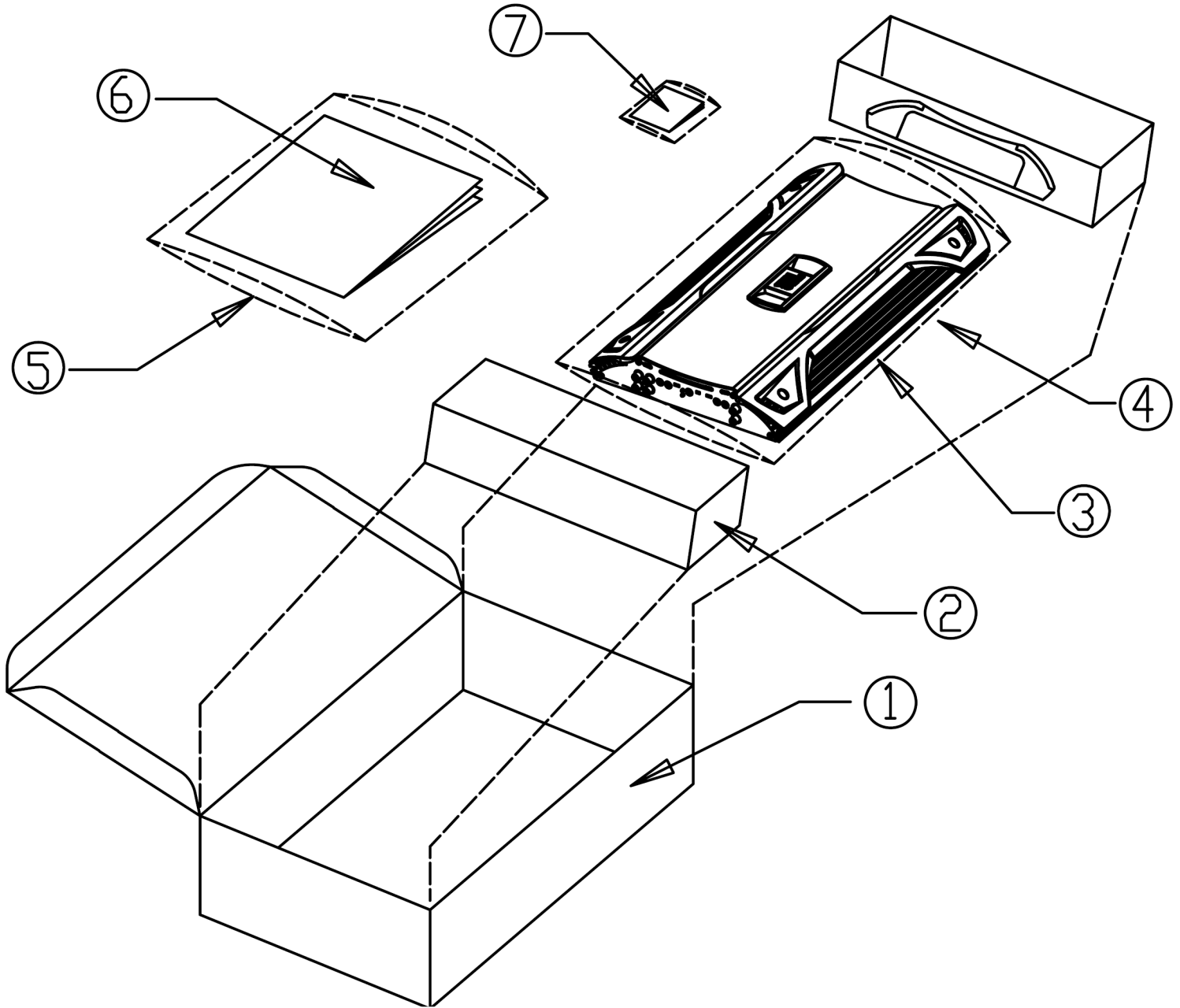
- CONTENTS -

SPECIFICATIONS	1
PACKING.....	2
CONTROL/INSTALLATION DRAWINGS.....	3
CONTROL/INSTALLATION INSTRUCTIONS.....	4
BASIC TROUBLESHOOTING.....	5
EXPLODED VIEW/PARTS LIST.....	6
AMPLIFIER BLOCK DIAGRAM.....	7
ELECTRICAL PARTS LIST	8
P.C.B. DRAWINGS.....	13
IC/TRANSISTOR PINOUTS.....	20
SCHEMATICS.....	21

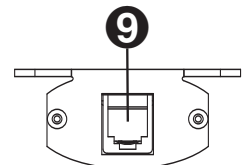
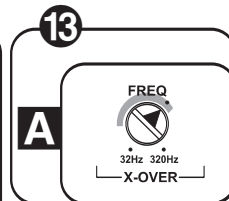
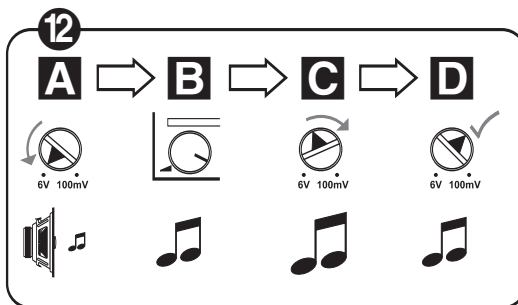
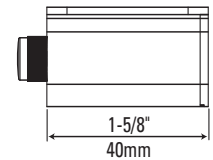
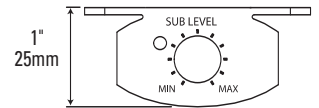
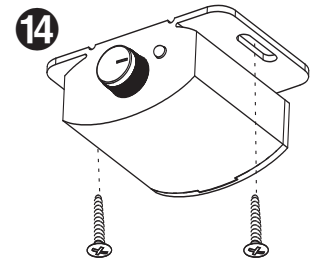
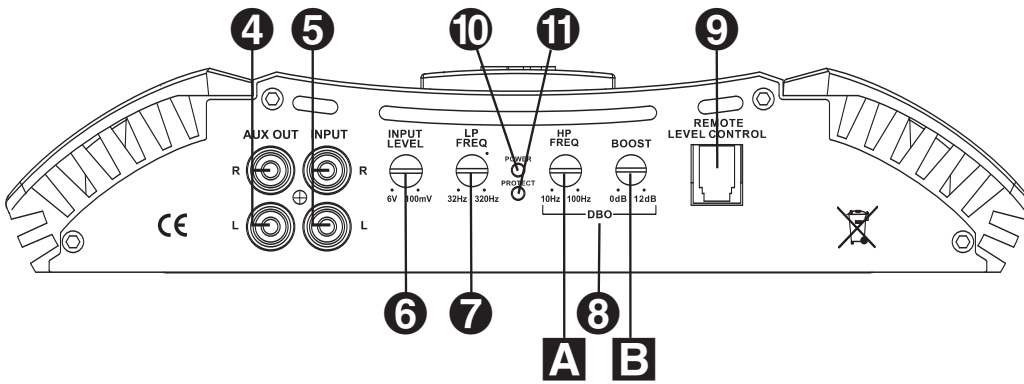
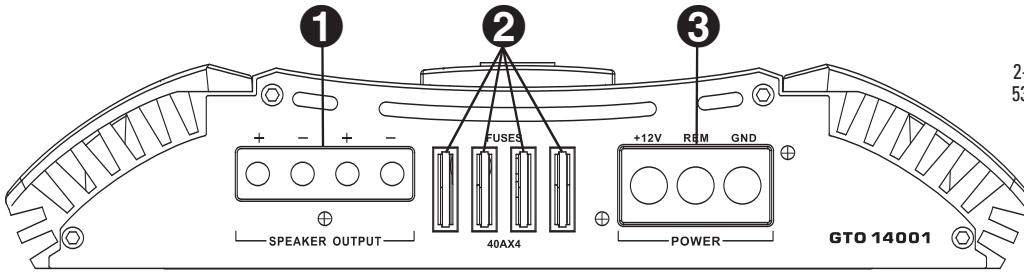
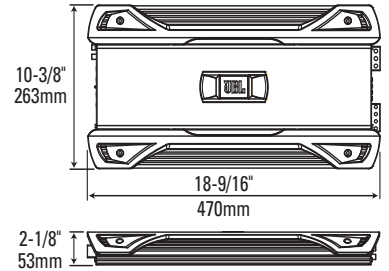
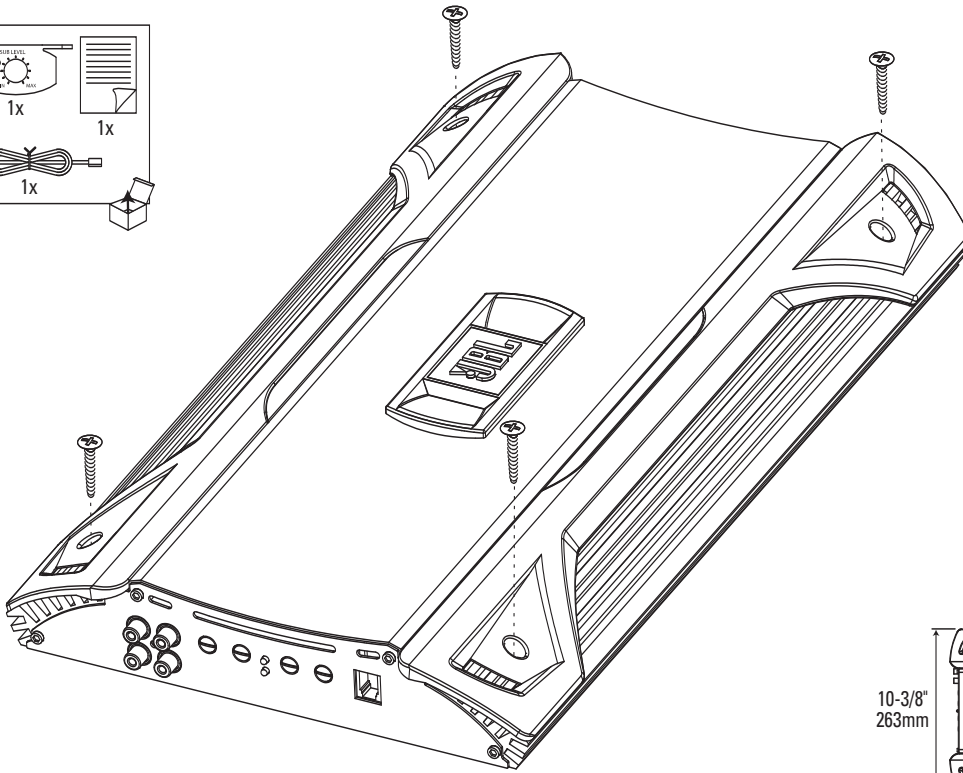
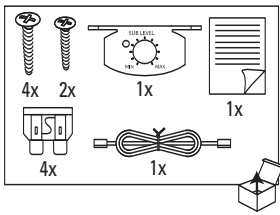
GTO 14001 Specifications

Output Power:	1200W RMS x 1 channels @ 4 ohms; ≤1% THD + N
(14.4V supply)	1500W RMS x 1 channels @ 2 ohms; ≤1% THD + N
Signal-to-noise ratio:	77dBA (reference 1W into 4 ohms)
	108dBA (reference rated power into 4 ohms)
Dynamic power:	1800W @ 2 ohms
Frequency response:	20Hz – 300Hz (–3dB)
THD+N 1KHz LPF=22KHz	≤0.05% (rated power @ 4 ohms)
Input Impedance	>20K ohms
Maximum input signal:	6.0V
Maximum sensitivity:	100mV
Bass Boost @ 20-100Hz	0-12dB (±2dB)
DC Offset	<30mV
Output regulation:	.03dB @ 4 ohms
Idle Current @ 2 ohms	1.8A
Max Current Draw	140A @ 2 ohms
Remote Operating Voltages	ON 5V OFF 3.5V
Turn-on delay time	2-3 sec
Circuit Protection	Temperature (80±5C), Short circuit
Operating voltage range	(8-16V)
Dimensions:	18 9/16 x 10 3/8 x 2 1/8" (470 x 263 x 53mm)
Fuses:	(4) x 40A

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



Item	Part Number	Description	Qty
1	CH5523221133	Outer Carton	1
2	BZL311105120	Packing Foam	2
3	GTO14001	Amplifier	1
4		Plastic bag	1
5		Plastic bag	1
6	Visit www.jbl.com	Owner's manual	1
7		Accessory kit consisting of:	
	LS1AA0404501	Mounting Screws	4
	1601-403E-00	40A Fuse	4
	REMOTE GTO AMP	Remote Level control	1
	2100-0009-04	Phone cable 4PIN Black L=6M, 6P4C	1



GTO14001 CAR AUDIO SUBWOOFER AMPLIFIER

Installation Warnings and Tips

- Disconnect the negative (-) lead from your vehicle's battery.
- At the installation sites, locate and make a note of all fuel lines, hydraulic brake lines, vacuum lines and electrical wiring. Use extreme caution when cutting or drilling in and around these areas.
- Choose a safe mounting location away from moisture.
- Make sure there is sufficient air circulation at the mounting location for the amplifier to cool itself.
- Mount the amplifier, using the supplied hardware.

Specifications

- 1200W RMS x 1 channel @ 4 ohms and ≤1% THD + N*
- 1500W RMS x 1 channel @ 2 ohms and ≤1% THD + N*
- THD + N: 0.05% (rated power @ 4 ohms)
- Signal-to-noise ratio: 77dBA (reference 1W into 4 ohms)*
- Signal-to-noise ratio: 108dBA (reference rated power into 4 ohms)
- Frequency response: 20Hz – 330Hz (-3dB)
- Max power: 1500 watts
- * CEA-2006A-compliant

1 Speaker Output Connectors

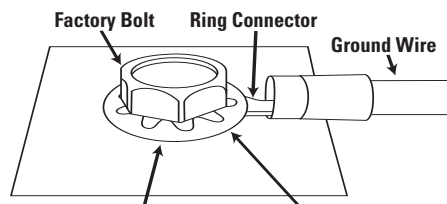
- Connect the speakers to these terminals, observing proper polarity. Either + or - terminal may be used. Minimum total impedance is 2 ohms.

2 Fuses

- Replace only with the same type and rating.

3 Power Input Connectors

- +12V: Connect to the positive terminal of the vehicle's battery. 4 AWG wire is recommended. Install an appropriate fuse holder and fuse (160A minimum) within 18 inches of the battery. Make sure the wire is not damaged or pinched during installation. Install protective grommets when routing wires through the firewall or other sheet metal.
- GND: Connect to the vehicle's chassis. Refer to the picture below.



Note: Remove any paint below ring connector.

- REM: Connect to the "Remote Out" lead from the source unit or to a source of switched 12V+ (ACC).

4 Aux Output Connectors (RCA)

- Nonfiltered pass-through output. Connect to the input of an additional amplifier.

5 Input Connectors (RCA)

- Connect to the RCA outputs from the source unit or signal processor.

6 Input-Level Control

- Used to match the input level of the amplifier to the output level of the source unit.
- See 12 for the adjustment procedure.

7 Low-Pass Filter Frequency Control

- 12dB/octave low-pass filter, variable from 32Hz to 320Hz.
- See 13 for the adjustment procedure.

8 DBO (Dynamic Bass Optimization) Variable Subsonic High-Pass Filter With Variable Boost (Q)

- For woofers in tuned (vented) enclosures, set the Frequency control to a value 10Hz below the enclosure's resonance (tuned) frequency.
- For woofers in sealed boxes, set the control to any value you prefer, between 30Hz and 50Hz.
- Set the Boost control according to your preference, being careful not to apply enough boost to damage your woofer(s).
 - A** DBO High-Pass Filter Frequency control, variable between 10Hz and 100Hz. See above for appropriate settings.
 - B** DBO Boost control provides up to 12dB of boost, slightly above the high-pass filter's frequency. See above for appropriate settings.

9 Remote Level Control (RLC) Connector

- Connect the Remote Level Control (RLC) here, using the supplied RJ-11 cable.

10 Power On LED

- Illuminated when the amplifier is on.

11 Protect LED

- Illuminated under any of the following fault conditions: battery over/under voltage, short circuit in speaker wires, amplifier is too hot, amplifier's output circuit has failed (DC voltage is present in the amplifier's output).

12 Setting Input Level

- A** Turn Input Level control counterclockwise to 6V (minimum).
- B** With a dynamic music track playing, turn the head unit's volume control to the 3/4 position.
- C** Turn Input Level control clockwise until the bass output is proportionate to the output of the high-frequency speakers, according to your preference.
- D** Input level is now adjusted correctly.

13 Setting the Crossover

- A** Crossover setting for subwoofers. **Note:** Acceptable frequency ranges are indicated in gray.

14 Remote Level Control

The Remote Level Control, if installed, will allow you to adjust the level of bass while seated in the listening position.

Amplifier Troubleshooting Guide

1. Status LED on Amplifier not Lit - Head Unit (Source) Turned ON

Verify:

- A. Remote turn-on wire from source to amplifier has proper voltage
- B. Power (B+) connections at amplifier, terminal blocks, and battery are secure
- C. Ground (GND) connections at amplifier and vehicle chassis are secure
- D. Battery B+ fuse (if used) is OK
- E. Amplifier fuse is OK
- F. B+ at battery and B+ at amplifier has proper voltage

2. Status LED's Lit, No Output from Speakers in Normal Operating Condition

Verify:

- A. RCA cables from amplifier to source are securely connected
- B. Volume adjustment on amplifier is correctly adjusted
- C. Source is ON and playing

3. Engine Noise From Speaker(s)

Turn source OFF, Disconnect RCA cables at amplifier. If noise stops, check equipment & cables leading to amplifier.

Verify:

- A. RCA cables are of good quality with no breakage to internal shields
- B. RCA cables from source to amplifier are not run alongside any power cables

4. Amplifier Output Distorted Music

Verify:

- A. Source output music to amplifier is not distorted
- B. Source output sensitivity is correctly adjusted

5. Amplifier Shuts Down, Green LED's are Lit - Amplifier is in Thermal Protection Mode

Verify:

- A. Amplifier is mounted with adequate air circulation around heatsinks or vents
- B. Amplifier is not mounted under carpet or sealed enclosure
- C. Speakers meet correct impedance for application (mono or stereo hookup)

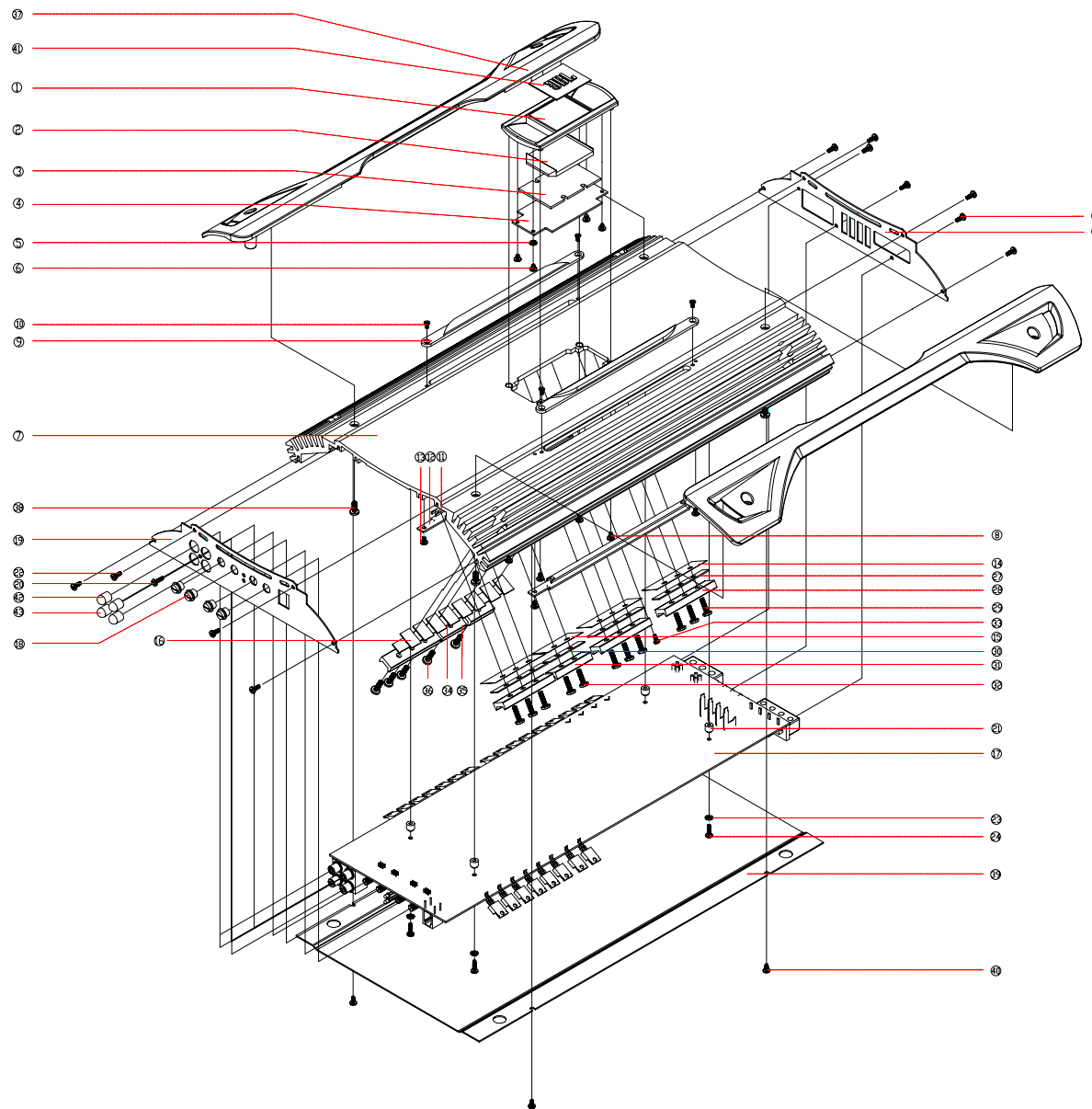
6. Amplifier Does Not Turn ON, and Red LED is Lit Amplifier (and not Connected to a Shorted Speaker)

Verify:

- A. Speaker crossover (if used) is not defective

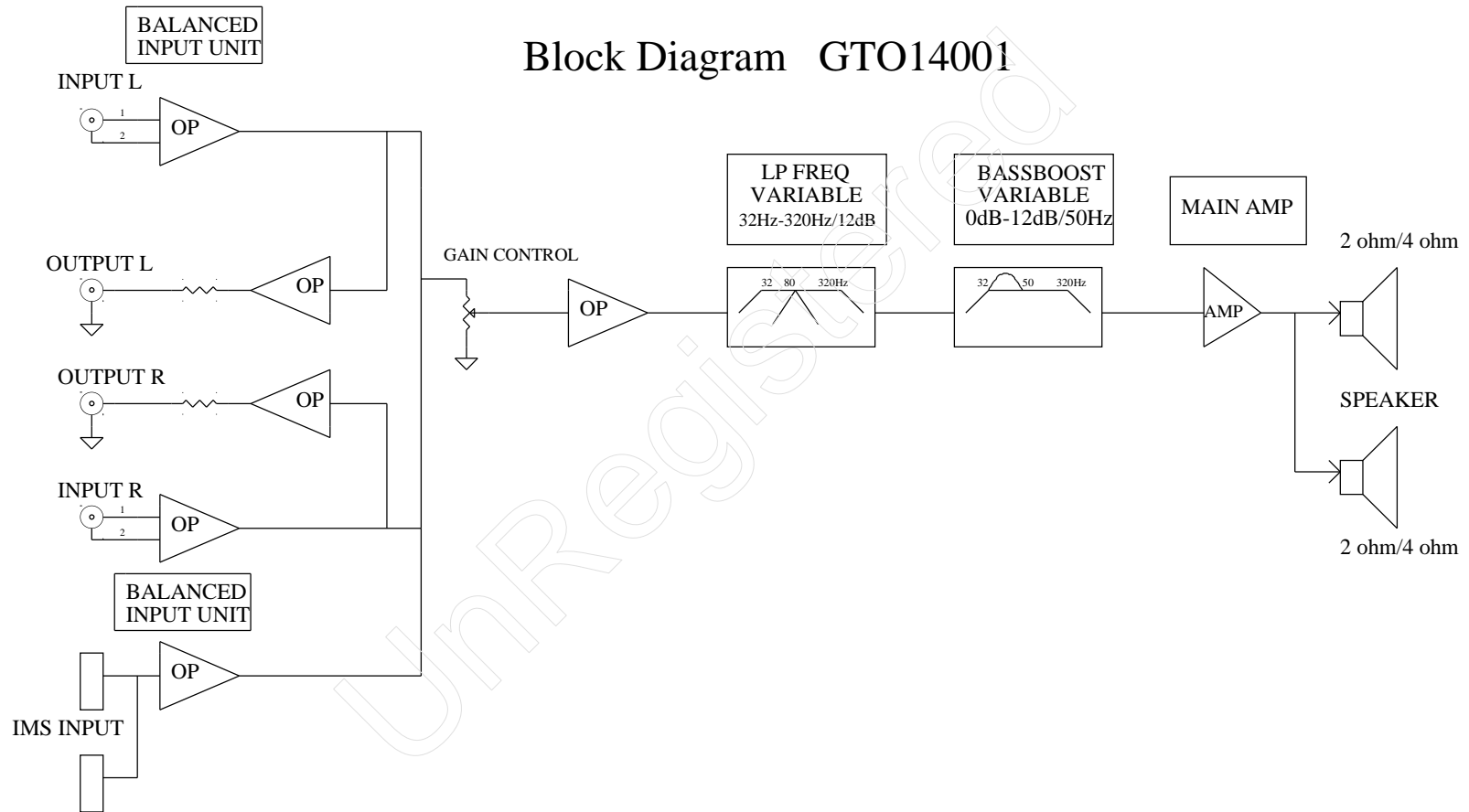
GTO-14001

GTO14001



No.	item	Pant Number	Qty	No.	item	Pant Number	Qty
①	Top plate	ZS-D00010112	1	⑲	Insulated paper	JY464A10A10X	4
②	Reflector board	GD-500012400	1	⑳	Trans. Clamp	PL-A0005-000	4
③	Reflector board#2	GD-600030003	1	㉑	Screw BM4*14	LS1JM0401401	12
④	PCB		1	㉒	Insulated paper	JY445A10A10X	1
⑤	Washer	DQ8069032084	1	㉓	Trans. Clamp	PL-A0004-000	1
⑥	Screw BM3*4	LS1JM0300401	4	㉔	Screw BM4*14	LS1JM0401401	2
⑦	Heatsink	SR-0752-0324	1	㉕	Screw PM3*6	LS1AM0300601	1
⑧	Screw BM3*5	LS1JM0300501	4	㉖	Insulated paper	JY430A10A10X	2
⑨	Light bar	PL-A0048-000	2	㉗	Trans. Clamp	PL-A0002-000	2
⑩	Screw KT3*6	LS1FP0300011	4	㉘	Screw BM4*14	LS1JM0401401	2
⑪	Reflector board#1	GD-600040003	2	㉙	Side panel	ZS-A00010104	2
⑫	PCB		2	㉚	Screw BM4*10	LS1JM0401001	4
⑬	Screw BM3*5	LS1JM0300501	4	㉛	Bottom plate	XG-0033-0501	1
⑭	Mica	JY264A22A01X	3	㉜	Screw BT3*6	LS1JT0300601	4
⑮	Mica	JY247A22A01X	1	㉝	Logo plate	MP-0752-3001	1
⑯	Ceramic	JY217A12A10A	8	㉞	RCA CAP (Red)	KT-200021300	2
⑰	PCB		1	㉟	RCA CAP (Wht)	KT-200012200	2
⑱	Knob	XN-10500-012	4				
⑲	Front Plate	MK-0112-0507	1				
⑳	Screw BT3*10	LS1JT0301001	1				
㉑	Standoff	ZL-10038A-15	4				
㉒	Screw BT3*8	LS1JT0300801	4				
㉓	Washer	DQ8069032084	4				
㉔	Screw BT3*12	LS1JT0301201	4				
㉕	Rear plate	HG-0033-0507	1				
㉖	Screw BT3*8	LS1JT0300801	7				

Block Diagram GTO14001



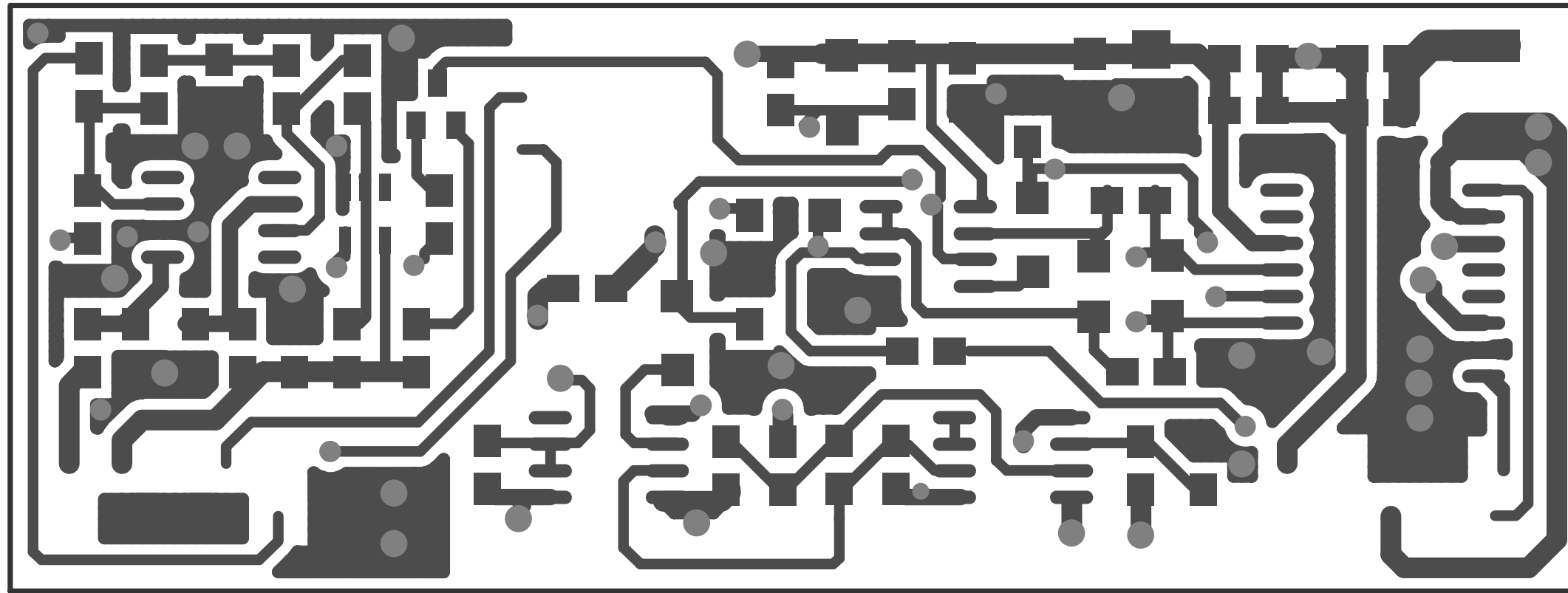
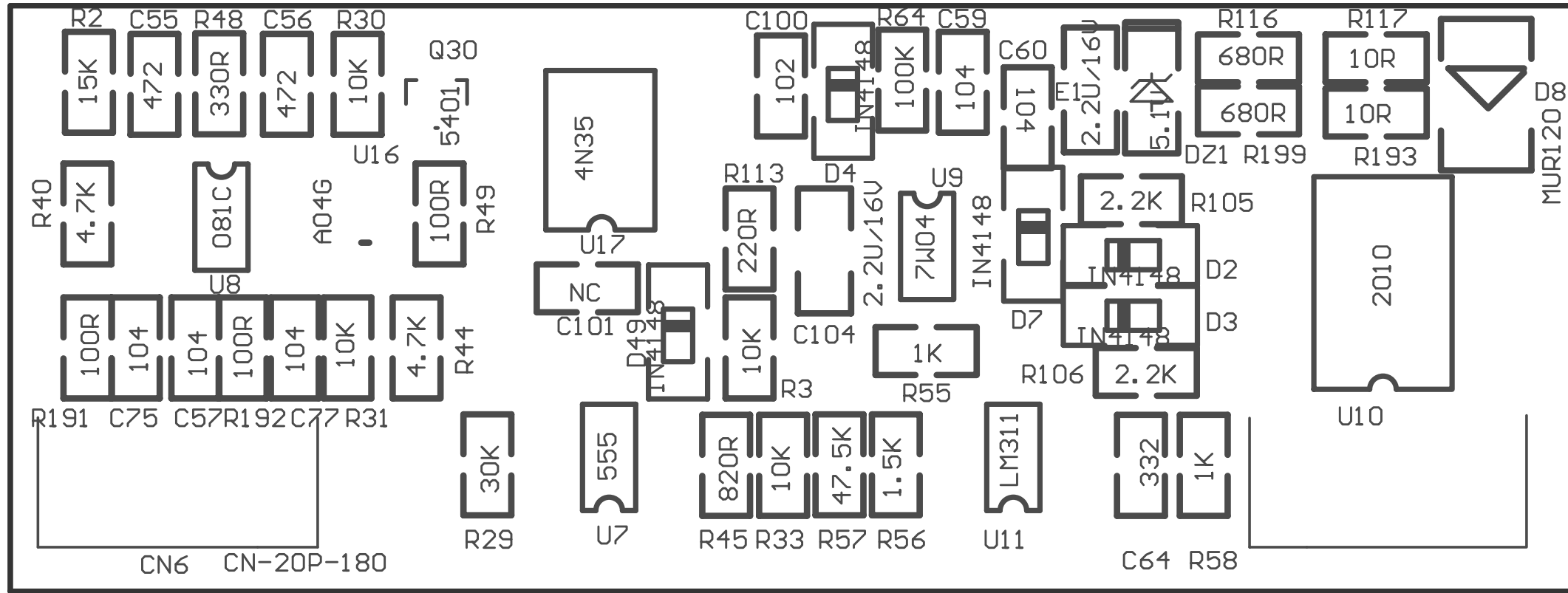
GTO14001 Electrical Parts List				
Qty	Part Number	Reference Designator	Description	
MAIN PCB				
<i>Resistors</i>				
1	0702-3103-02	R95	Carbon film resistor	1/2W 10KΩ ±5% 12.5MM
5	0702-3220-02	R85 R86 R87 R88 R89	Carbon film resistor	1/2W 22Ω ±5% 12.5MM
2	0702-4123-02	R100 R101	Carbon film resistor	1W 12K ±5% 15mm
2	0705-5470-02	R1 R133	Cement resistor	5W 47Ω ±5%
2	0712-64R7-02	R128 R129	Metal Oxide film resistor	2W 4.7Ω ±5% Horizontal 10MM
2	0712-6221-02	R123 R124	Metal Oxide film resistor	2W 220Ω ±5% Horizontal 10MM
2	0702-3331-02	R93 R94	Carbon film resistor	1/2W 330Ω ±5% 12.5MM
2	0702-3562-02	R91 R92	Carbon film resistor	1/2W 5.6KΩ ±5% 12.5MM
2	0702-3222-02	R68 R71	Carbon film resistor	1/2W 2.2KΩ ±5% 12.5MM
2	0705-5222-02	R125 R126	Cement resistor	5W 2.2KΩ ±5% 13*9*2.5mm 5mm
8	0701-2100-02	R107 R108 R109 R110 R111 R112 R113 R114	Resistor	SMD 10Ω 1/8W ±5% 0805
24	0701-2101-02	R45 R57 R122 R76 R77 R79 R80 R81 R82 R83 R84 R13 R14 R15 R16 R17 R18 R21 R22 R23 R24 R25 R26 R27	Resistor	SMD 100Ω 1/8W ±5% 0805
2	0701-2470-02	R20 R78	Resistor	SMD 47Ω 1/8W ±5% 0805
2	0701-2221-02	R58 R59	Resistor	SMD 220Ω 1/8W ±5% 0805
1	0701-2331-02	R43	Resistor	SMD 330Ω 1/8W ±5% 0805
1	0701-2751-02	RX	Resistor	SMD R0805 750Ω 1/8W ±5%
1	0701-2821-02	R105	Resistor	SMD 820Ω 1/8W ±5% 0805
5	0701-2102-02	R44 R48 R49 R50 R121	Resistor	SMD 1KΩ 1/8W ±5% 0805
2	0701-2182-02	R115 R12	Resistor	SMD 1.8KΩ 1/8W ±5% 0805
9	0701-2222-02	R62 R63 R64 R66 R67 R69 R70 R74 R75	Resistor	SMD 2.2KΩ 1/8W ±5% 0805
4	0701-2472-02	R39 R40 R41 R127	Resistor	SMD 4.7KΩ 1/8W ±5% 0805
1	0701-2113-02	R73	Resistor	SMD 11KΩ 1/8W ±5% 0805
1	0701-2332-02	R72	Resistor	SMD 3.3KΩ 1/8W ±5% 0805
13	0701-2103-02	R99 R28 R29 R32 R33 R37 R38 R130 R131 RX200 RX203 RX204 RX2001	Resistor	SMD 10KΩ 1/8W ±5% 0805
2	0701-2153-02	R61 R51	Resistor	SMD 15KΩ 1/8W ±5% 0805
1	0701-2203-04	R4	Resistor	SMD 20KΩ 1/8W ±5% 0805
5	0701-2223-02	R3 R5 R103 R104 R98	Resistor	SMD 22KΩ 1/8W ±5% 0805
13	0701-2473-02	R2 R6 R7 R8 R9 R10 R11 R19 R30 R31 R52 R53 R60	Resistor	SMD 47KΩ 1/8W ±5% 0805
1	0701-2563-02	R106	Resistor	SMD 56KΩ 1/8W ±5% 0805
6	0701-2104-02	R34 R35 R54 R55 R56 R116	Resistor	SMD 100KΩ 1/8W ±5% 0805
1	0701-2105-02	R96	Resistor	SMD 1MΩ 1/8W ±5% 0805
8	0702-0106-03	R36 R42 R11X R120 R118 R117 R119 R12X	Resistor	10mΩ ±1% manganese Φ1.5 10.5MM H=16.5MM
1	1204-2030-01	VR1	INPUT LEVEL	B20K KQ L=15 ±10% in phase=±3dB
1	1201-5030-04	VR2	LP FREQ	B50K KQ L=15MM ±10% in phases≤2.5DB
1	1204-2040-02	VR3	HP FREQ	B2K/B200K KQ L=15MM ±15% B2K,B200K
1	1204-5041-11	VR4	BOOST	B500 KQ L=15 ±10%
1	1201-1031-03	VR5	Variable Resistor	TG625MC-B10K
<i>Capacitors</i>				
2	06D2C3357700	C103 C104	Metal oxide film cap	3.3UF/100V ±20% 105°C Brown 20.5mm
2	06D2C335C700	C92 CX102	Metal oxide film cap	3.3UF/250V ±20% 105°C Brown 27mm
3	06D211066109	C86 C45 C46	E-cap	10uF/50V ±20% 5*11 105°C Black 5MM
6	06D2C1067001	C106 C107 CX103 C98 C99 C81	Metal film cap	10UF/100V ±20% 20MM thickness=10.5MM
7	06D212266010	C1 C2 C3 C4 C5 C6 C7	E-cap	22uF/50V ±20% 5*11 105°C 5.0MM
3	06D102266000	C22 C34 C52	E-cap	22UF/50V ±10% Φ6.3*11 85°C NP
4	06D214765000	C90 C91 C43 C84	E-cap	47uF/35V ±20% 5*11 105°C Black 5MM
3	06D211073001	C67 C78 C83	E-cap	100UF/16V ±20% 6*7 105°C 5MM
3	06D214775101	C66 C72 C73	E-cap	470UF/35V ±20% Φ8*20MM 105°C Black
4	06D213387001	C68 C69 C70 C71	E-cap	3300UF/100V 35*30MM ±20%
5	06D212285101	C53 C54 C55 C56 C57	E-cap	2200UF/35V Φ16*26MM ±20% 105°C Low ESR 7.5MM
1	06D231027000	C109	Ceramic cap	1000pF/100V ±20% 5MM
6	06D231037000	C58 C59 C60 C61 C49 C51	Ceramic cap	0.01uF/100V ±20% 5MM

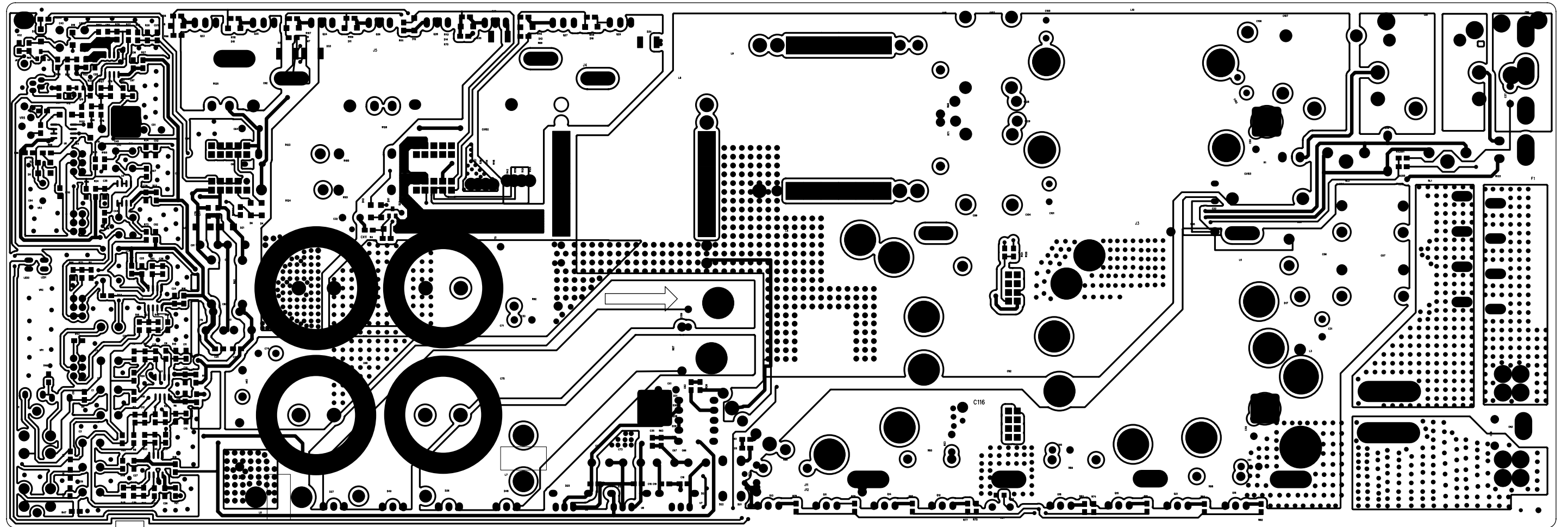
Qty	Part Number	Reference Designator	Description	
MAIN PCB				
6	06D231047000	C31 C32 C33 C37 C74 C75	Ceramic cap	0.1uF/100V ±20% 5MM
3	06D3C2247700	C100 C101 C102	Metal film cap	224/100V ±5% Brown 5MM
2	06D374717400	C64 C65	Ta capacitor	470pF/100V ±5% 5.5mm
3	06D1C4747701	C48 C85 C94 C93	Metal film cap	474/100V ±10% Brown 7.5mm
1	06D1C105G700	CX11	Metal film cap	105/160V ±10% Brown 15MM thickness≤6.5MM
1	06D341547400	C44	MET CAP	154/100V ±5% 5MM
1	06D341847000	C42	MET CAP	184/100V ±5% 5MM
1	06D344737400	C47	MET CAP	473/100V ±5% 5MM
1	06D344747000	C41	MET CAP	474/100V ±5% 5MM
2	06S322206000	C39 C40	Capacitor	SMD 22pF/50V 0805 NPO ±5%
5	06S321016000	C10 C11 C12 C13 C38	Capacitor	SMD 100pF/50V 0805 NPO ±5%
21	06S121046000	C14 C15 C16 C17 C18 C19 C20 C21 C24 C25 C26 C27 C28 C29 C30 C35 C36 C76 C77 CX2 CX111	Capacitor	SMD 0.1uF/50V 0805 X7R ±10%
1	06S121244000	C97	Capacitor	SMD 0.12UF/25V 0805 X7R ±10%
7	06S124716000	C23 C62 C63 C79 C80 C87 C88	Capacitor	SMD 470pF/50V 0805 X7R ±10%
1	06D212285000	C116	E-cap	2200UF/35V φ16*33MM ±20% 105°C
2	06S321006000	C8 C9	Capacitor	SMD 10pF/50V 0805 NPO ±5%
Semiconductors				
1	04ZL-6A10-00	D17	Diode	6A10 1000V
1	04ZL-4007-03	D39	Diode	1N4007 DO-41
10	04GS-R104-00	D20 D21 D22 D23 D24 D25 D28 D29 D30 D31	Diode	FR104 1A 400V 52MM
8	03D1-TP50-24	Q23 Q24 Q25 Q26 Q27 Q28 Q29 Q30	MOS FET	TP50N20P TO-220
8	03T1-3205-02	Q11 Q12 Q13 Q14 Q15 Q16 Q18 Q21	MOS FET	IRF3205 110A 50V TO-220
1	2000-0017-00	LED1	LED	red light φ3MM 2P
1	2004-0014-00	LED2	LED	φ3.0MM blue light
2	01FA-7812-04	U7 U8	+12V Pos. Regulator	KA7812E TO-220
1	01FA-7912-04	U9	-12V Neg. Regulator	KA7912 TO-220
2	2202-1602-05	D26 D27	Bridge rectifier	UF1602CT AKA 16/200V TO-220
2	2202-1620-05	D48 D49	Bridge rectifier	MUR1620CTA KAD 16A/200V TO-220
19	04PT-4148-01	D3 D4 D6 D7 D8 D9 D10 D11 D12 D13 D14 D16 DX1 DX2 D1 D2 D5 D15 D18	Diode	SMD 1N4148 DO-213AA
4	04ZL-2512-00	D32 D33 D34 D35	Rectifying diode	SMD MUR120 1A 2512
2	03N1-5551-04	Q9 Q10	Transistor	SMD MMBT5551LT1 NPN SOT-23
1	03N1-2222-04	Q22	Transistor	SMD BT2222 SOT-23 NPN
5	01JR-4560-08	U1 U2 U3 U4 U5	Dual Op-Amp	SMD 4560 SOP-8 JRC
2	04WY-51AV101	DZ1 DZ2	Zener Diode	SMD 5.1V DO-213AA 0.5W
1	01TI-L072-09	U6	Dual Op-Amp	SMD TL072 SO-8
1	2601-0202-00	LCR1	Optocoupler	LCR-0202
Miscellaneous				
1	1404-0020-04	J1	RCA INPUT, AUX OUT	DIP AV4-8.4-38 up-white, down-red Nickel plating
1	1413-0001-00	JK1	Phone jack	6P4C RJ11 vendor model:HPCB-3021-6P4C Black
1	1501-0400-01	CN6	Terminal	BTS4-23 Nickel plating, cross screws
1	1501-0300-02	CN3	Terminal	BTS3-24 Nickel plating, cross screws
2	1001-3002-10	L8 L9	Power Inductor	DIP 30UH/40A ETD49 φ0.1*80*6 13TS
1	1001-1022-10	L10	Common mode choke	DIP L1=L2 1MH φ42.5 φ0.5*(24P*4)*2.5TS*2
2	1004-3001-10	L6 L7	Inductor	DIP 30UH φ12 φ5 11.5MM φ2*3
2	2901-224C-00	RL1 RL2	Relay	DC12V 30A
4	1601-403E-00	F1A-F1D	Fuse	DIP 40A high temperature durable
1	1380-0209-00	SW1	Temperature switch	DIP, operating temp 80°C±5°C TO-220, 2pins
1	1401-0002-04	for F1	Fuse holder	DIP 4PIN
1	3000-1400-05	L4	HF Transformer	φ49 4:9:7:6 F1=F2=φ0.8*16 4TS S1=S2=φ0.8*10 9TS S3=S4=φ1.0*1 7TS S5=S6=φ1.0*1 6TS
1	3000-1400-06	L5	HF Transformer	φ49 4:9 F1=F2=φ0.8*16 4TS S1=S2=φ0.8*10 9TS
1	1001-3500-10	L10	Inductor	DIP φ47 35UH*2 φ0.3*40*22TS ±30%
2	3501-0029-00	L11 L12	Inductor	K4D RH 7.8*15*3 L=1.8UH (φ2.0*70MM*0.5TS)±10%
1	1502-0209-00	CN1	Socket	DIP PITCH 2.54MM 2PIN bending 90°
2	1003-1003-08	R46 R47	Inductor	SMD 0805 10UH 0.5A

Qty	Part Number	Reference Designator	Description	
CONTROL PCB		NOTE THERE ARE TWO IDENTICAL CONTROL PCB'S IN THE GTO14001		
<i>Resistors</i>				
1	0701-2104-02	R64	Resistor	SMD 100KΩ 1/8W ±5% 0805
4	0701-2103-02	R3 R33 R30 R31	Resistor	SMD 10KΩ 1/8W ±5% 0805
4	0701-2100-02	R117 R118 R193 R198	Resistor	SMD 10Ω 1/8W ±5% 0805
2	0701-2102-02	R55 R58	Resistor	SMD 1KΩ 1/8W ±5% 0805
2	0701-2222-02	R105 R106	Resistor	SMD 2.2KΩ 1/8W ±5% 0805
1	0701-2153-02	R2	Resistor	SMD 15KΩ 1/8W ±5% 0805
5	0701-2472-02	R40 R41 R42 R43 R44	Resistor	SMD 4.7KΩ 1/8W ±5% 0805
1	0701-2821-02	R45	Resistor	SMD 820Ω 1/8W ±5% 0805
2	0701-2681-02	R116 R199	Resistor	SMD 680Ω 1/8W ±5% 0805
1	0701-2152-02	R56	Resistor	SMD 1.5KΩ 1/8W ±5% 0805
3	0701-2101-02	R49 R191 R192	Resistor	SMD 100Ω 1/8W ±5% 0805
1	0701-2303-03	R29	Resistor	SMD 30K 1/8W ±1% 0805
1	0701-2221-02	R113	Resistor	SMD 220Ω 1/8W ±5% 0805
1	0701-2331-02	R48	Resistor	SMD 330Ω 1/8W ±5% 0805
1	0701-2473-02	R57	Resistor	SMD 47KΩ 1/8W ±5% 0805
<i>Capacitors</i>				
1	06S2447644CD	C93 C94	Ta Capacitor	SMD 47uF/25V CASE-D ±20% Yellow
1	06S321026000	C100	Capacitor	SMD 1000pF/50V 0805 NPO ±5%
2	06S321016000	C61 C62	Capacitor	SMD 100pF/50V 0805 NPO ±5%
8	06S121046000	C57 C59 C60 C63 C75 C77 C91 C92	Capacitor	SMD 0.1uF/50V 0805 X7R ±10%
2	06S132253000	C104 E1	Capacitor	SMD 2.2uF/16V 1206 X7R ±10%
1	06S123326000	C64	Capacitor	SMD 332/50V ±10% X7R 0805
1	06S2447634CC	C43	Ta Capacitor	SMD 47uF/16V CASE-C ±20% Yellow
1	06S2410724CC	C58	Ta Capacitor	SMD 100UF/10V CASE-C ±20% Yellow
2	06S124727000	C55 C56	Capacitor	SMD 472/100V 0805 X7R ±10%
<i>Semiconductors</i>				
1	2601-4N35-00	U17	Optocoupler	4N35 DIP6
1	0100-C081-08	U8	Single Op-Amp	TLC081 SOP-8
1	01LM-M555-08	U7	Timer	SMD LM555 SOP-8
1	0100-74AH-00	U16	Inverter	74AHC1G04 SOT-235
1	0100-2010-00	U10	High/Low side Driver	IR2010S SOL-16
1	03P1-5401-04	Q30	Transistor	SMD MMBT5401LT1 PNP SOT-23
1	01TC-WH04-00	U9	Triple Inverter	TC7WH04F
1	04ZL-2512-00	D8	Zener Diode	SMD MUR120 1A 2512
1	01LM-M311-08	U11	Single Comparator	SMD LM311 SOP-8
5	04PT-4148-01	D2 D3 D4 D7 D49	Diode	SMD 1N4148 DO-213AA
1	04WY-51AV101	DZ1	Zener Diode	SMD 5.1V DO-213AA 0.5W
<i>Miscellaneous</i>				
1	1505-1009-04	CN6	Pin	DIP PITCH 2.54mm 10PIN*2, bending 90°
PWM PCB				
<i>Resistors</i>				
1	0701-2221-02	2R65	Resistor	SMD 220Ω 1/8W ±5% 0805
3	0701-2102-02	2R5 2R155 2R156	Resistor	SMD 1KΩ 1/8W ±5% 0805
3	0701-2202-02	2R33 2R138 2R146	Resistor	SMD R0805 2KΩ 1/8W ±5%
1	0701-2222-02	2R132	Resistor	SMD 2.2KΩ 1/8W ±5% 0805
1	0701-2432-02	2R102	Resistor	SMD 4.3KΩ 1/8W ±5% 0805
2	0701-2472-02	2R46 2R147	Resistor	SMD 4.7KΩ 1/8W ±5% 0805
1	0701-2512-02	2R200	Resistor	SMD 5.1KΩ 1/8W ±5% 0805
9	0701-2103-02	2R1 2R34 2R36 2R78 2R99 2R137 2R148 2R152 2R149	Resistor	SMD 10KΩ 1/8W ±5% 0805
1	0701-2113-02	2R171	Resistor	SMD 11KΩ 1/8W ±5% 0805
1	0701-2123-02	2R35	Resistor	SMD 12KΩ 1/8W ±5% 0805
2	0701-2203-04	2R104 2R175	Resistor	SMD 20KΩ 1/8W ±5% 0805

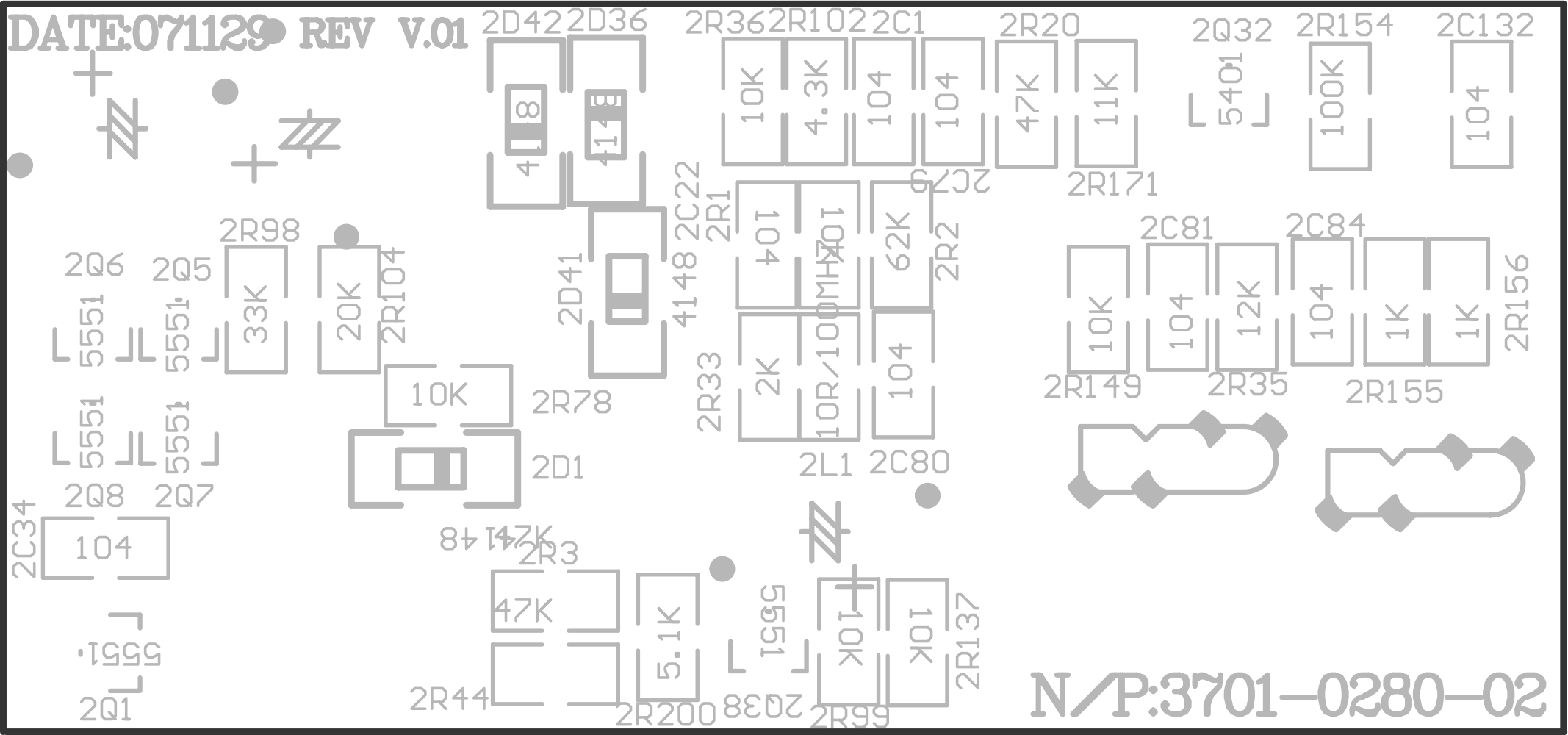
Qty	Part Number	Reference Designator	Description	
PWM PCB				
1	0701-2333-02	2R98	Resistor	SMD 33KΩ 1/8W ±5% 0805
7	0701-2473-02	2R99 2R94 2R19 2R20 2R44 2R97 2R145	Resistor	SMD 47KΩ 1/8W ±5% 0805
1	0701-2623-02	2R2	Resistor	SMD 62KΩ 1/8W ±5% 0805
1	0701-2753-02	2R103	Resistor	SMD 75K ±5% 1/8W 0805
1	0701-2104-02	2R154	Resistor	SMD 100KΩ 1/8W ±5% 0805
<i>Capacitors</i>				
1	06S121026000	2C143	Capacitor	SMD 1000pF/50V 0805 X7R ±10%
12	06S121047000	2C1 2C22 2C34 2C79 2C80 2C81 2C82 2C84 2C89 2C117 2C132 2C151	Capacitor	SMD 104/100V 0805 X7R ±10%
2	06D212264103	2C87 2C88	E-cap	220uF/25V ±20% 8*12 105°C Black, 5MM
1	06D211074100	2C2	E-cap	100uF/25V ±20% 6.3*11 105°C Black, 5MM
<i>Semiconductors</i>				
2	03P1-1023-01	2Q19 2Q20	Transistor	A1023 TO-92 PNP
1	03P1-B649-07	2Q17	Transistor	2SB649A 1.5A 180V 20W PNP TO-126
15	04PT-4148-01	2D1 2D2 2D36 2D40 2D41 2D42 2D43 2D45 2D46 2D47 2D5 2D15 2D18 2D19 2D37	Diode	SMD 1N4148 DO-213AA
12	03N1-5551-04	2Q1 2Q2 2Q3 2Q4 2Q5 2Q6 2Q7 2Q8 2Q33 2Q37 2Q38 2Q39	Transistor	SMD MMBT5551LT1 NPN SOT-23
1	03P1-5401-04	2Q32	Transistor	SMD MMBT5401LT1 PNP SOT-23
1	01TI-L494-09	2U18	PWM IC	SMD TL494C SO-16
<i>Miscellaneous</i>				
2	1506-0805-00	2CN1	Pin	8PIN*2, Bending 90°C, 2.5MM
1	1003-1010-08	2L1	Inductor	SMD 100MH 100MHZ 4A
LED PCB				
8	0701-3102-02	R1 R2 R3 R4 R5 R6 R7 R8	Resistor	SMD 1KΩ 1/4W ±5% 1206
2	2100-0067-02		FFC	2PIN UL1007 AWG26 L=70mm ends with tin 5mm, durable by 105°C
1	2100-0068-02		FFC	2PIN UL1007 AWG26 L=210mm one end with 2.54 terminal, one end with tin 5mm, durable by 105°C
8	2005-0009-00	LED1 LED2 LED3 LED4 LED5 LED6 LED7 LED8	Indicator	DIP LED 2*3*4mm
1	06S121046000	C1	SMD cap	SMD 0.1uF/50V 0805 X7R ±10%
MISCELLANEOUS/MECHANICAL				
1	SR-0752-0324		Heatsink	261.0*51.4*440.5MM Extrusion Alum. With Brushed metal surface
2	PL-A0048-000		Light bar	203.4*10.5*6.5MM light grey PC
1	GD-500012400		Reflector board	57.4*38.0*5.8MM Light grey PC
1	ZS-D00010112		Logo house	110.0*49.80*9.0MM Alum. With chromeplating
2	ZS-A00010104		Side panel	470.0*51.94MM Alum. With chromeplating
1	MK-0112-0507		Front plate	240.6*50.3*1.2MM 1.2MM Black with silkscreen
1	HG-0033-0507		Rear plate	240.6*50.3*1.2MM 1.2MM Black with silkscreen
4	LS1JM0300401		Screw, BM3*4Black zinc plating	Screw the temperature switch to heatsink
4	LS1JM0300501		Screw, BM3*5Black zinc plating	For side LED board
4	LS1FP0300011		Screw, KT3*6Black zinc plating	For light bar
4	LS1JM0401011		Screw, BM4*10Black zinc plating	For side panel
11	LS1JT0300801		Screw, BT3*8Black zinc plating	For front/rear plate and connector
4	LS1JT0300601		Screw, BT3*6Black zinc plating	For bottom plate

Qty	Part Number	Reference Designator	Description	
MISCELLANEOUS/MECHANICAL				
16	LS1JM0401401		Screw, BM4*14Black zinc plating	For power transistor
4	LS1JT0301201		Screw, BT3*12Black zinc plating	For PCB board
1	LS1JT0301001		Screw, BT3*10Black zinc plating	For RCA terminal
4	ZL-10038A-15		Standoff	φ4.9*φ7.2*7.0mm Nylon 66
5	DQ8069032084		Washer	Φ6.9*Φ3.2*0.8MM M3, For Logo house PCB board
1	JY264A22A01X		MICA	64*22*0.1MM Φ4.5MM 16.5MM 7MM
1	PL-E0011-150		Light diffusion paper	64.0*41.0*0.1MM two sides with glud
1	XG-0033-0501		Bottom plate	234.0*439.2*1.2MM 1.2MM black painting
1	JY247A22A01X		MICA	47*22*0.1MM Φ4.5mm 16.5mm 7mm
4	LS1AA0404501		Screw	PA4*45 black Zinc plating
1	MP-O752-3001		Logo plate	43.73*35.94*2.0MM Alum. Plate with stamped JBL logo, brushed mental surface on the plate, diamond cut on JBL logo. With one side glue. Durable by 95 ~ -35 °C
2	GD-600030003		Reflector board 1	175.0*6.0*2.0MM PC Clear silkscreen
1	GD-600040003		Reflector board 2	64.0*41.0*2.0MM PC Clear silkscreen
16	JY217A12A10A		Pottery	17*12*1.0mm White
2	LS1FJ0200801		Screw	KA2*8 black Zinc
2	LS1CA0301501		Screw	TA3*15 black Zinc
1	LS1AM0300601		Screw	PM3*6 SWC black Zinc, temperature switch
4	XN-10500-012		Knob, Controls	ABS-757 black Φ10.5*9MM with white arrow
4	JY442A24A05X		Insulated paper	φ42.0*φ24.0*0.5MM red one sided glued,inductor
1	24T1-012800B	J2	Jumper	128.00*21.00*1.50MM, yellow copper
3	PL-G0003-000	J3 J4 J5	HA604 Jumper	95*20.7*1.5mm T=1.5mm
2	PL-E0017-150		Light diffusion paper	175.0*6.5*0.1 ends with 3m
1	JY432A13A10X		Insulated paper	32.0*13.0*1.0 red with one sided glued,For E-cap
1	JY440A20A05X		Insulated paper	40.0*20.0*0.5 red with one sided 3M, For E-cap
2	PL-A0051-000		Transistor Clamp	14.0*7.0*30.0 with red isulated paper (30.0*10.0*1.0)
4	PL-A0054-000		Transistor Clamp	14.0*7.0*64.0 with red isulated paper (64.0*10.0*1.0)
1	PL-A0055-000		Transistor Clamp	14.0*7.0*45.0 with red isulated paper (45.0*10.0*1.0)
4	LS1CM0300501		Insulated paper	TM3*5 black Zinc

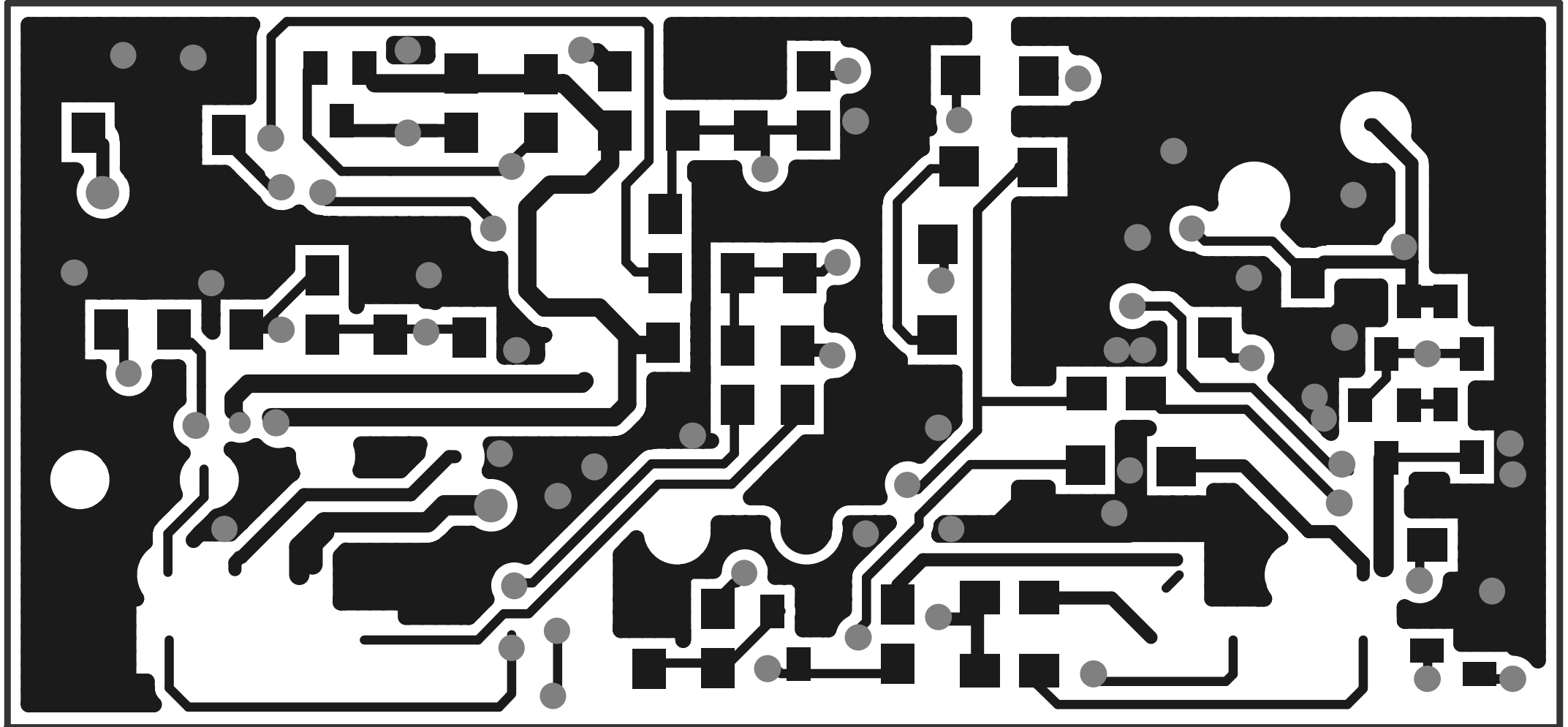


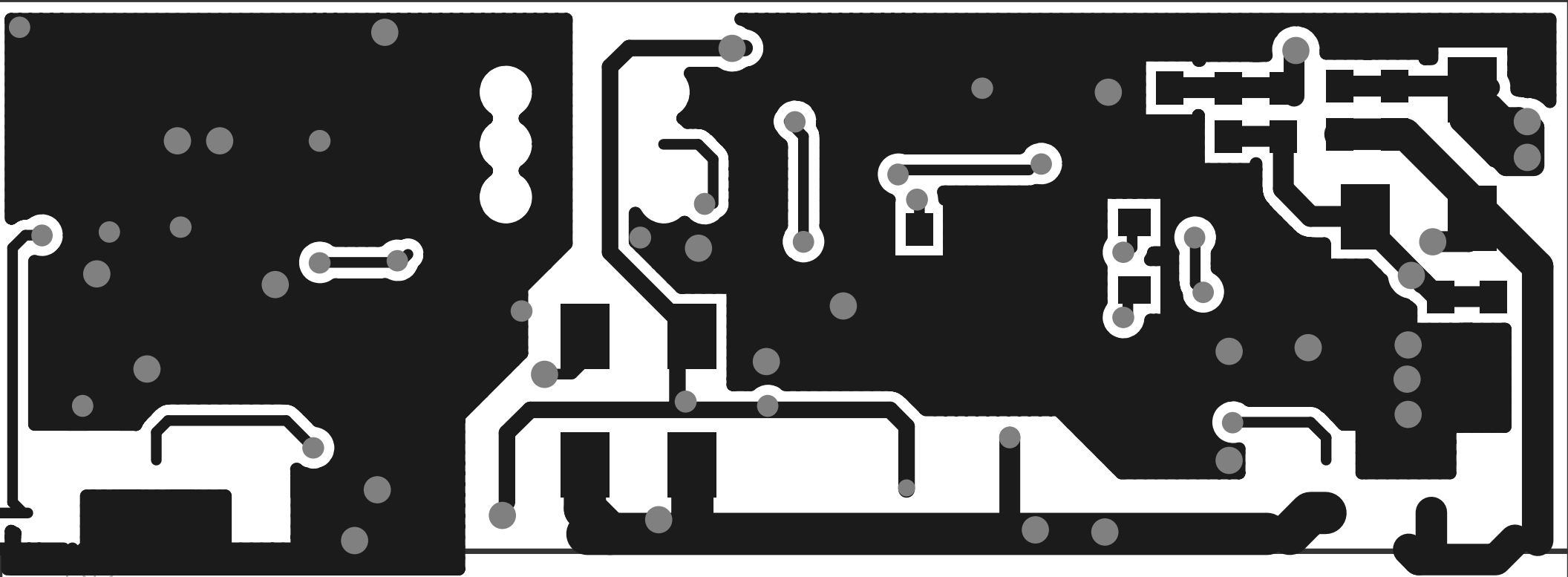


DATE: 071129 REV V.01

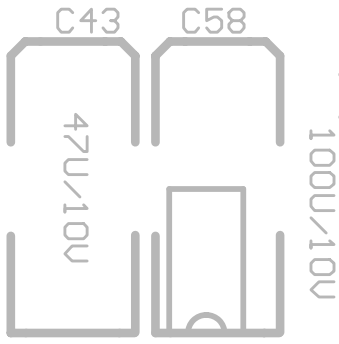
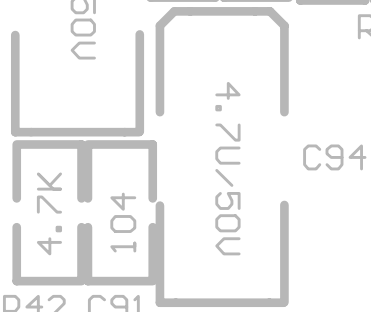


N/P: 3701-0280-02





C93 C92 R113 R118 C63



PROCESSOR

N/P:3700-0215-02

DATE:071101 REV V.0

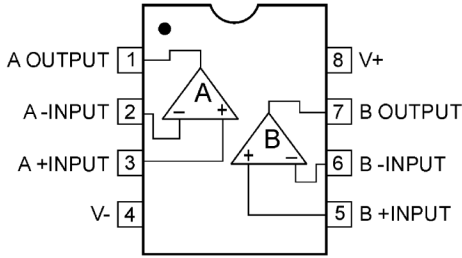
GTO14001



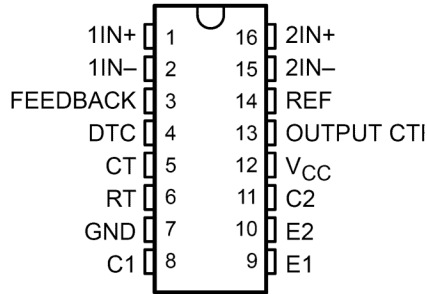
Semiconductor Pinouts

Dual Op-amp

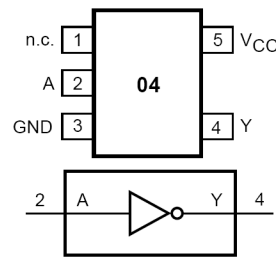
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TL072 U6



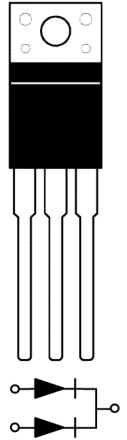
TL494 PWM
2U18



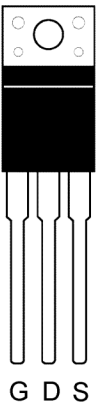
74AHC1G04
U16



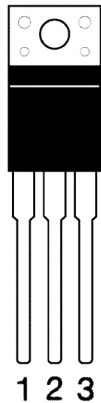
UF1620CT
Rectifier
D26,27



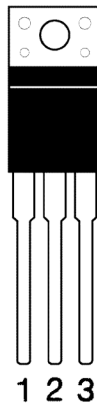
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Q23-30
IRF3205
Q11-16,Q18,21



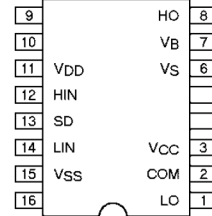
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+12 REG
U7,8



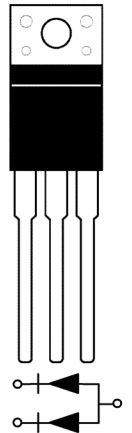
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-12 REG
U9



IR2010S
U10



MUR1620CT
Rectifier
D48,49

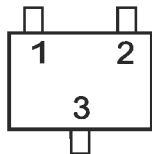


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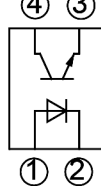
BT2222 Q22
MMBT5401 Q30,2Q32
MMBT5551 Q9,10
2Q1-2Q8,2Q33,2Q37-2Q39

1) Emitter
2) Base
3) Collector

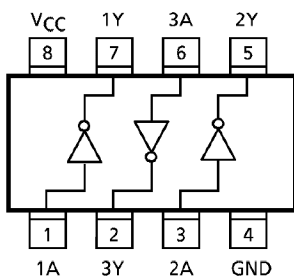


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LCR1

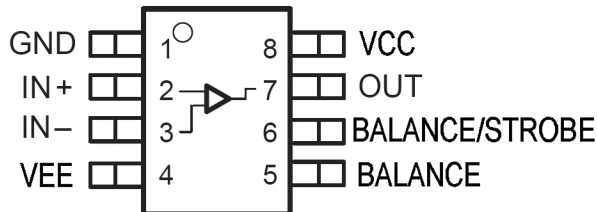
① Anode
② Cathode
③ Emitter
④ Collector



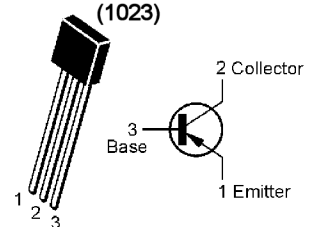
TC7WH04F
U9



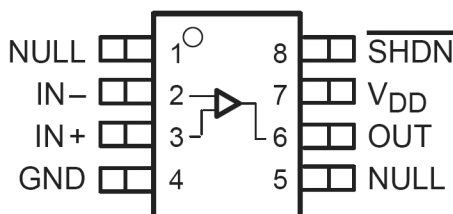
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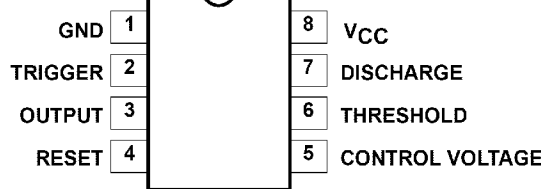
KTA1023
2Q19,2Q20
(1023)



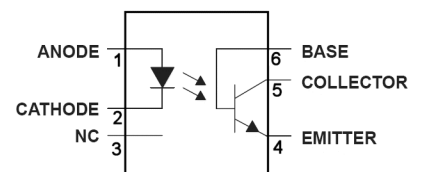
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U8

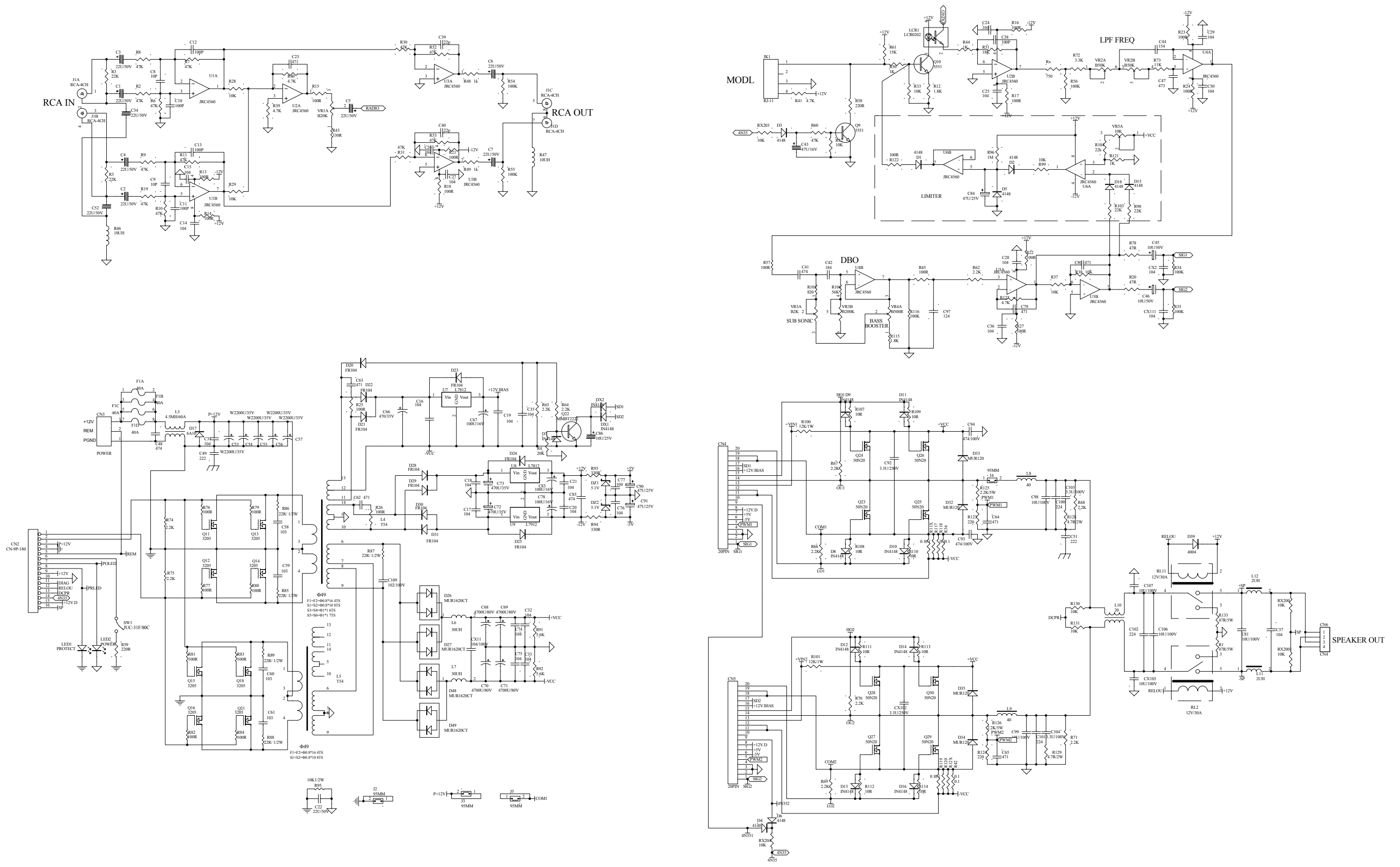


LM555 U7



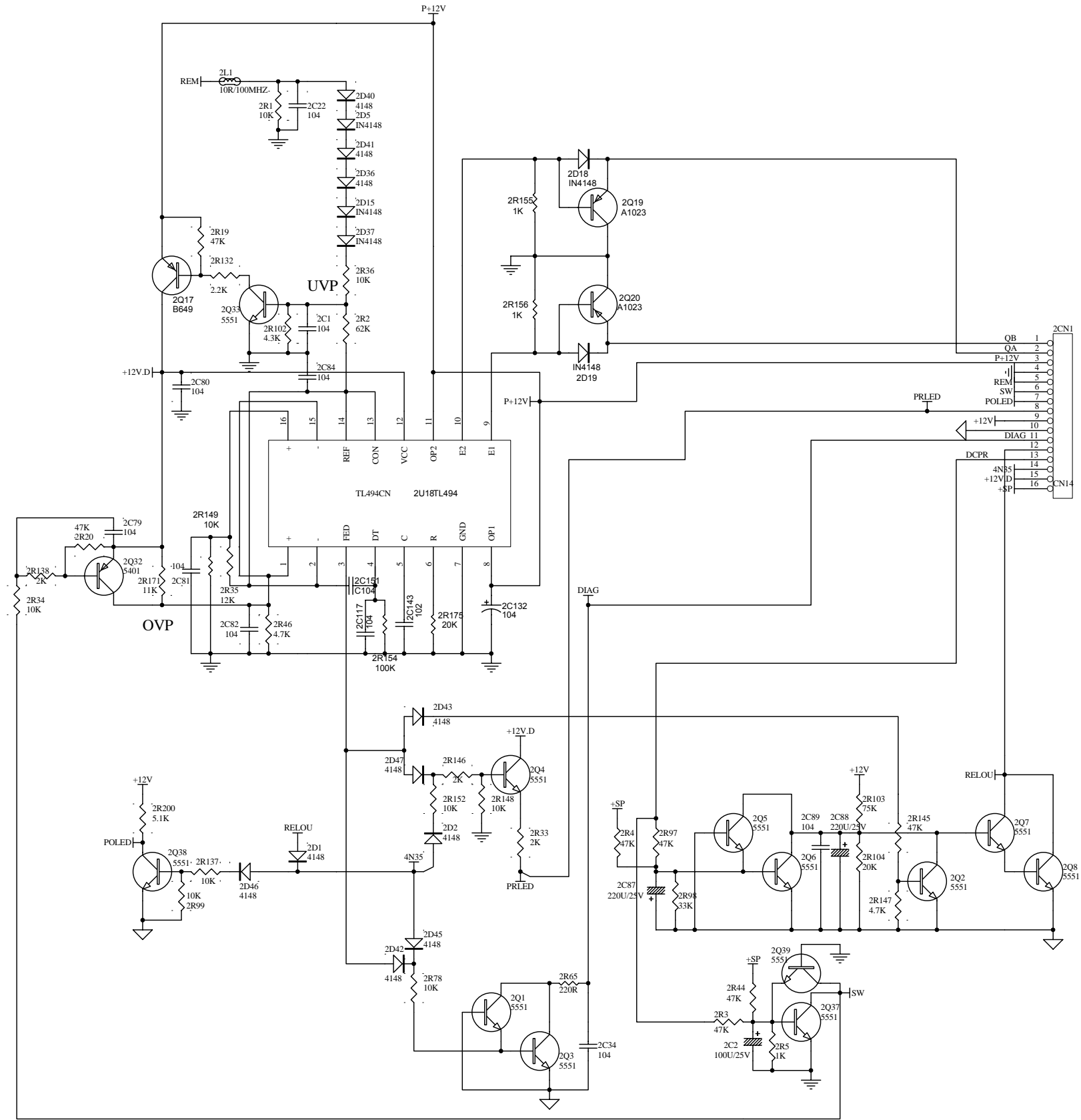
4N35
U17





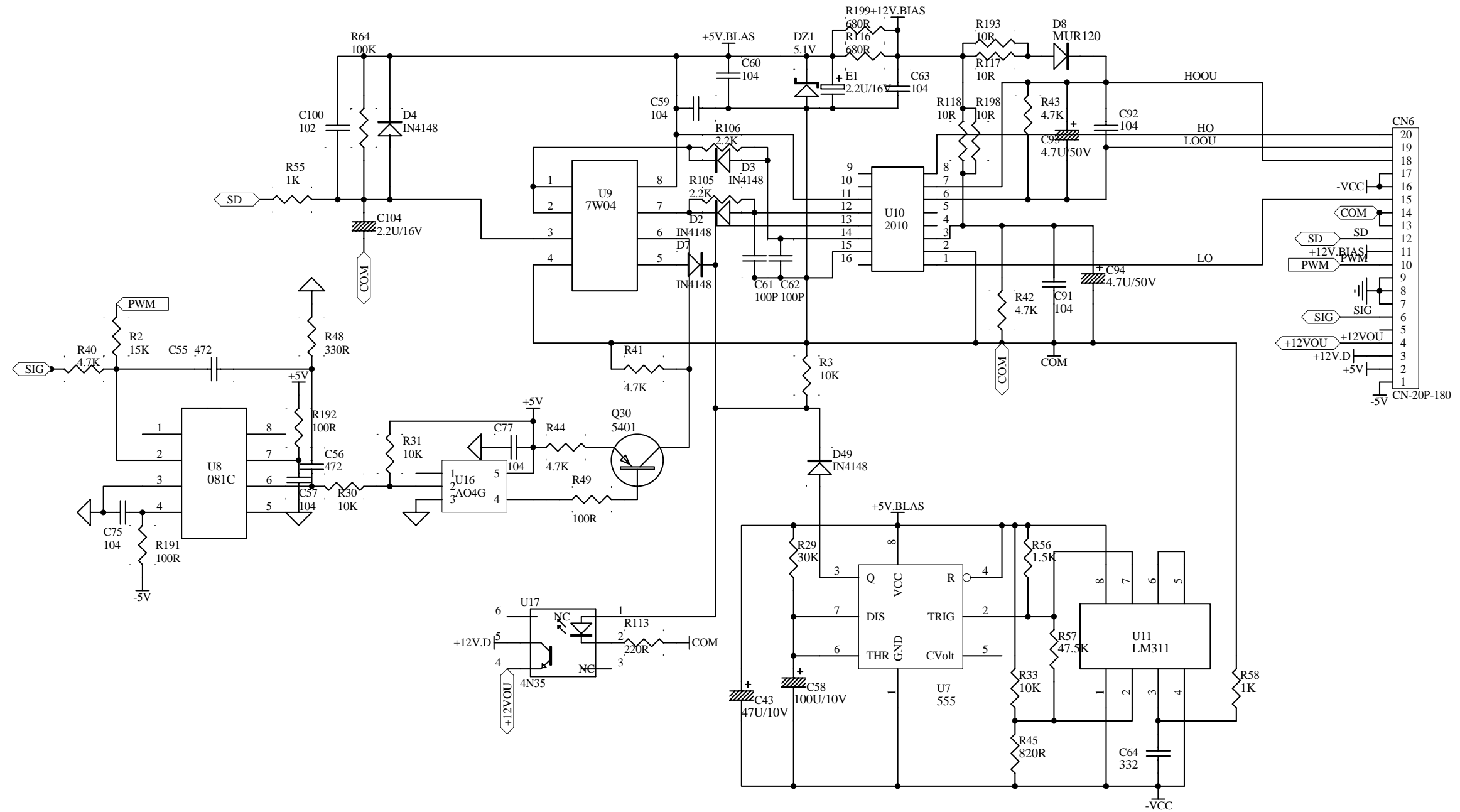
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				UNIT: MM
				CHECKED BY:
				PRODUCT CODE:
				SIZE: A3
				REV: 1.0
				APPROVED BY:
				DATA

GTO14001



ECN NO	DESCRIPTION	APPROVED	DATA	DW GNO:			
				PART NO:			
				PART NAME:	SCALE: 1:1	DRAWN BY:	DATA:
				POWER	UNIT: MM	CHECKED BY:	DATA:
				PRODUCT MODE:	SIZE: A4	APPROVED BY:	DATA:
				SYSTEM ONE	REV: 2.0		

NOTE THERE ARE TWO IDENTICAL CONTROL PCB'S IN THE GTO14001



ECN NO	DESCRIPTION	APPROVED	DATA



SCALE: 1:1
 UNIT: MM
 SIZE: A4
 REV: 1.0

DRAWN BY:
 CHECKED BY:
 APPROVED BY:

DWG NO:
 PART NO:
 DATA:
 DATA:
 DATA:

GTO14001