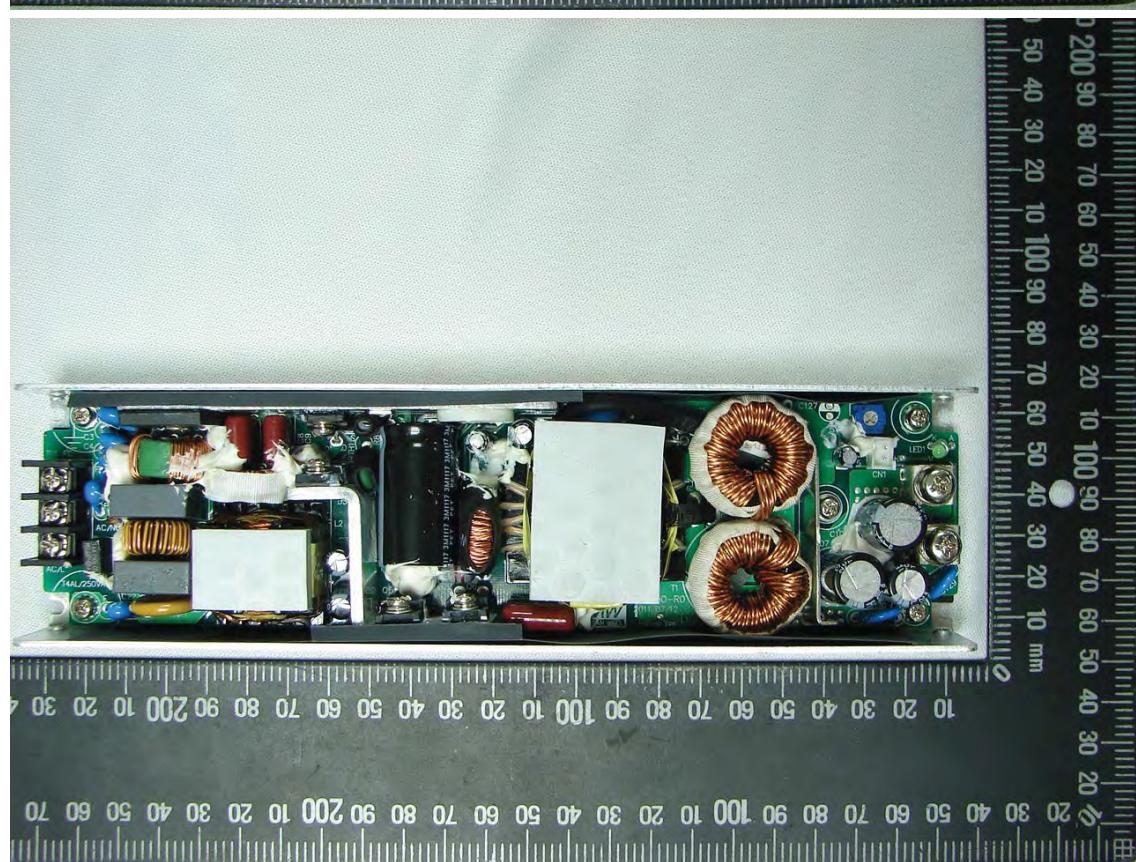
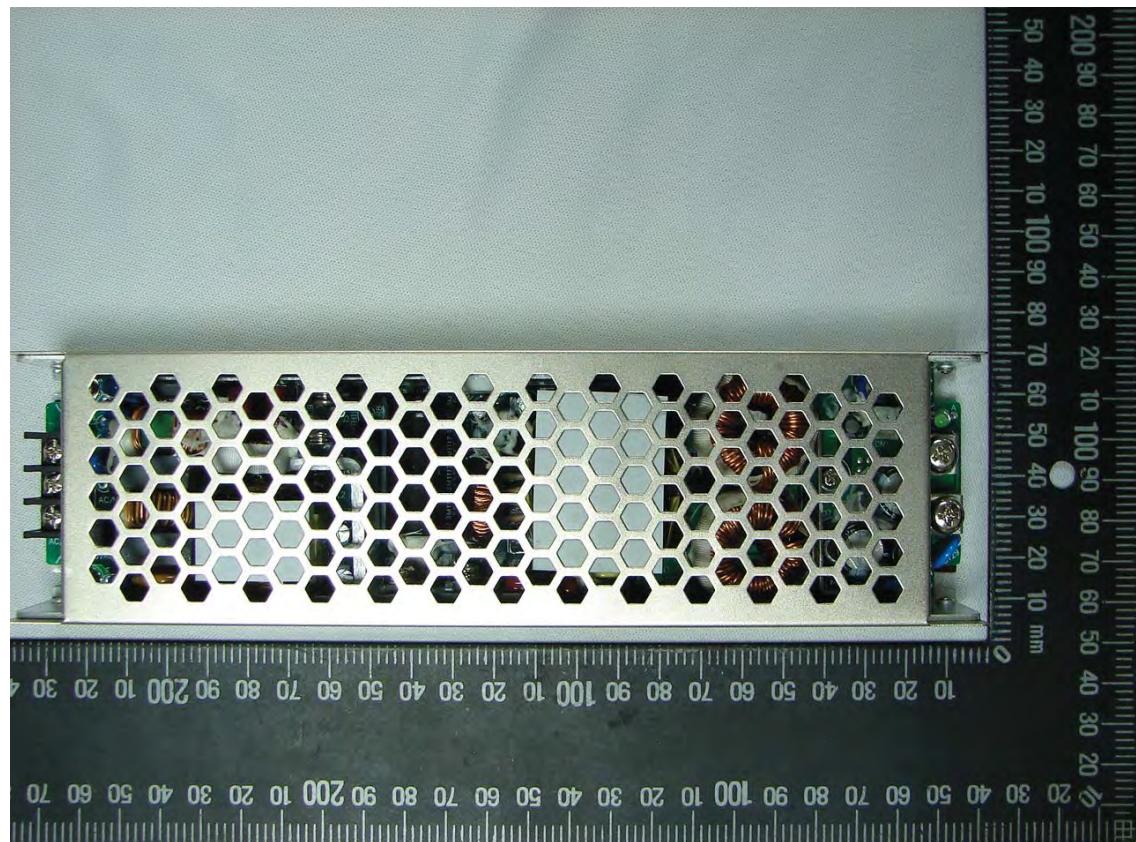


Product: Switching Power Supply

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



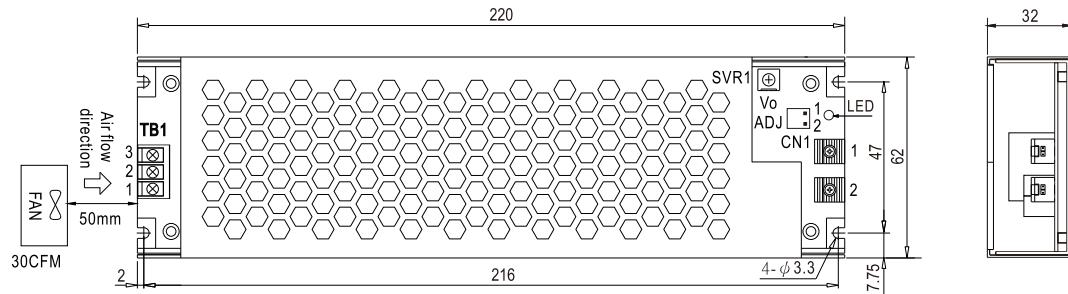
## SPECIFICATION

MODEL	HSP-150-2.5	HSP-150-3.8	HSP-150-5
OUTPUT	DC VOLTAGE	2.5V	3.8V
	RATED CURRENT	30A	30A
	CURRENT RANGE(convective)	0 ~ 30A	0 ~ 30A
	PEAK CURRENT RANGE(30CFM FAN)	0 ~ 40A	0 ~ 40A
	RATED POWER(convective)	75W	114W
	PEAK POWER(30CFM FAN)	100W	152W
	RISSLE & NOISE (max.) Note.2	80mVp-p	100mVp-p
	VOLTAGE ADJ. RANGE	2.35~2.75V	3.4~4.2V
	VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%
	LINE REGULATION	±0.5%	±0.5%
	LOAD REGULATION	±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%
	AC CURRENT (Typ.)	0.8A/115VAC	0.4A/230VAC
	INRUSH CURRENT (Typ.)	Cold start 70A/230VAC	
PROTECTION	LEAKAGE CURRENT	<0.4mA / 240VAC	
	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
ENVIRONMENT		Protection type : Shut down o/p voltage, re-power on to recover	5.7 ~ 7.0V
	OVER TEMPERATURE	110°C ±5°C (TSW1)	115°C ±5°C (TSW1)
		Protection type : Hiccup mode, recovers automatically after fault condition is removed	
	WORKING TEMP.	-30 ~ +70°C (Refer to "Derating Curve")	
	WORKING HUMIDITY	20 ~ 90% RH non-condensing	
SAFETY & EMC (Note 5)	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH	
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 60°C)	
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	
OTHERS	SAFETY STANDARDS	UL60950-1,EN60950-1 approved	
	WITHSTAND VOLTAGE	I/P-O/P:3.0KVAC	I/P-FG:2KVAC
	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) 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	
NOTE	MTBF	263.2K hrs min.	MIL-HDBK-217F (25°C)
	DIMENSION	220*62*32mm (L*W*H)	
	PACKING	0.61kg; 24pcs/15.6kg/1.63CUFT	
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 : 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 $\pm$	

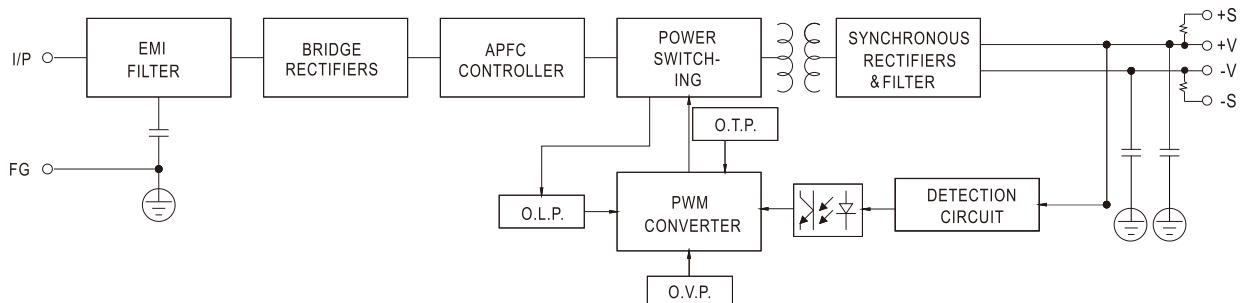
Remote sense pin(CN1):JS-1001-02 or equivalent

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

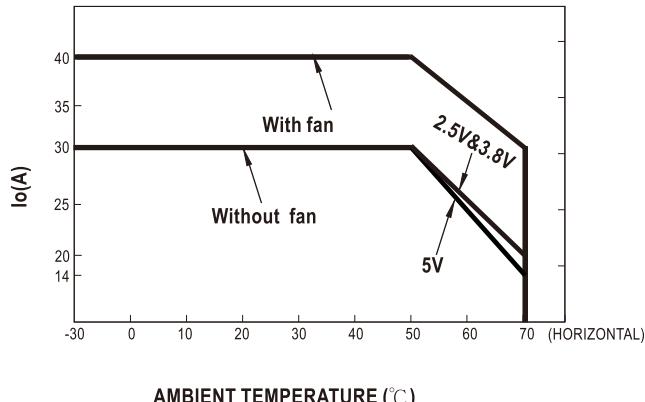
#### DC Output Terminal pin NO. Assignment

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

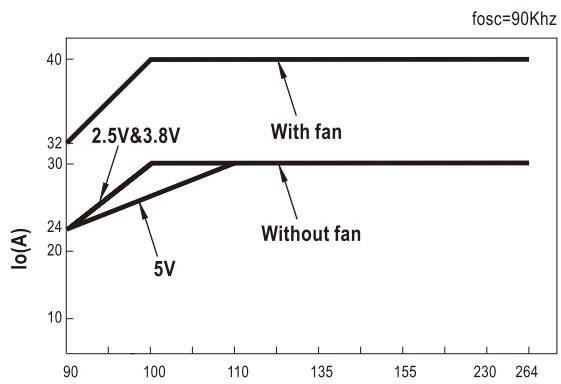
## ■ Block Diagram



## ■ Derating Curve



## ■ Static Characteristics



▲▼

1. Output

2. Ground

3. GND

4. Ground

5. Other (Power, V<sub>DD</sub>, V<sub>DD</sub>, V<sub>DD</sub>)

6. V<sub>DD</sub> (+2.7V to +3.6V)

7. V<sub>DD</sub> (+2.7V to +3.6V)

8. GND

9. GND

Removal

▲▼

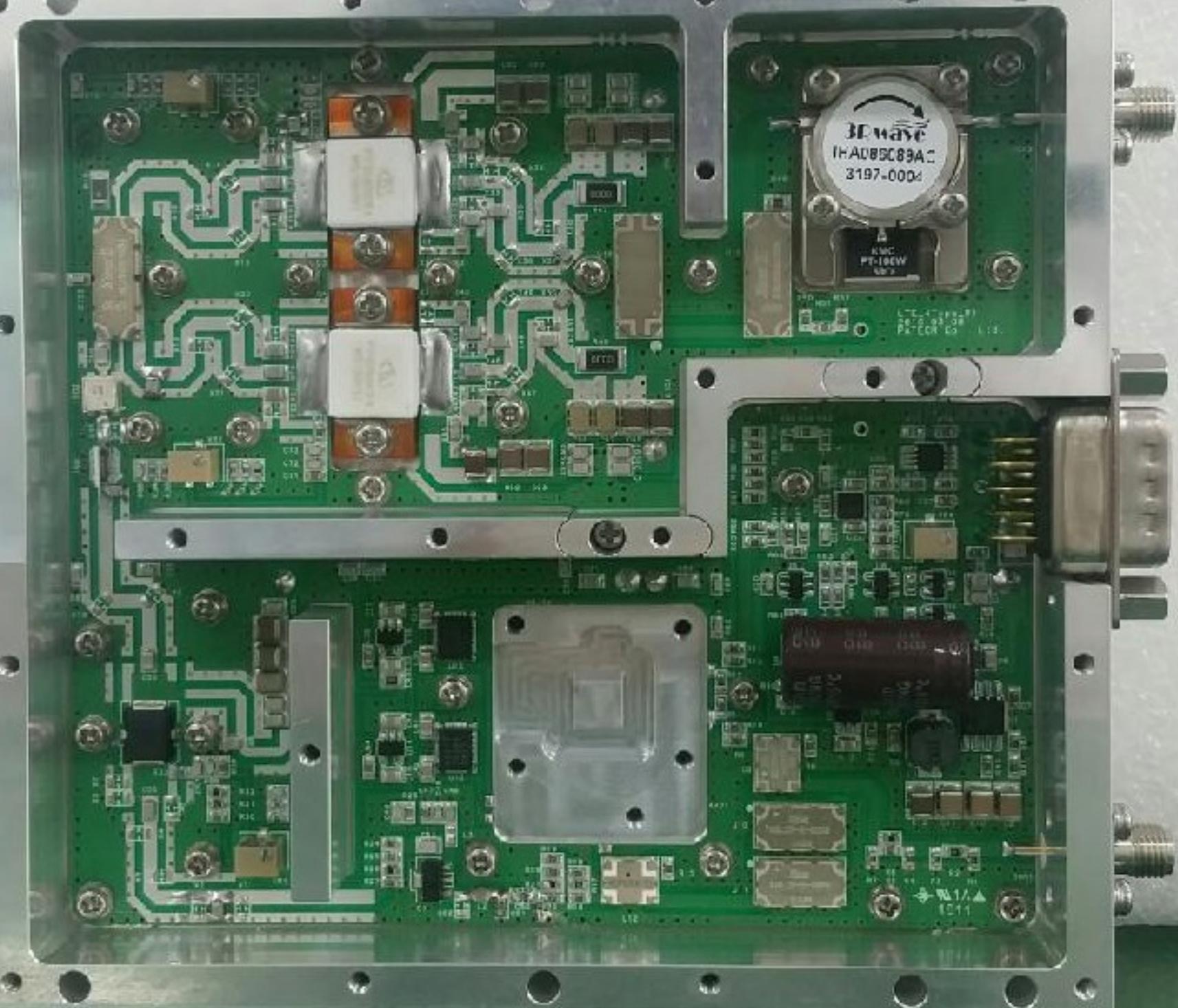
RF OUT

WARRANTY  
IF SEAL IS  
BROKEN

WARRANTY VOID  
IF SEAL REMOVED

WARRANTY VOID  
IF SEAL REMOVED

AA08669MLB25M40S



▲ ▼  
RF OUT

▲ ▼  
RF IN

Removal

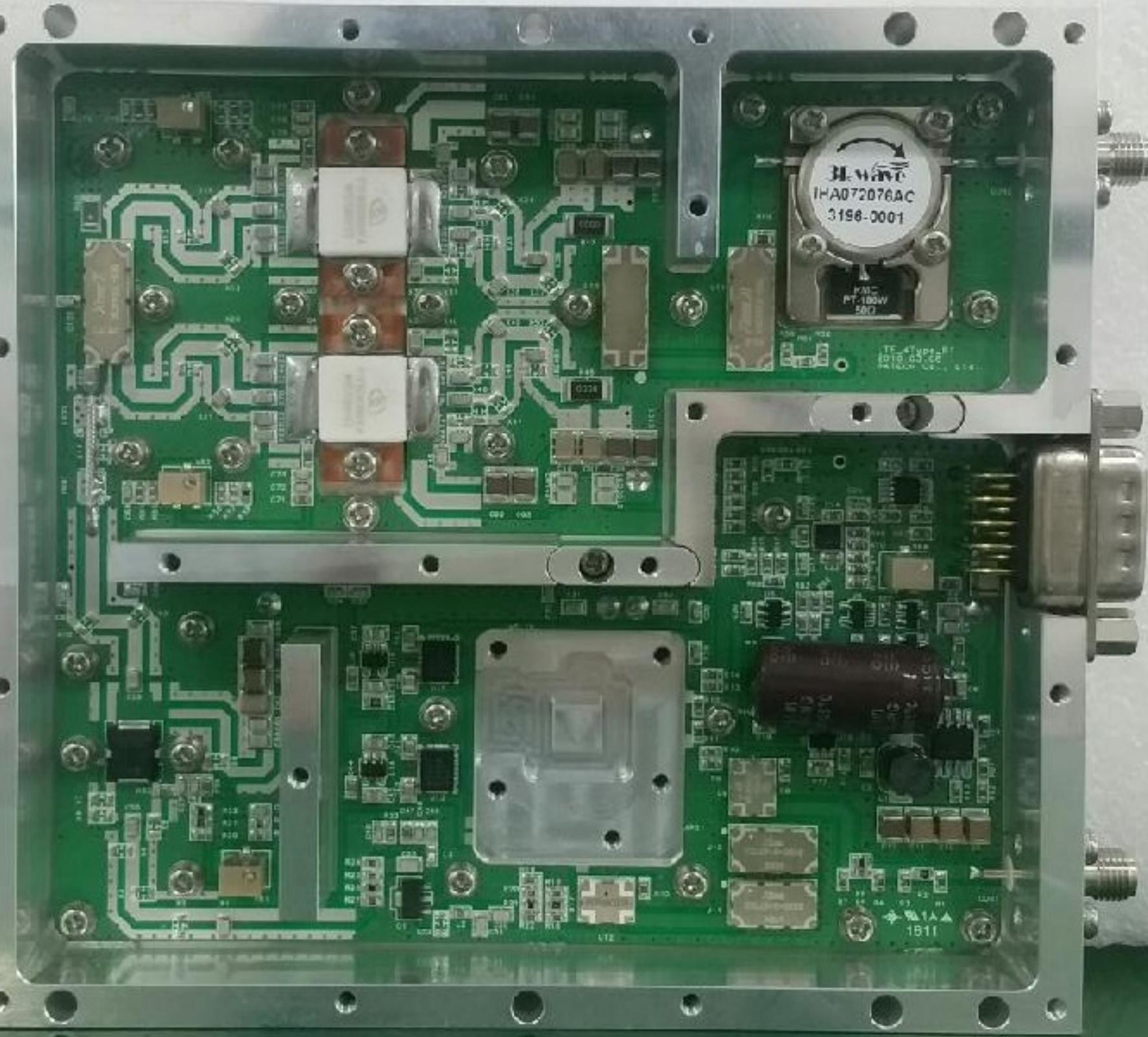
- 1 Detect
- 2 Enable/Disable
- 3 GND
- 4 Reset
- 5 Over Temperature Alarm
- 6 VCC / +29.5V
- 7 VCC / +29.5V
- 8 GND
- 9 GND

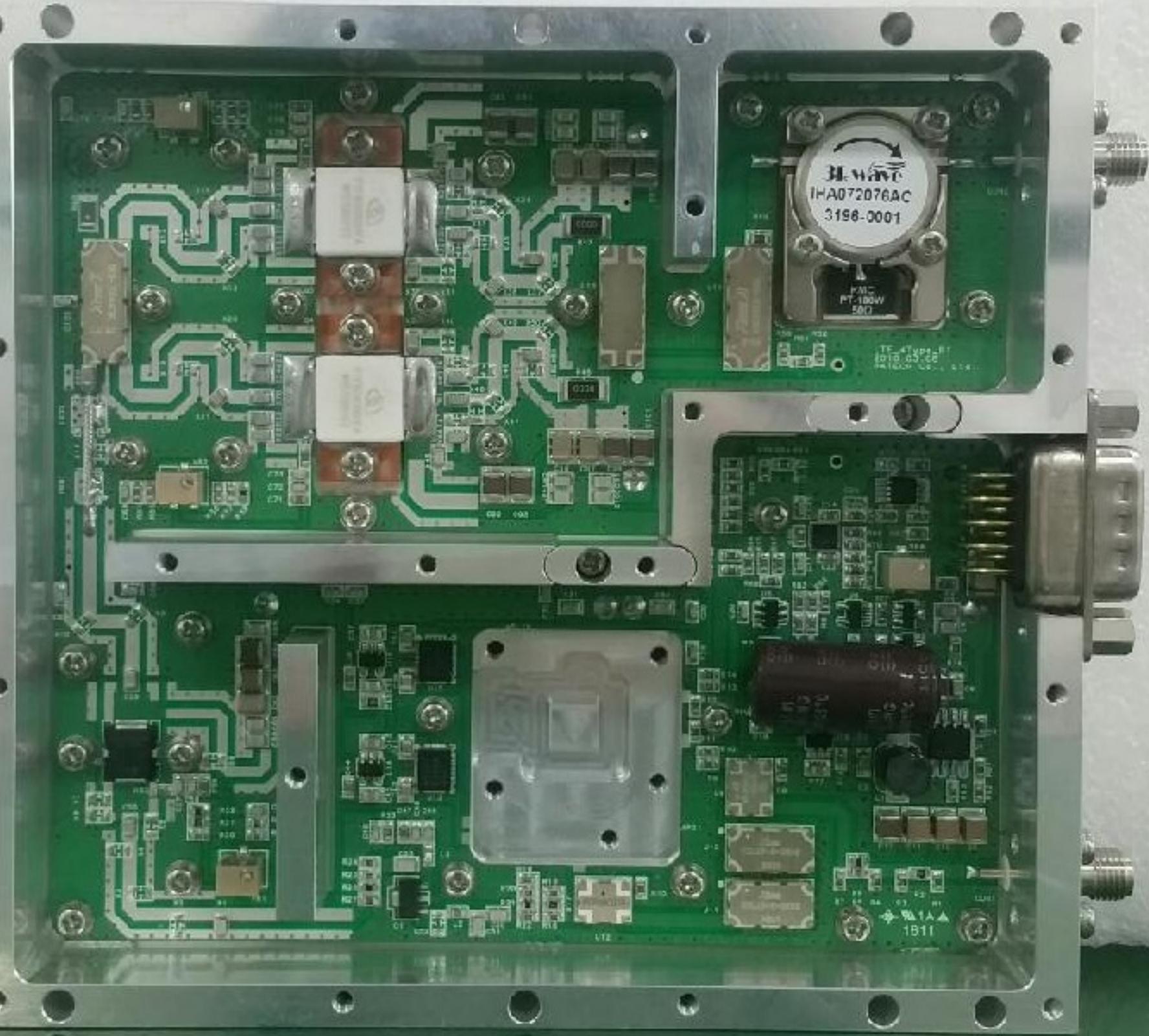
Removal

WARRANTY VOID  
IF SEAL REMOVED

WARRANTY VOID  
IF SEAL REMOVED

AA0728MLB29M40S





▲ ▼  
RF OUT

▲ ▼  
RF IN

Removal

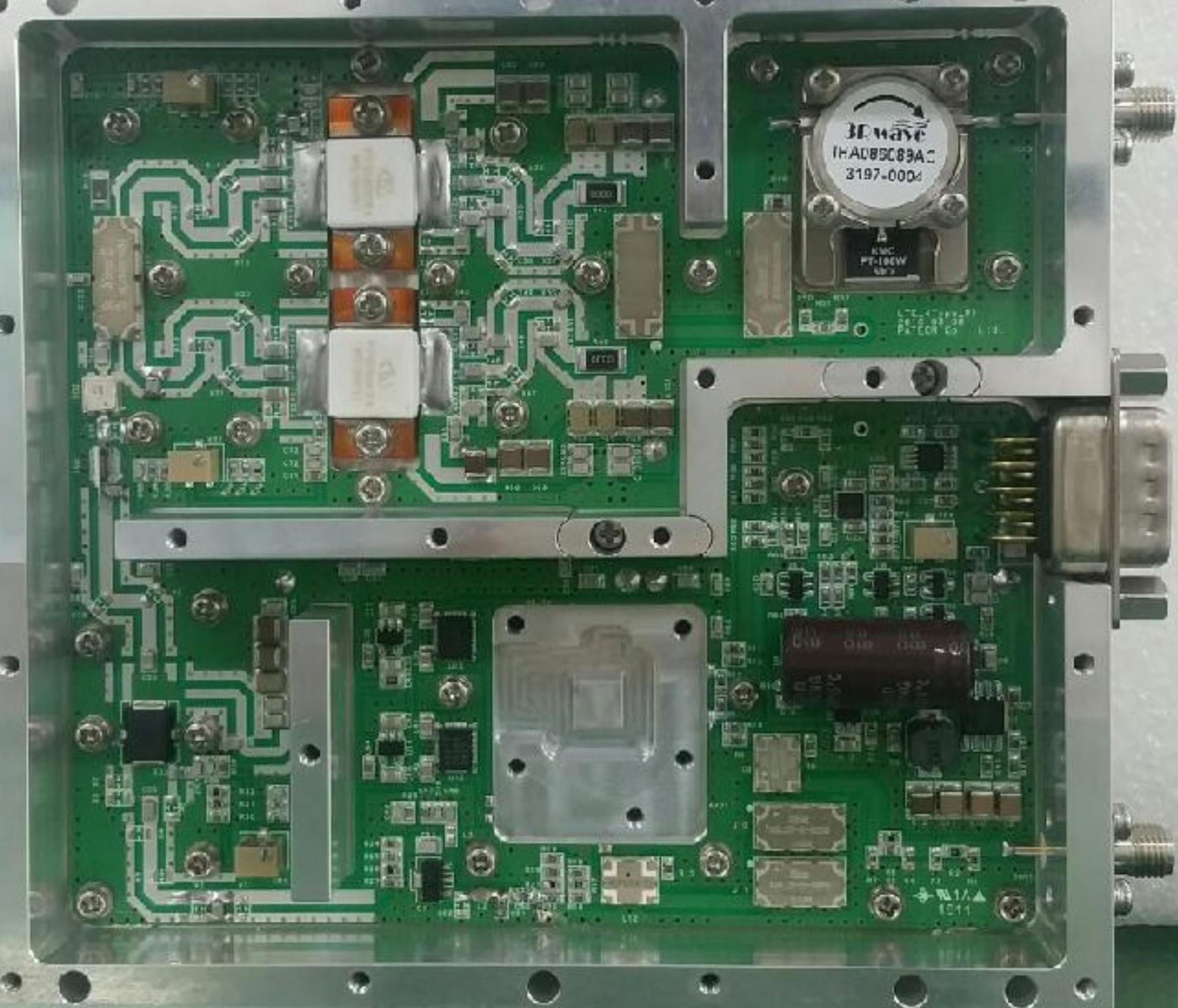
- 1 Detect
- 2 Enable/Disable
- 3 GND
- 4 Reset
- 5 Over Temperature Alarm
- 6 VCC / +29.5V
- 7 VCC / +29.5V
- 8 GND
- 9 GND

Removal

WARRANTY VOID  
IF SEAL REMOVED

WARRANTY VOID  
IF SEAL REMOVED

AA0728MLB29M40S



▲  
RF OUT

▲  
1 Detect

2 Enable/Cl--HIE

3 CND

4 Reset

5 Over Temperature Alarm

6 VCC / +29.5V

7 VCC / +29.5V

8 CND

9 GND

▼  
RF IN

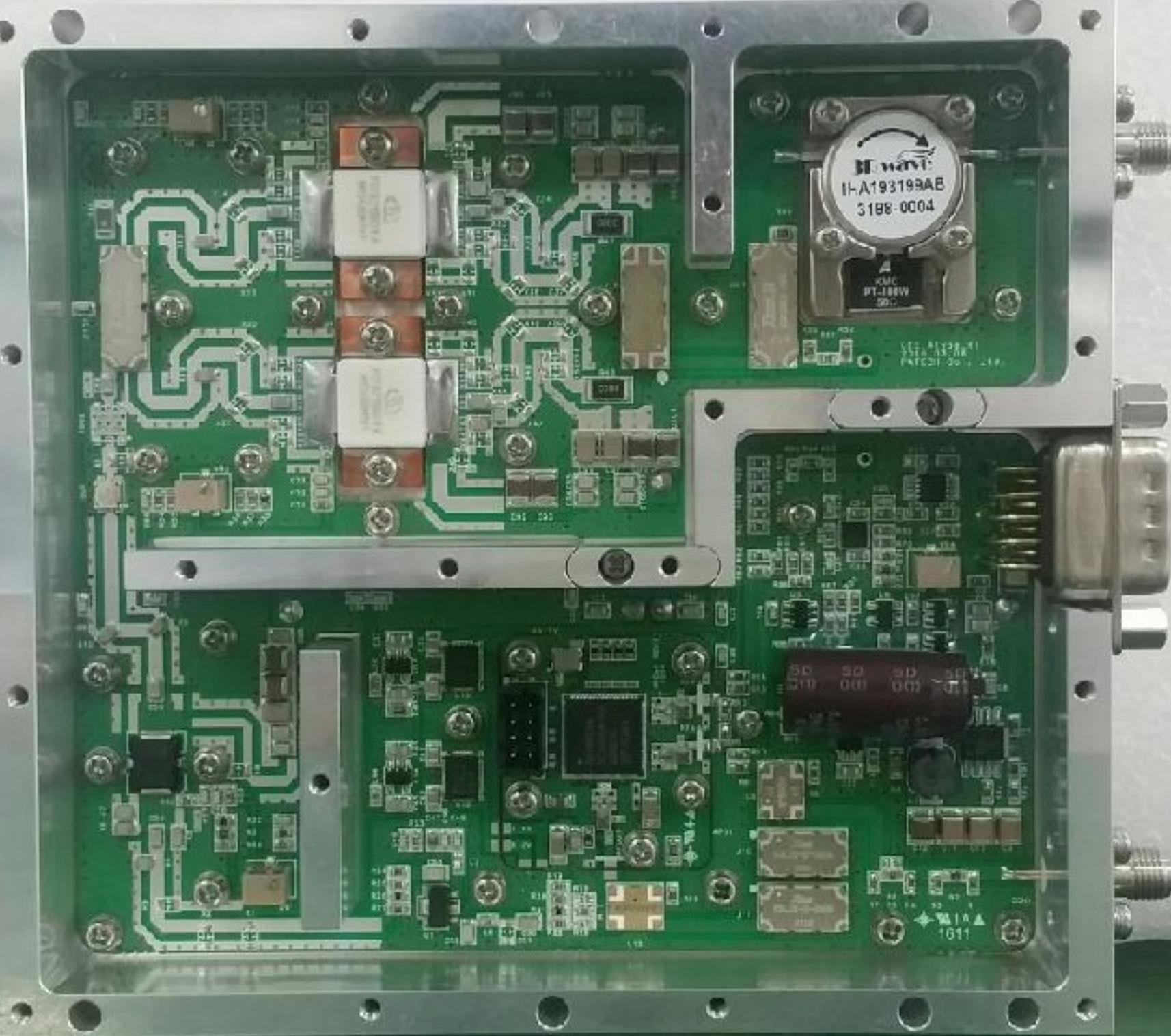
Removal

Removal

WARRANTY VOID  
IF SEAL REMOVED

INTY VOID  
REMOVED

AA0869MLB25M40S



▲  
RF OUT

▲  
Detect

▼  
RF IN

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

Remova

Removal

WARRANTY VOID  
IF SEAL REMOVED

WARRANTY  
IF SEAL  
REMOVED

AA1930MLB65M40S

WARRANTY VOID  
IF SEAL REMOVED

▲▼

1. Output

2. Ground

3. GND

4. Ground

5. Other (Power, V<sub>DD</sub>, V<sub>DD</sub>, V<sub>DD</sub>)

6. V<sub>DD</sub>

7. V<sub>DD</sub>

8. GND

9. GND

▼

RF IN

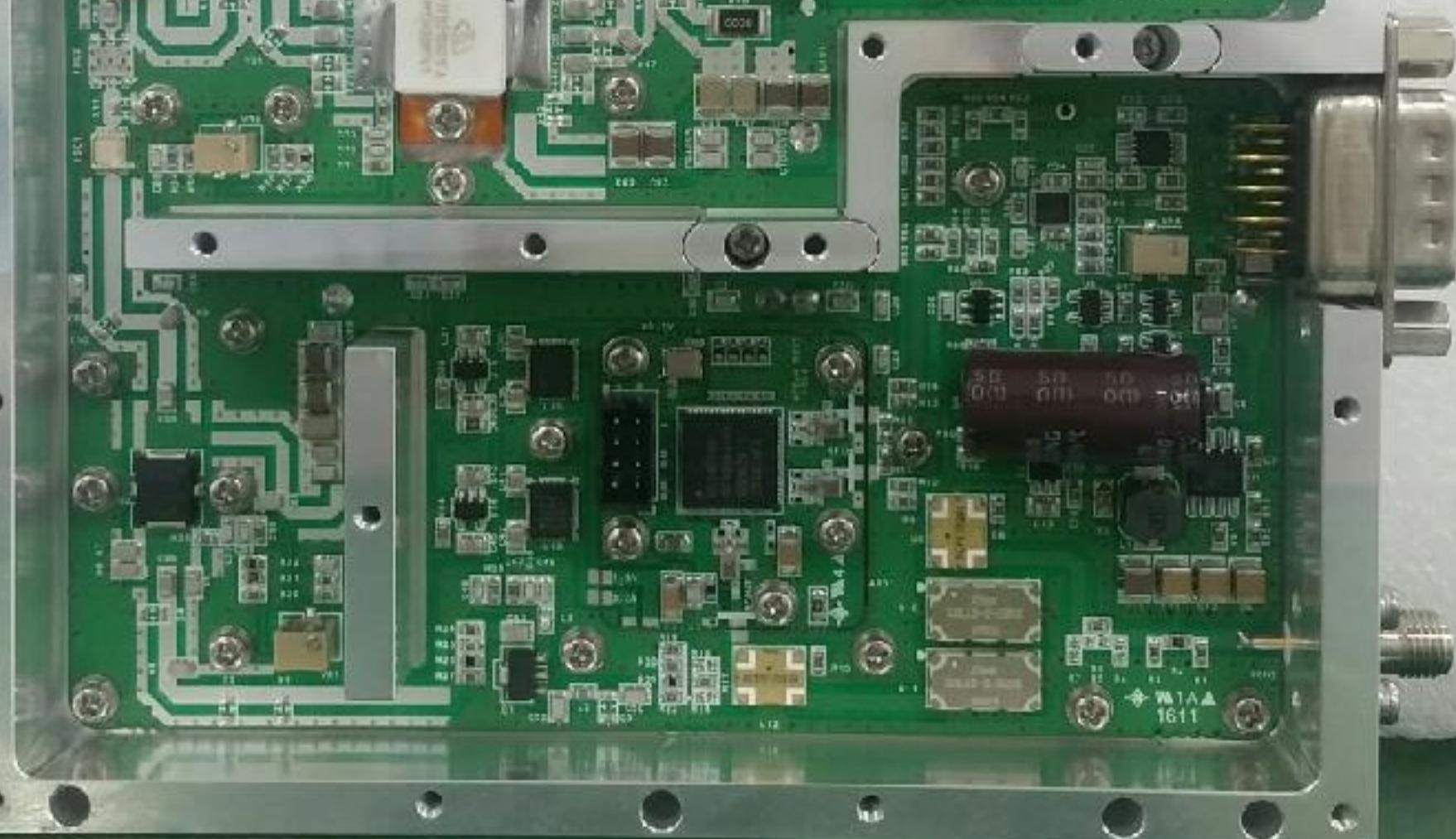
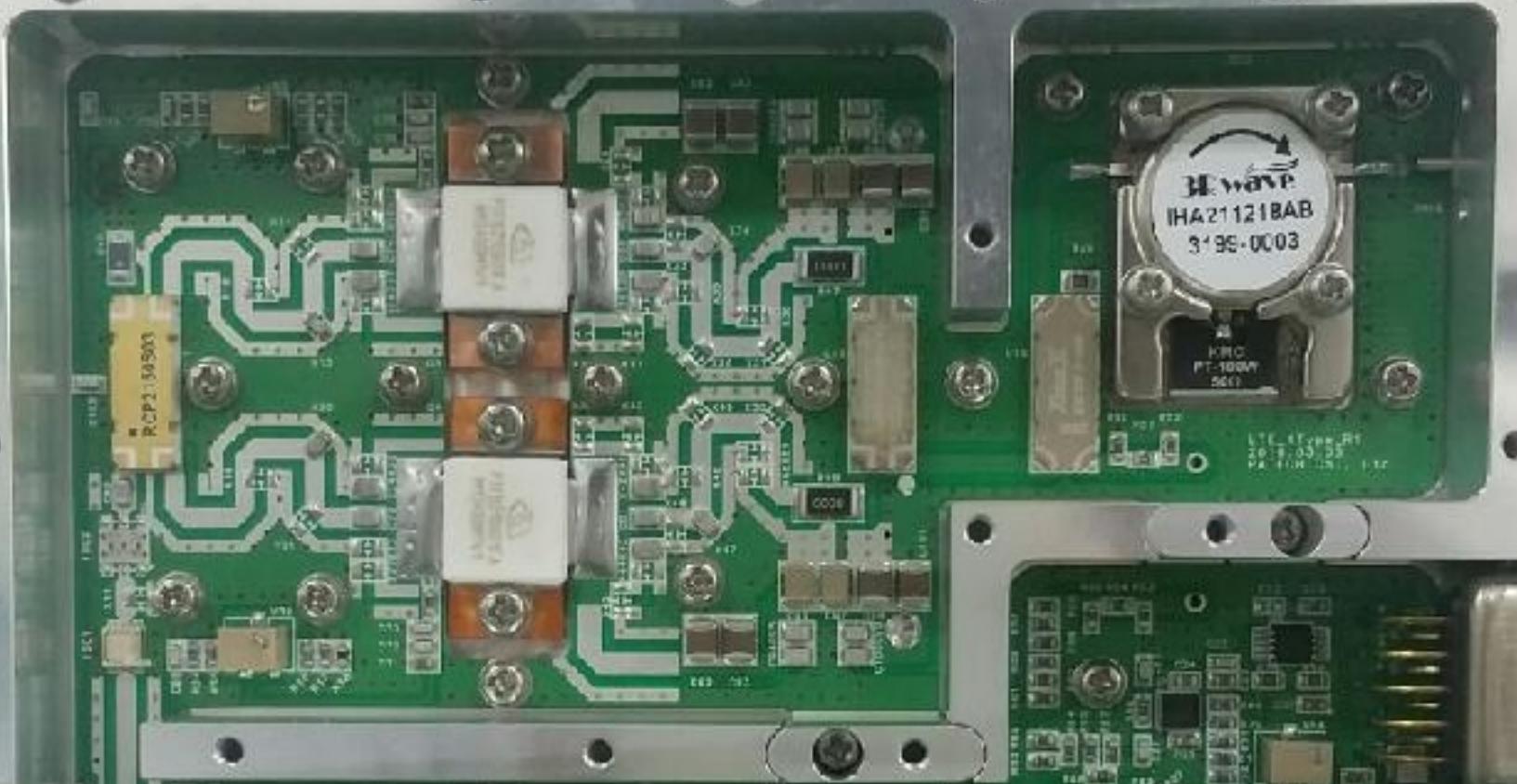
Removal

WARRANTY  
IF SEAL IS  
BROKEN

WARRANTY VOID  
IF SEAL REMOVED

WARRANTY VOID  
IF SEAL REMOVED

AA08669MLB25M40S



▲  
RF OUT

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

▼  
RF IN

Removal

Removal

WARRANTY  
IF SEAL  
REMOVED

WARRANTY VOID  
IF SEAL REMOVED

NTY VOID  
REMOVED

**AA2110MLB70M40S**



S150H0694163004

**AA1930MLB65M405**

100%

100%

WARRANTY VOID  
IF REMOVED



WARRANTY  
IF SEAL

**DRJ**

Rev. 0.3  
2016.03.08



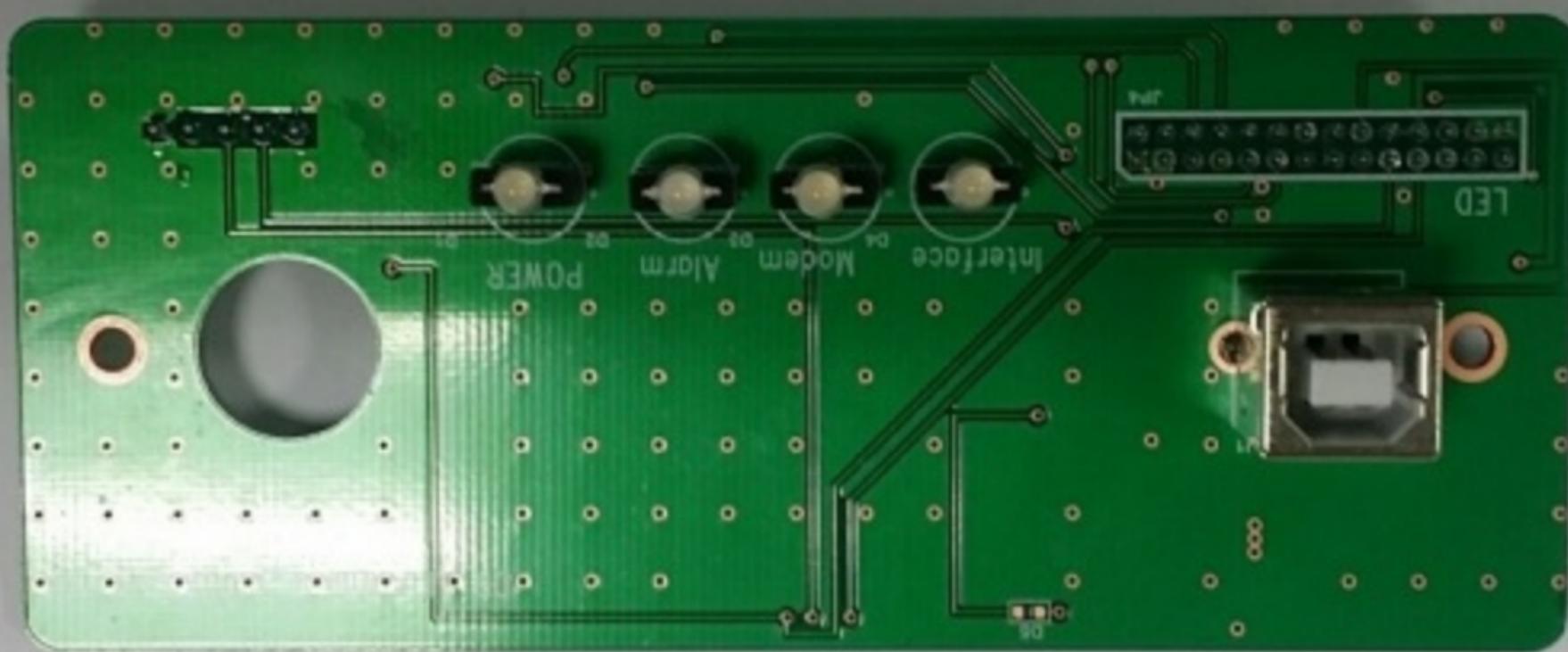
DRJ

Rev.0.3  
2016-03-08



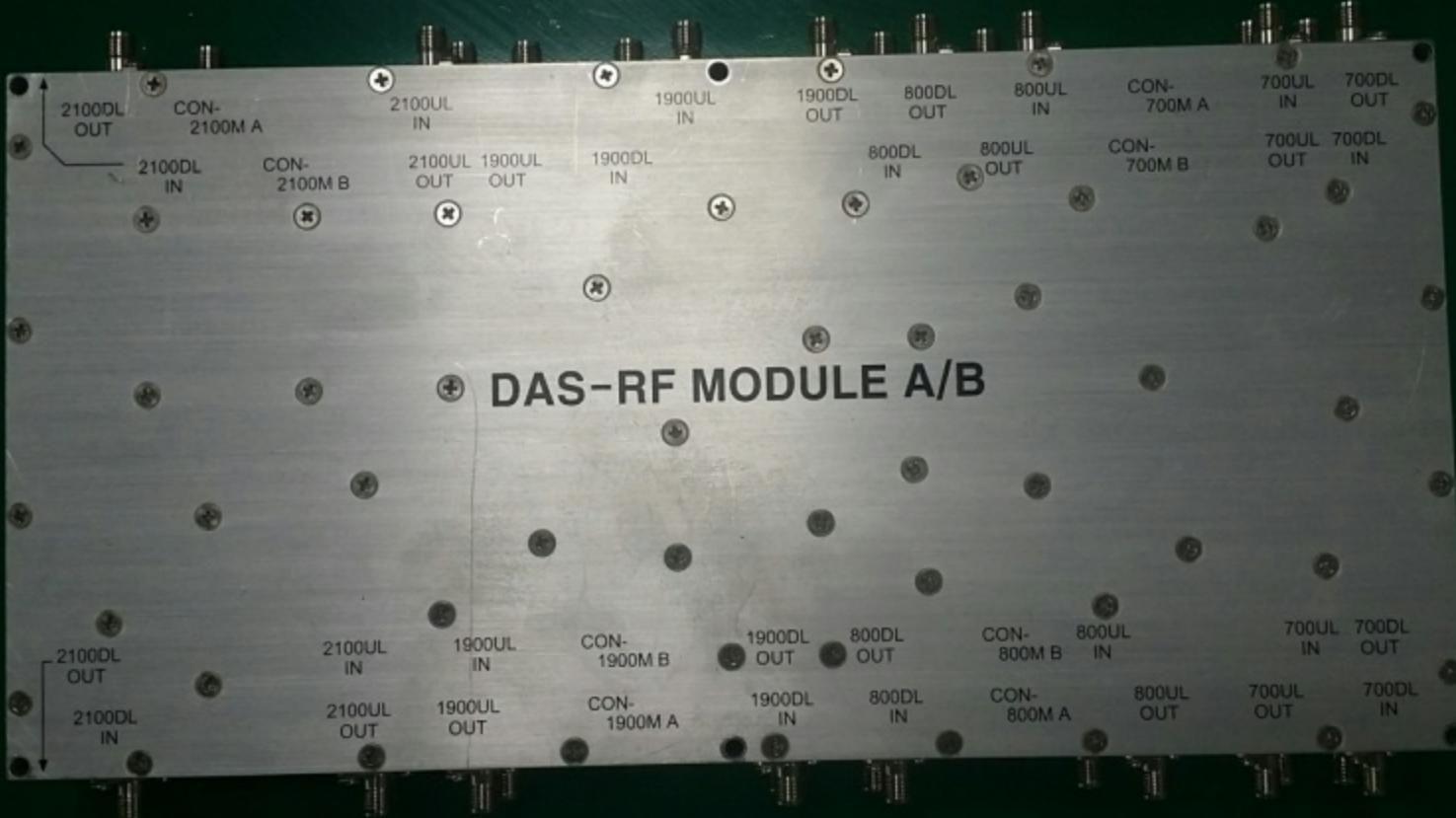
WIZ550S2E  
Ver1.1

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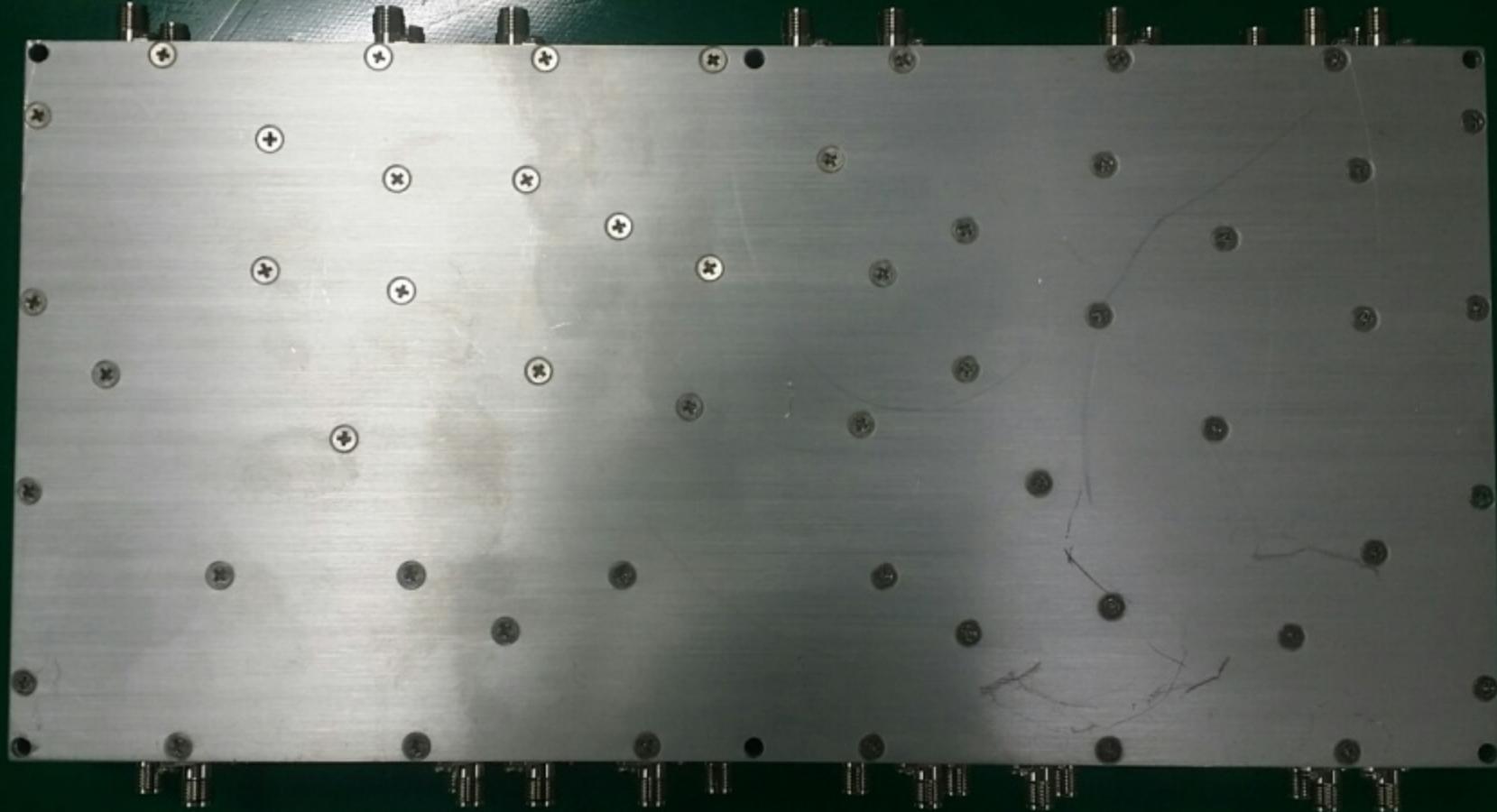


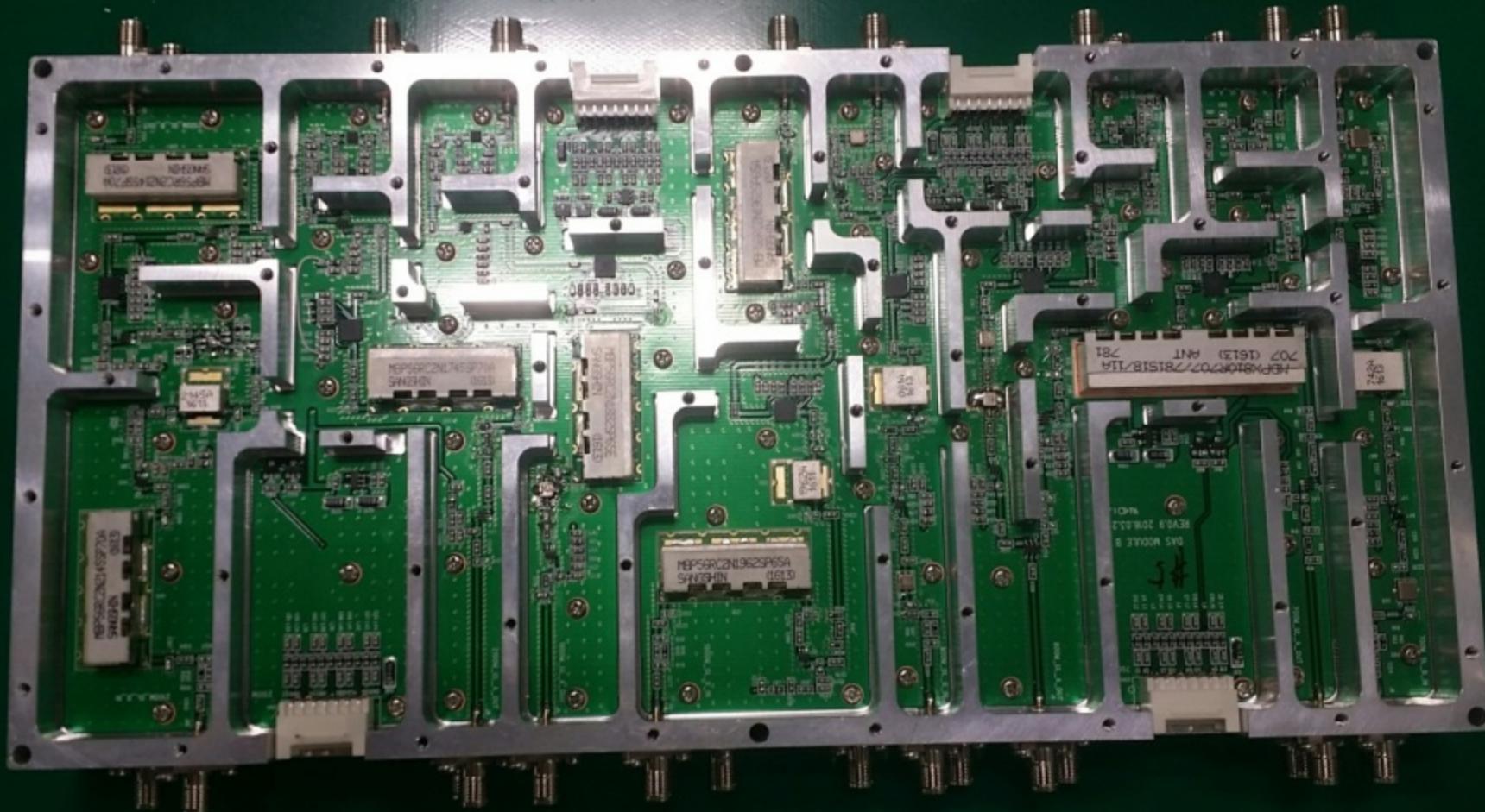
**DAS-RF MODULE A/B**

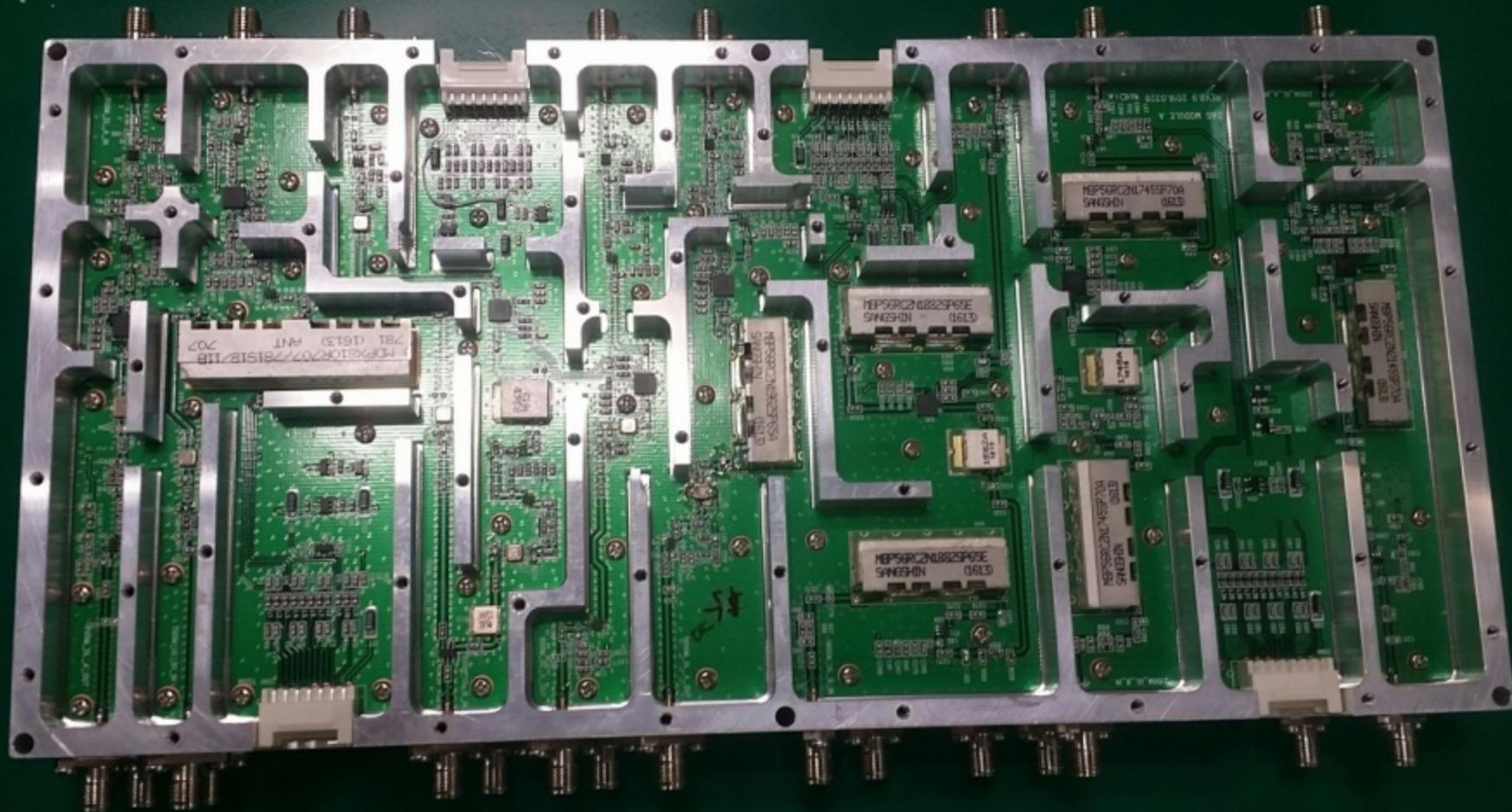


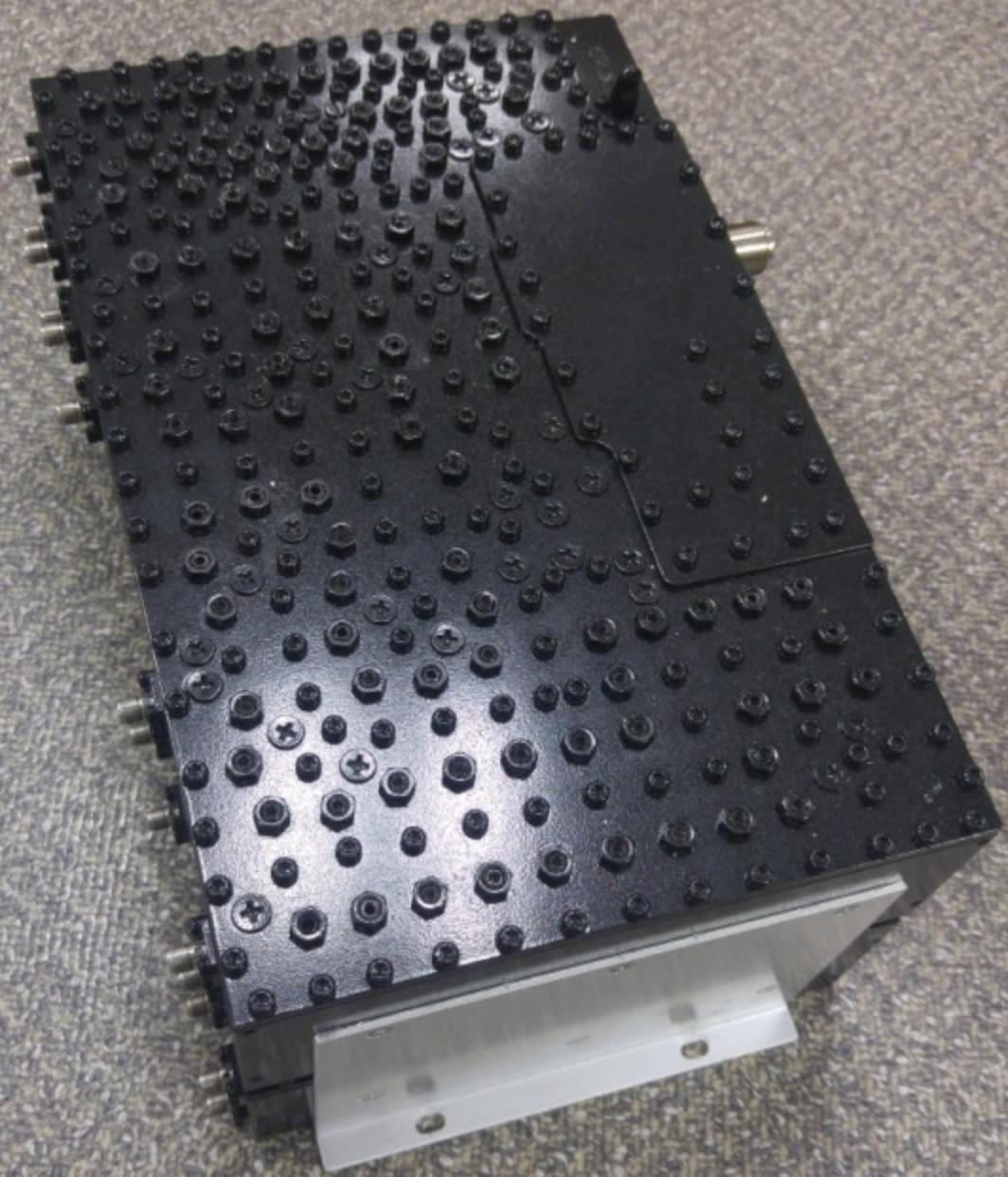
DAS-RE MODULE A/B







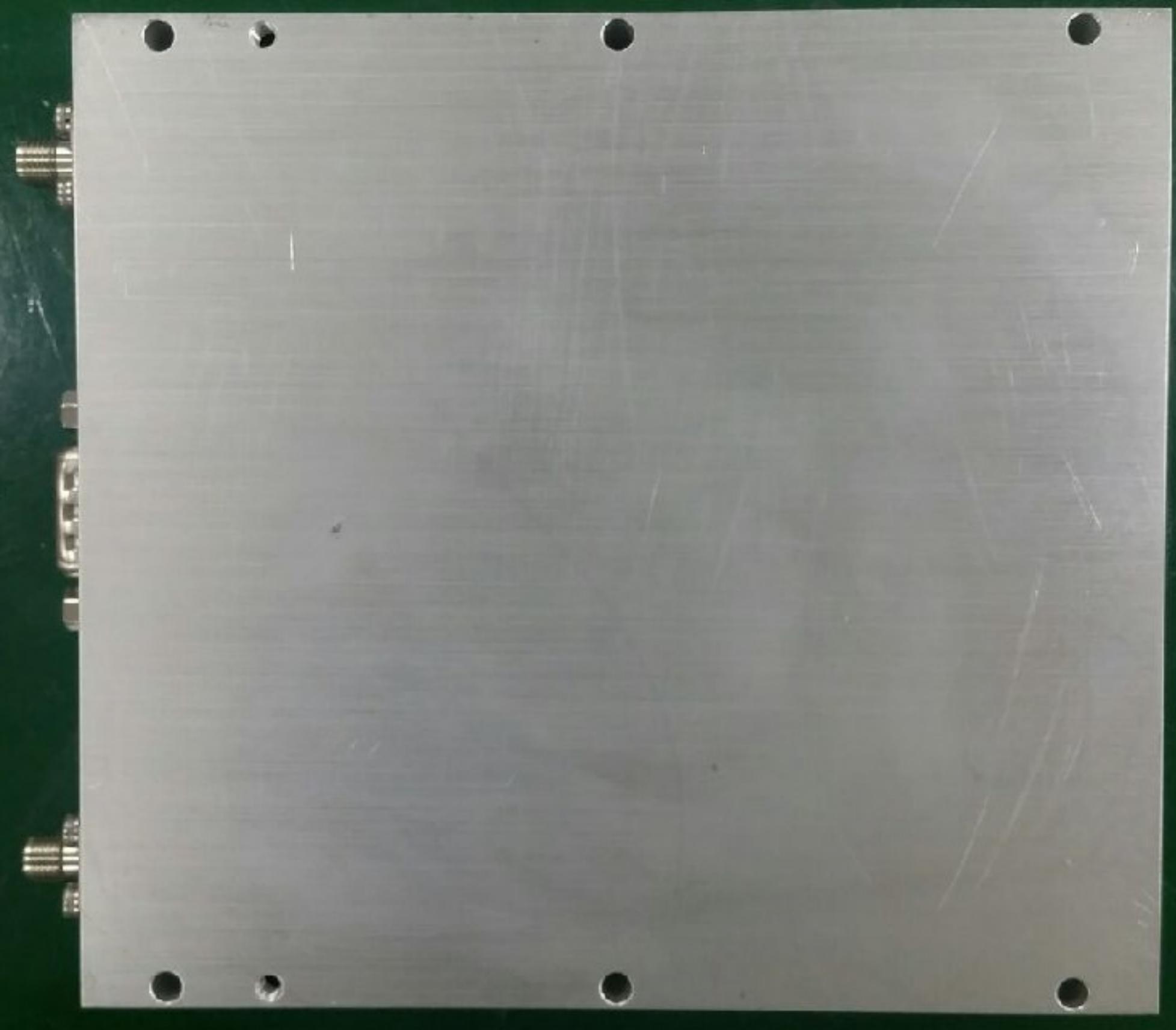














ON 27

**DAS-RF MODULE A/B**

ANTRASAT-A/MSAT-1/2





S150H0694163004

**AA1930MLB65M405**

100%

100%

WARRANTY VOID  
IF 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

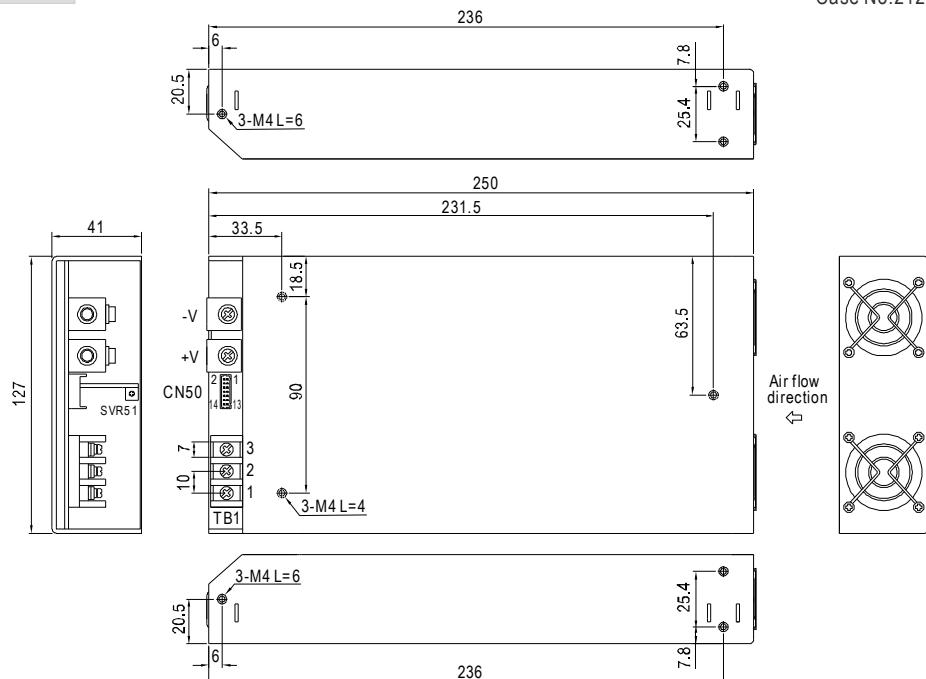


## SPECIFICATION

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
	RATED CURRENT	100A	62.5A	50A	31.3A	27.8A
	CURRENT RANGE	0 ~ 100A	0 ~ 62.5A	0 ~ 50A	0 ~ 31.3A	0 ~ 27.8A
	RATED POWER	500W	750W	750W	751.2W	750.6W
	RIPPLE & NOISE (max.) Note.2	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
	VOLTAGE TOLERANCE Note.3	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±2.0%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	1000ms, 50ms at full load				
INPUT	HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load				
	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%
	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			
PROTECTION	LEAKAGE CURRENT	<2.0mA / 240VAC				
	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
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, re-power on to recover				
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				
OTHERS	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A				
	MTBF	120.8K hrs min. MIL-HDBK-217F (25°C)				
	DIMENSION	250*127*41mm (L*W*H)				
NOTE	PACKING	1.64Kg; 6pcs/10.8Kg/1.1CUFT				
	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



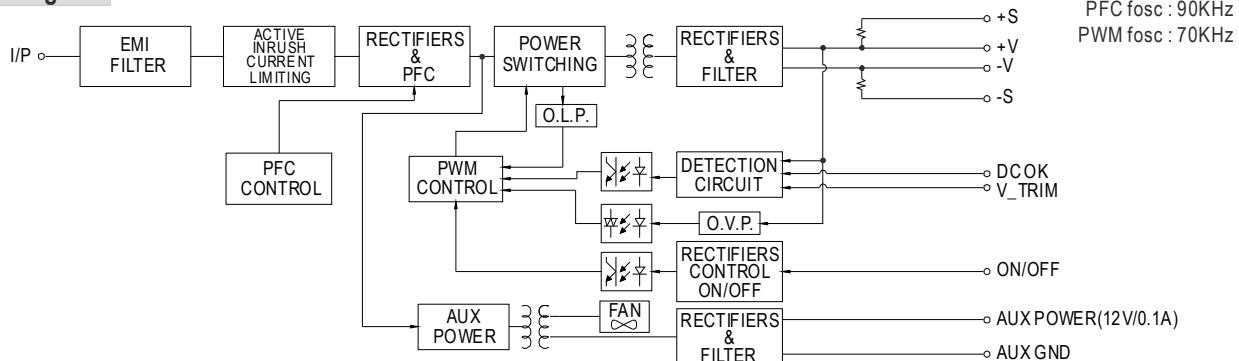
## AC Input Terminal Pin No. Assignment

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

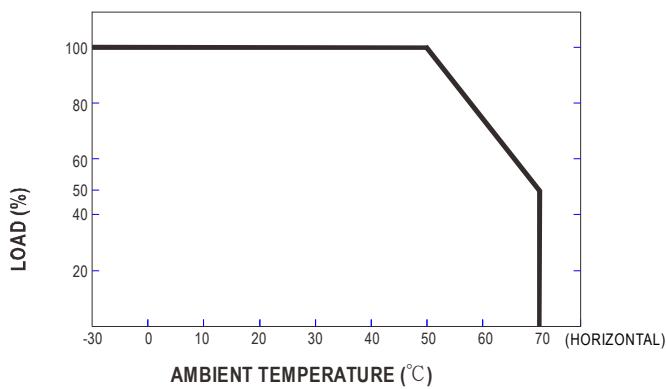
## Control Pin No. Assignment (CN50) : HRS DF11-14DP-2DS or equivalent

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				

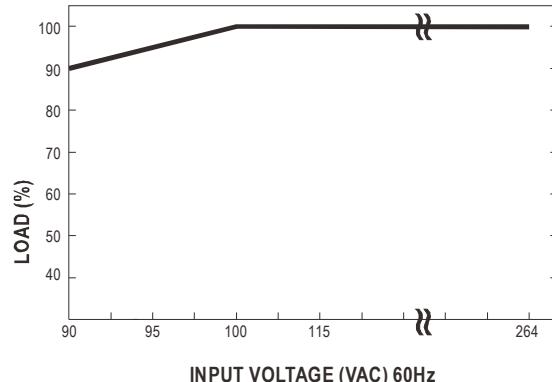
## ■ Block Diagram



## ■ 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

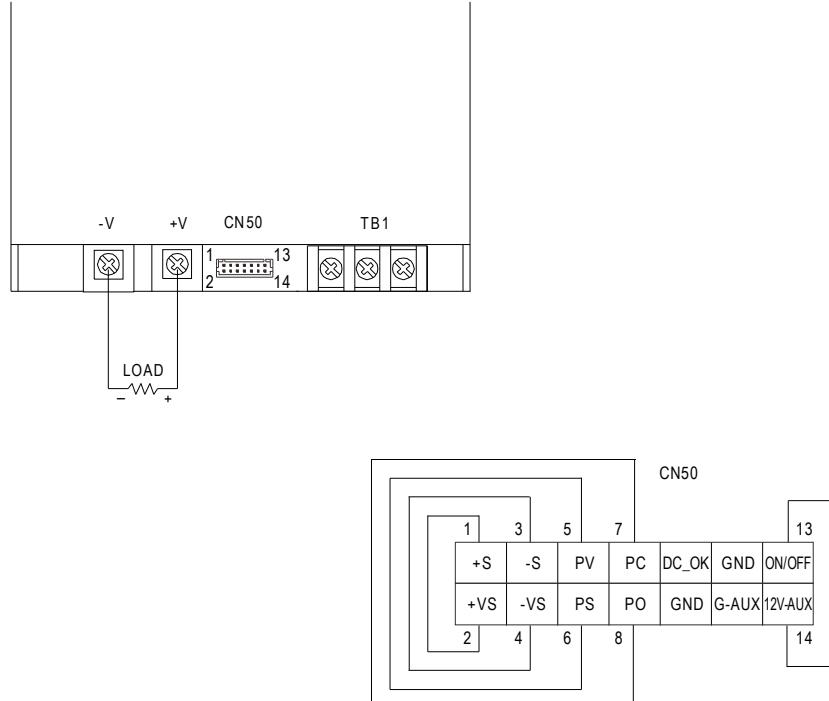
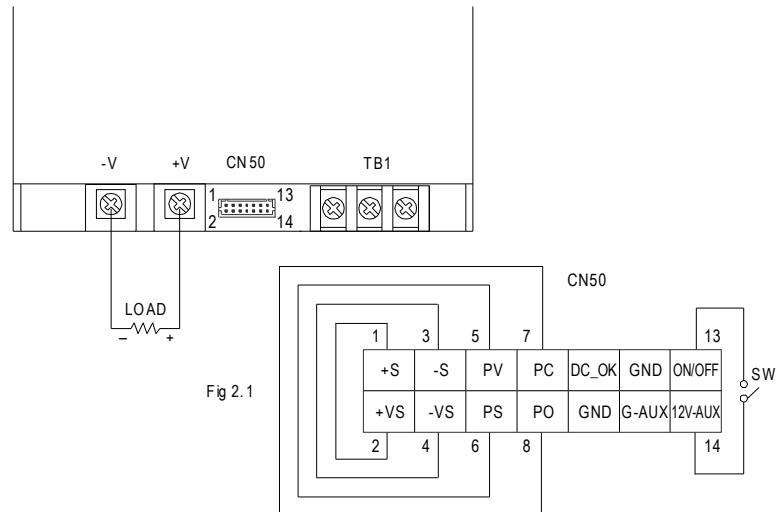


Fig 1.1 (Shorting connector)

## 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



## 3. DC\_OK signal

"DC\_OK" is an open collector signal.

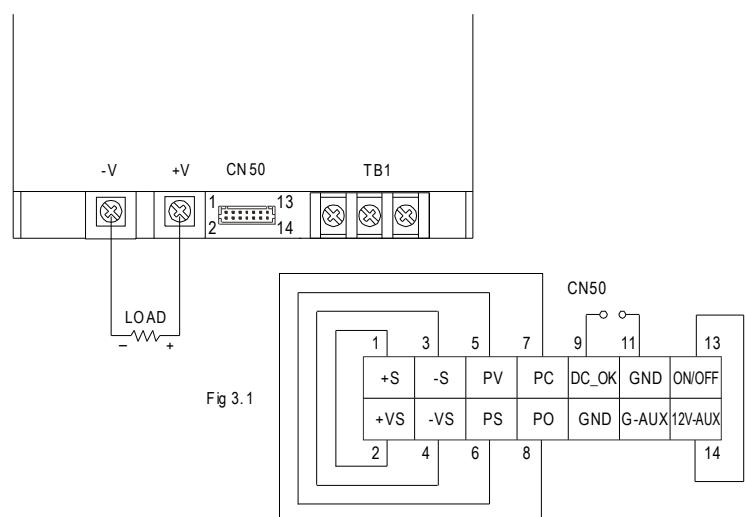
It indicates the output status of the PSU. It can operate in two ways: One is sinking current from external TTL signal; the other is sending out a TTL voltage signal.

### 3-1 Sink current :

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

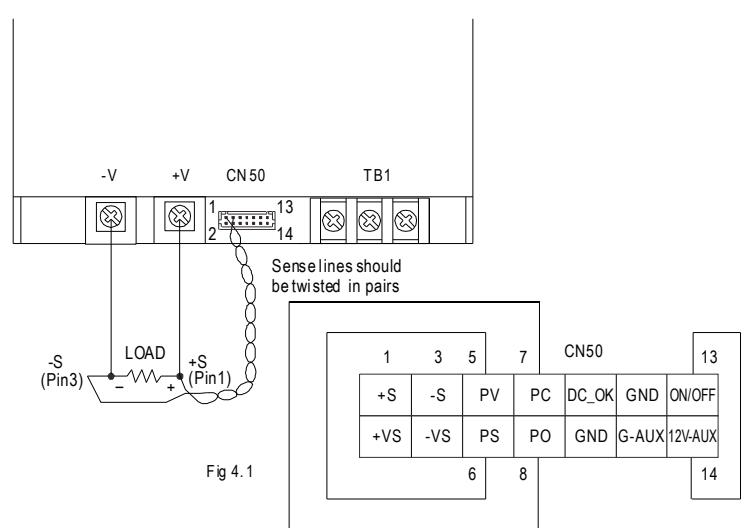
### 3-2 TTL voltage signal :

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



## 4. Remote Sense

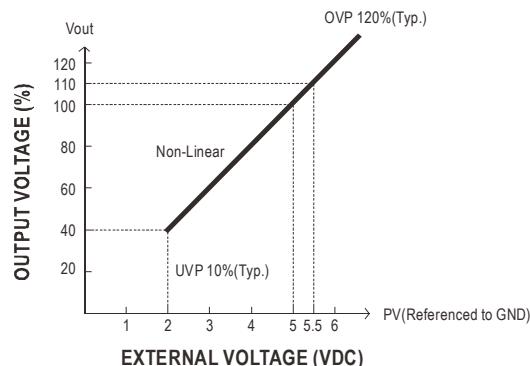
The remote sensing compensates voltage drop on the load wiring up to 0.5V.



### 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.

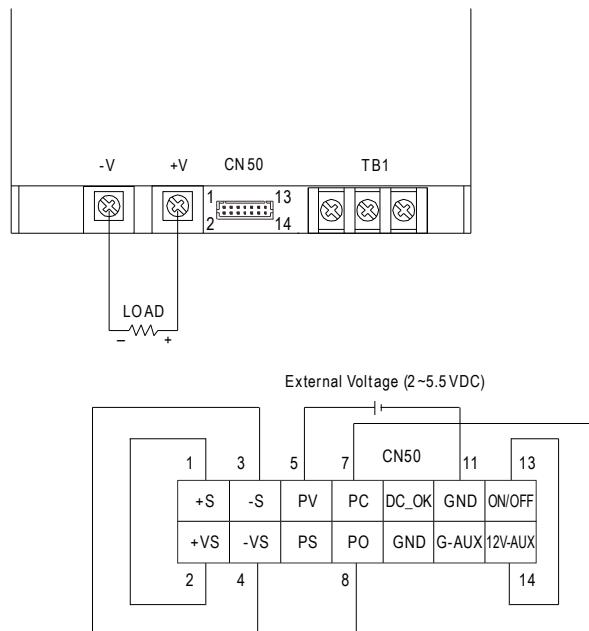


Fig 5.1

### 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

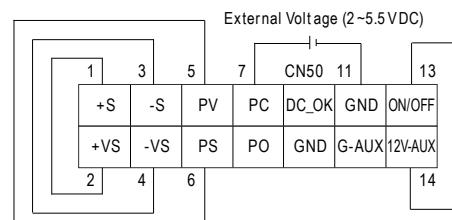
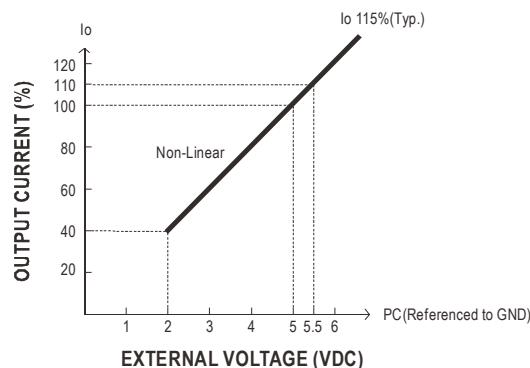


Fig 6.1

# ATTACHMENT

# Photo Documentation

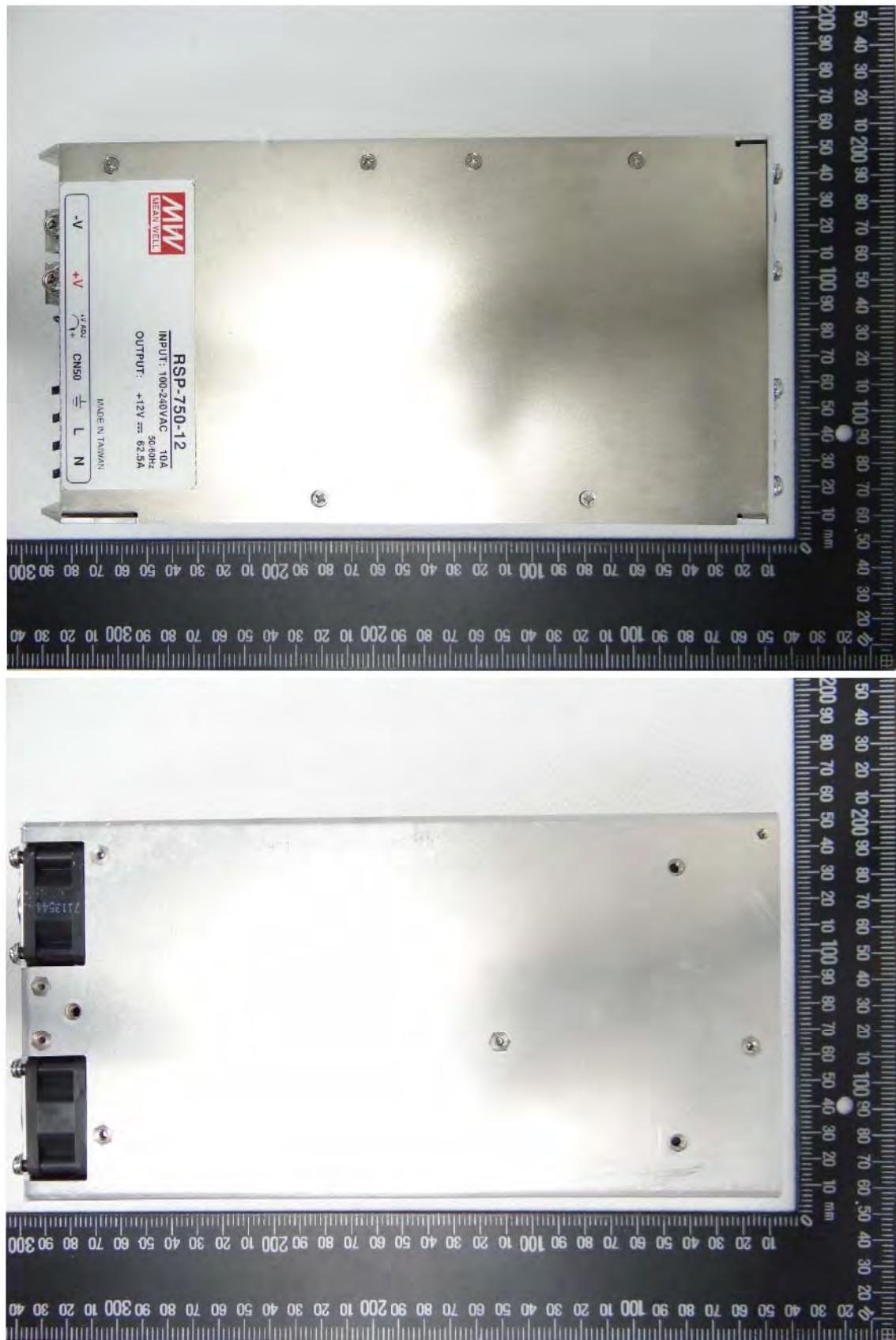


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Report No.: 11028807 001

Product: Switching Power Supply

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



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