





# SERVICE MANUAL

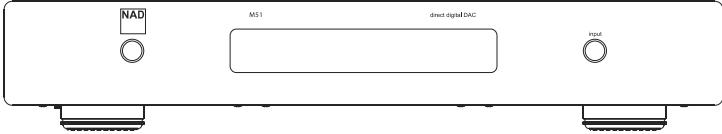
**M 51**  
Direct Digital DAC

# M 51

Direct Digital DAC

# SAFETY INFORMATION

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<p>Manufactured under license under U.S. Patent #'s: 5,451,942; 5,956,674; 5,974,380; 5,978,762; 6,226,616; 6,487,535; 7,003,467; 7,212,872 &amp; other U.S. and worldwide patents issued &amp; pending. DTS is a registered trademark &amp; the DTS logos and Symbol are trademarks of DTS, Inc. © 1996-2007 DTS, Inc. All Rights Reserved.</p>
<p>THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE. (2) THIS DEVICE MUST ACCEPT INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRABLE OPERATION.</p>
<p>NAD ELECTRONICS INTERNATIONAL 633 GRANITE COURT, PICKERING, ON, CANADA L1W 3K1</p> <p>MODEL M51 Direct Digital DAC</p> <p>POWER RATING 120-240V ~ 50/60Hz 2A</p> <p>DESIGNED &amp; ENGINEERED IN CANADA. CUSTOM MANUFACTURED TO NAD SPECIFICATIONS IN CHINA</p>
<p> <b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN </p> <p><b>WARNING: SHOCK HAZARD - DO NOT OPEN</b> <b>AVIS: RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR</b></p>



## SPECIFICATIONS

### OVERALL SPECIFICATIONS

Rated distortion (THD+N with AES 17 filter)	<0.0005% (ref. 1 kHz 0 dBFS)
	<0.002% (ref. 1 kHz -60 dBFS)
IM distortion	<0.0001%
Signal-to-noise ratio	< -123 dB (ref. 0 dBFS 2V out)
Channel separation	> -115 dB (ref. 0 dBFS Volume -1dB)
Sample rate	32 kHz to 192 kHz (USB and digital S/PDIF)
Frequency response	±0.5 dB (ref. 20 Hz – 96 kHz @ 192 KHz sample rate)
Output level	2V (ref. input 0dBFS)

### POWER CONSUMPTION

AC Supply	100-240V AC ~ 50/60Hz
Standby power	<0.5W
Idle power	16W

### INPUT/OUTPUT TERMINALS

#### INPUT

AES/EBU  
Coaxial  
Optical  
HDMI x 2  
USB Audio Class 2.0

#### OUTPUT

HDMI VIDEO OUT (pass through)	
Analog Unbalanced	47 ohms
Analog Balanced	110 ohms

### DIMENSION AND WEIGHT

Unit Dimensions (W x H x D)	435 x 78 x 296 mm (Gross)*
	17 <sup>1</sup> / <sub>8</sub> x 3 <sup>1</sup> / <sub>8</sub> x 11 <sup>1</sup> / <sub>16</sub> inches
Net Weight	5.8 kg (12.8 lbs)
Shipping Weight	9.8 kg (21.6 lbs)

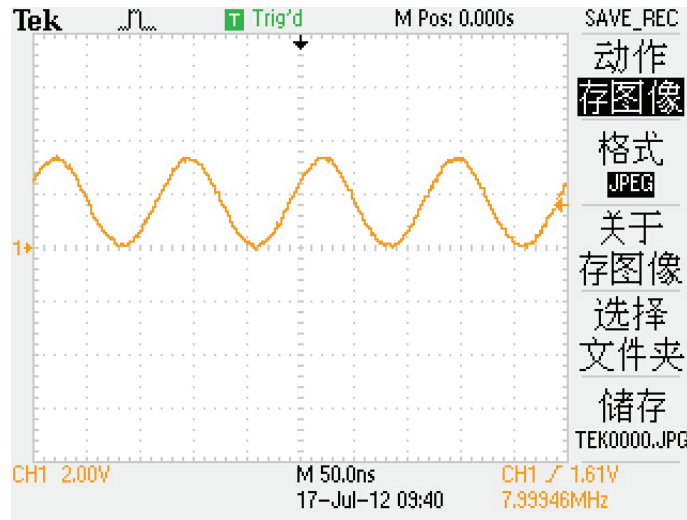
\* - Gross dimensions include feet, extended buttons and rear panel terminals.

Specifications are subject to change without notice.

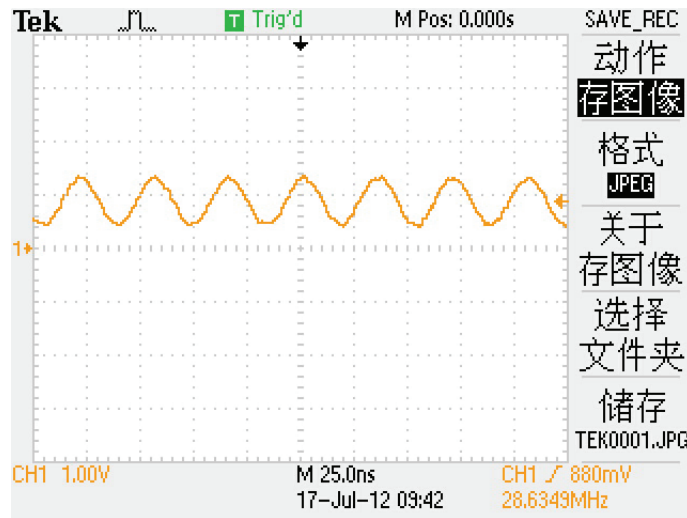
For updated documentation and features, please log onto [www.NADelectronics.com](http://www.NADelectronics.com) for the latest information about M51.

## DETAILS & WAVEFORMS ON SYSTEM TEST & DEBUGGING

MCU Y1003 8MHz

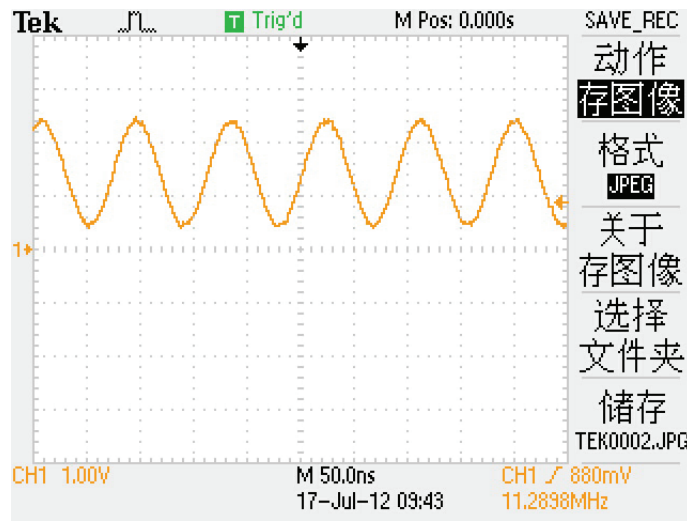


HDMI Y1002 28.6363MHz

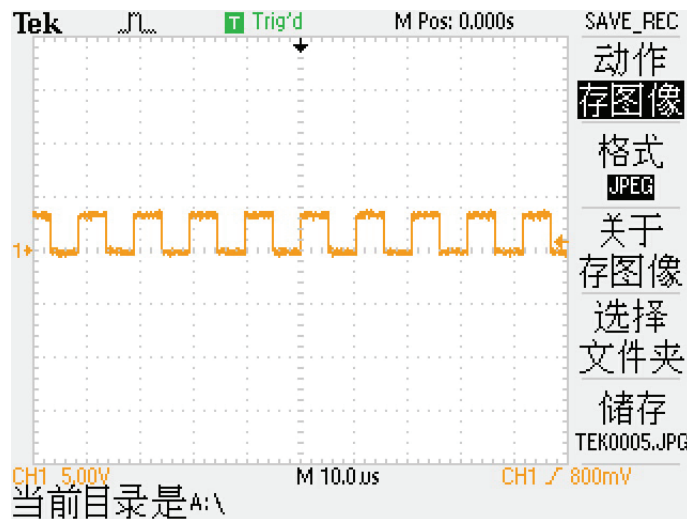


AK4118

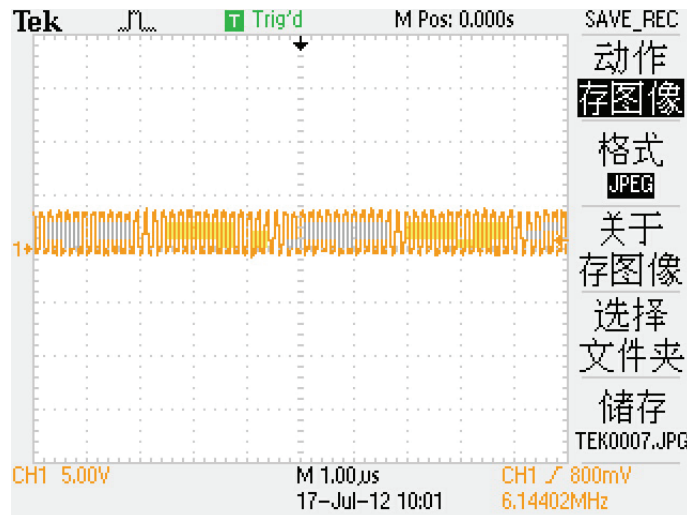
Y1001 11.2896MHz



LRCK 96K

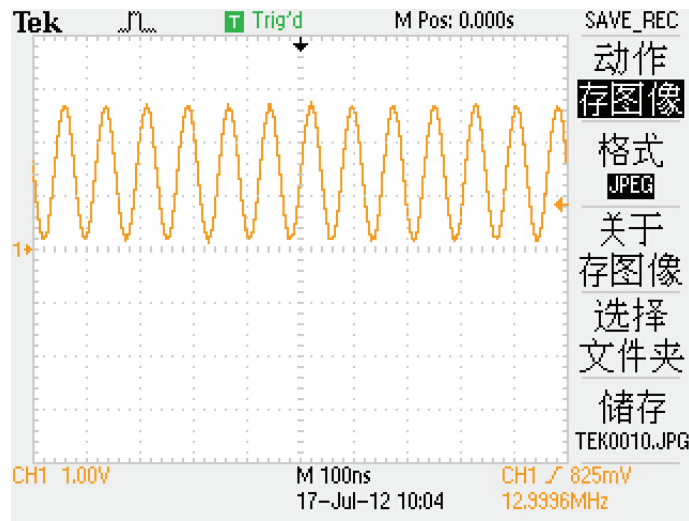


BCK

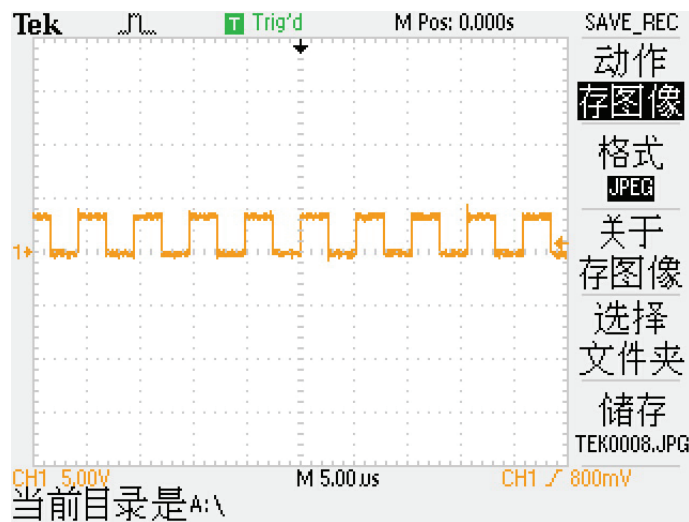


XS1-L02A

Y1000 13MHz

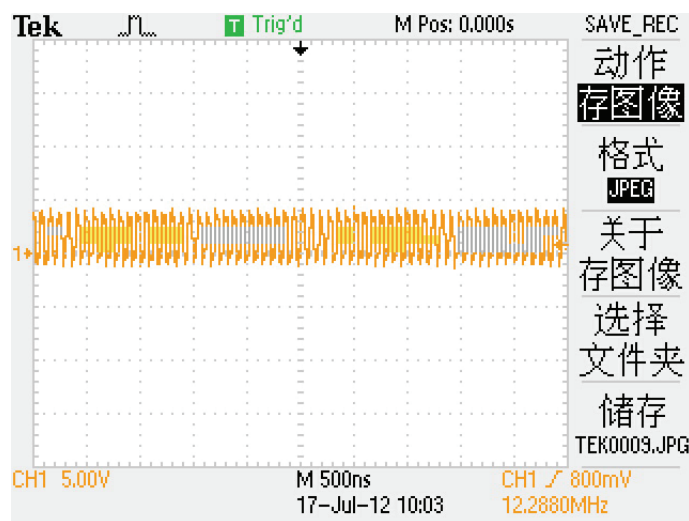


LRCK 192KHz

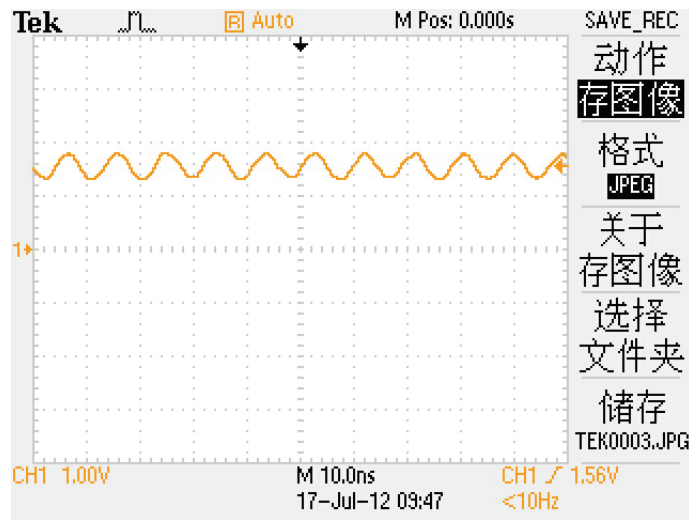


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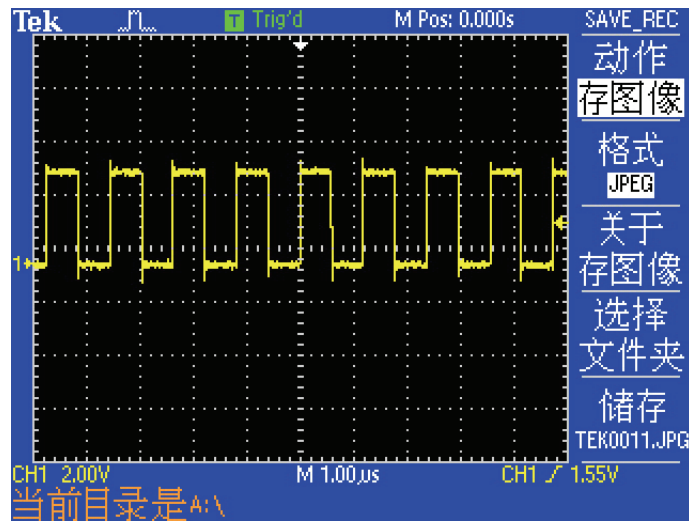
BCK 12.288MHz



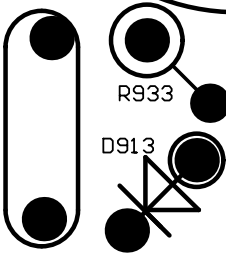
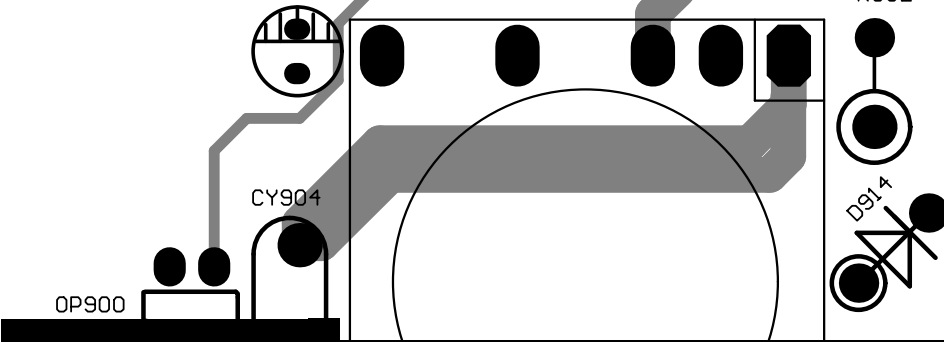
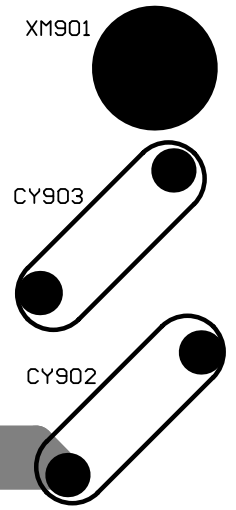
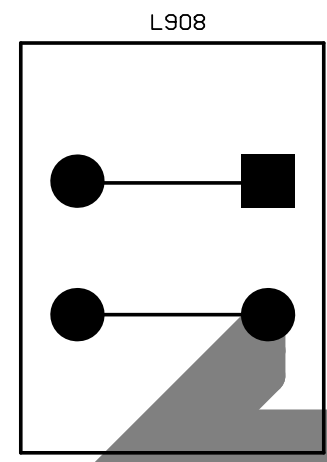
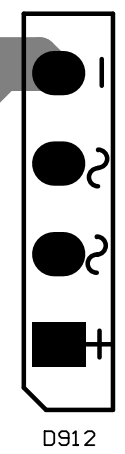
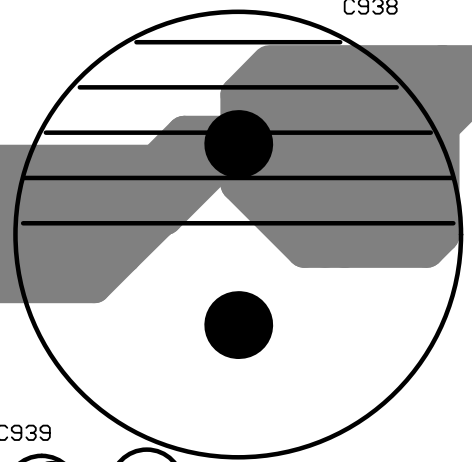
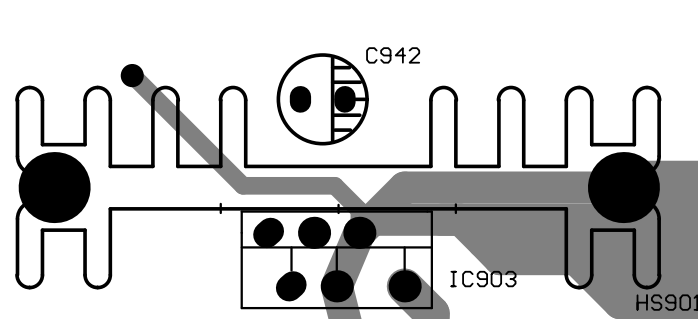
DDFA X1000 108MHz



R1151 844kHz



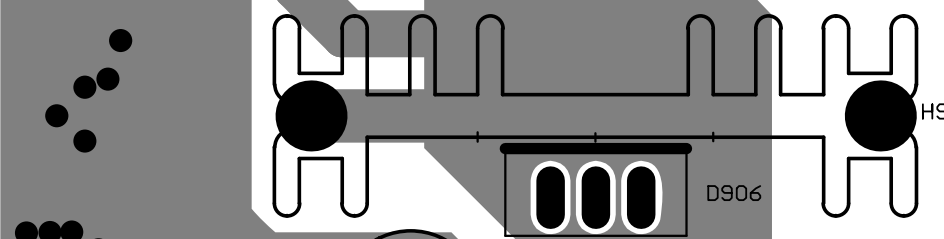
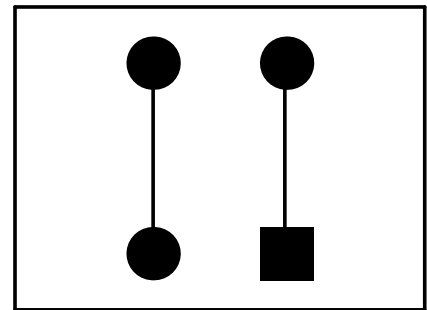
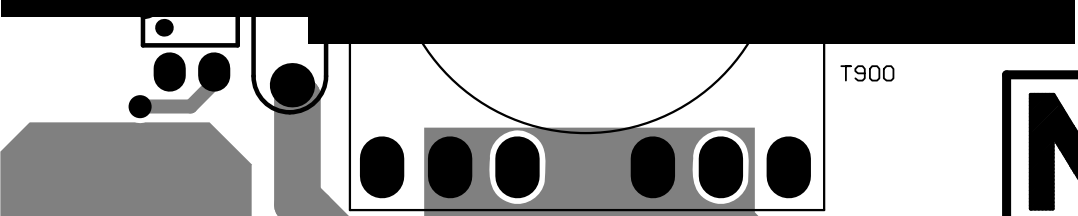
XM1903



**CAUTION:**  
FOR CONTINUED PROTECTION AGAINST  
RISK FOR CONTINUOF REPLACE ONLY  
WITH SAME TYPE FUSE !

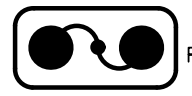
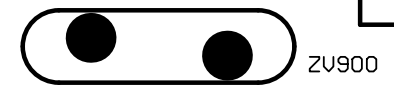
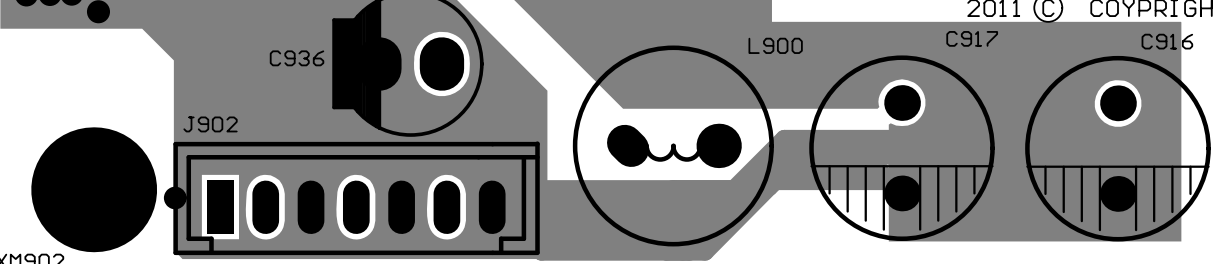
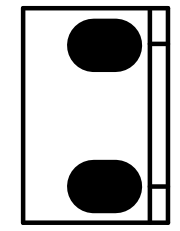
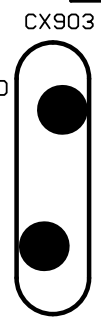
**ATTENTION:**

UTILISER UN FUSIBLE DE RECHANGE  
DE MEME TYPE ET CALIBRE !



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NAD M51 SMPS VM1.0



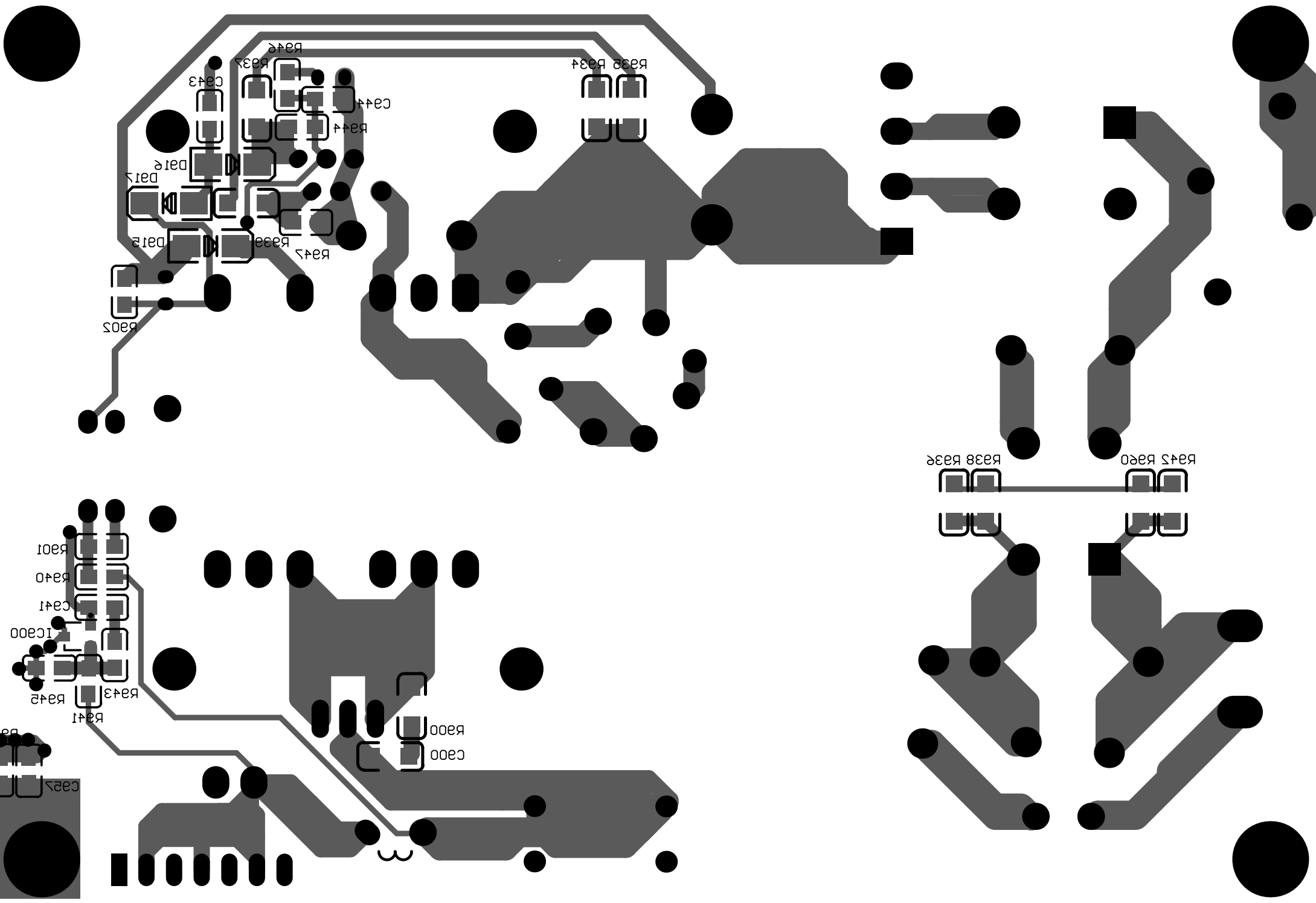
FUSE900  
T1.25AL 250V



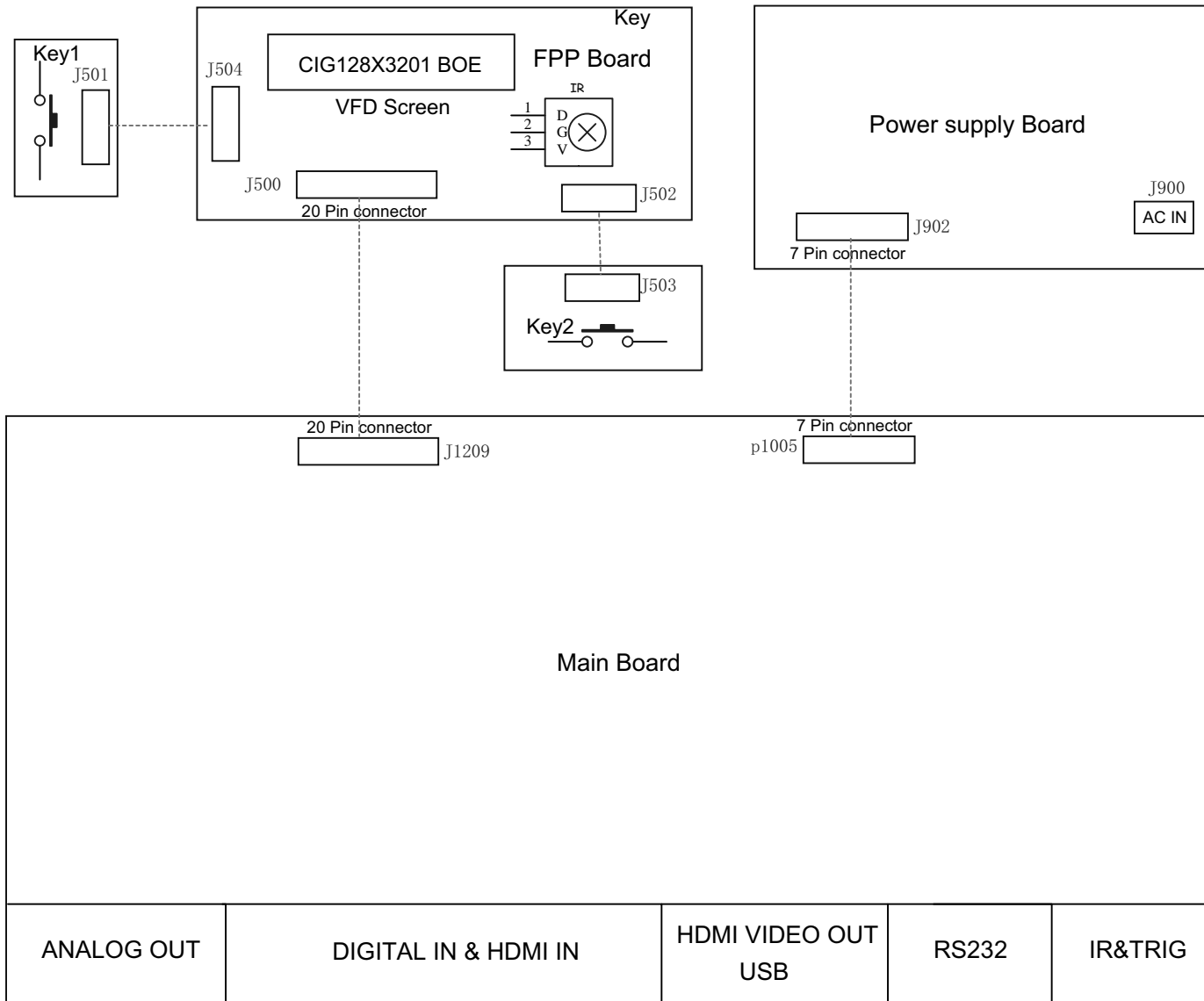
XM1902

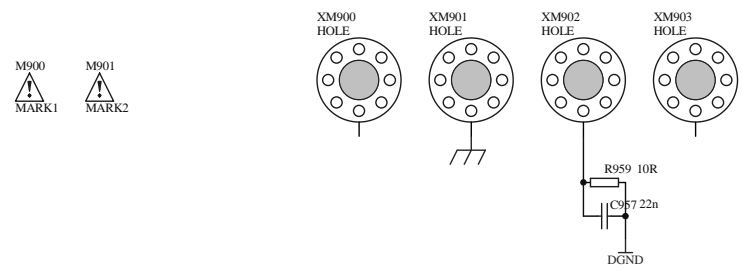
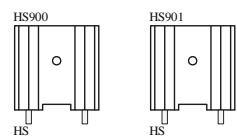
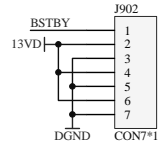
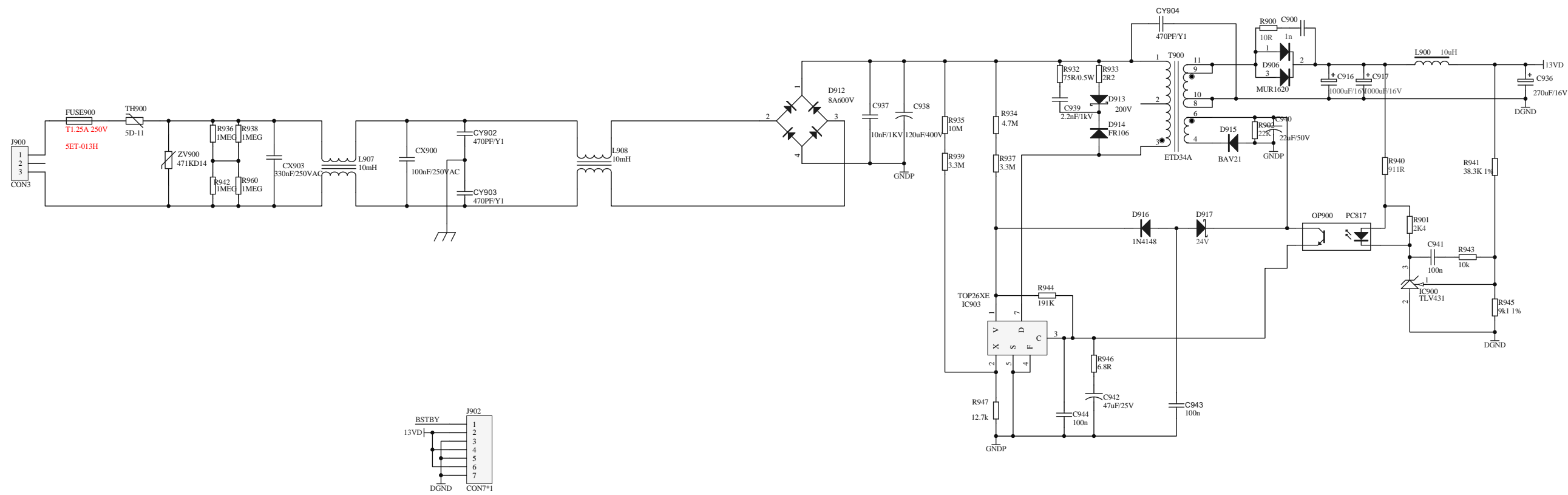
XM1900



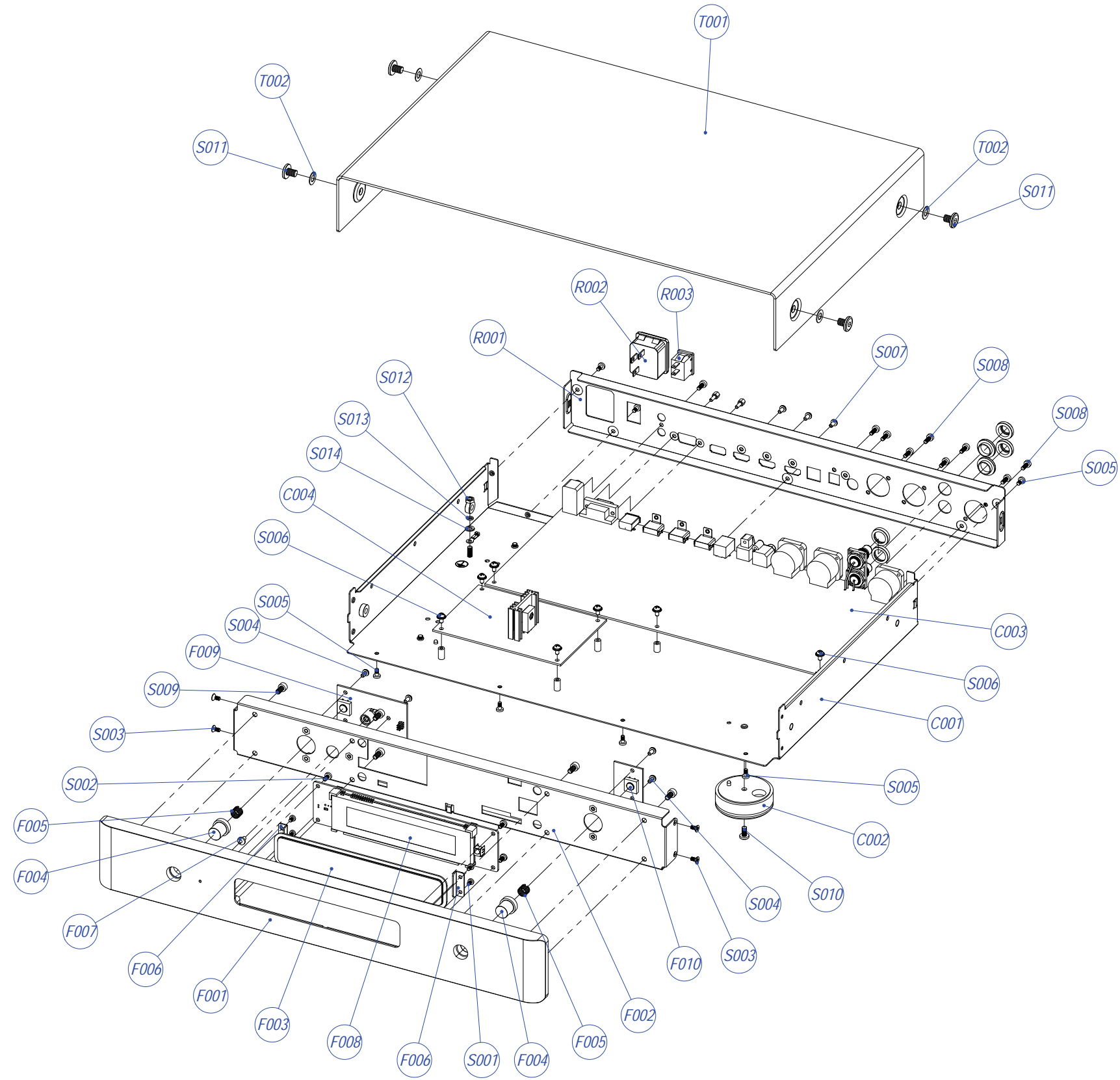


# SCHEMATIC DIAGRAM





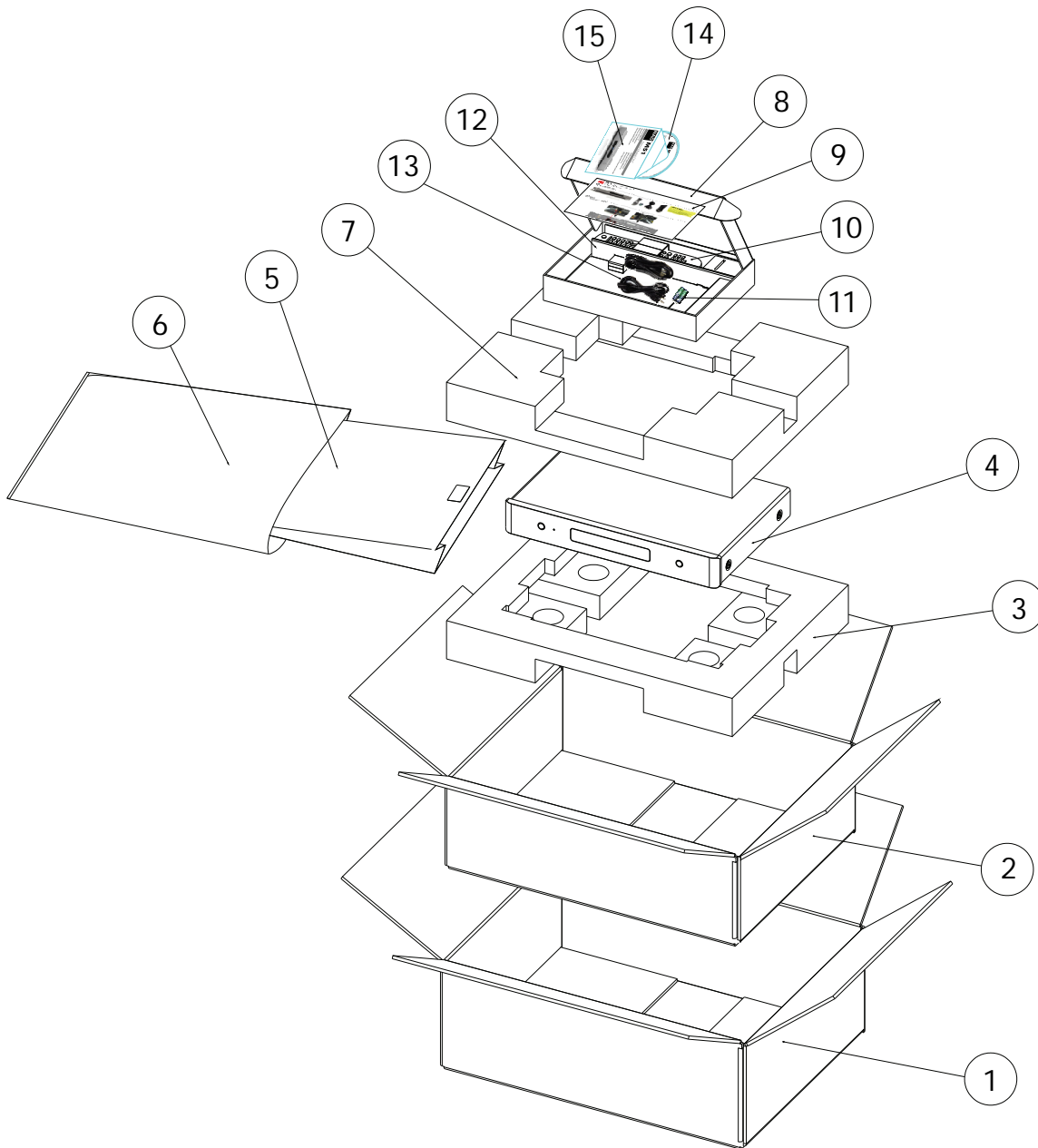


# EXPLODED VIEW



## EXPLODED VIEW PARTS LIST

REF.NO	PART NO.	DESCRIPTION	Qty.	REF.NO	PART NO.	DESCRIPTION	Qty.
C001	67-211001-1	Chassis	1				
C002	J83-043001-0	Foot Assembly	4	T001	67-211002-0	Top Cover	1
C003	01-65101-01	Main Board	1	T002	76-046001-0	Screw Washer	4
C004	01-65109-01	SMPS Board	1				
F001	70-211001-1B	Fascia	1	S001	61-022204-6	Self Taping Screw BTB2.6• 4	4
F002	67-211003-1	Subfascia	1	S002	61-023206-0	Self Taping Screw BTB3• 6	4
F003	76-211001-0B	VFD Lens	1	S003	61-063106-0	Self Taping Screw STF3• 6	4
F004	70-048013-0	Power Button	2	S004	61-023506-1	Machine Screw MB3X6-Ni	5
F005	92-151001-0	Spring for Button	2	S005	61-023106-0	Self Taping Screw STB3• 6	9
F006	67-211005-0	VFD Lens Clamp	2	S006	61-373506-0	Machine Screw MB3X6	7
F007	76-008001-0	LED lens	1	S007	61-023506-0	Machine Screw MB3X6	3
F008	01-65105-00	FPP Board	1	S008	61-023208-0	Self Taping Screw BTB3• 8	9
F009	01-65102-00	Connector(1) Board	1	S009	61-224508-1	Machine Screw MH4x8	8
F010	01-65103-00	Connector(2) Board	1	S010	61-024108-0	Self Taping Screw STB4• 8	4
R001	67-211004-0C	Rear Panel	1	S011	61-246508-1	Machine Screw MB6X8	4
R002 	A17-07103-12	AC Inlet	1	S012	62-010402-0	Nut M4	1
R003 	A11-01101-03	Rocker Switch	1	S013	63-020411-0	Spring Washers • 4	1
				S014	63-010408-0	Plain Washers • 4	1



REF.NO	Part No.	Description	Qty.
1	88-211002-0A	Shipping Box	1
2	88-211001-0A	Gift Box	1
3	89-211001-0	EPE Bottom	1
4	00-65100-00	M51 Unit	1
5	90-211001-0	Non-woven Cloth Bag	1
6	90-001001-0	Poly-bag	1
7	89-211002-0	EPE Top	1
8	88-043003-0	M15Accessories Box	1
9	30-46512-00	Quick Start Guide	1
10	30-16510-00	Remote Control	1
11	30-22100-10	Batteries	2
12	88-043004-0	M15 Box Sheet	1
13	A15-16250-07	AC Cord(C)	1
	A15-13125-00	AC Cord(AH)	1
14	30-96510-01	Instruction Disc	1
15	88-211003-0B	CD-ROM Sleeve	1