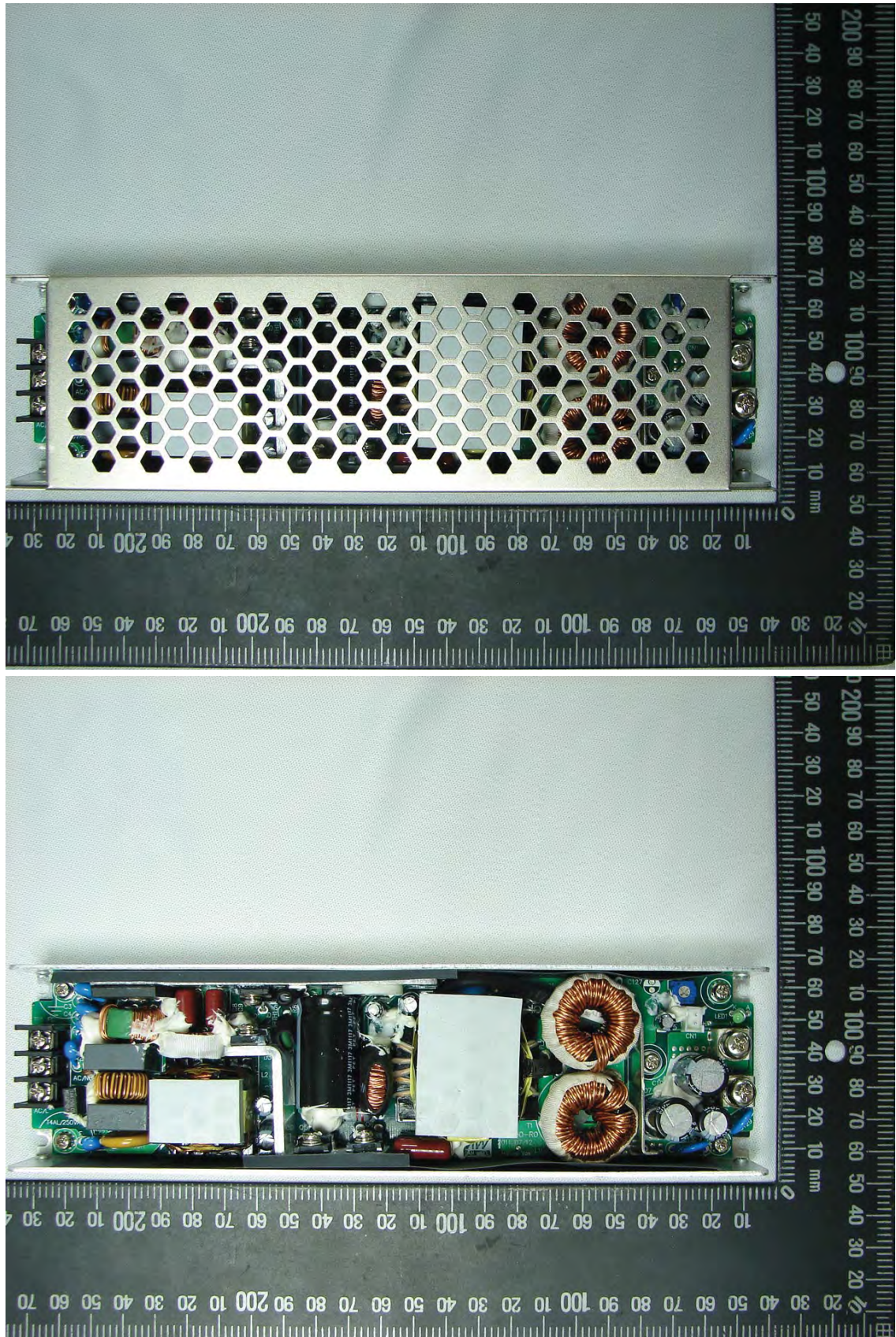


Product: Switching Power Supply

Type Designation: HSP-150-X (X = 2.5, 3.8 or 5)





## Features :

- Universal AC input / Full range
- Withstand 300VAC surge input for 5 seconds
- Built-in active PFC function
- High efficiency up to 90%
- Low leakage current<0.4mA
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection for 150W and 200W with 30CFM forced air
- Low profile:32mm
- Conformal coated
- ZVS technology to reduce power dissipation
- Built-in remote sense
- LED indicator for power on
- 3 years warranty



## SPECIFICATION

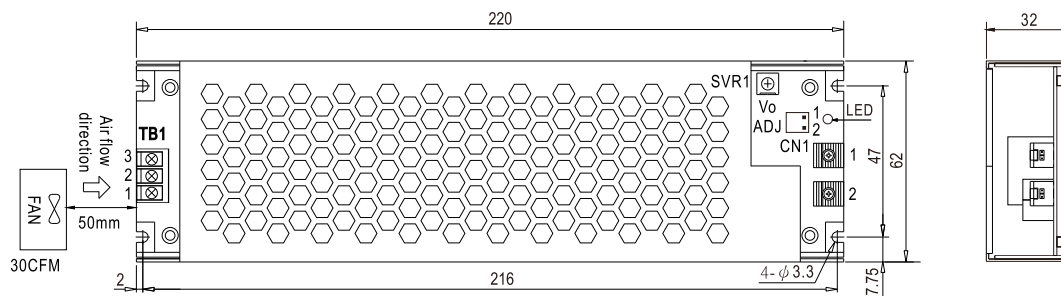
MODEL		HSP-150-2.5		HSP-150-3.8		HSP-150-5	
OUTPUT	DC VOLTAGE	2.5V		3.8V		5V	
	RATED CURRENT	30A		30A		30A	
	CURRENT RANGE(convection)	0 ~ 30A		0 ~ 30A		0 ~ 30A	
	PEAK CURRENT RANGE(30CFM FAN)	0 ~ 40A		0 ~ 40A		0 ~ 40A	
	RATED POWER(convection)	75W		114W		150W	
	PEAK POWER(30CFM FAN)	100W		152W		200W	
	RIPPLE & NOISE (max.) Note.2	80mVp-p		100mVp-p		100mVp-p	
	VOLTAGE ADJ. RANGE	2.35~2.75V		3.4~4.2V		4.5~5.5V	
	VOLTAGE TOLERANCE Note.3	±2.0%		±2.0%		±2.0%	
	LINE REGULATION	±0.5%		±0.5%		±0.5%	
	LOAD REGULATION	±1.0%		±1.0%		±1.0%	
	SETUP, RISE TIME	2000ms, 100ms/230VAC      3000ms, 100ms/115VAC at full load					
	HOLD UP TIME (Typ.)	16ms/230VAC      16ms/115VAC at full load					
INPUT	VOLTAGE RANGE Note.4	90 ~ 264VAC      127 ~ 370VDC					
	FREQUENCY RANGE	47 ~ 63Hz					
	POWER FACTOR (Typ.)	PF ≥0.95/230VAC      PF ≥0.98/115VAC at full load					
	EFFICIENCY (Typ.)	86%		88%		90%	
	AC CURRENT (Typ.)	0.8A/115VAC      0.4A/230VAC		1.2A/115VAC      0.6A/230VAC		1.5A/115VAC      0.8A/230VAC	
	INRUSH CURRENT (Typ.)	Cold start 70A/230VAC					
	LEAKAGE CURRENT	<0.4mA / 240VAC					
PROTECTION	OVERLOAD	140~180% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed					
	SHORT CIRCUIT	Protection type : Hiccup mode, recovers automatically after fault condition is removed					
	OVER VOLTAGE	3.2 ~ 3.7V		4.7 ~ 5.7V		5.7 ~ 7.0V	
		Protection type : Shut down o/p voltage, re-power on to recover					
	OVER TEMPERATURE	110℃ ±5℃ (TSW1)				115℃ ±5℃ (TSW1)	
		Protection type : Hiccup mode, recovers automatically after fault condition is removed					
ENVIRONMENT	WORKING TEMP.	-30 ~ +70℃ (Refer to "Derating Curve")					
	WORKING HUMIDITY	20 ~ 90% RH non-condensing					
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH					
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 60℃ )					
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes					
SAFETY & EMC (Note 5)	SAFETY STANDARDS	UL60950-1, EN60950-1 approved					
	WITHSTAND VOLTAGE	I/P-O/P:3.0KVAC    I/P-FG:2KVAC    O/P-FG:0.5KVAC					
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC/25℃ / 70%RH					
	EMC EMISSION	Compliance to EN55022 (CISPR22) Class B, EN61000-3-2, EN61000-3-3					
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN55024, light industry level (surge 4KV), criteria A					
OTHERS	MTBF	263.2K hrs min.      MIL-HDBK-217F (25℃ )					
	DIMENSION	220*62*32mm (L*W*H)					
	PACKING	0.61kg; 24pcs/15.6kg/1.63CUFT					
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : line regulation and load regulation. 4. Derating may be needed under low input voltages. Please check the static characteristics for more details. 5. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.						



## Mechanical Specification

CASE NO.:208A

Unit:mm



AC Input Terminal(TB1) pin NO. Assignment

Pin No.	Assignment	Terminal
1	AC/L	T21-BM10-03
2	AC/N	
3	FG $\perp$	

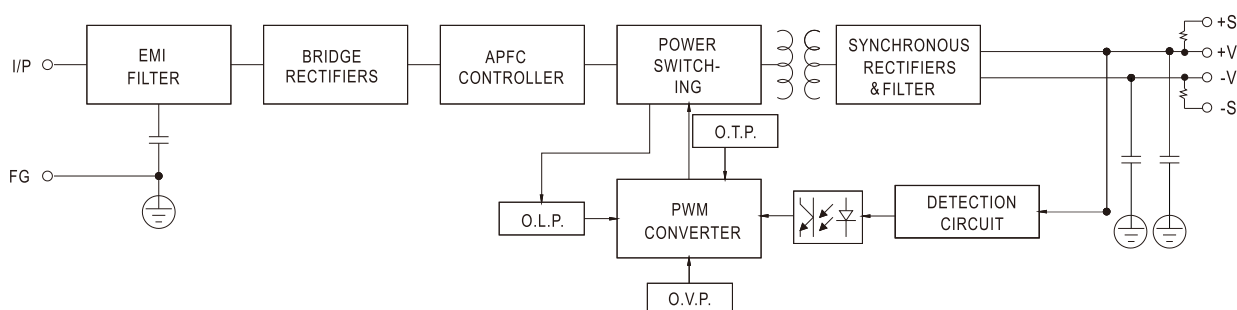
Remote sense pin(CN1):JS-1001-02 or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	-S	JS-2001-02 or equivalent	JS-1001-02 or equivalent
2	+S		

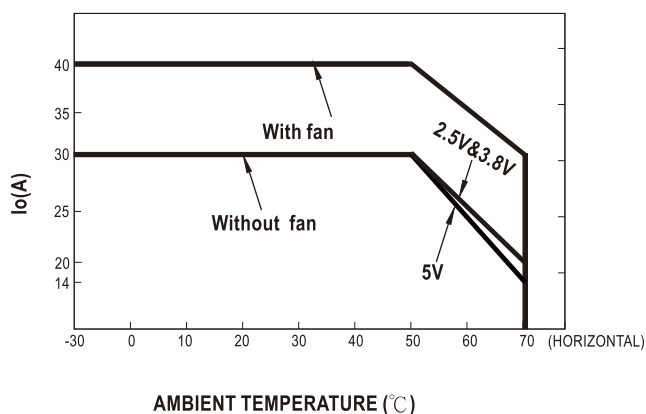
DC Output Terminal pin NO. Assignment

Pin No.	Assignment	Terminal
1	-V	CPB-7 M5
2	+V	

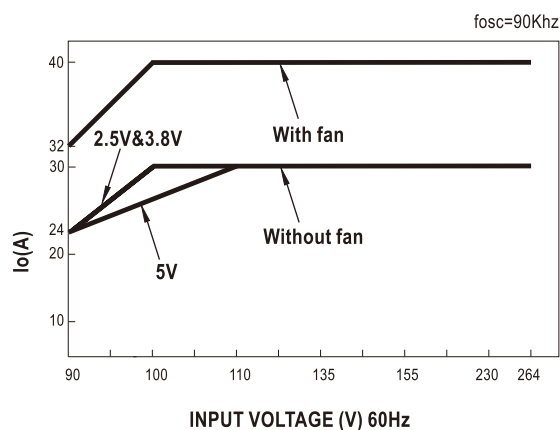
## Block Diagram



## Derating Curve



## Static Characteristics



▲  
RF OUT

Removal

▲ ▼

- 1 Detect
- 2 Enable Command
- 3 GND
- 4 Reset
- 5 Over Temperature Alarm
- 6 VCC / +26.5V
- 7 VCC / +26.5V
- 8 GND
- 9 GND

▼  
RF IN

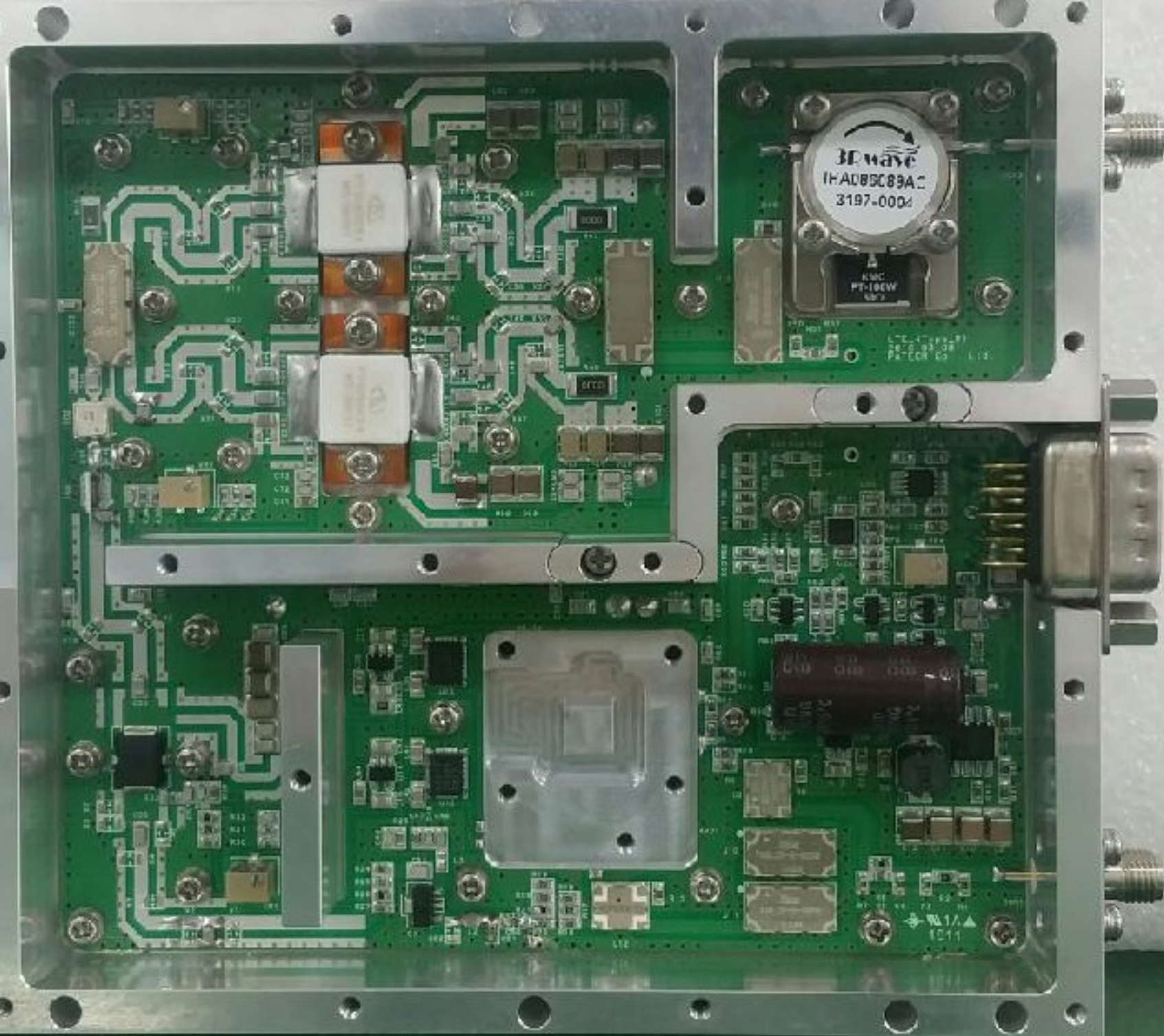
Removal

WARRANTY VOID  
IF SEAL REMOVED

WARRANTY VOID  
IF SEAL REMOVED

WARRANTY VOID  
IF SEAL REMOVED

**AA0869MLB25M40S**





RF OUT

Removal



1. Detect
2. Enable/Disable
3. GND
4. Reset
5. Over Temperature Alarm
6. VCC / +29.5V
7. VCC / +29.5V
8. GND
9. GND

RF IN

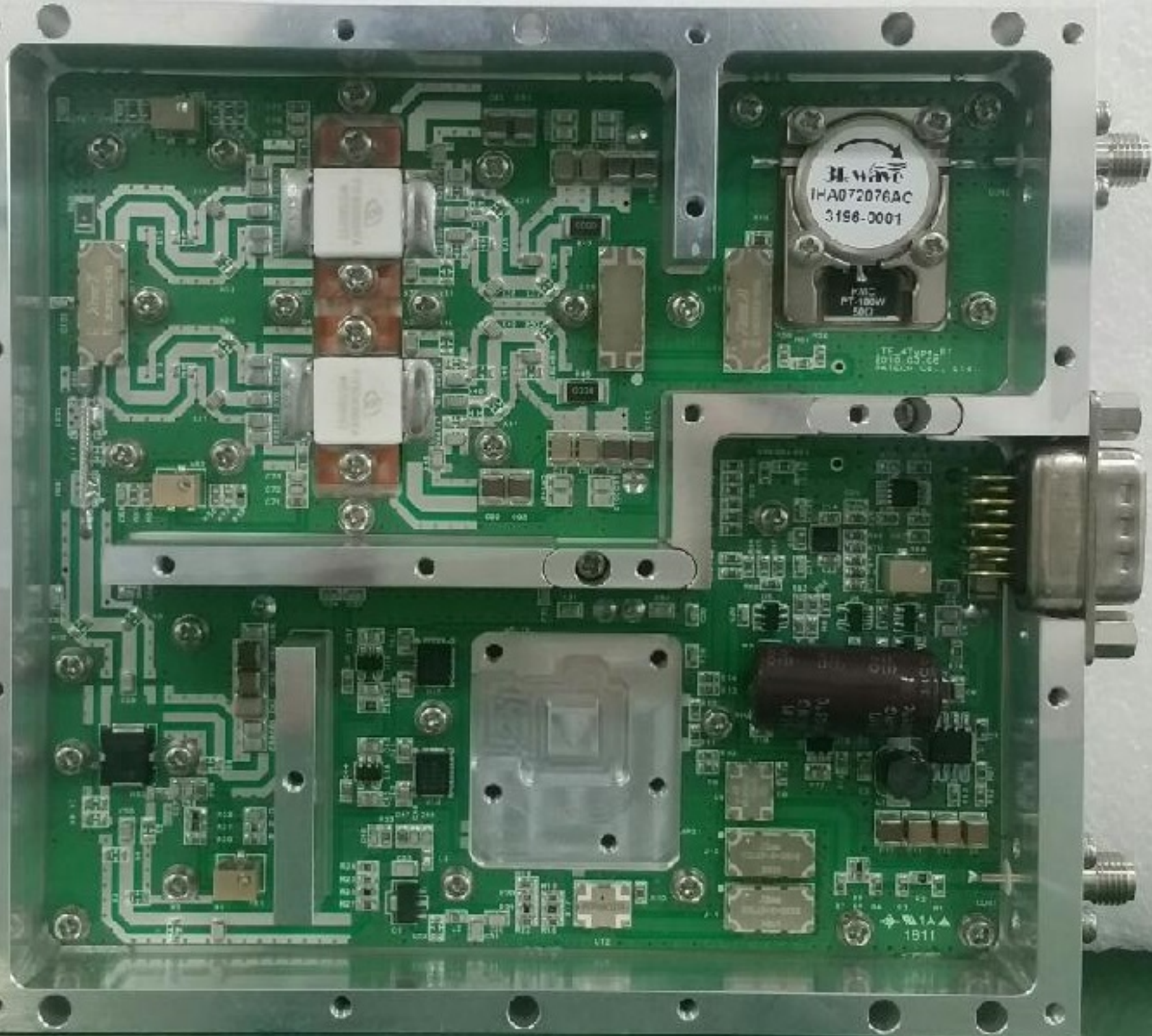
Removal

WARRANTY VOID  
IF SEAL REMOVED

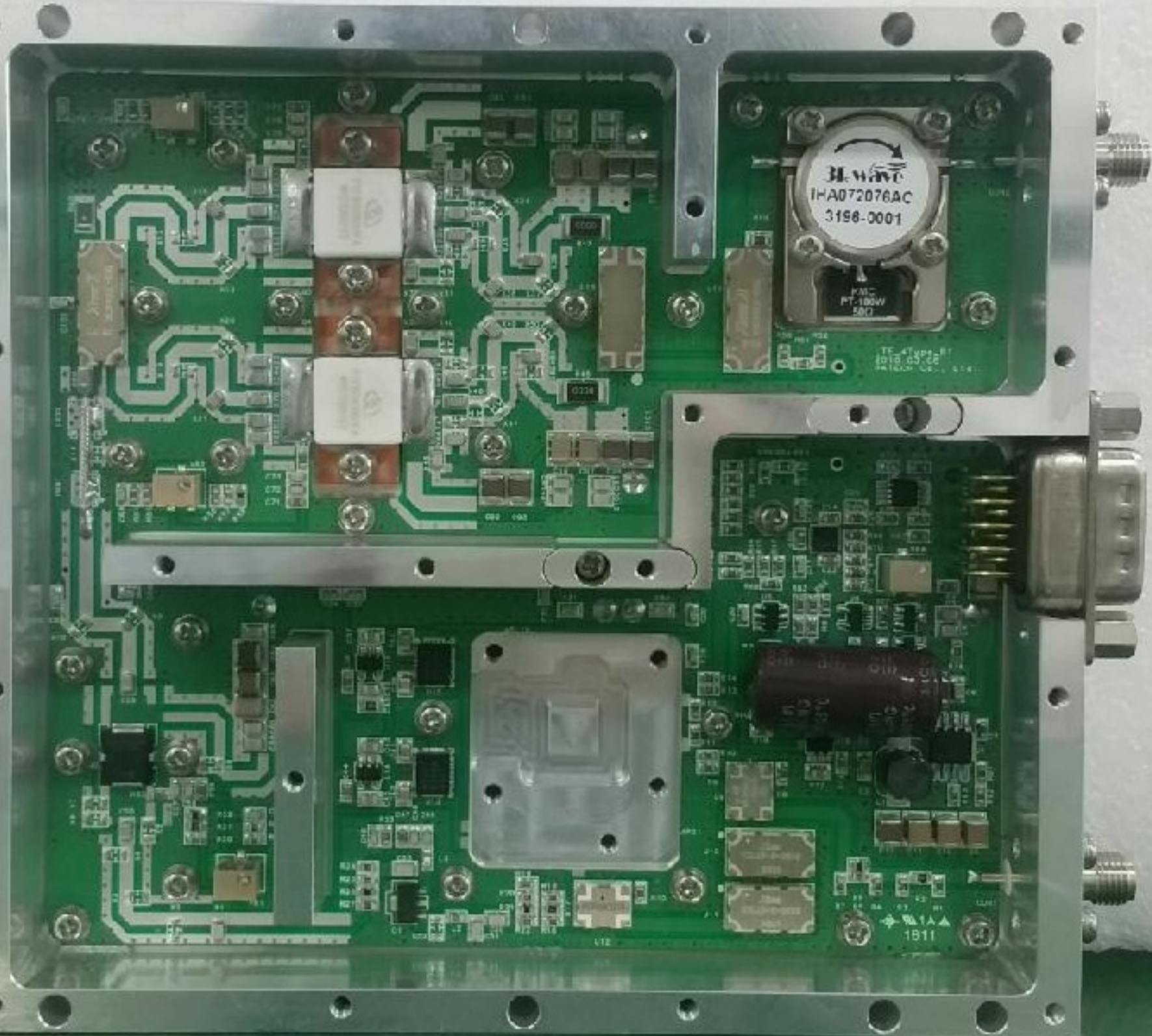
WARRANTY VOID  
IF SEAL REMOVED

AA0728MLB29M40S

WARRANTY VOID  
IF SEAL REMOVED









RF OUT

Removal

1. Detect
2. Enable/Disable
3. GND
4. Reset
5. Over Temperature Alarm
6. VCC / +29.5V
7. VCC / +29.5V
8. GND
9. GND

RF IN

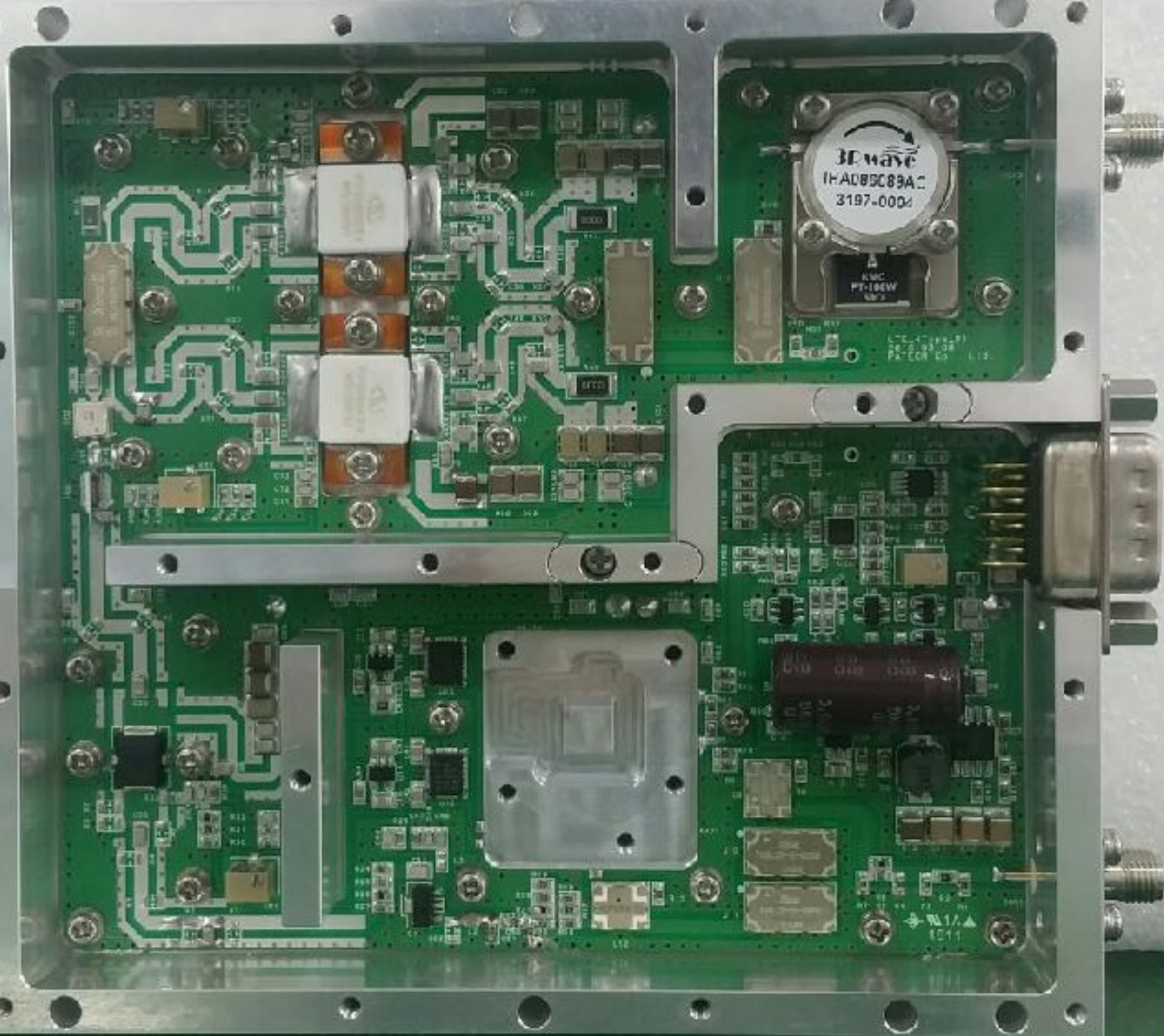
Removal

WARRANTY VOID  
IF SEAL REMOVED

WARRANTY VOID  
IF SEAL REMOVED

AA0728MLB29M40S

WARRANTY VOID  
IF SEAL REMOVED





RF OUT

Removal

- 1 Detect
- 2 Enable/CI--h/s
- 3 CND
- 4 Reset
- 5 Over Temperature Alarm
- 6 VCC / +29.5V
- 7 VCC / +29.5V
- 8 GND
- 9 GND

RF IN

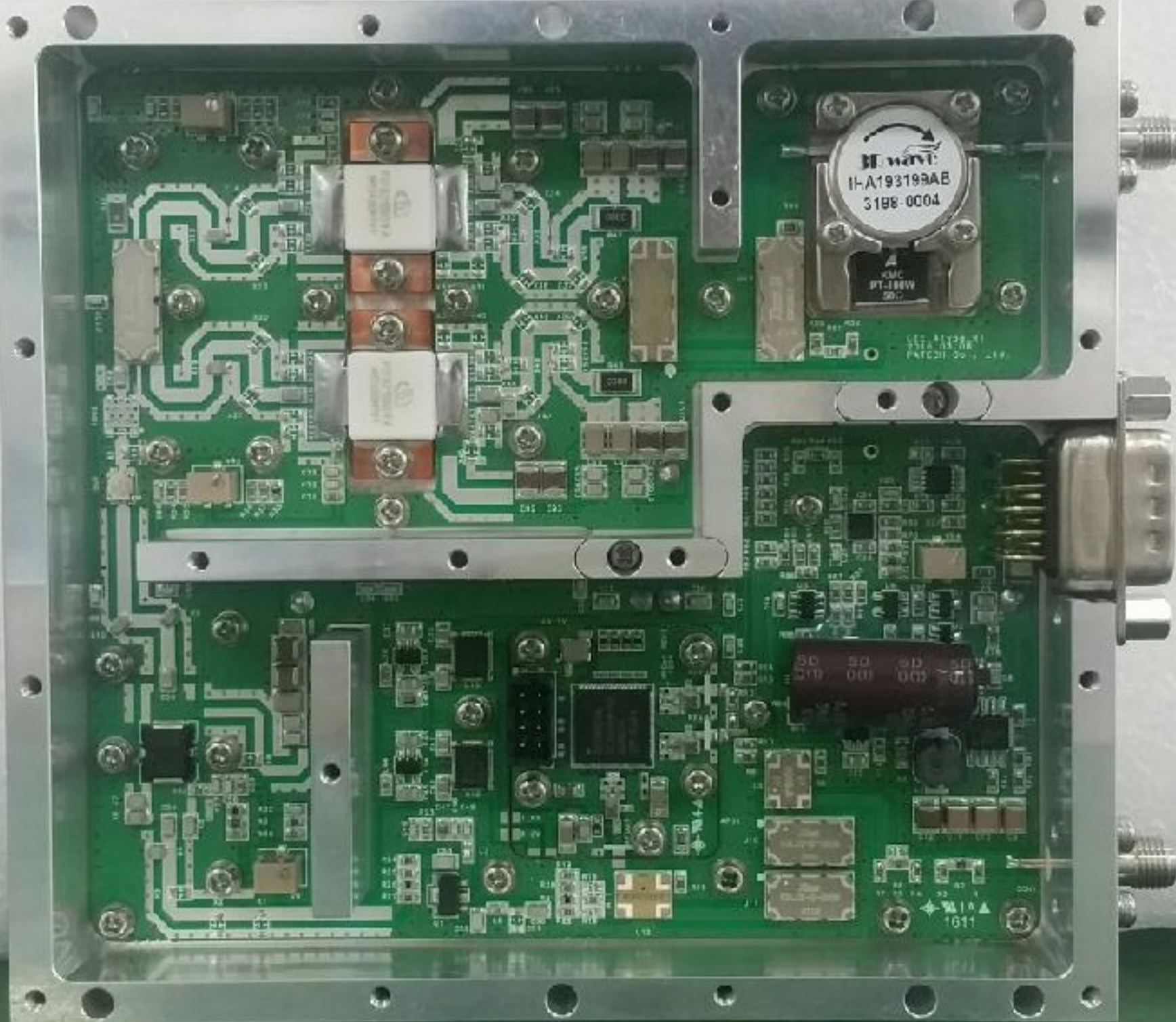
Removal

WARRANTY VOID  
IF SEAL REMOVED

WARRANTY VOID  
IF SEAL REMOVED

AA0869MLB25M40S

WARRANTY VOID  
IF SEAL REMOVED





RF OUT

Removal

RF IN

Removal

1. Detect
2. Enable/Disable
3. GND
4. Reset
5. Over Temperature Alarm
6. VCC / +29.5V
7. VCC / +29.5V
8. GND
9. GND

WARRANTY VOID  
IF SEAL REMOVED

WARRANTY VOID  
IF SEAL

AA1930MLB65M40S

WARRANTY VOID  
IF SEAL REMOVED

▲  
RF OUT

Removal

▲ ▼

- 1 Detect
- 2 Enable Command
- 3 GND
- 4 Reset
- 5 Over Temperature Alarm
- 6 VCC / +26.5V
- 7 VCC / +26.5V
- 8 GND
- 9 GND

▼  
RF IN

Removal

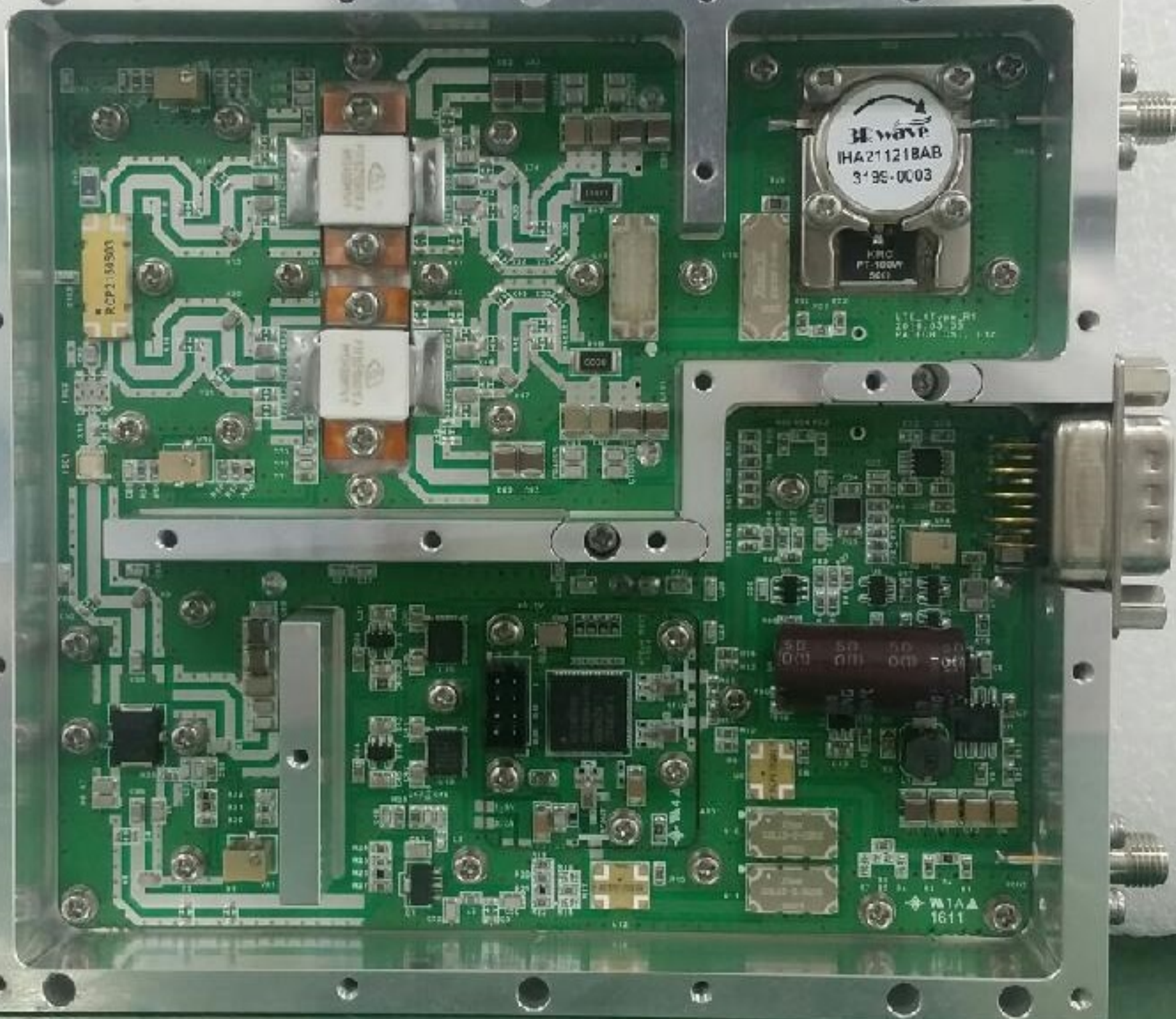
WARRANTY VOID  
IF SEAL REMOVED

WARRANTY VOID  
IF SEAL REMOVED

WARRANTY VOID  
IF SEAL REMOVED

**AA0869MLB25M40S**





RF OUT

Removal

1. Detect
2. Enable/Disable
3. GND
4. Rcsd
5. Over Temperature Alarm
6. VCC1 +29.5V
7. VCC1 -29.5V
8. GND
9. GND

RF IN

Removal

WARRANTY VOID  
IF SEAL

WARRANTY VOID  
IF SEAL REMOVED

AA2110MLB70M40S

WARRANTY VOID  
IF SEAL REMOVED





S150H06941630004

**AA1930MLB65M40S**

WARRANTY VOID  
IF SEAL REMOVED





WARRANTY  
IF SEAL

DRJ

Rev: 0.3  
2016. 03. 08



ATTENTION



DRJ

REV-03  
2016-03-08

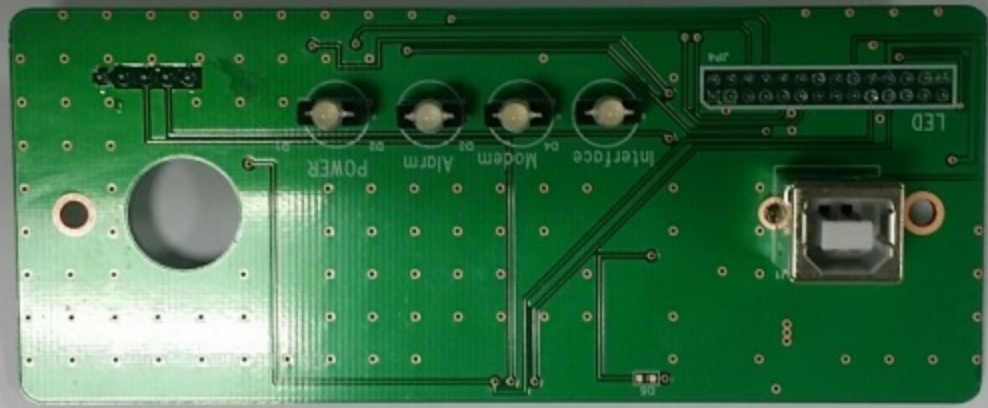
ESD  
ATTENTION

KLING



00:0B:DC:4E:72:D4







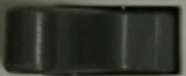
LINE

ON

OFF

LS

LOAD



LS  
삼성전기  
차단기

BS 32d

20A

2극 2선식  
AC 220V 전압  
정격전류 20A  
인증기관 KISA



등록번호 2007778

제조업체 (주) 삼성전기

제조일자

LSis

MADE IN KOREA  
T961 1306 013





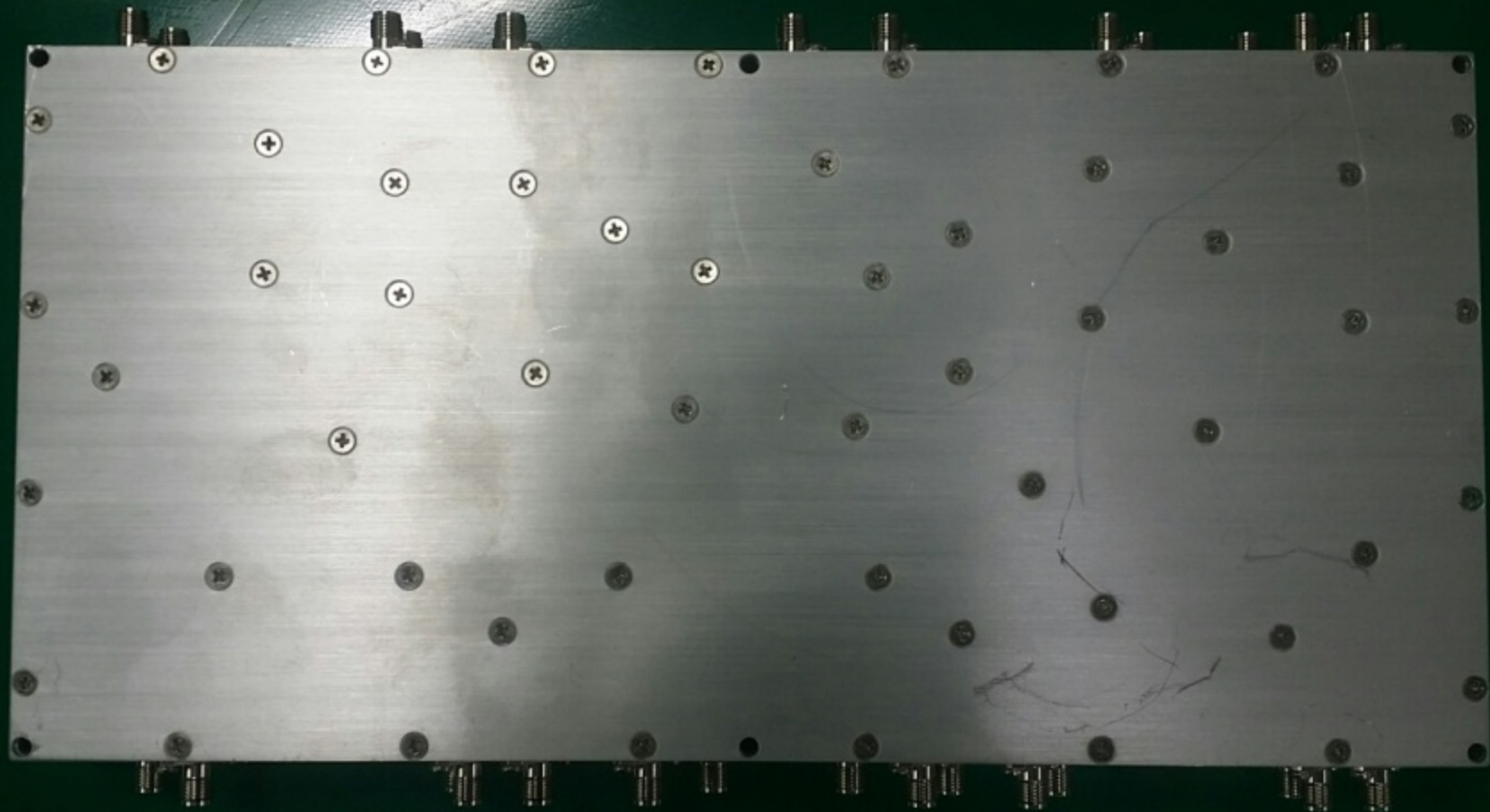


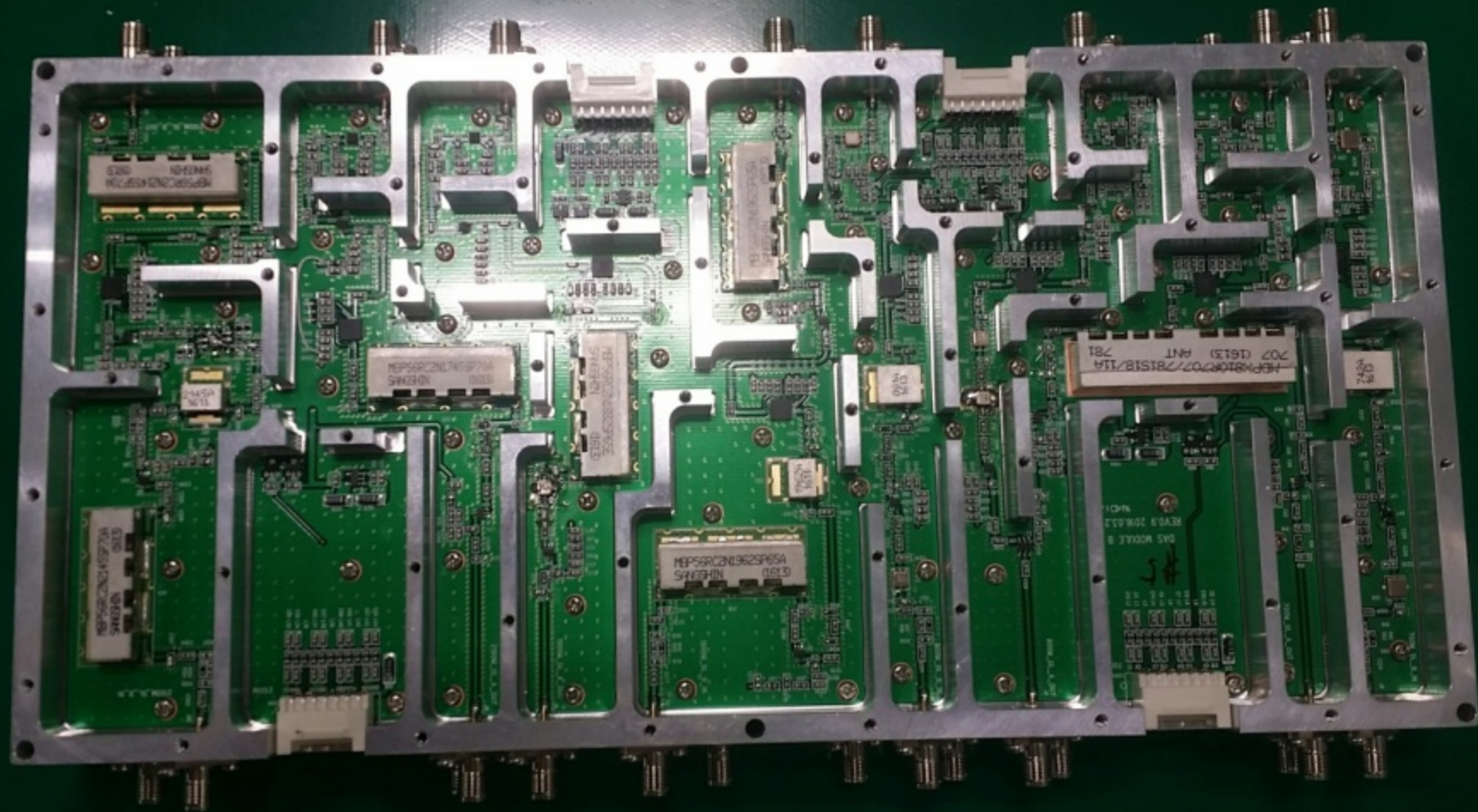
## DAS-RF MODULE A/B



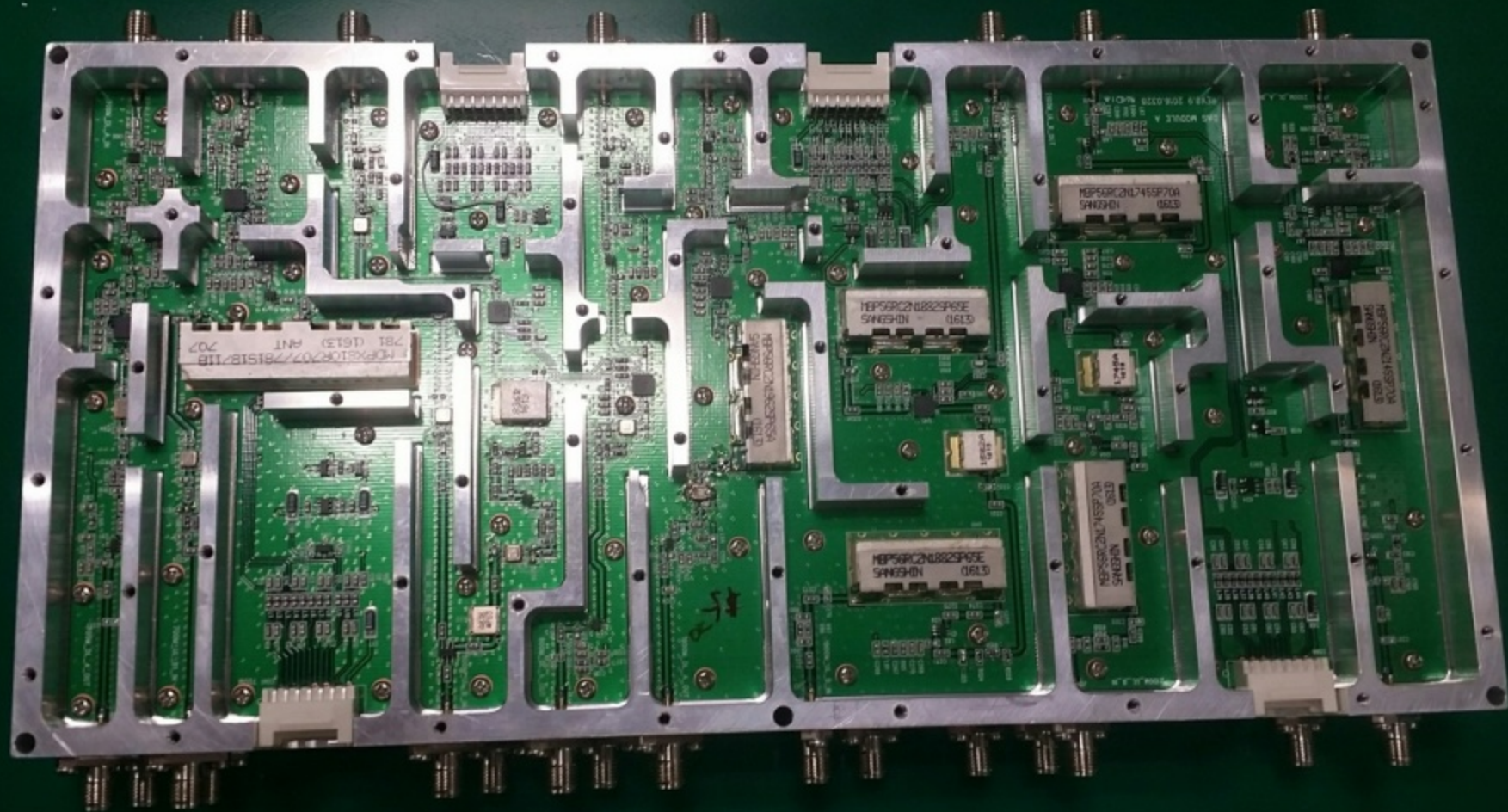




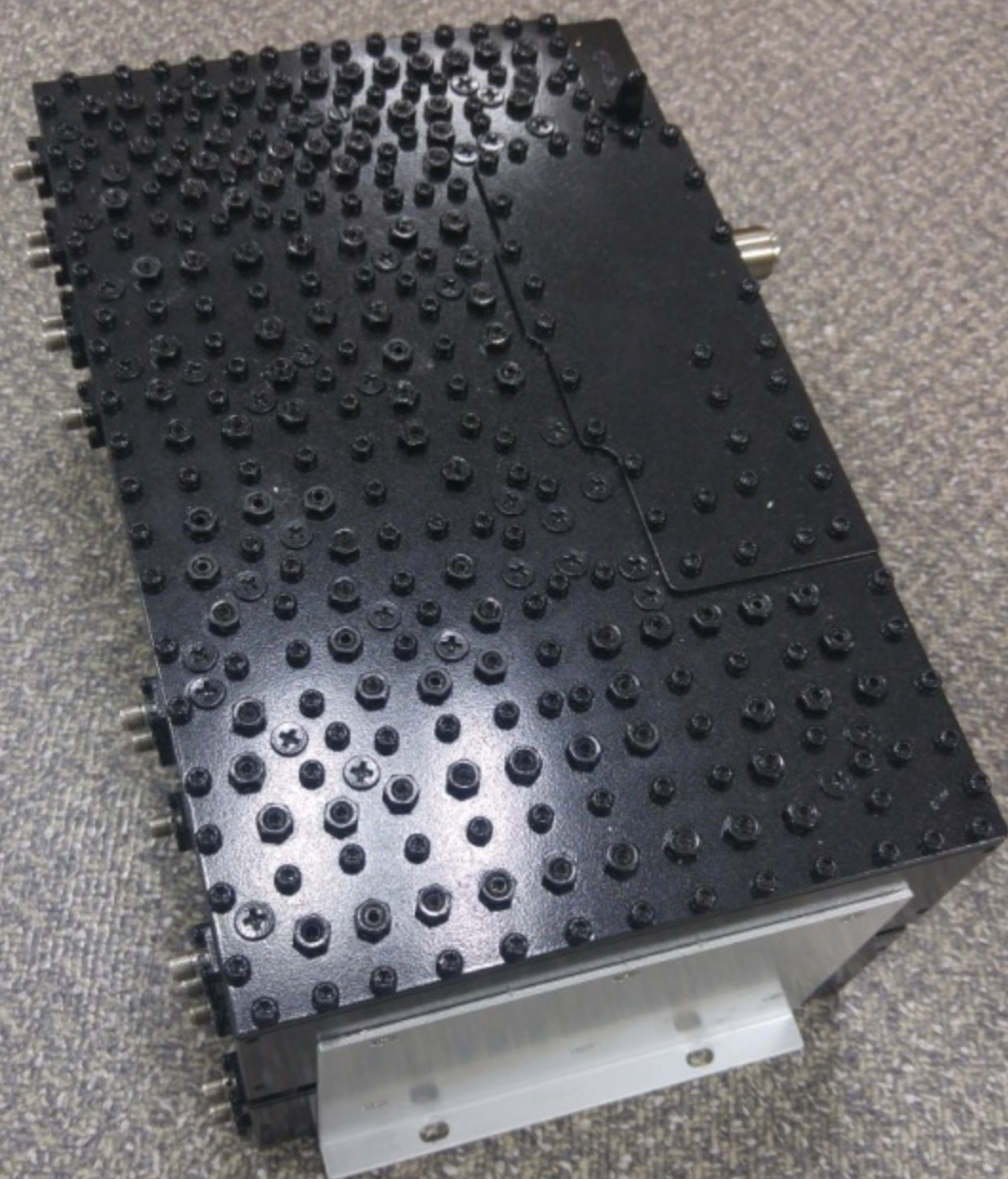














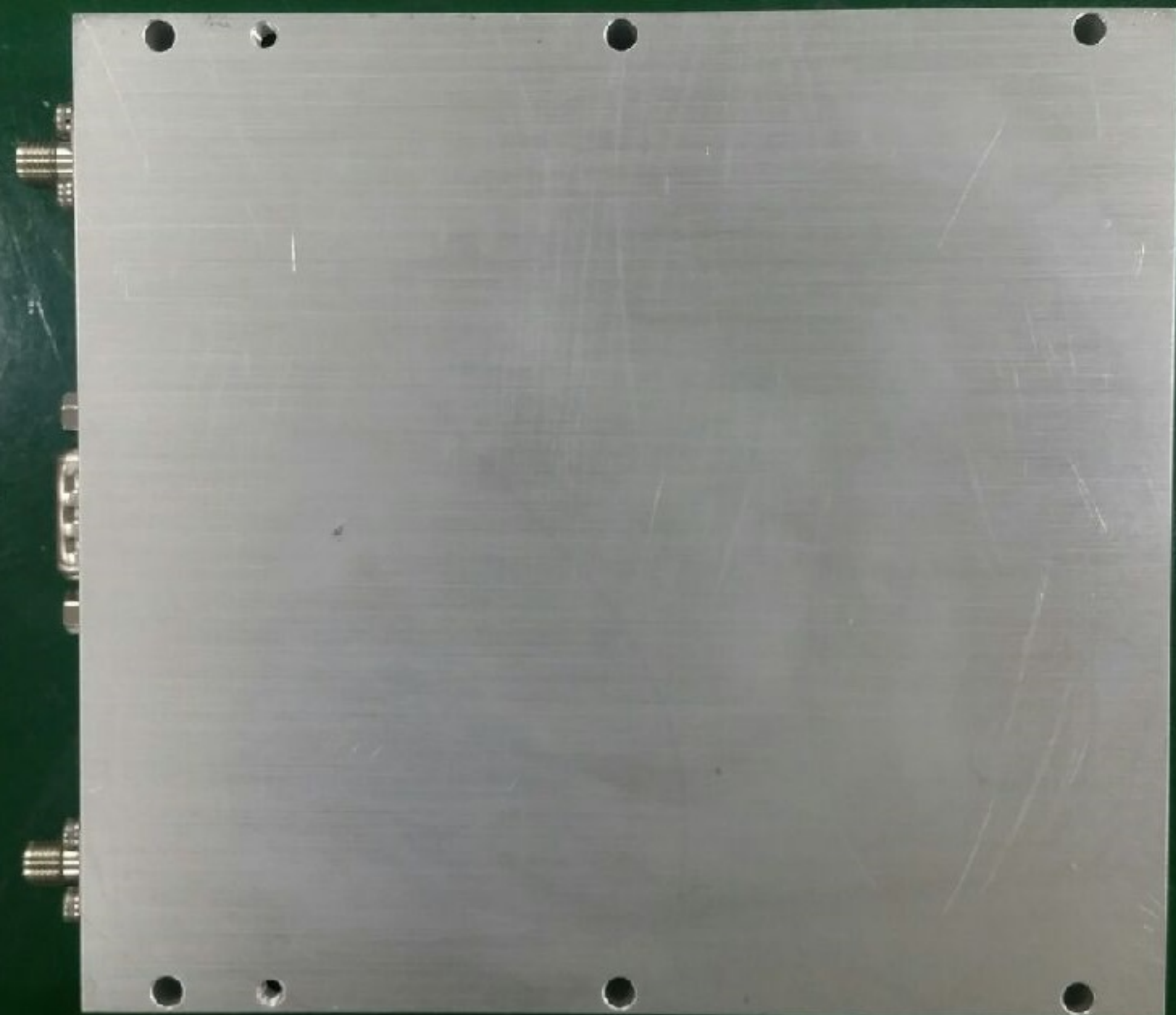








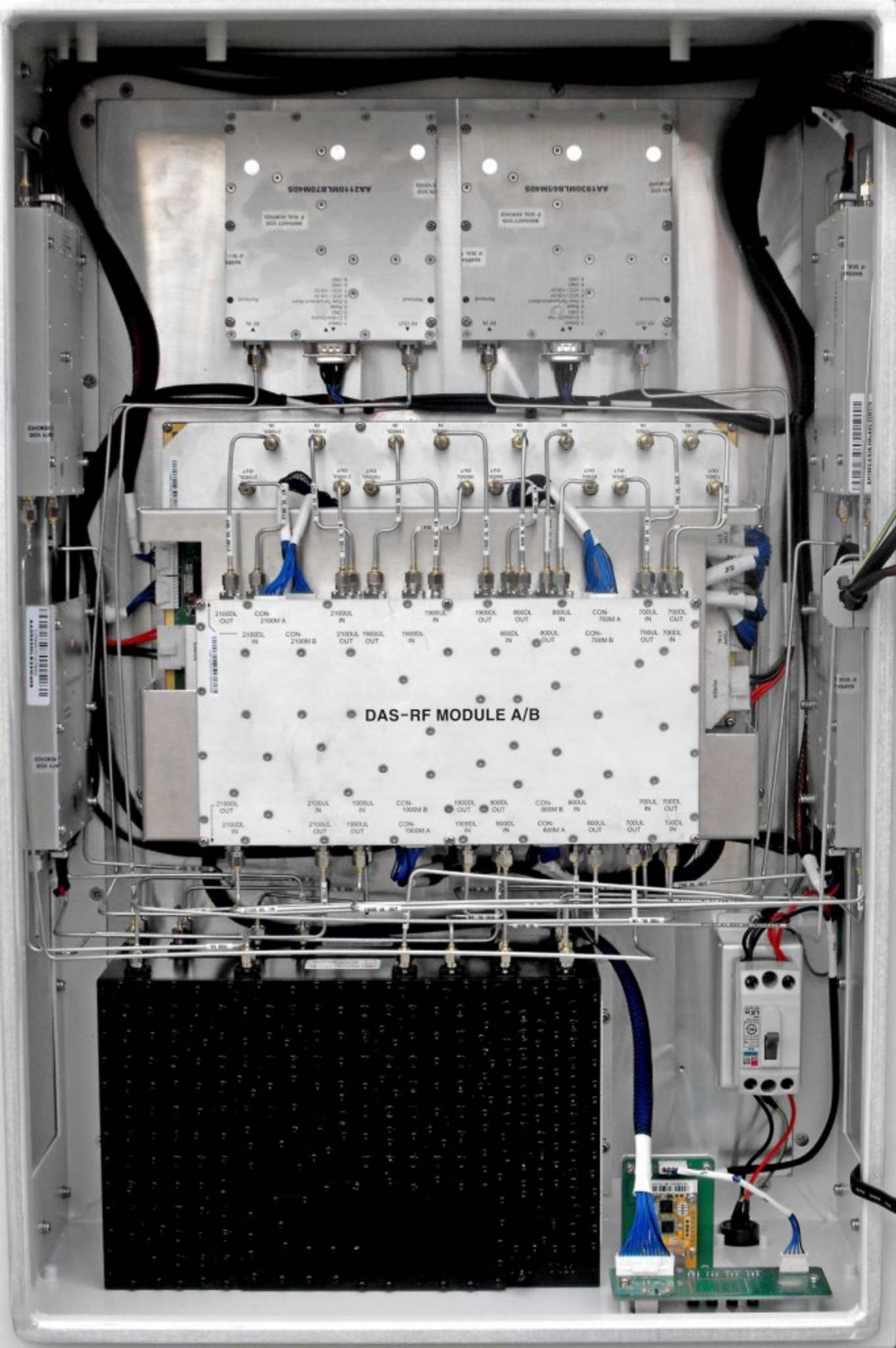
















S150H06941630004

**AA1930MLB65M40S**

WARRANTY VOID  
IF SEAL REMOVED





WARRANTY  
IF SEAL



### ■ Features :

- Universal AC input / Full range
- AC input active surge current limiting
- High efficiency up to 92%
- Built-in 12V/0.1A auxiliary power
- Built-in active PFC function, PF>0.97
- Protections: Short circuit / Overload / Over voltage / Over temperature / Fan alarm
- Output voltage can be trimmed between 40 ~ 110% by 2 ~ 5.5VDC external control signal
- Output current can be trimmed between 40 ~ 110% by 2 ~ 5.5VDC external control signal
- Forced air cooling by built-in DC with fan speed control function
- High power density 9.44w/inch<sup>3</sup>
- 1U low profile 41mm
- DC OK Signal
- Built-in remote ON-OFF control
- Built-in remote sense function
- 3 years warranty



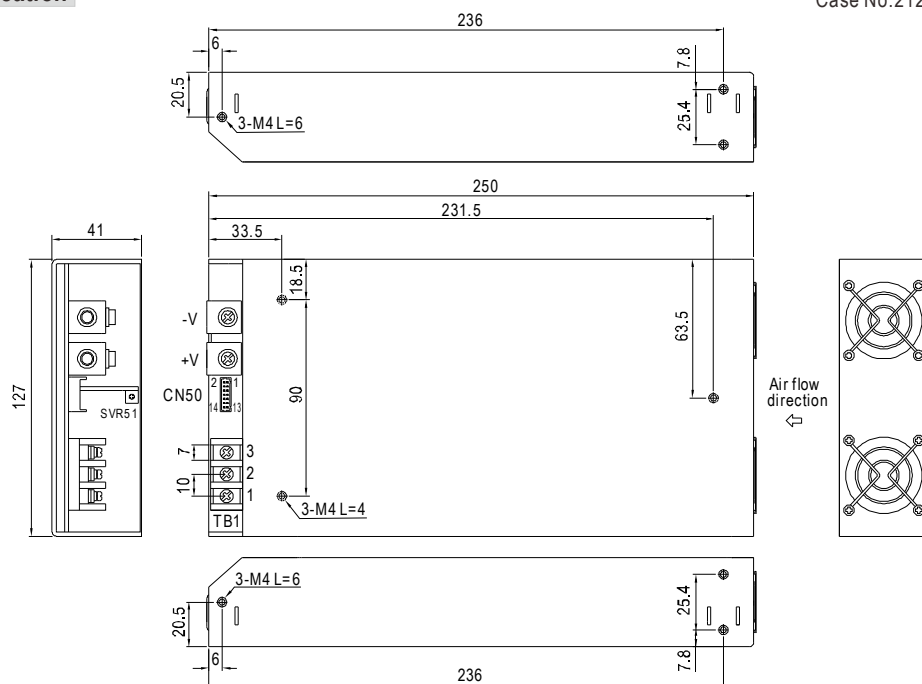
### SPECIFICATION

MODEL		RSP-750-5	RSP-750-12	RSP-750-15	RSP-750-24	RSP-750-27	RSP-750-48
OUTPUT	DC VOLTAGE	5V	12V	15V	24V	27V	48V
	RATED CURRENT	100A	62.5A	50A	31.3A	27.8A	15.7A
	CURRENT RANGE	0 ~ 100A	0 ~ 62.5A	0 ~ 50A	0 ~ 31.3A	0 ~ 27.8A	0 ~ 15.7A
	RATED POWER	500W	750W	750W	751.2W	750.6W	753.6W
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	10 ~ 13.5V	13.5 ~ 16.5V	20 ~ 26.4V	24 ~ 30V	43 ~ 55V
	VOLTAGE TOLERANCE Note.3	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±2.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	1000ms, 50ms at full load					
HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load						
INPUT	VOLTAGE RANGE Note.5	90 ~ 264VAC 127 ~ 370VDC					
	FREQUENCY RANGE	47 ~ 63Hz					
	POWER FACTOR (Typ.)	0.97/230VAC 0.98/115VAC at full load					
	EFFICIENCY (Typ.)	82%	87%	89%	90.5%	90.5%	92%
	AC CURRENT (Typ.)	5V : 5.6A/115VAC 2.8A/230VAC		12V~48V : 8.2A/115VAC 3.9A/230VAC			
	INRUSH CURRENT (Typ.)	25A/115VAC 40A/230VAC					
	LEAKAGE CURRENT	<2.0mA/ 240VAC					
PROTECTION	OVERLOAD	105 ~ 125% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed					
	OVER VOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.8V	17 ~ 20.5V	27.6 ~ 32.4V	31 ~ 36.5V	56.6 ~ 66.2V
		Protection type : Shut down o/p voltage, re-power on to recover					
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down					
FUNCTION	AUXILIARY POWER(AUX)	12V @ 0.1A ; tolerance : ±10%					
	REMOTE ON/OFF CONTROL Note.6	Power on : short between on/off(pin13) & 12V-AUX(pin14) on CN50 Power off : open between on/off(pin13) & 12-AUX(pin14) on CN50					
	DC OK SIGNAL	The TTL signal out, PSU turn on = 0 ~ 1V ; PSU turn off = 3.3 ~ 5.6V					
	OUTPUT VOLTAGE TRIM Note.6	Adjustment of output voltage is possible between 40 ~ 110% by 2 ~ 5.5VDC external control signal					
	OUTPUT CURRENT TRIM	Adjustment of output current is between 40 ~ 110% by 2 ~ 5.5VDC external control signal					
ENVIRONMENT	WORKING TEMP.	-30 ~ +70°C (Refer to "Derating Curve")					
	WORKING HUMIDITY	20 ~ 90% RH non-condensing					
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH					
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)					
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes					
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved					
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC					
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH					
	EMC EMISSION	Compliance to EN55022 (CISPR22), EN61000-3-2,-3					
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A					
OTHERS	MTBF	120.8K hrs min. MIL-HDBK-217F (25°C)					
	DIMENSION	250*127*41mm (L*W*H)					
	PACKING	1.64Kg; 6pcs/10.8Kg/1.1CUFT					
NOTE		1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a> ) 5. Derating may be needed under low input voltages. Please check the derating curve for more details. 6. The power supply unit will have no output if the shorting connector is not assembled. It contains three shorting wires: one is from on/off(pin13) to 12V-AUX(pin14), two is from PC(pin7) to PO(pin8) and the other is from PV(pin5) to PS(pin6). Please refer to function manual for details.					



## Mechanical Specification

Case No.212A Unit:mm



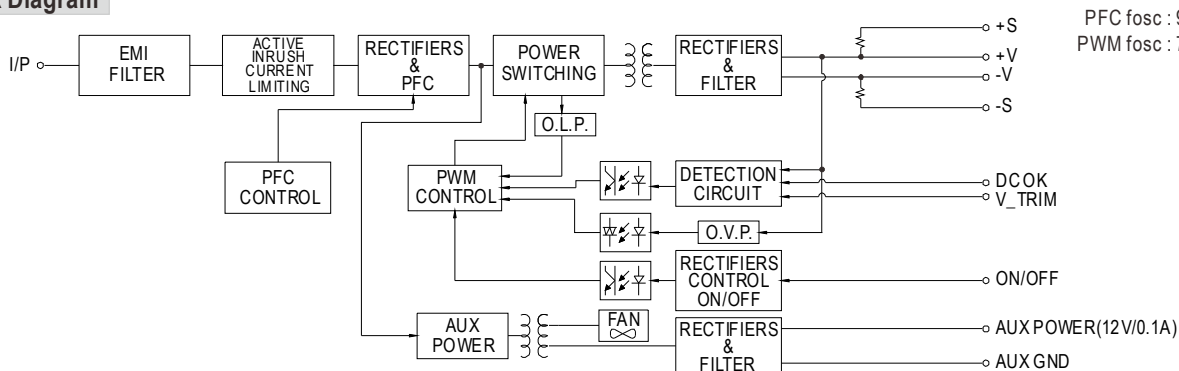
### AC Input Terminal Pin No. Assignment

Pin No.	Assignment
1	AC/N
2	AC/L
3	FG $\perp$

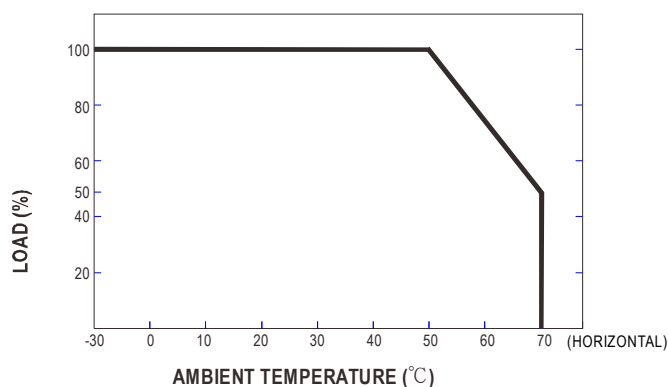
### Control Pin No. Assignment (CN50) : HRS DF11-14DP-2DS or equivalent

Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	+S	6	PS	12	G-AUX	HRS DF11-14DS or equivalent	HRS DF11-**SC or equivalent
2	+VS	7	PC	13	ON/OFF		
3	-S	8	PO	14	12V-AUX		
4	-VS	9	DC-OK				
5	PV	10,11	GND				

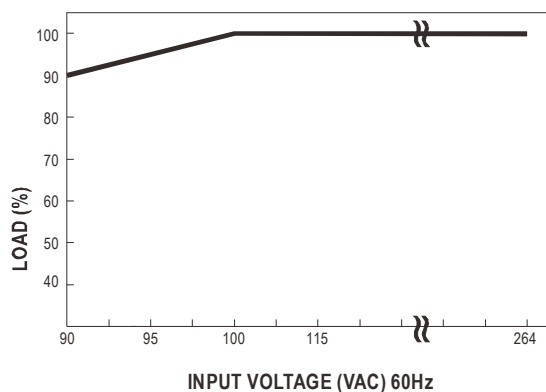
## Block Diagram



## Derating Curve



## Static Characteristics



## Function Description of CN50

Pin No.	Function	Description
1	+S	Positive sensing. The +S signal should be connected to the positive terminal of the load. The +S and -S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.
2	+VS	+V Signal. The +VS should be connected to the +S to reduce the noise when "output voltage TRIM" function is in use.
3	-S	Negative sensing. The -S signal should be connected to the negative terminal of the load. The -S and +S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.
4	-VS	-V Signal. The -VS should be connected to the -S to reduce the noise when "output voltage TRIM" function is in use.
5	PV	Connect to external DC voltage source for output voltage trimming, referenced to pin 10,11 (GND). Output voltage can be trimmed between 40 ~ 110% of the rated output voltage.
6	PS	Short connecting between PV (pin5) and PS (pin6) if "output voltage TRIM" function is not used.
7	PC	Connect to external DC voltage source for output current trimming, referenced output current can be trimmed between 40 ~ 110% of the rated output current. Please refer to function manual for details.
8	PO	Short connecting between PC (pin7) and PO (pin8) if output current trim function is not used.
9	DC_OK	Open collector signal, referenced to pin10,11(GND). Low when PSU turns on. The maximum sink current is 10mA and the maximum external voltage is 5.6V.
10,11	GND	These pins connect to the negative terminal (-V). Return for DC_OK Signal output.
12	G-AUX	Auxiliary voltage output ground. The signal return is isolated from the output terminals (+V & -V).
13	ON/OFF	Turns the output on and off by electrical or dry contact between pin 13 (ON/OFF) and pin 14 (12V-AUX). Short: Power ON, Open: Power OFF.
14	12V-AUX	Auxiliary voltage output, 10.8~13.2V, referenced to pin 12(G-AUX). The maximum load current is 0.1A. This output is not controlled by the "remote ON/OFF control".

## Function Manual

### 1. "Remote ON/OFF" and "Output voltage trim" and "Output current trim" functions are not used.

- (1) The power supply unit will have no output if the shorting connector (accessory comes along with the PSU) is not assembled. It contains three shorting wires : one is from ON/OFF (pin13) to 12V-AUX (pin14), two is from PV(pin5) to PS (pin6) and the other is from PC (pin7) to PO (pin8).
- (2) Factory setting is shorted as Fig1.1

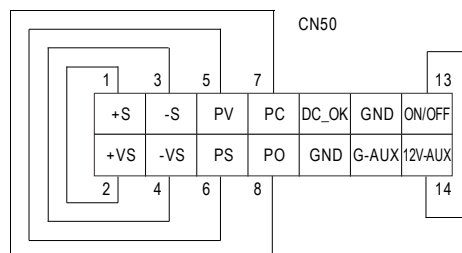
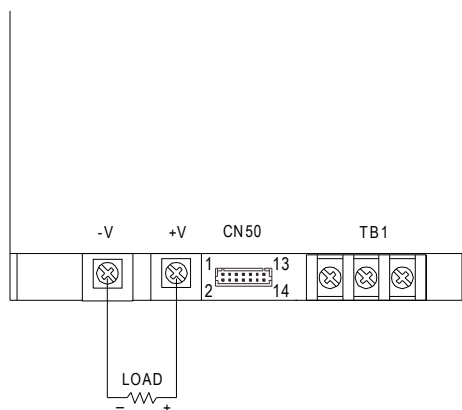


Fig 1.1 (Shorting connector)



## 2.Remote ON/OFF

The PSU can be turned ON/OFF by using the "Remote ON/OFF" function

Between ON/OFF(pin13) and 12V-AUX(pin14)	Output Status
SW close (Short)	PSU ON
SW open (Open)	PSU OFF

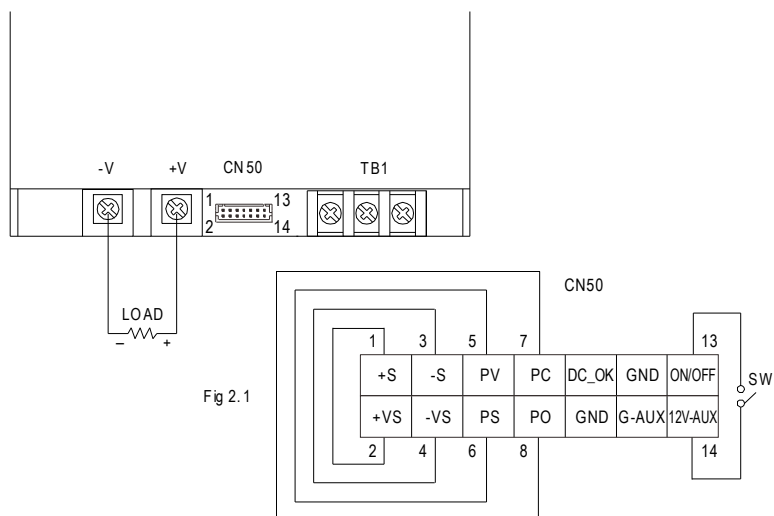


Fig 2.1

## 3.DC\_OK signal

"DC\_OK" is an open collector signal.

It indicates the output status of the PSU. It can operate in two ways : One is sinking current from external TTL signal ; the other is sending out a TTL voltage signal.

### 3-1 Sink current :

The maximum sink current is 10mA and the maximum external voltage is 5.6V.

### 3-2 TTL voltage signal :

Between DC- OK(pin9) and GND(pin10&11)	Output Status
0 ~ 1V	PSU ON
3.3 ~ 5.6V	PSU OFF

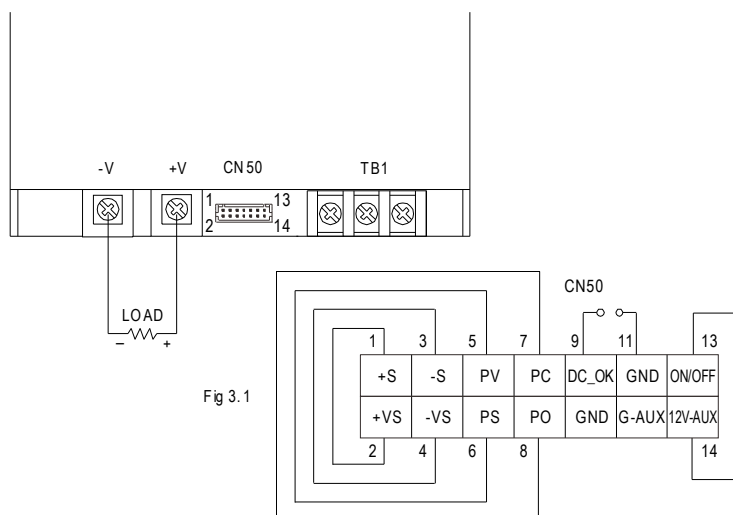


Fig 3.1

## 4.Remote Sense

The remote sensing compensates voltage drop on the load wiring up to 0.5V.

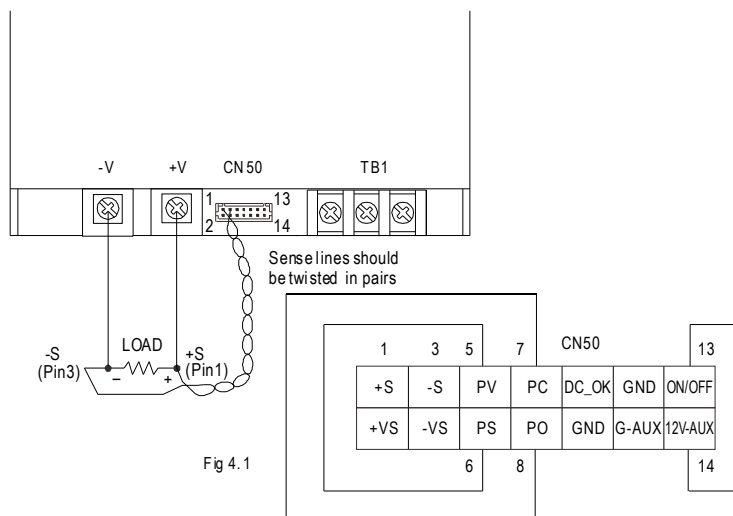
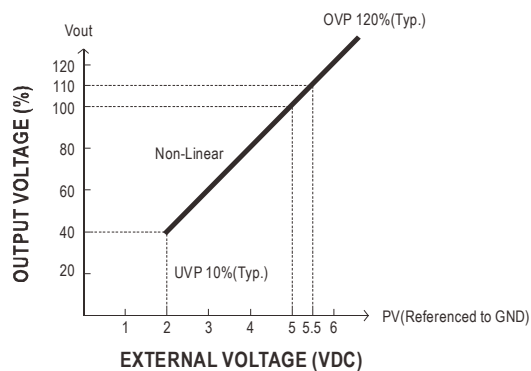


Fig 4.1

## 5. Output Voltage TRIM

Output voltage of RSP-750 can be trimmed between 40% ~ 110% of its rated value by the following methods :

- (1) Using an external DC source (2~5.5VDC) between "PV"(pin5) and "GND"(pin10, 11) that is shown in Fig5.1



Note: External voltage < 0.5V Vo may be the UVP need to restart.

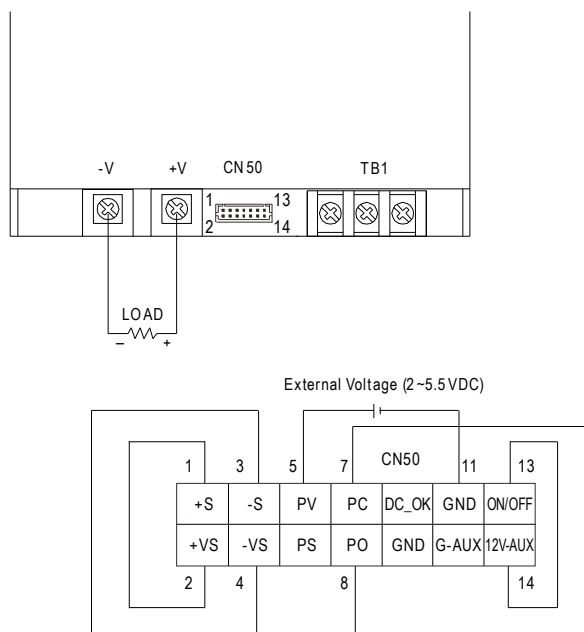


Fig 5. 1

## 6. Output Current TRIM

Output current of RSP-750 can be trimmed between 40% ~ 110% of its rated value by the following methods :

- (1) Using external voltage source between "PC"(pin7) and "GND"(pin10, 11) that is shown in Fig6. 1

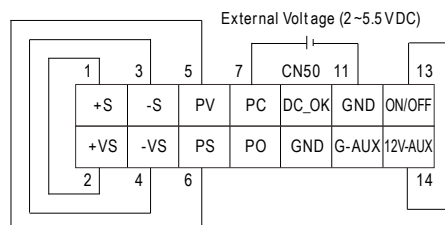
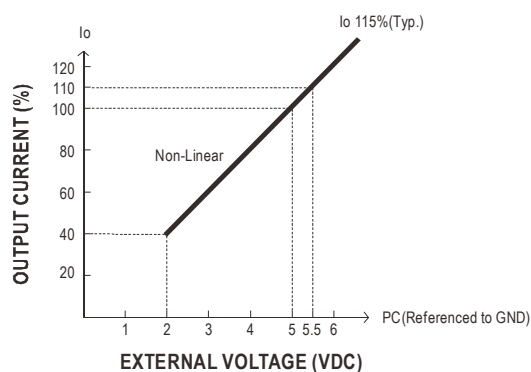


Fig 6. 1



Product: Switching Power Supply

Type Designation: RSP-750-x (x = 5, 12, 15, 24, 27 or 48)





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