



# ***EHAOS*** AMPLIFIERS **Service Manual**

**MODEL: CH450**

## **SPECIFICATIONS**

Maximum power output (2 Ohms): 300W x 2ch

RMS power Output: 110W x 2ch

Bridged Power Output: 600W x 1ch

Frequency response: 9 - 50KHz

Harmonic distortion: 0.01%

S/N Ratio: 130dB

Power Source Voltage: 14.4V

Ground: Negative

Power consumption: 25A(with 110Wx2 rated output)

External dimensions: 300(W)x65(H)x235(D)mm

# To engineers in charge of repair or inspection of our products.

Before repair or inspection, make sure to follow the instructions so that customers and Engineers in charge of repair or inspection can avoid suffering any risk or injury.

## 1. Use specified parts.

The system uses parts with special safety features against fire and voltage. Use only parts with equivalent characteristics when replacing them. The use of unspecified parts shall be regarded as remodeling for which we shall not be liable. The onus of product liability (PL) shall not be our responsibility in cases where an accident or failure is as a result of unspecified parts being used.

2. Place the parts and wiring back in their original positions after replacement or re-wiring. For proper circuit construction, use of insulation tubes, bonding, gaps to PCB, etc, is involved. The wiring connection and routing to the PWB are specially planned using clamps to keep away from heated and high voltage parts. Ensure that they are placed back in their original positions after repair or inspection. If extended damage is caused due to negligence during repair, the legal responsibility shall be with the repairing company.

3. Check for safety after repair. Check that the screws, parts and wires are put back securely in their original position after repair. Ensure for safety reasons there is no possibility of secondary problems around the repaired spots. If extended damage is caused due to negligence of repair, the legal responsibility shall be with the repairing company.

4. Caution in removal and making wiring connection to the parts for the automobile. Disconnect the battery terminal after turning the ignition key off. If wrong wiring connections are made with the battery connected, a short circuit and/or fire may occur. If extensive damage is caused due to negligence of repair, the legal responsibility shall be with the repairing company.

## 5. Cautions regarding chips.

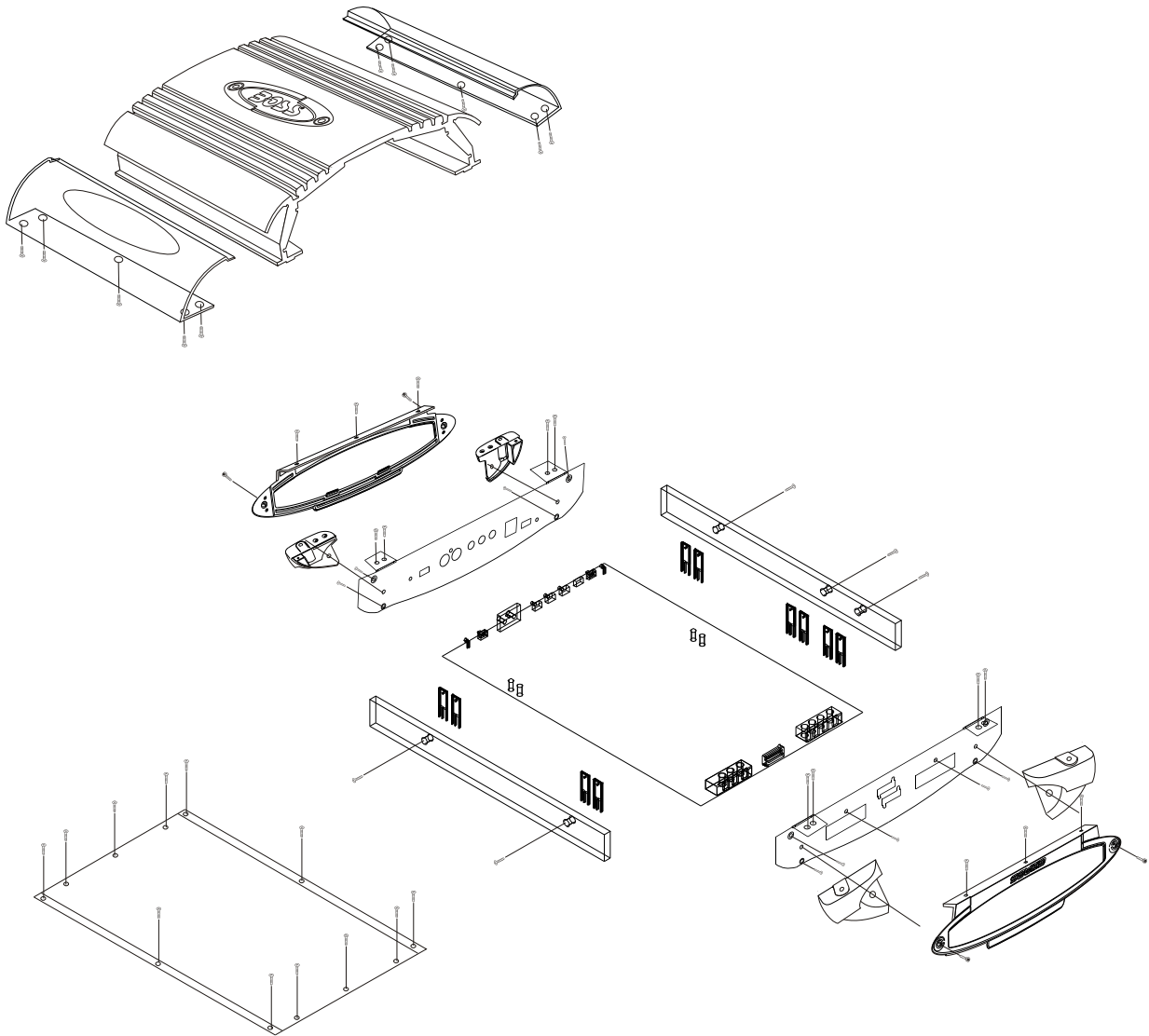
Do not reuse removed chips even when no abnormality is observed in their appearance. Always replace them with new ones. (The chip parts include resistors, capacitors, diodes, transistors, etc). The negative pole of tantalum capacitors is highly susceptible to heat, so use special care when replacing them and check the operation afterwards.

## 6. Cautions in handling flexible PCB

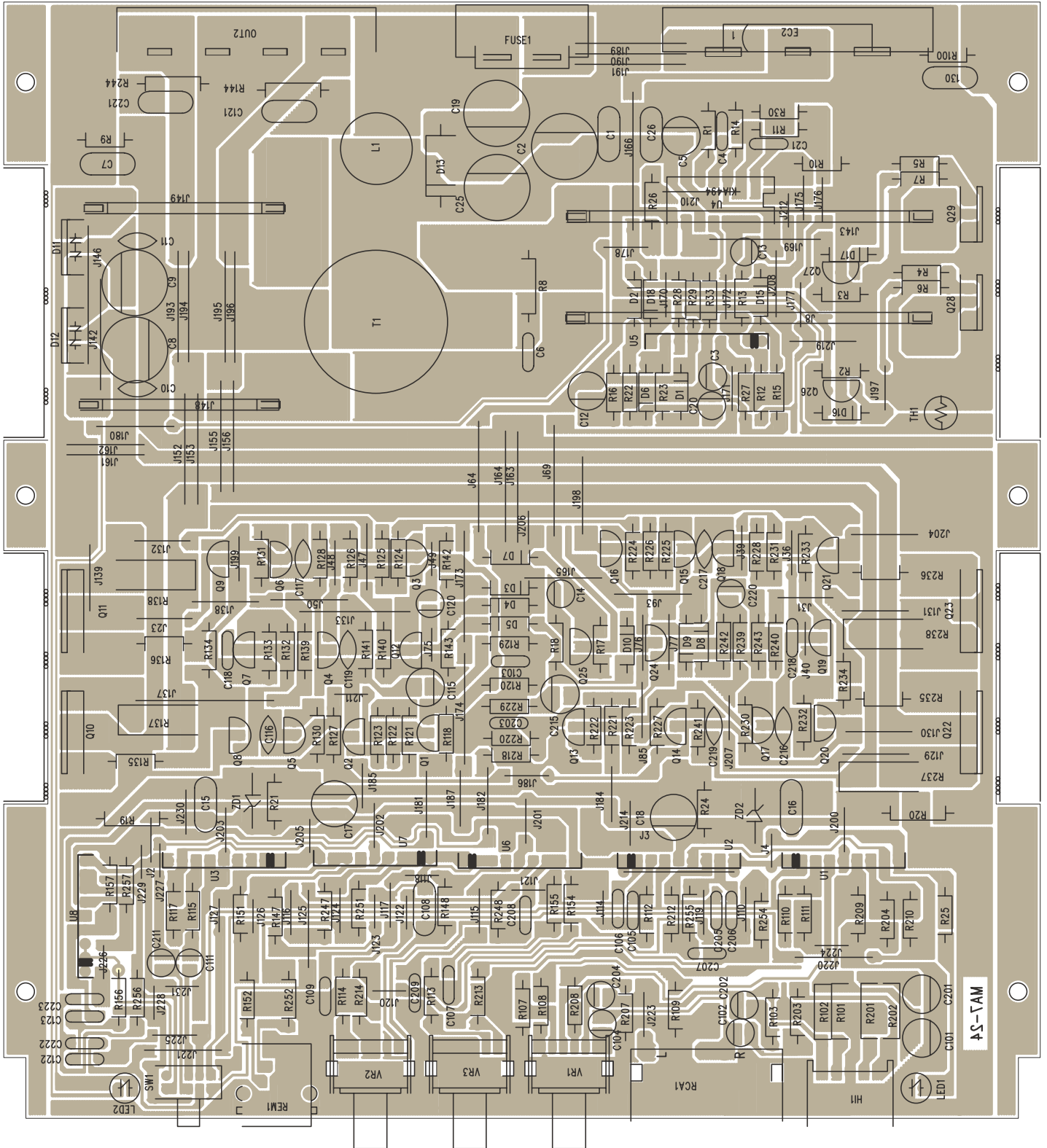
Before working with a soldering iron, make sure that the iron tip temperature is around 270... Take care not to apply the iron tip repeatedly (more than three times) to the same patterns. Also take care not to apply the tip with force.

7. Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

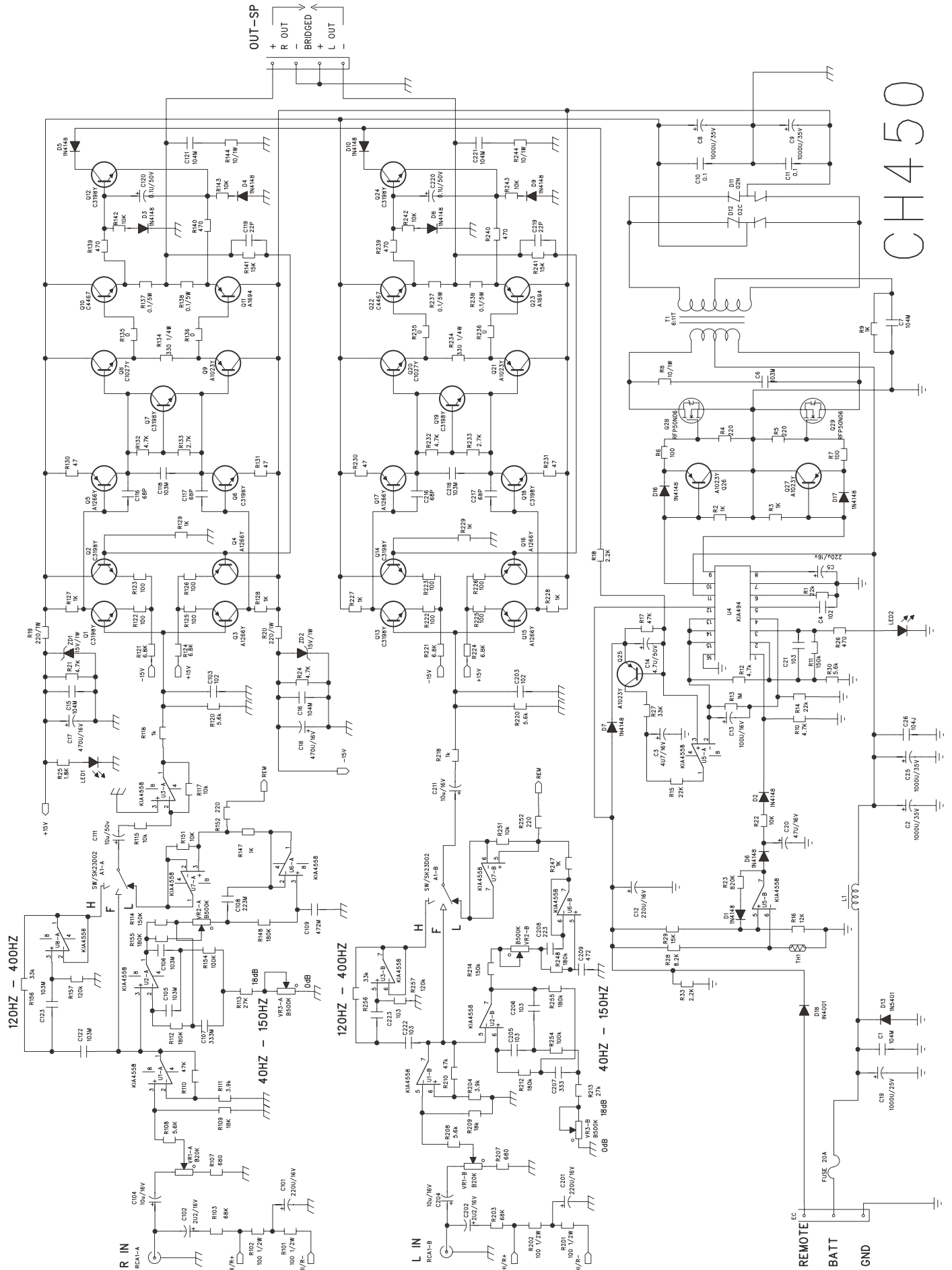
# EXPLODED VEIW



# PRINTED CIRCUIT BOARD



# CIRCUIT DIAGRAM



# PARTS LIST - 1

code	desc	remark	qty_need
CR-2000-X1-VOS14	RCA Jack		1
CT-SOCKET0-4MA17	Speaker Terminal		1
CT-SOCKET1-3MA17	Power Terminal		1
CW-50000X0-H0025	High Input Jack		1
EC-C4104X0-Z6769	C Cap 0.1(Z)	C10,11	2
EC-C4220X0-D5050	C Cap 22PF(D)	C119,219	2
EC-C4680X0-J5050	C Cap 68PF(J)	C116,117,216,217	4
EC-E2107X0-M50A1	E cap 100UF/16	C13	1
EC-E2227X0-M63A1	E cap 220UF/16	C5,12,101,115,201,215	6
EC-E2476X0-M50A1	E cap 47UF/16V	C20	1
EC-E2477X0-MA0A3	E cap 470UF/16	C17,18	2
EC-E3108X0-MA0A7	E cap 1000/25V	C19	1
EC-E4104X0-M50A1	E cap 0.1UF/50	C120,220,	2
EC-E4106X0-M50A1	E cap 10UF/50V	C104,111,204,211	4
EC-E4225X0-M50A1	E cap 2.2UF/50	C102,202	2
EC-E4475X0-M50A1	E cap 4.7UF/50	C3,14	2
EC-E6108X0-MA3B5	E cap 1000/35V	C2,8,9,25	4
EC-M5102X0-J5590	Mylar cap 0.001	C4,103,203	3
EC-M5103X0-J5590	Mylar cap 0.01	C6,21,105,106,118,122,123,205,206,218,222,223	12
EC-M5104X0-JA0A3	Mylar cap 0.1	C1,7,15,16,26,121,130,221	8
EC-M5223X0-J66A3	Mylar cap 0.022	C108,208	2
EC-M5333X0-J82A1	Mylar cap 0.033	C107,207	2
EC-M5472X0-J5090	Mylar cap 0.0047	C109,209	2
ED-R2502C0-H0000	Diode ESAC25-02C	D12	1
ED-R2502N0-H0000	Diode ESAC25-02N	D11	1
ED-R4001X0-H0000	Diode IN-4001	D18	1
ED-R5401X0-H0000	Diode IN-5401	D13	1
ED-Z15VXX0-H4744	ZENER IN4744	ZD1,2	2
EE-C23X5X0-10302	LED Red 3MM	LED2	1
EE-C53X5X0-10302	LED Green 3MM	LED1	1
EO-IX000X0-HB9XX	Transformer	T1	1
EO-VMA924X-V8025	coil	L1	1
ER-CS001X0-VE010	SLR0.1Ω 5W J	R137,138,237,238	4
ER-HG153X0-HXXXX	THERMISTOR 150K	TH1	1
ER-OG100X0-HA04C	Resistor 10Ω 1W	R8,144,244,	3
ER-OG101X0-H5039	Resistor 100Ω 1/2W	R101,102,201,202,	4

## PARTS LIST - 2

ER-OG221X0-HA04C	Resistor 220Ω 1W	R19,20	2
ES-S23D29X-V0098	Switch SK23D39	SW1	1
ET-C1023X0-PY000	Transistor KTA1023-Y	Q9,21,25~27	5
ET-C1027X0-NY000	Transistor KTC1027-Y	Q8,20	2
ET-C1266X0-PY000	Transistor A1266Y	Q3~5,15~17	6
ET-C3198K0-NY000	Transistor KTC3198-Y	Q1,2,6,7,12~14,18,19,24	10
ET-CB688X0-P0000	Transistor KTB688-O	Q11,23	2
ET-CD718X0-N0000	Transistor KTD718-O	Q10,22	2
ET-FFZ44X0-X0000	Mosfet IRFZ 44N	Q28,29	2
II-4558SX0-V0009	IC KA4558S	U1~3,5~8	7
II-DBL494X-H0016	IC S-494P	U4	1
VR-BN203X0-V0A06	VR 20KB T10	VR1	1
VR-BN504X0-V0A06	VR 500KB T10	VR3,4	2
ER-OG101X0-H5039	Resistor 100Ω 1/2W	R101,102,201,202,	4
ER-OG100X0-HA04C	Resistor 10Ω 1W	R8,144,244,	3
ER-OG102X0-H2526	Resistor 1K 1/4W	R2,3,9,118,127~129,147,218,227~229,247	13
ER-OG221X0-H2526	Resistor 220Ω 1/4W	R4,5,152,252	4
ER-OG221X0-HA04C	Resistor 220Ω 1W	R19,20	2
ER-OG331X0-H2526	Resistor 330Ω 1/4W	R134,234	2
ER-OG471X0-H2526	Resistor 470Ω 1/4W	R26,139,140,239,240	5
ER-OG182X0-H2526	Resistor 1.8K 1/4W	R25	1
ER-OG101X0-H2526	Resistor 100Ω 1/4W	R6,7,122,123,125,126,222,223,225,226	10
ER-OG104X0-H2526	Resistor 100K 1/4W	R154,254,	2
ER-OG103X0-H2526	Resistor 10K 1/4W	R22,115,117,142,143,151,242,243,251	9
ER-OG154X0-H2526	Resistor 150K 1/4W	R11,114,214	3
ER-OG153X0-H2526	Resistor 15K 1/4W	R29,141,241	3
ER-OG183X0-H2526	Resistor 18K 1/4W	R109,209	2
ER-OG222X0-H2526	Resistor 2.2K 1/4W	R18,33	2
ER-OG272X0-H2526	Resistor 2.7K 1/4W	R133,233	2
ER-OG223X0-H2526	Resistor 22K 1/4W	R1,14,15	3
ER-OG333X0-H2526	Resistor 33K 1/4W	R27,156,256	3
ER-OG472X0-H2526	Resistor 4.7K 1/4W	R10,12,21,24,132,232	6
ER-OG470X0-H2526	Resistor 47Ω 1/4W	R130,131,230,231	4
ER-OG473X0-H2526	Resistor 47K 1/4W	R17,110,210	3
ER-OG562X0-H2526	Resistor 5.6K 1/4W	R30,108,208,120,220	5
ER-OG682X0-H2526	Resistor 6.8K 1/4W	R121,124,221,224	4
ER-OG683X0-H2526	Resistor 68K 1/4W	R103,203	2

## PARTS LIST - 3

ER-OG822X0-H2526	Resistor 8.2K 1/4W	R28	1
ER-OG824X0-H2526	Resistor 820K 1/4W	R23	1
ER-HG153X0-HXXXX	THERMISTOR 150K	TH1	1
ER-OG105X0-H2526	Resistor 1M 1/4W	R13	1
ER-CS001X0-VE0I0	SLR0.1Ω 5W J	R137,138,237,238	4
EW-CS12XX0-05AA0	Bare wire 12MM	J129,181,182,130,131,139,204,208,219	9
EW-CS10XX0-05AA0	Bare wire 10MM	J23,31,132,187,214	5
EW-CS08XX0-05AA0	Bare wire 8MM	J39,110,116,117,119,124,175~8,185,186,197,200~3,207,223,225	20
EW-CS06XX0-05AA0	Bare wire 6MM	J114,118,120,123,126,127,205,206,211~2,222,224,226~229	17
EW-CS20XX0-05AA0	Bare wire 20MM	J64,69,133,142,144,152,153,155,156,163,164,169, 173,174,189,190,191,193,195,196,	20
EW-CS25XX0-05AA0	Bare wire 25MM	J137,138,146,166	4
EW-CS14XX0-05AA0	Bare wire 14MM	J23,31,132,187,214,221	11
ER-OG273X0-H2526	Resistor 27K 1/4W	R113,213	2
ER-OG681X0-H2526	Resistor 680Ω 1/4W	R107,207	2
ER-OG184X0-H2526	Resistor 180KΩ 1/4W	R112,148,155,212,248,255	6
ER-OG000X0-H2526	Resistor 0Ω 1/4W	R135,136,235,236	4