

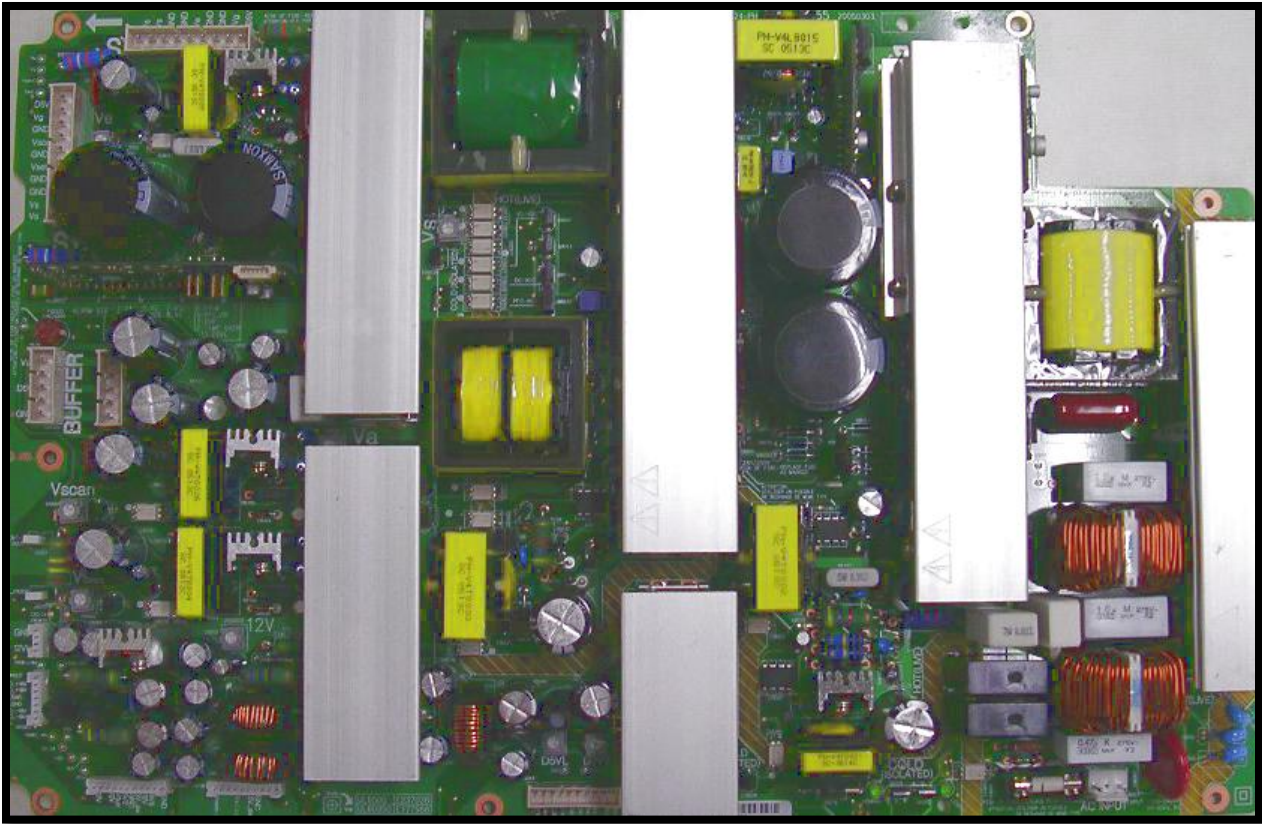
# PHILIPS

sense and simplicity

996500033880 SDI PSU (LJ44-00101C) repair tips

May 21, 2009

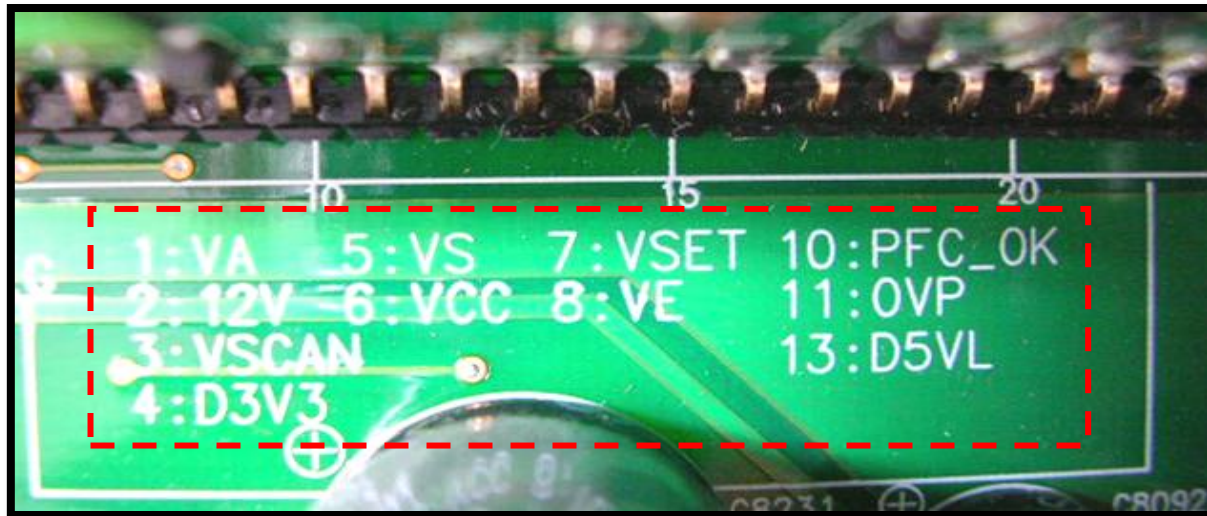
# SDI PSU (LJ44-00101C)



# SDI PSU (LJ44-00101C)

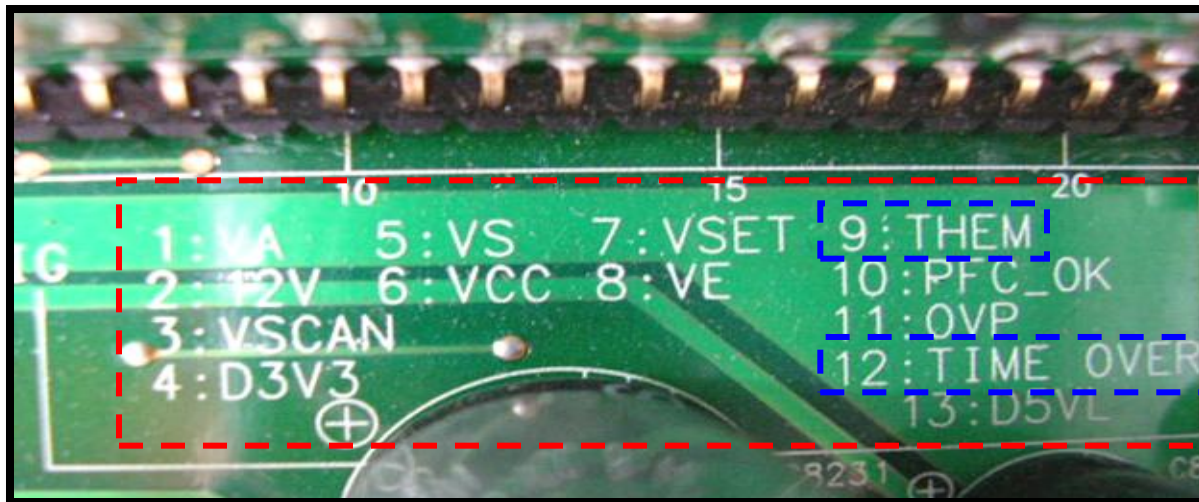
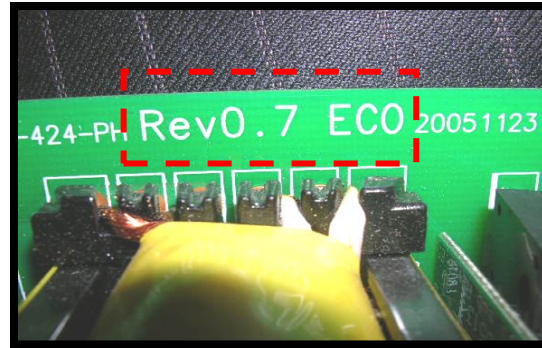
- This document describes how to activate error codes in stand alone mode and what to check based on the errors observed.

# Difference between Rev 0.65 and Rev 0.7



7 types of errors could be detected by Alarm board

# Difference between Rev 0.65 and Rev 0.7



Two extra errors detected by Alarm board

# PHILIPS

sense and simplicity

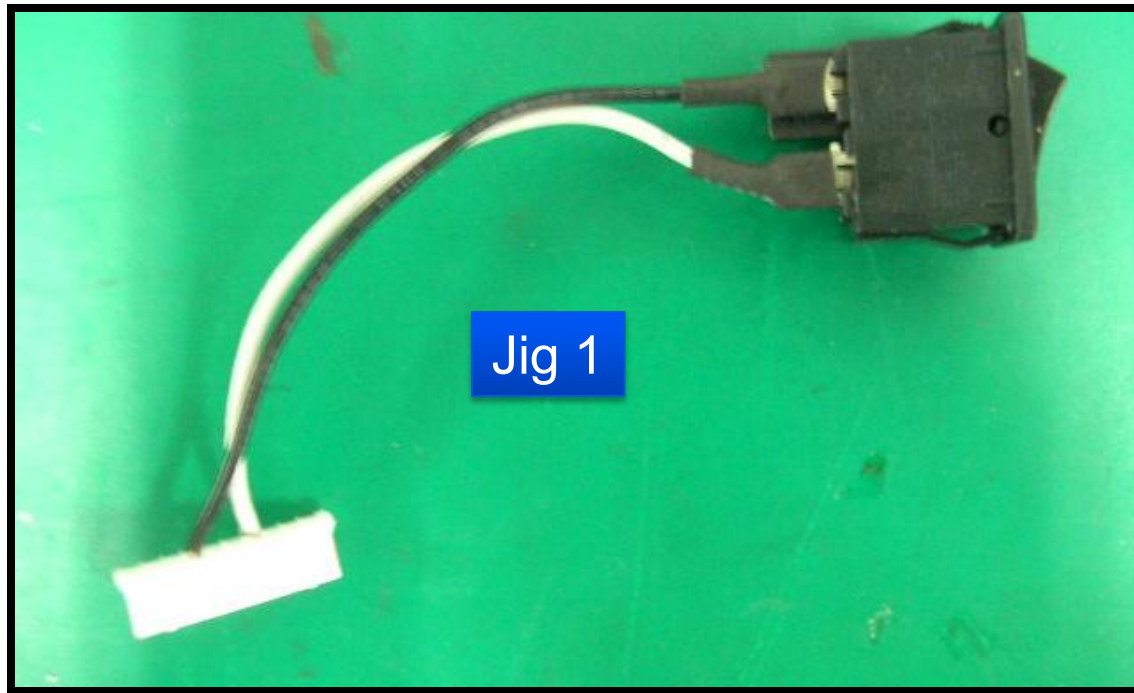
## Preparation

May 21, 2009

# Jigs required to activate error codes

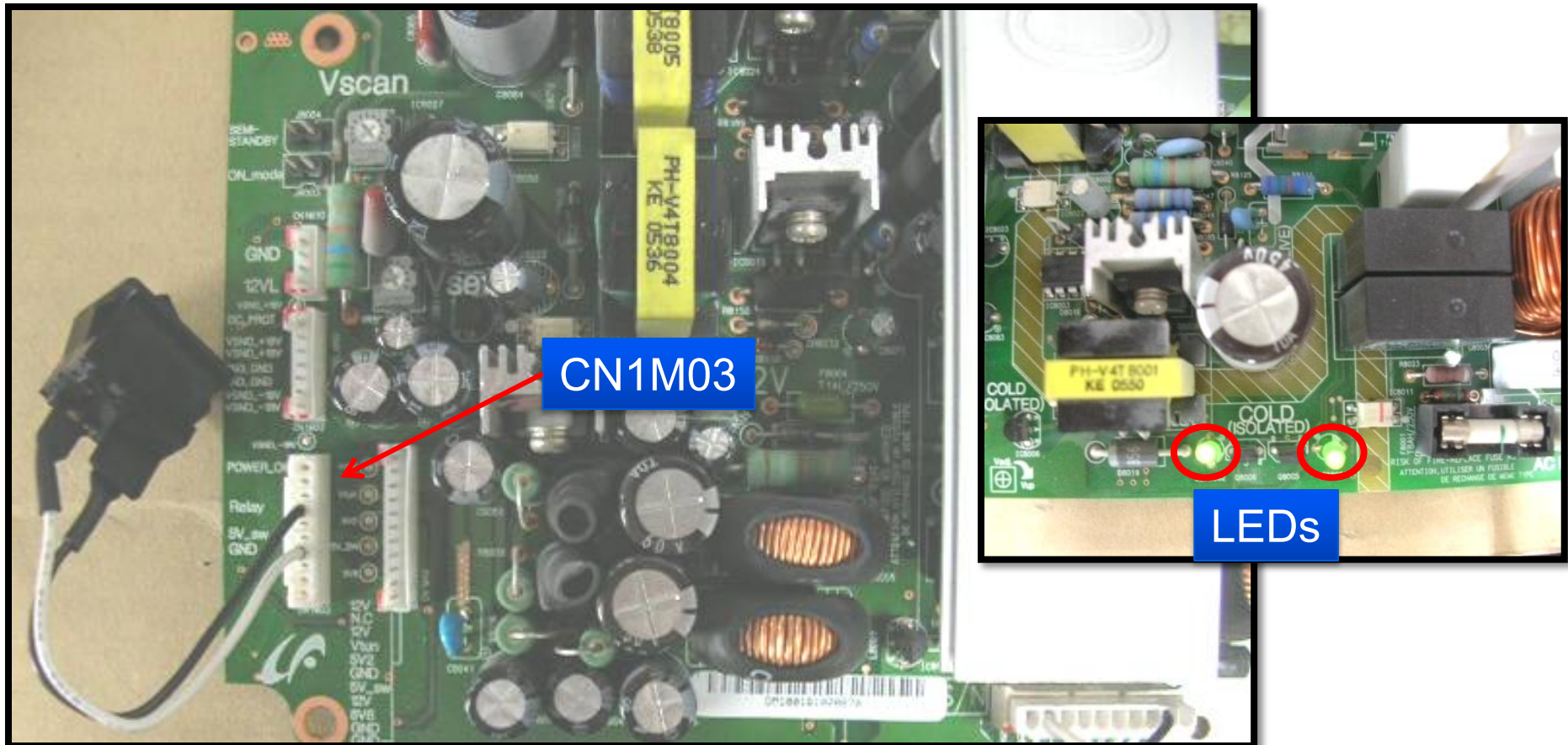
Jig 1 is connected to socket CN1M03

Pin 7 and pin 4 are connected to the switch as shown below:



# Function of jig 1

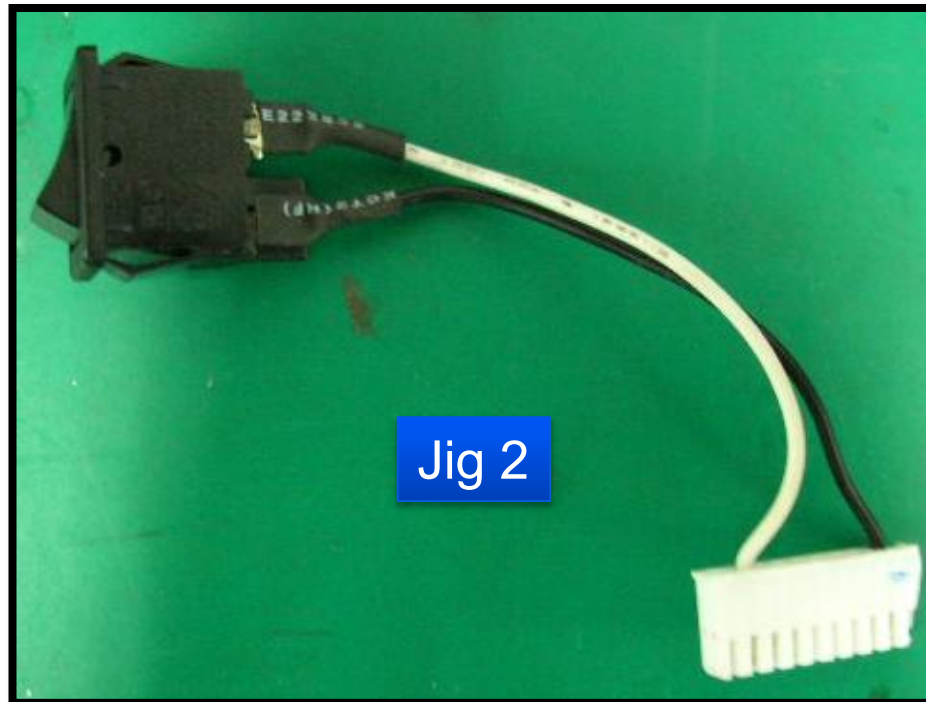
- When this switch is turned on, relay should give click sound
- LED8001 and LED8002 should turn ON





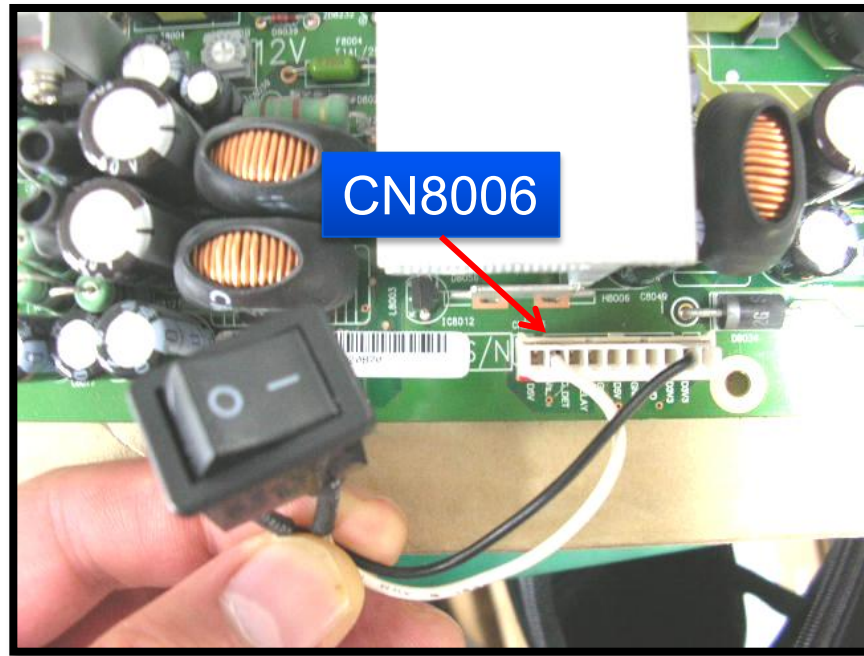
# Jigs required to activate error codes

Jig 2 is connected to socket CN8006 to short circuit Vs\_On (pin 9) and D3V3 (pin 2) together.



# Function of jig 2

- When jig 1 and jig 2 are switched on, alarm board can be activated to generate error codes via LED BD8903 on alarm board.

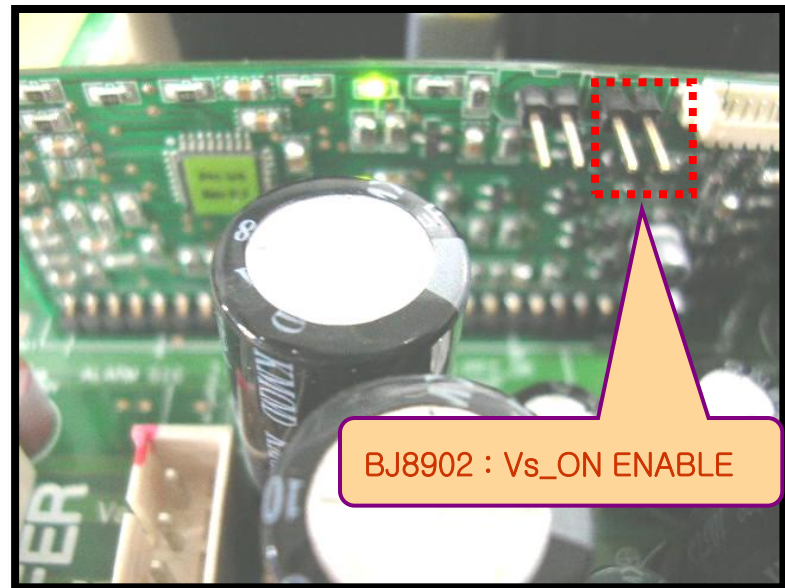


# Jigs required to activate error codes

Jig 3 is connected on alarm board to short circuit two pins located on right hand side

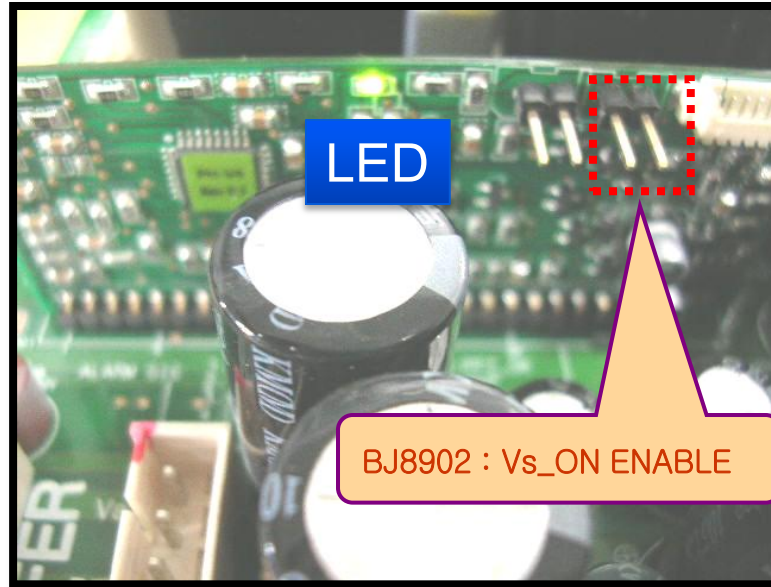


Jig 3



# Function of jig 3

- When jig 1 and jig 2 and jig 3 are switched on, LED on alarm board would generate error code if PSU is faulty



# What is next?

- Remove all the plugs from PSU
- Insert the three jigs which you made
- Apply power
- Look for LED on alarm board
- If LED is blinking, count the number of blinks and see relevant repair tip

# Error codes

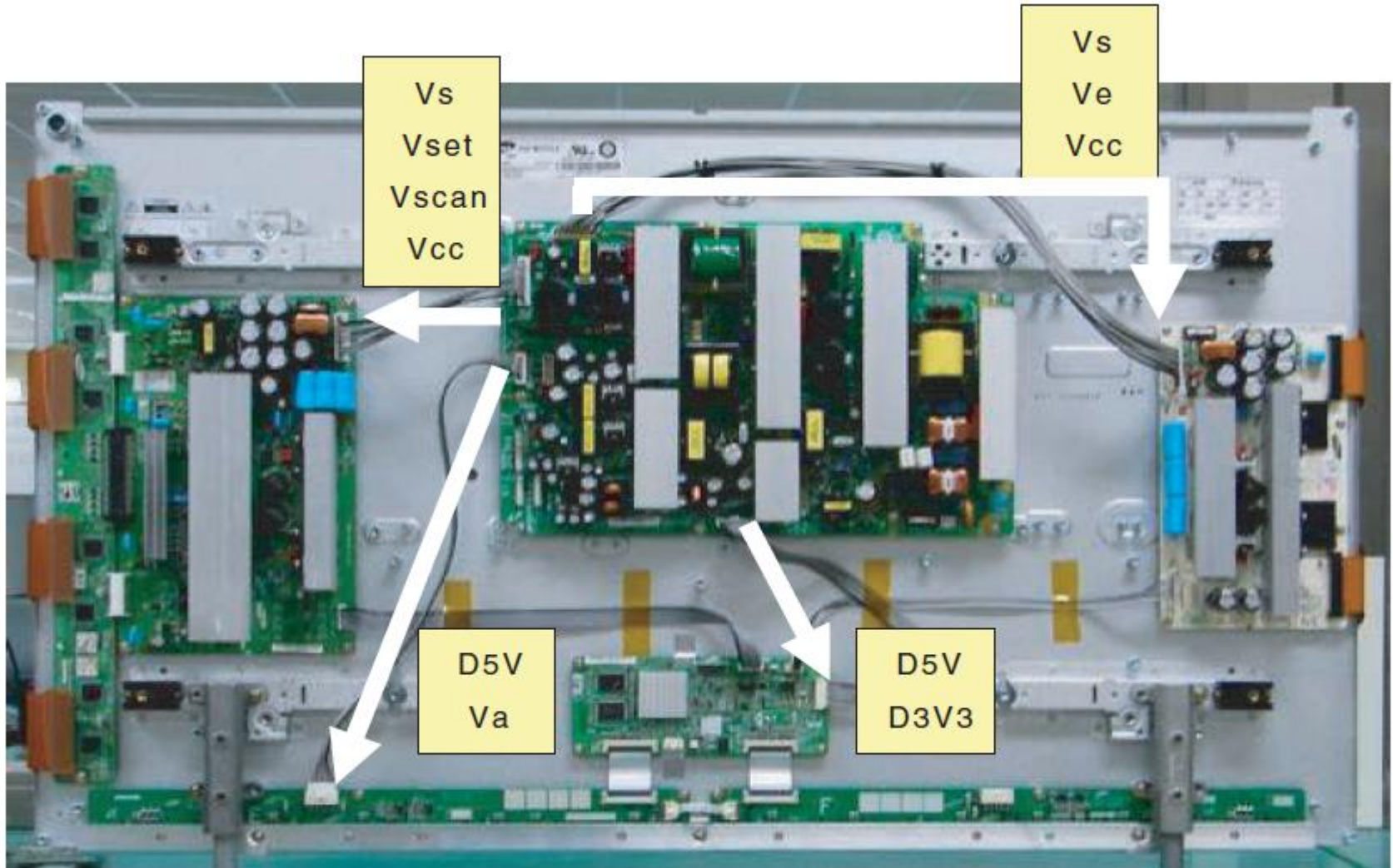
<b>Error detection condition</b>	<b>No. of times LED blinking</b>
<b>VA OVP, UVP</b>	<b>1</b>
<b>12V OVP, UVP</b>	<b>2</b>
<b>VSCAN OVP, UVP</b>	<b>3</b>
<b>D3V3 OVP, UVP</b>	<b>4</b>
<b>VS OVP, UVP</b>	<b>5</b>
<b>Vg OVP, UVP</b>	<b>6</b>
<b>VSET OVP, UVP</b>	<b>7</b>
<b>VE OVP, UVP</b>	<b>8</b>
<b>Over Temperature</b>	<b>9</b>
<b>PFC_OK UVP</b>	<b>10</b>
<b>5V2 OVP or Active DC_PROT</b>	<b>11</b>
<b>Time Over</b>	<b>12</b>
<b>D5VL OVP, UVP</b>	<b>13</b>

OVP: Over Voltage Protection  
 UVP: Under Voltage Protection

## Protection Circuit Specification

	HIC8001 PIN	Low level	High level	Normal level	Output UVP	Output OVP	Normal	Error
Relay	14	Below 1.56V	Above 3.64V	Normal High (5.2V ± 0.1V) Active Low (Below 0.9V)				
PFC_OK	15	Below 1.56V	Above 3.64V	Normal High (5.2V ± 0.1V) Active Low (Below 0.3V)	330V		380V	10
D5V	9	Below 1.68V	Above 3.36V	2.49V	3.5V	7.0V	5.2V	13
D3V3	7	Below 1.91V	Above 3.45V	2.53V	2.5V	4.5V	3.3V	4
Vg	8	Below 1.66V	Above 3.58V	2.5V	10V	21.5V	15.0V	6
Va	2	Below 1.74V	Above 3.35V	3.04V	40V	77V	70.0V	1
12V	5	Below 2.00V	Above 3.00V	2.5V	9.6V	14.4V	12V	2
Ve	4	Below 1.79V	Above 3.08V	2.69V	70V	120V	105V	8
Vset	3	Below 1.92V	Above 3.20V	2.5V	150V	250V	195V	7
Vscan	6	Below 3.25V	Above 1.91V	2.58V	140V	240V	190V	3
Vs	1	Below 1.90V	Above 2.79V	2.5V	160V	235V	210V	5
Vs_on	17	Below 0.60V	Above 2.00V	Active High (Above 2.5V)				
Temp	16	Below 1.56V	Above 3.64V	Active Low				9
DC_Prot	10	Below 0.40V	Above 0.60V	Active High				11
5V2	10	Below 6.40V	Above 7.15V	Active High		6.8V	5.2V	11

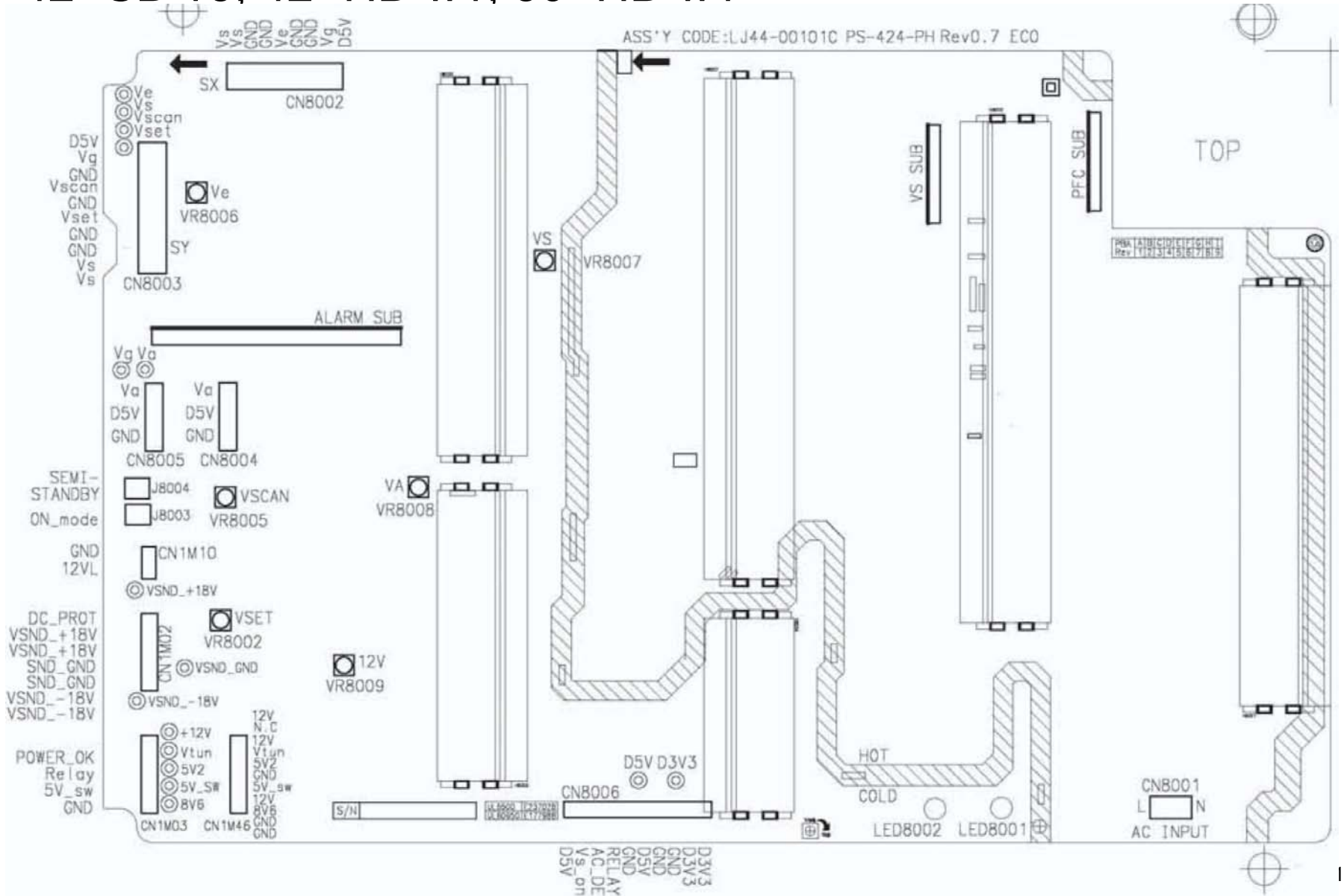
# Location of supply voltages from PSU to the boards





# Voltage test points

42" SD v5, 42" HD w1, 50" HD w1



## Voltage outputs

42" SD v5, 42" HD w1, 50" HD w1

No	Output voltage (V)	Voltage Setting (Normal Load)	Output Voltage Variable Point
1	VS	207V $\pm$ 1%	195V ~ 215V
2	VA	70V $\pm$ 1.5%	50V ~ 70V
3	VE	110V $\pm$ 1.5%	70V ~ 110V
4	VSET	198V $\pm$ 1.5%	180V ~ 210V
5	VSCAN	-185V $\pm$ 1.5%	-170V ~ -190V
6	VSB	5V $\pm$ 5%	Fixed
7	VG	15V $\pm$ 5%	Fixed
8	D5VL	5.2V $\pm$ 5%	Fixed
9	D3V3	3.3V $\pm$ 5%	Fixed

Check voltage label on the PDP for correct values.

# PHILIPS

sense and simplicity

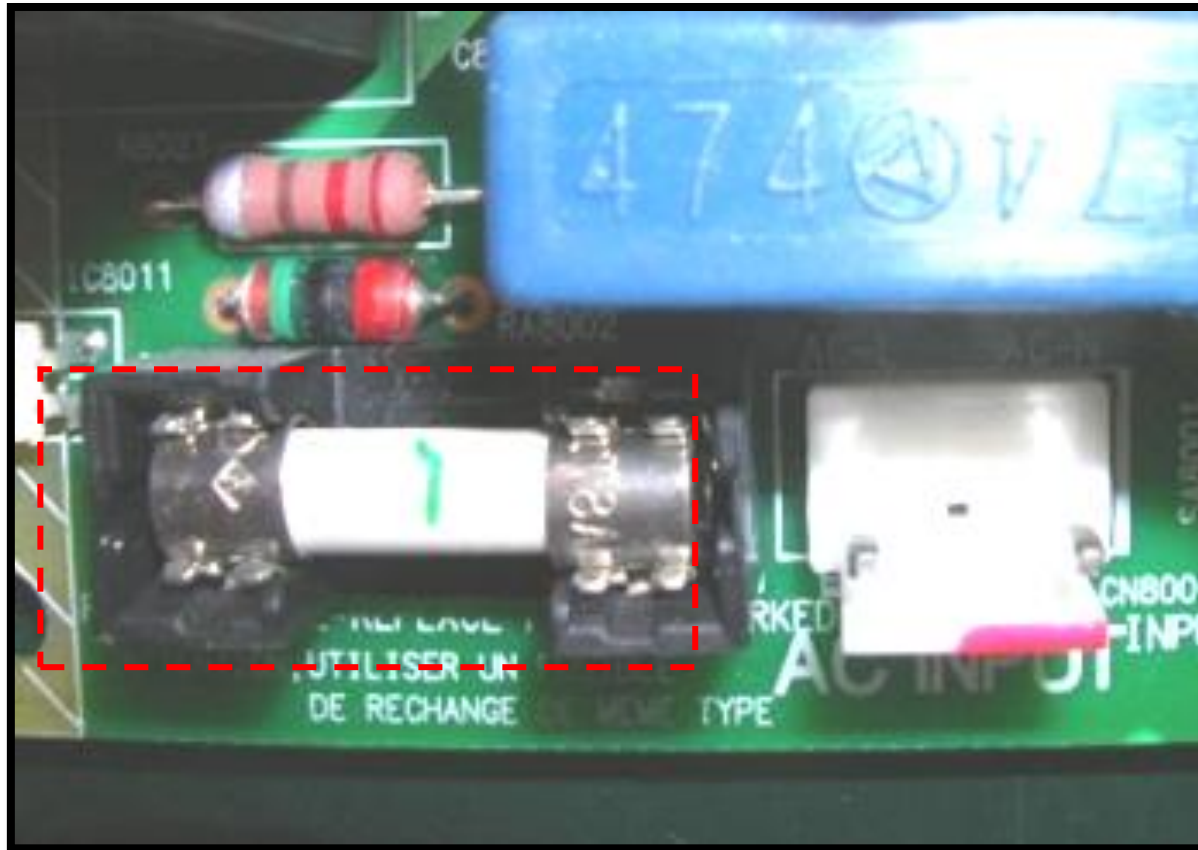
## Repair tips

May 21, 2009

## Symptom 1: NO POWER

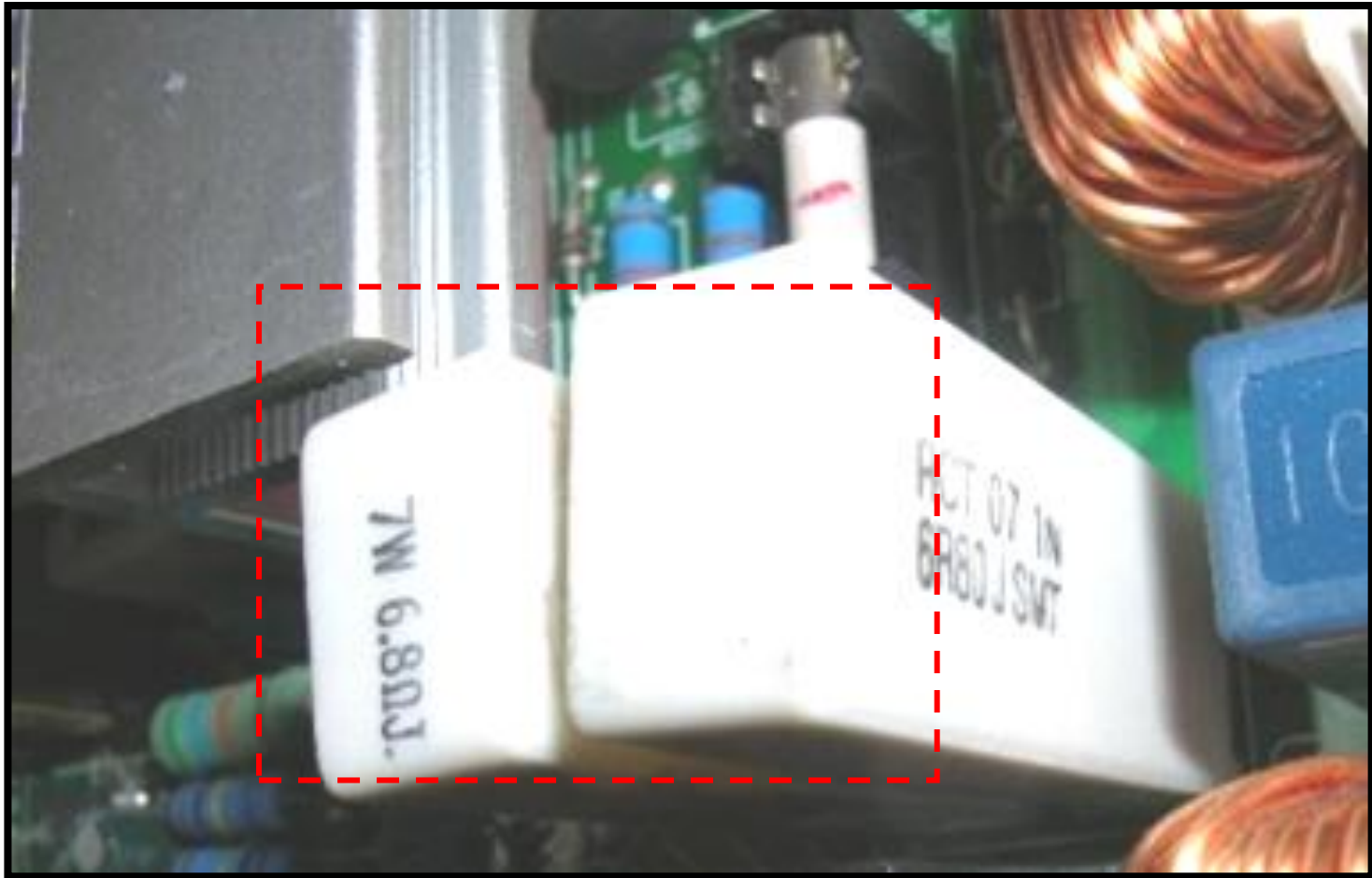
■ Check or change:

1. F8001(250V/8A) OPEN



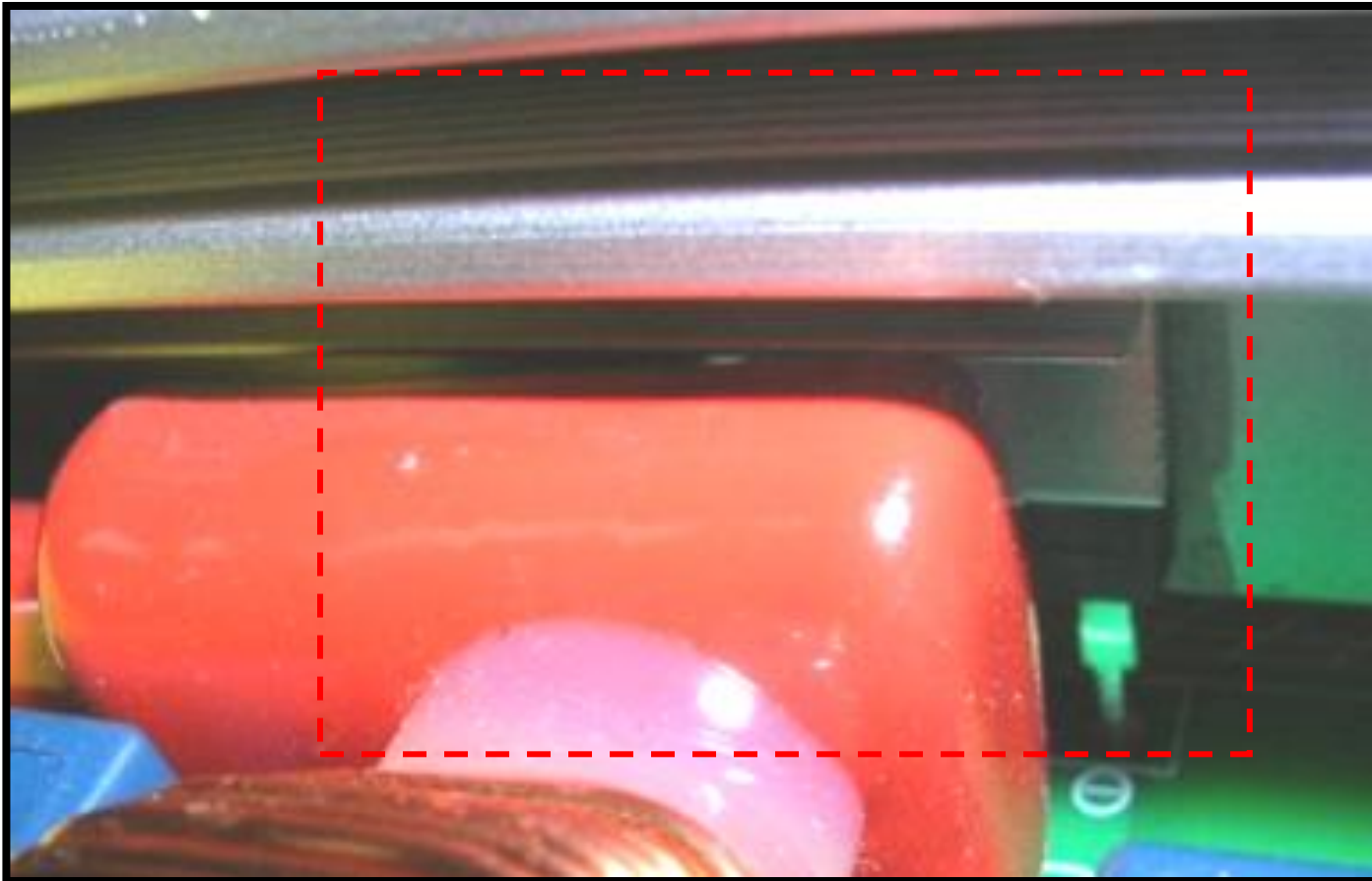
# Symptom 1: NO POWER

- Check or change:  
2. R8012, R8013 OPEN



# Symptom 1: NO POWER

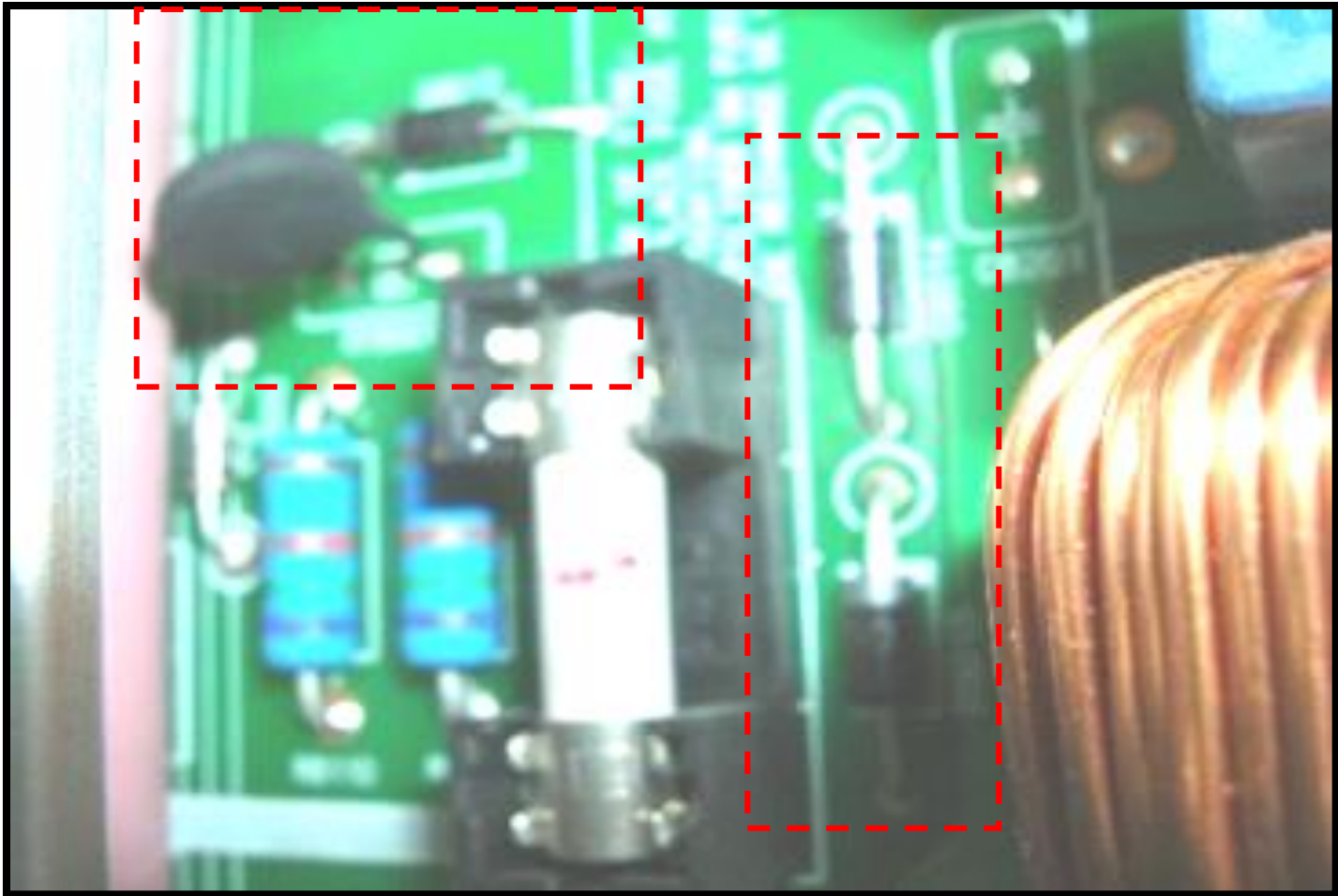
- Check or change:  
3. D8006 SHORT



# Symptom 1: NO POWER

■ Check or change:

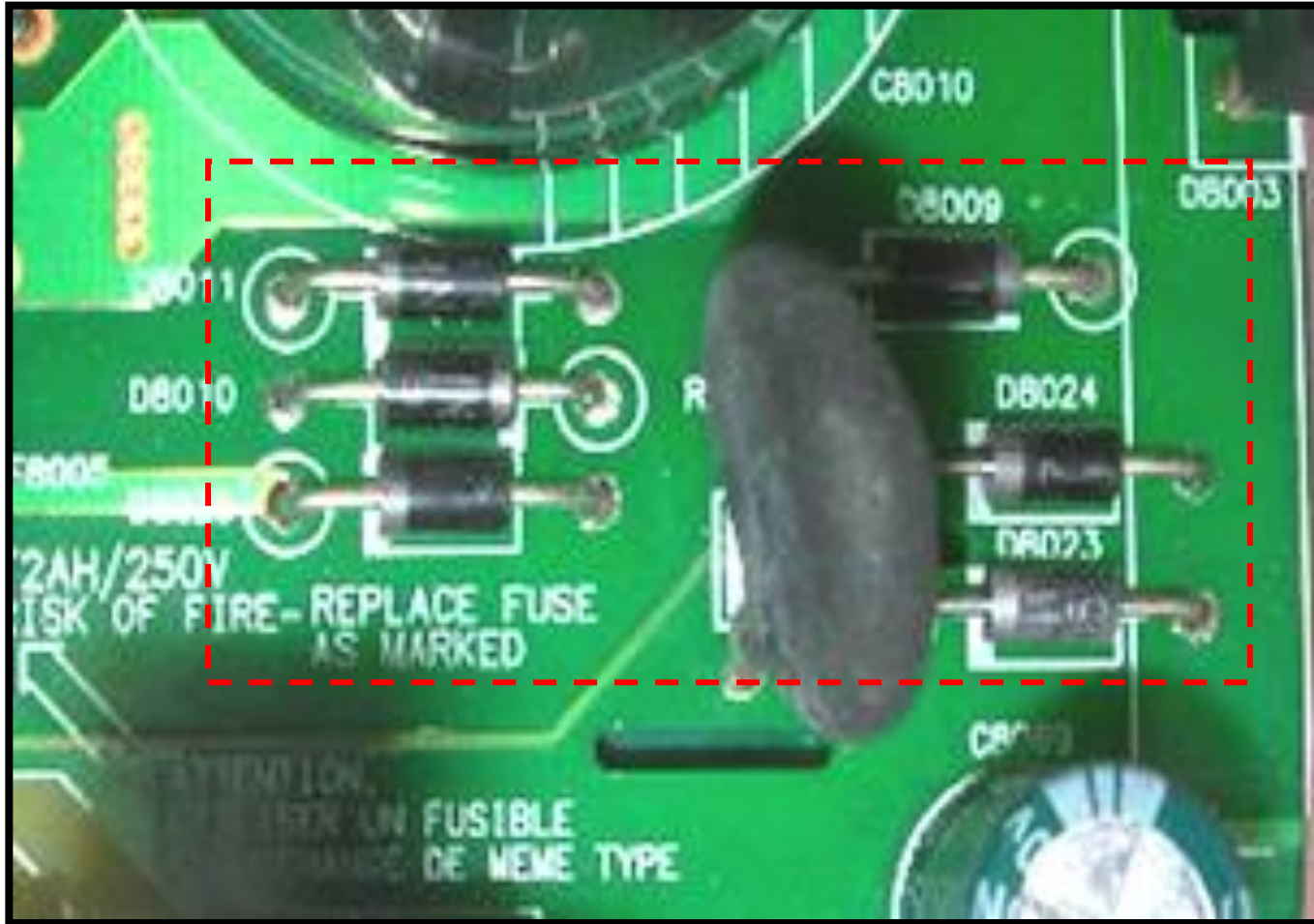
4. D8009, D8010, D8011, RT8001 SHORT/OOPEN



# Symptom 1: NO POWER

■ Check or change:

5. D8013, D8014, D8015, D8023, D8024, D8025, RT8002 SHORT/OPEN





# Symptom 1: NO POWER

■ Check or change:

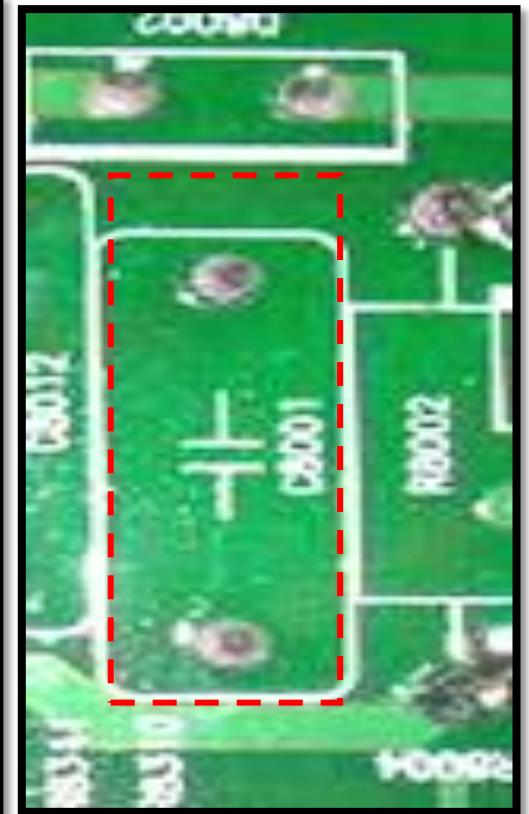
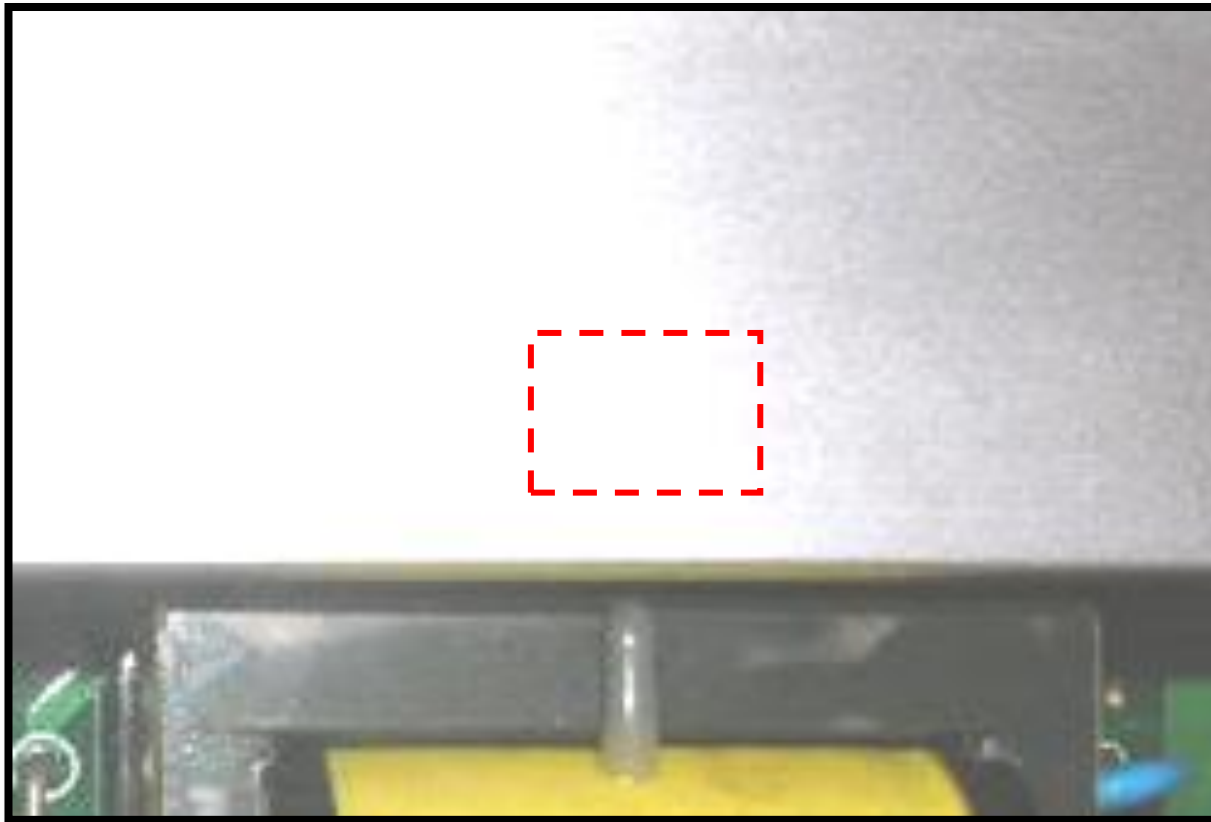
6. D8001, D8002, D8003, D8004 SHORT/OOPEN



# Symptom 1: NO POWER

■ Check or change:

7. C8001 OPEN/SHORT/BURST (Under heat sink H8002 - only applicable to REV 0.55 OR REV 0.65)



# Symptom 1: NO POWER

■ Check or change:

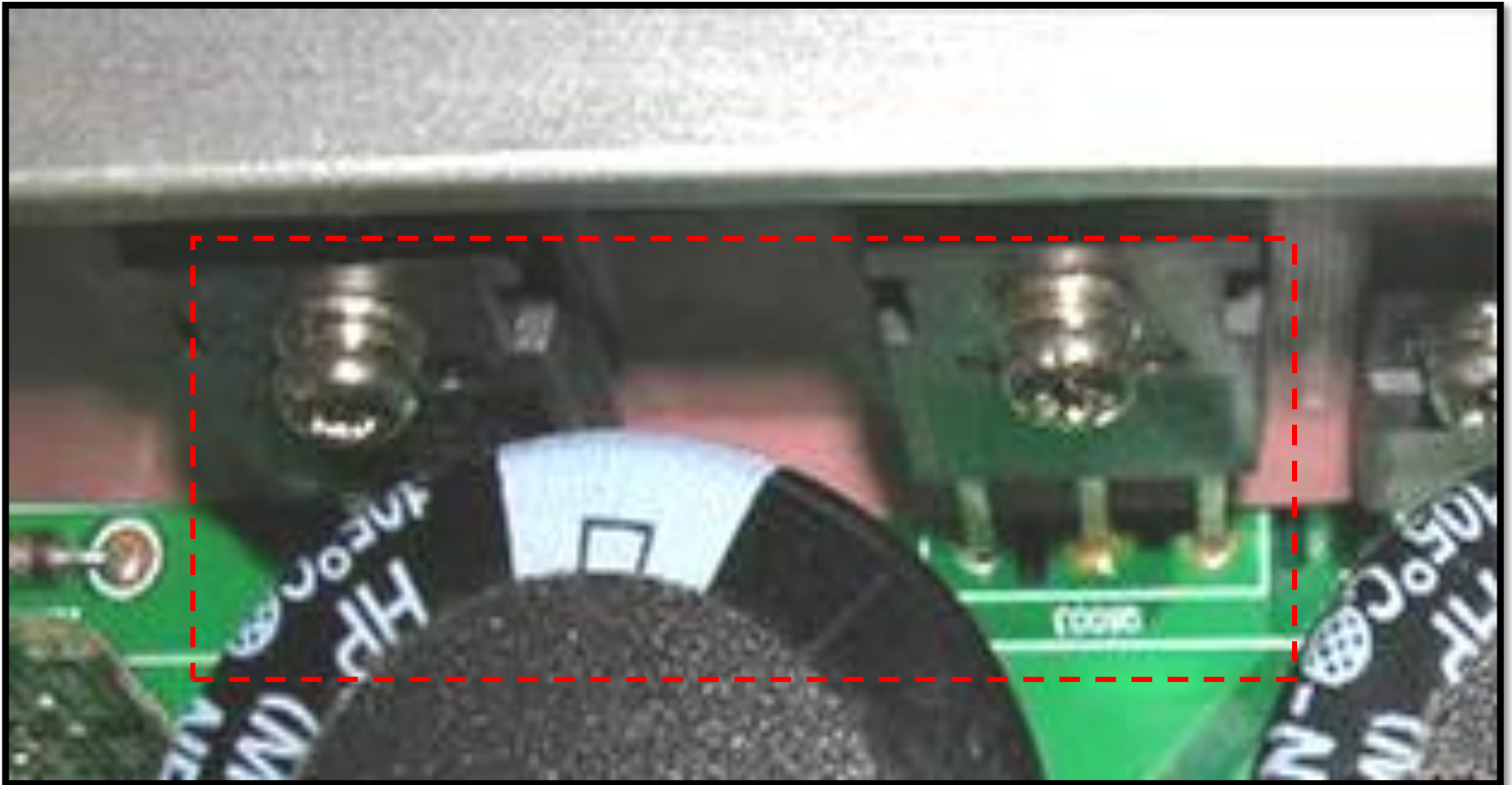
8. C8007, C8010 OPEN/SHORT/BURST



# Symptom 1: NO POWER

■ Check or change:

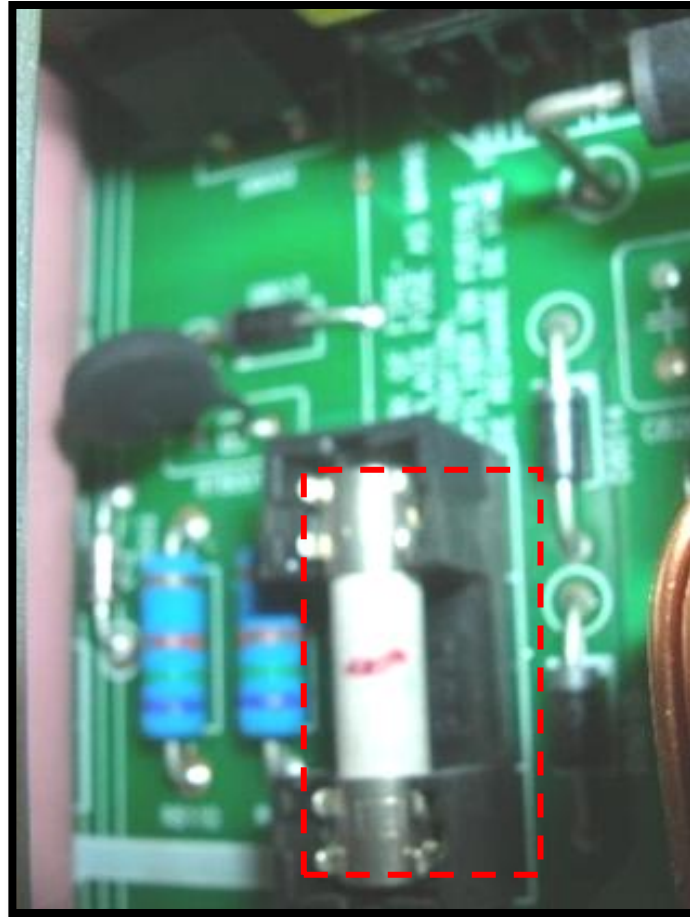
9. Q8001, Q8003 SHORT



# Symptom 2: No 5V2

■ Check or change:

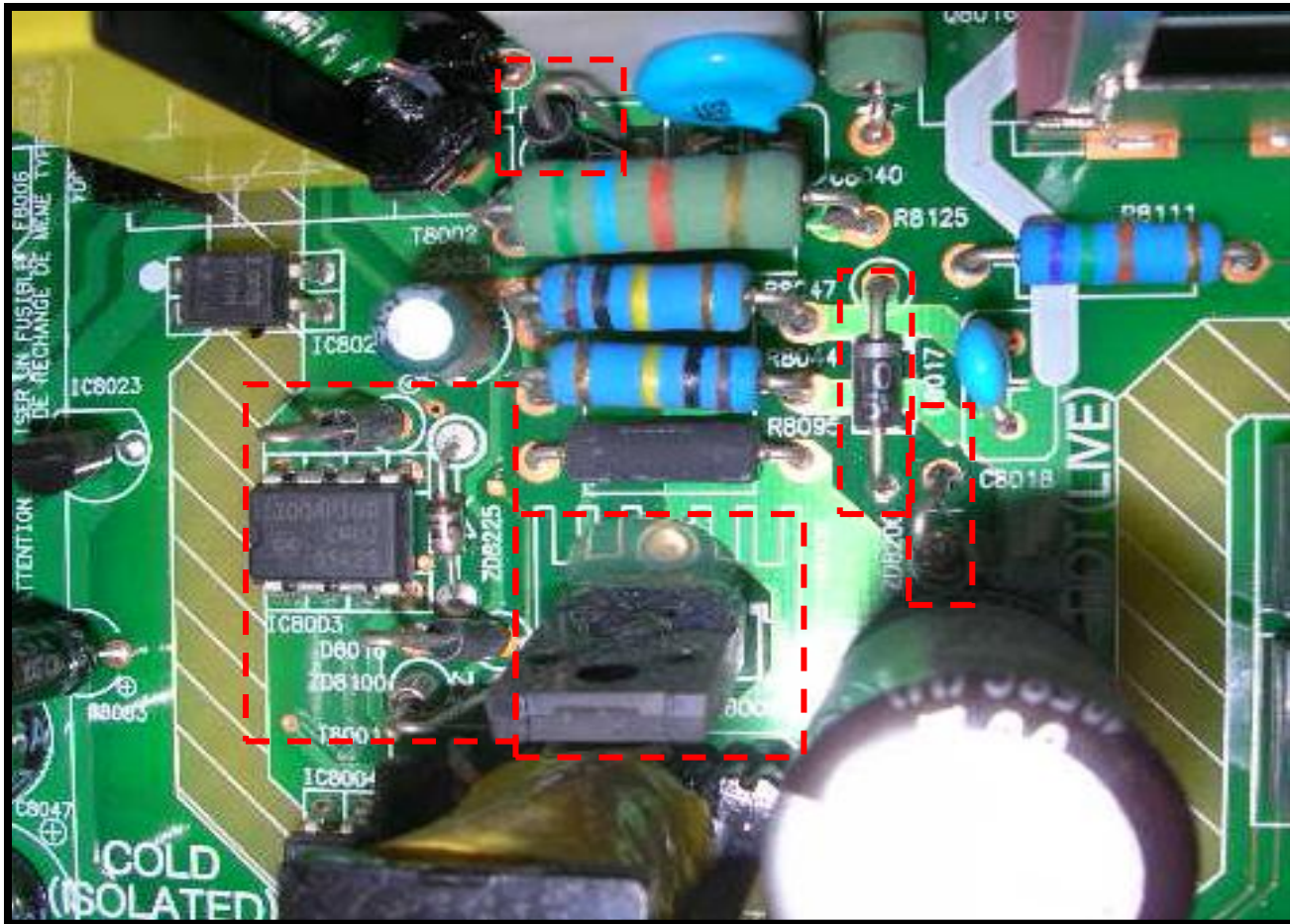
1. F8001(250V/8A) OPEN



## Symptom 2: No 5V2

■ Check or change:

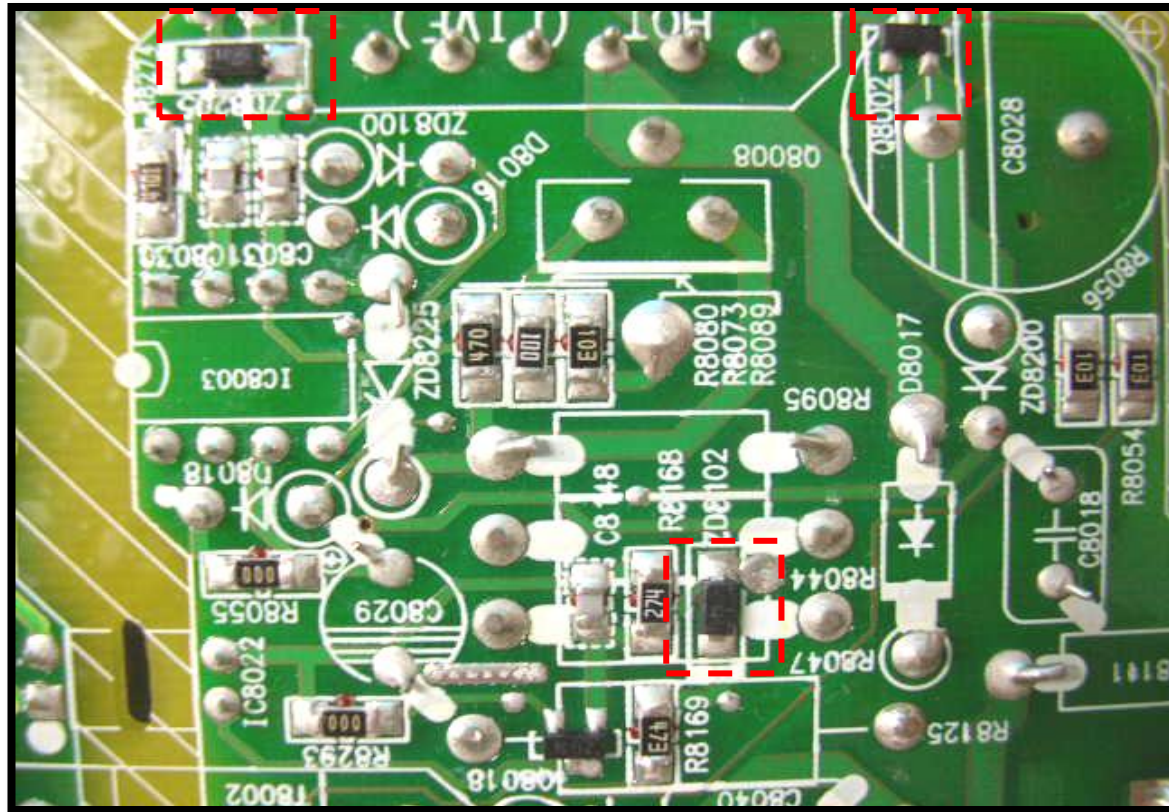
2. IC8003, Q8008, D8018, ZD8225, D8016, ZD8100 , D8017, ZD8200



# Symptom 2: No 5V2

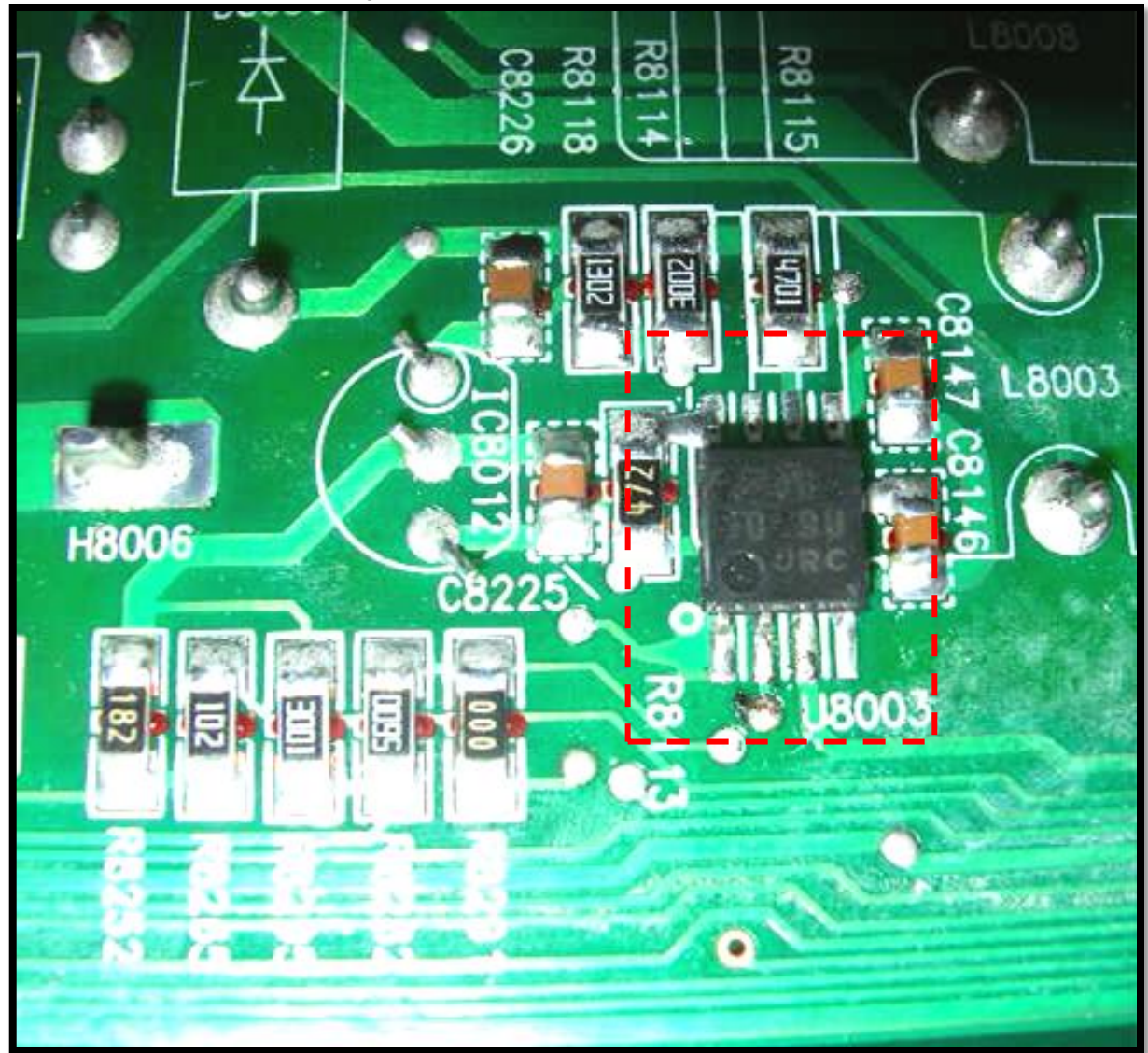
■ Check or change:

3. Copper side: Q8002, ZD8205, ZD8102



## Symptom 3: Abnormal relay On/Off

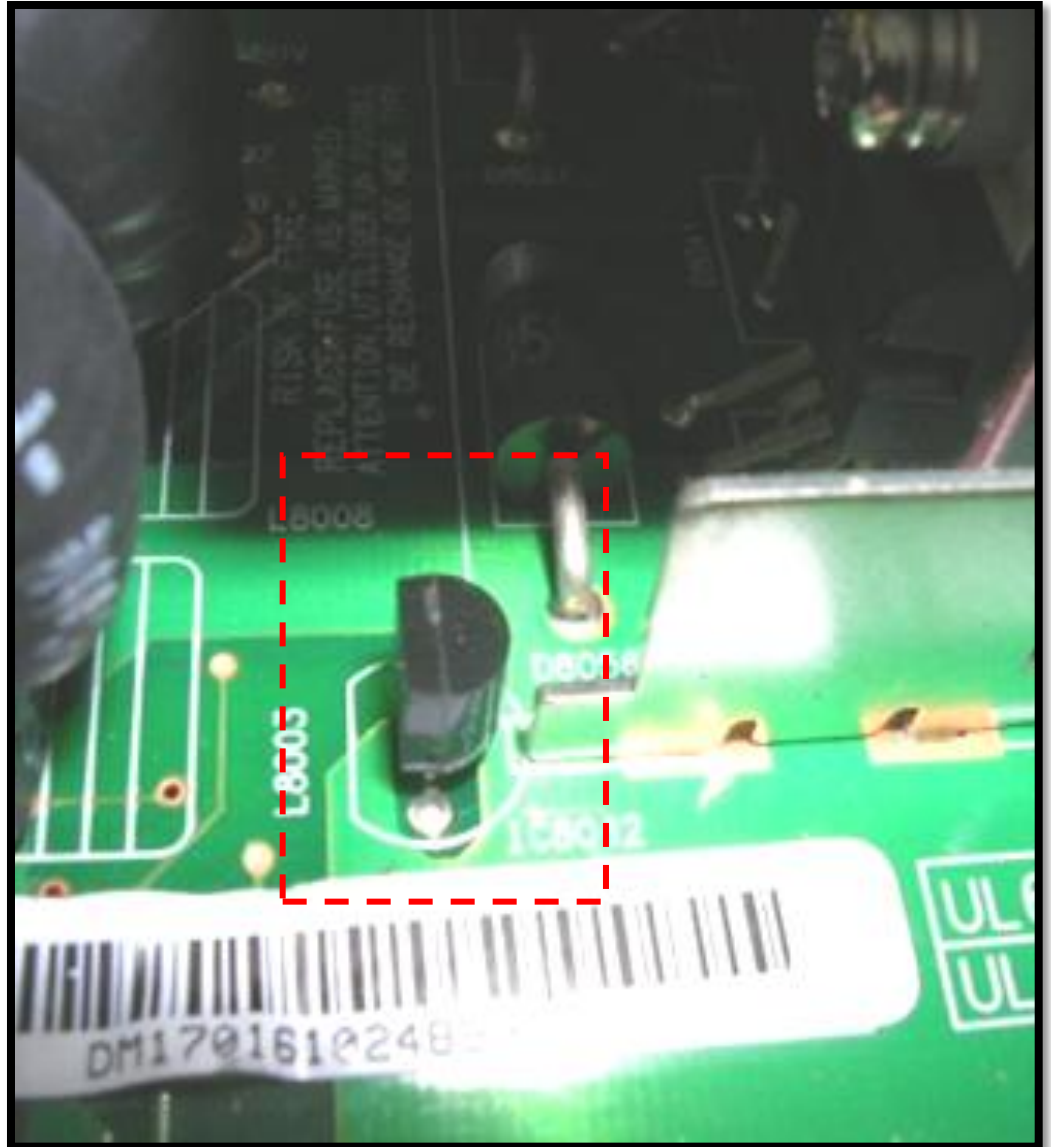
- Check or change:
  - 1) U8003 DEAD





# Symptom 3: Abnormal relay On/Off

- Check or change:  
2) IC8012 DEAD



# Symptom 3: Abnormal relay On/Off

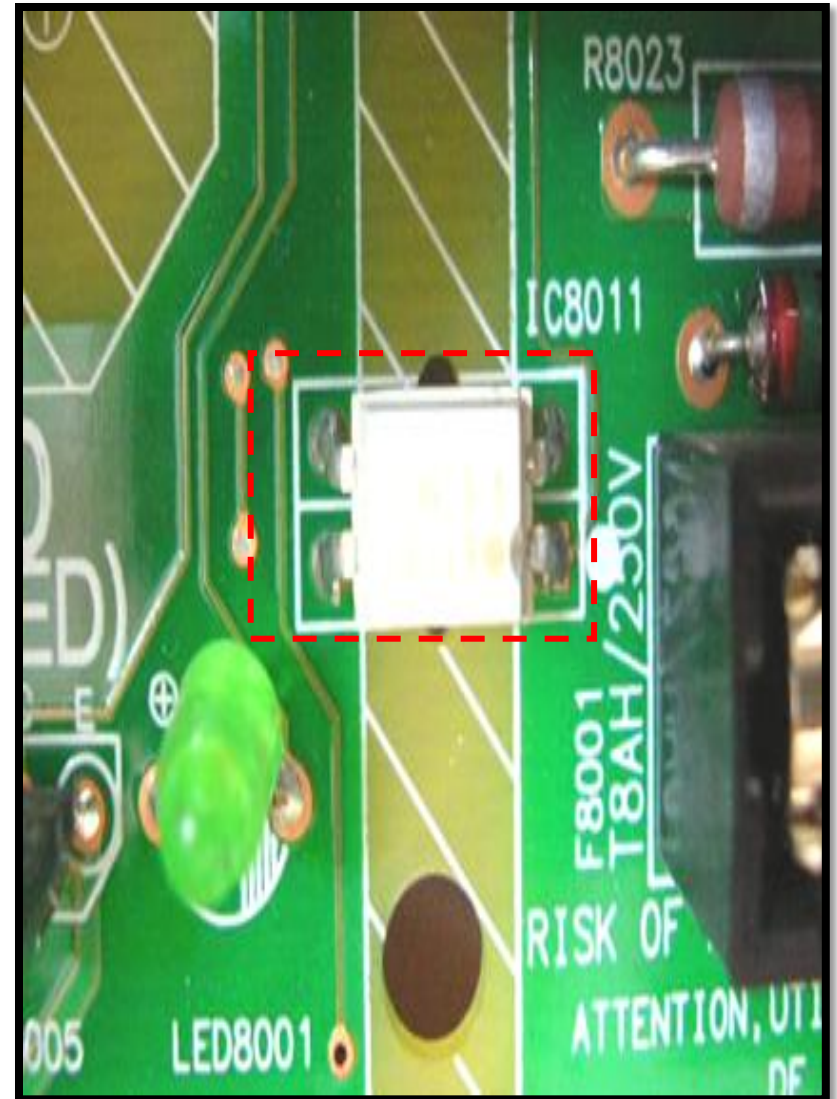
■ Check or change:

3) HIC8001 ALARM BOARD



# Symptom 3: Abnormal relay On/Off

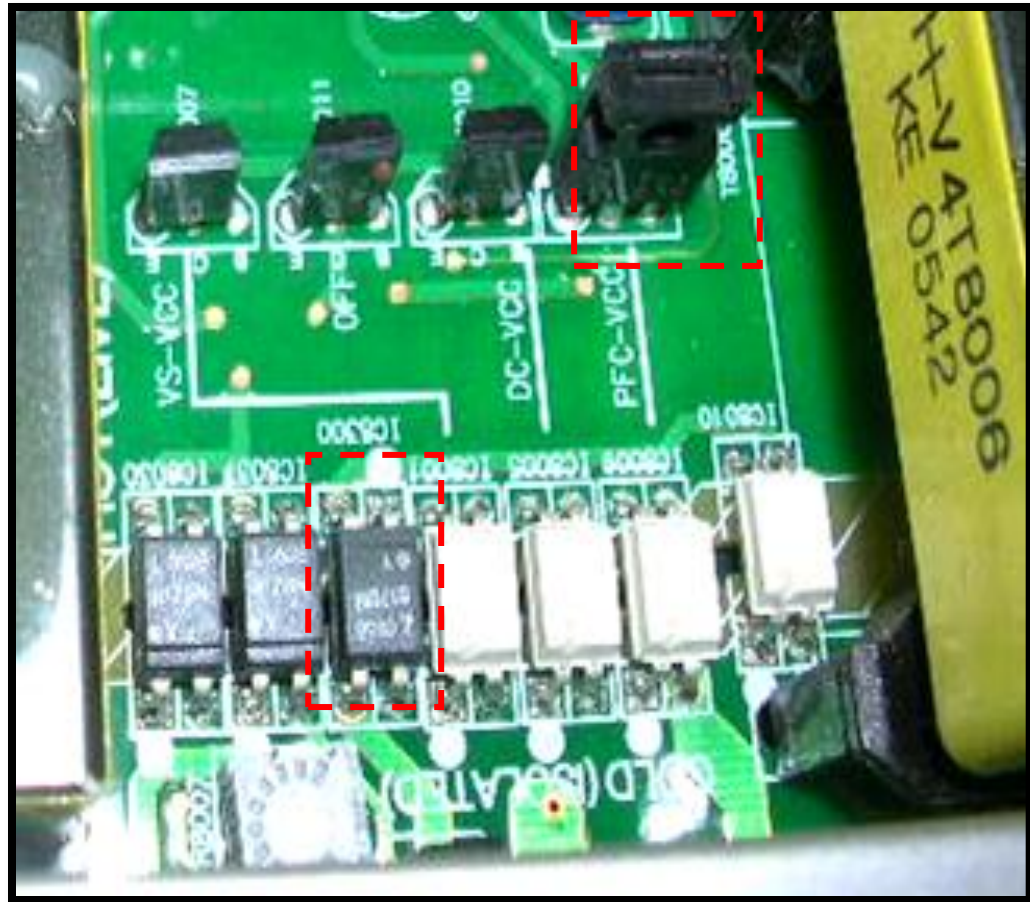
- Check or change:  
4) IC8011 DEAD



## Symptom 4: Error 10 (PFC\_OK Protection)

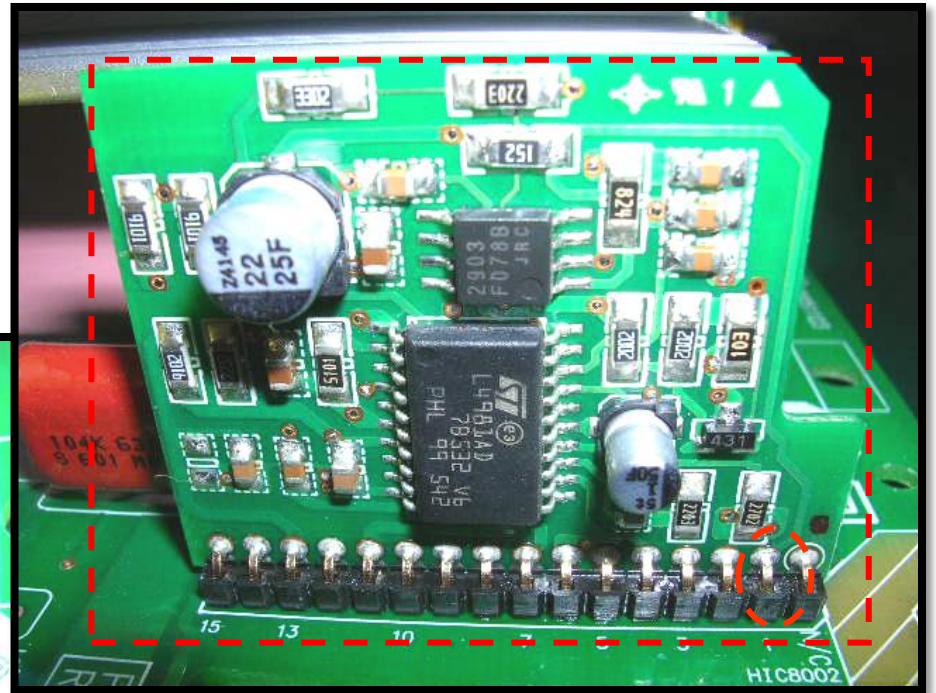
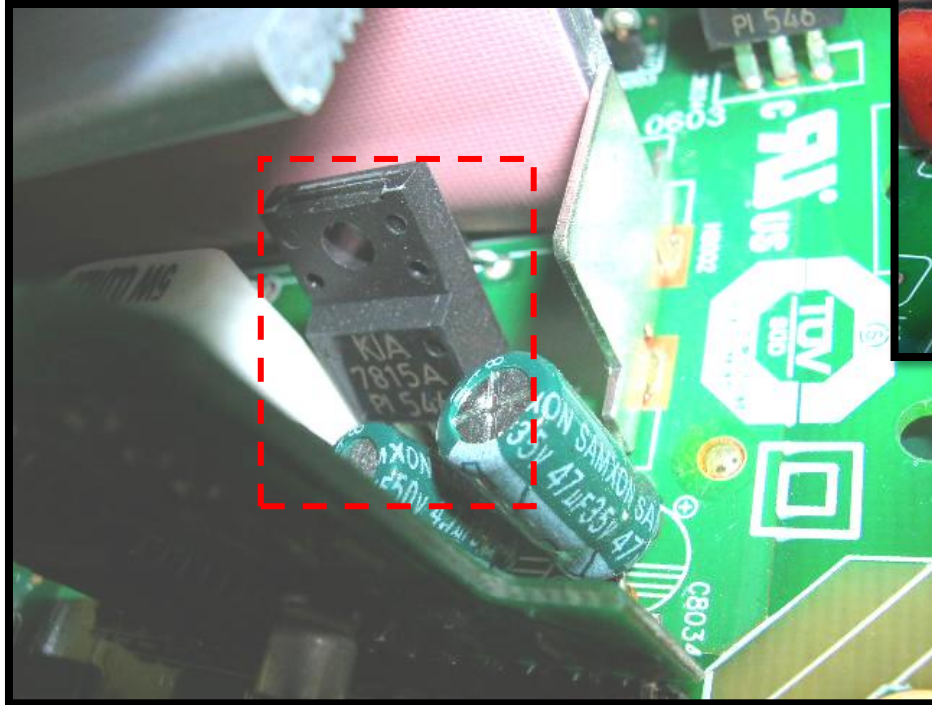
■ Check or change:

- 1) IC8007 and/or Q8013



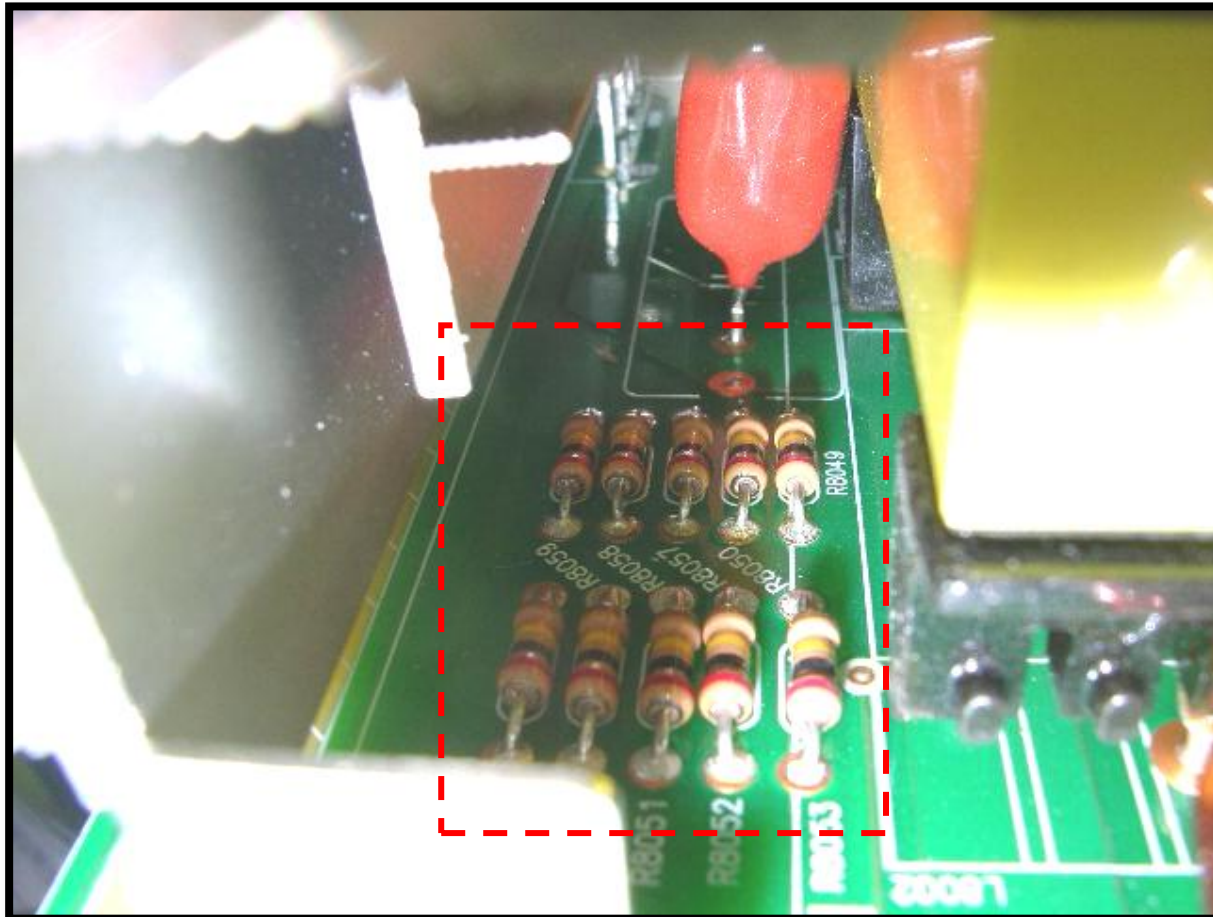
## Symptom 4: Error 10 (PFC\_OK Protection)

- Check or change:  
2) HIC8002 PIN 1 or IC8007



# Symptom 4: Error 10 (PFC\_OK Protection)

- Check or change:  
3) PFC Feedback resistors



# Symptom 5: Error 6 and/or Error 12

■ Check or change:

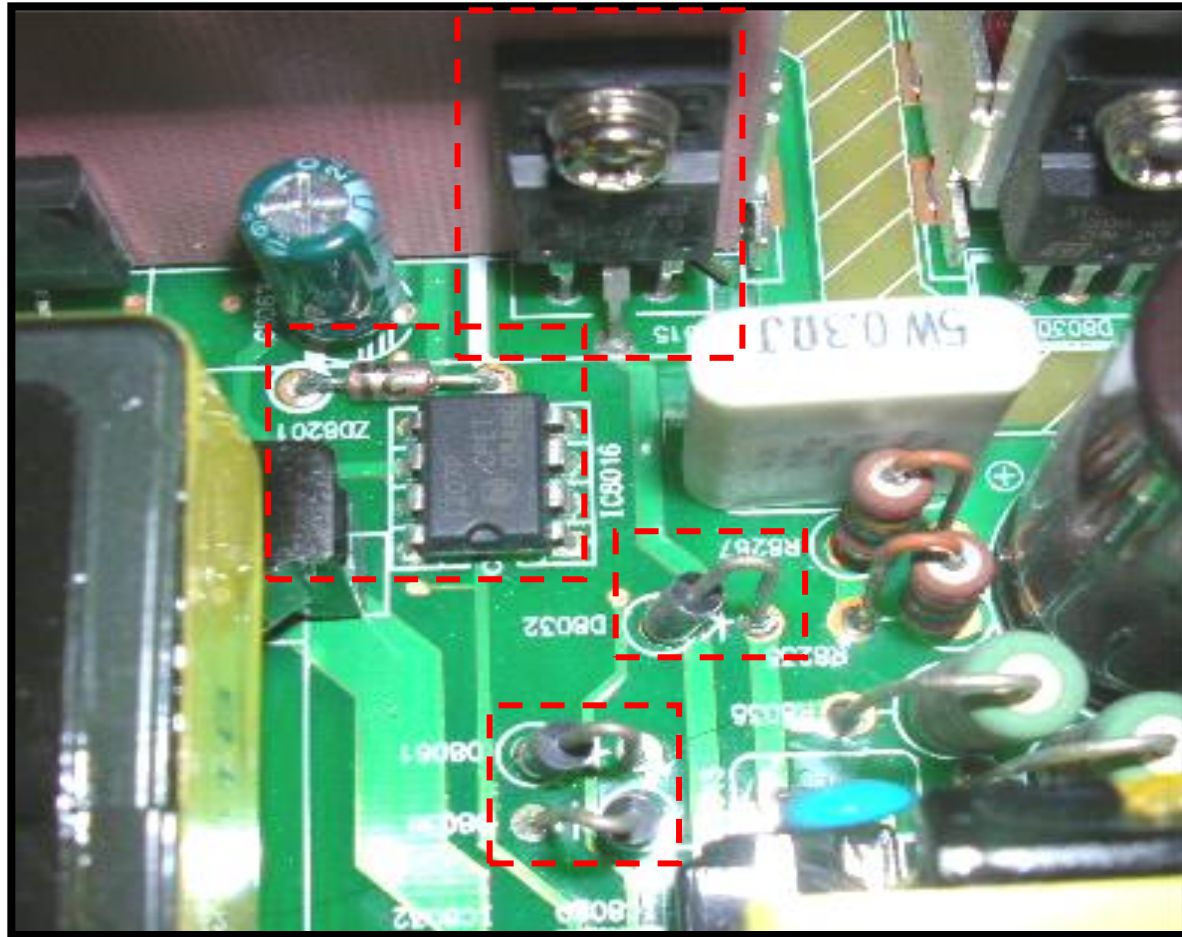
- 1) F8005(250V/2A) OPEN



# Symptom 5: Error 6 and/or Error 12

■ Check or change:

2a) TOP SIDE: IC8016, Q8015, D8032, D8036, D8061, ZD8201

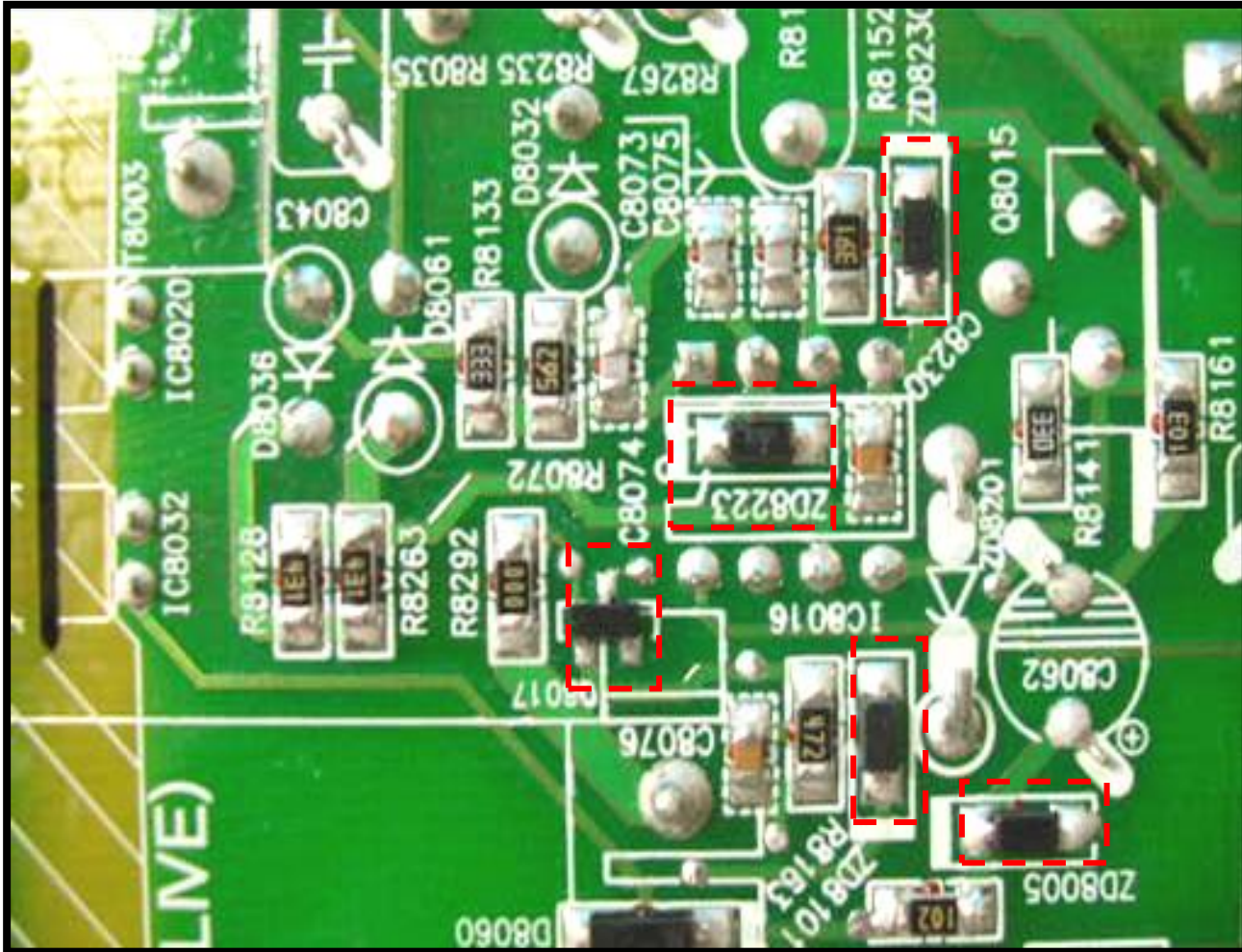




# Symptom 5: Error 6 and/or Error 12

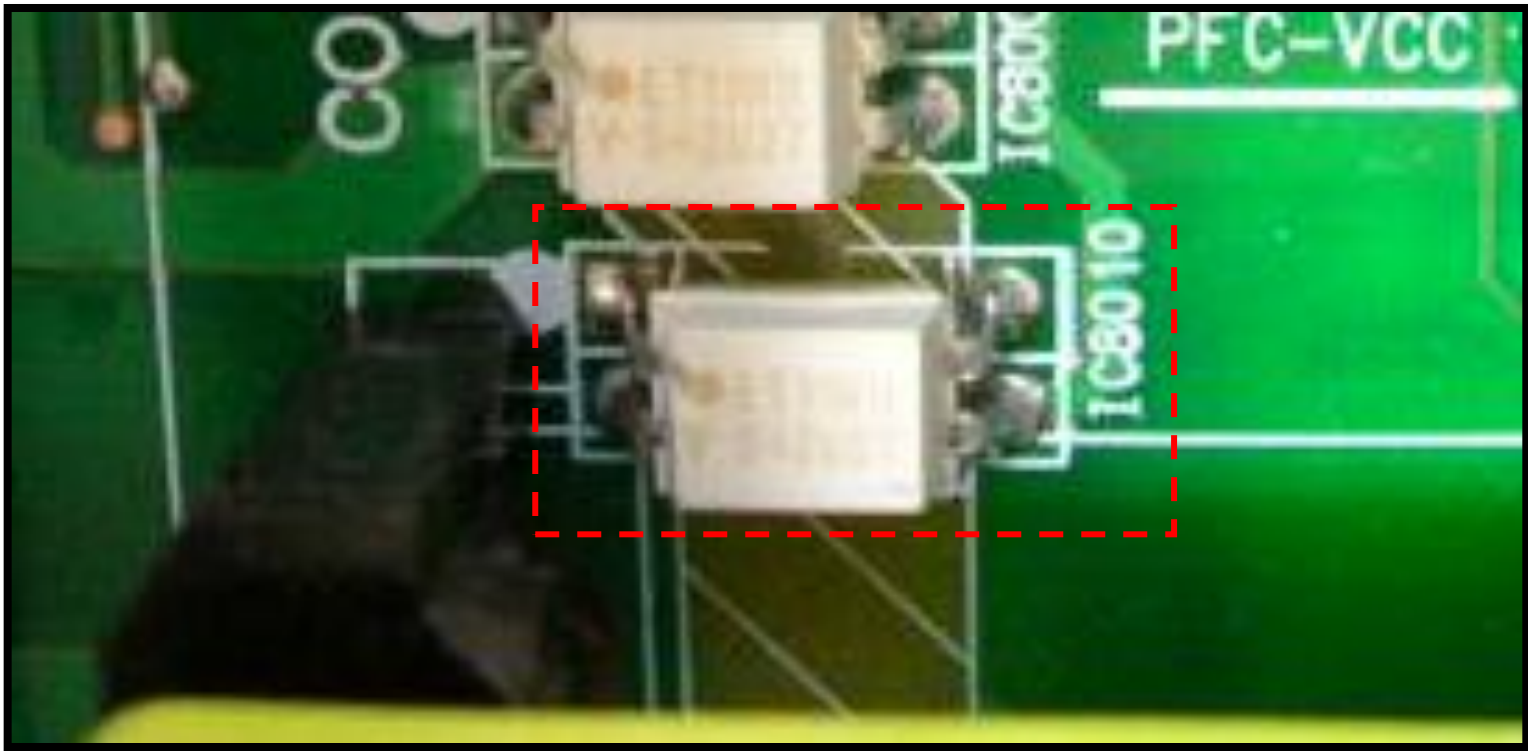
■ Check or change:

2b) BOTTOM SIDE: ZD8223, ZD8230, Q8017, ZD8101, ZD8005



# Symptom 5: Error 6 and/or Error 12

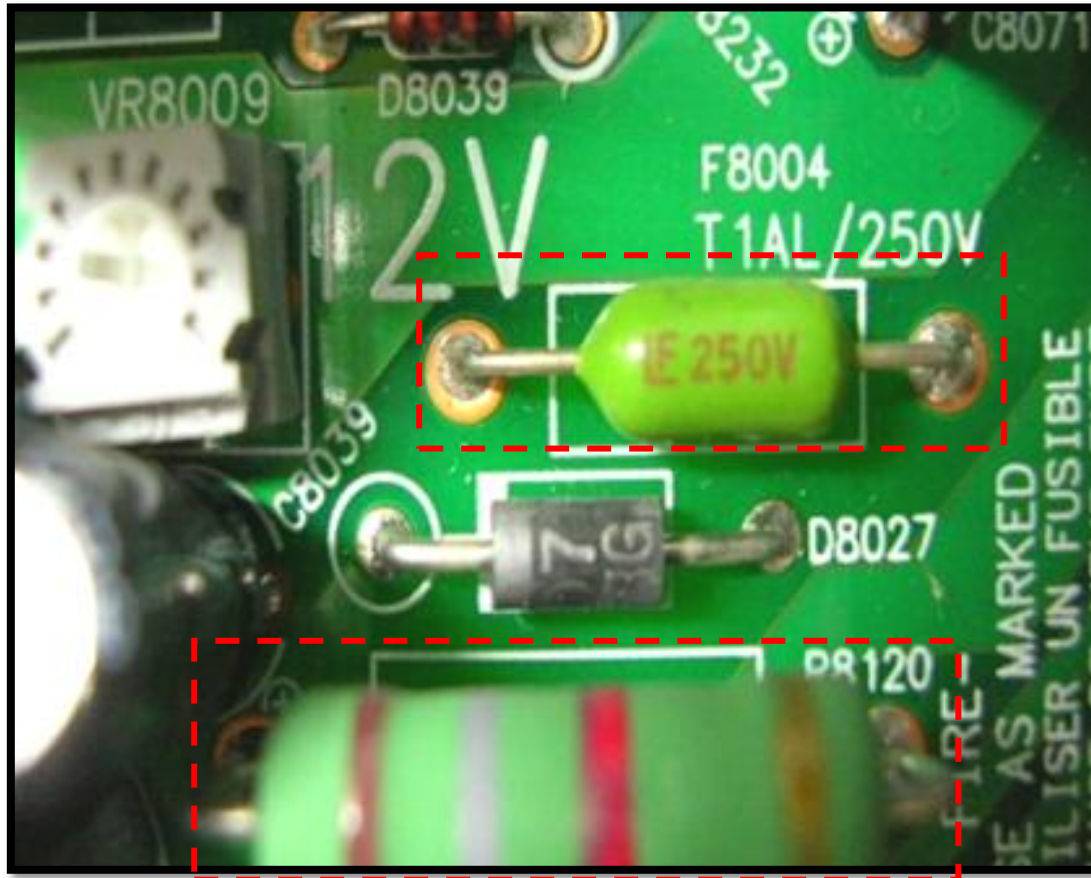
- Check or change:  
3) IC8010



# Symptom 5: Error 6 and/or Error 12

■ Check or change:

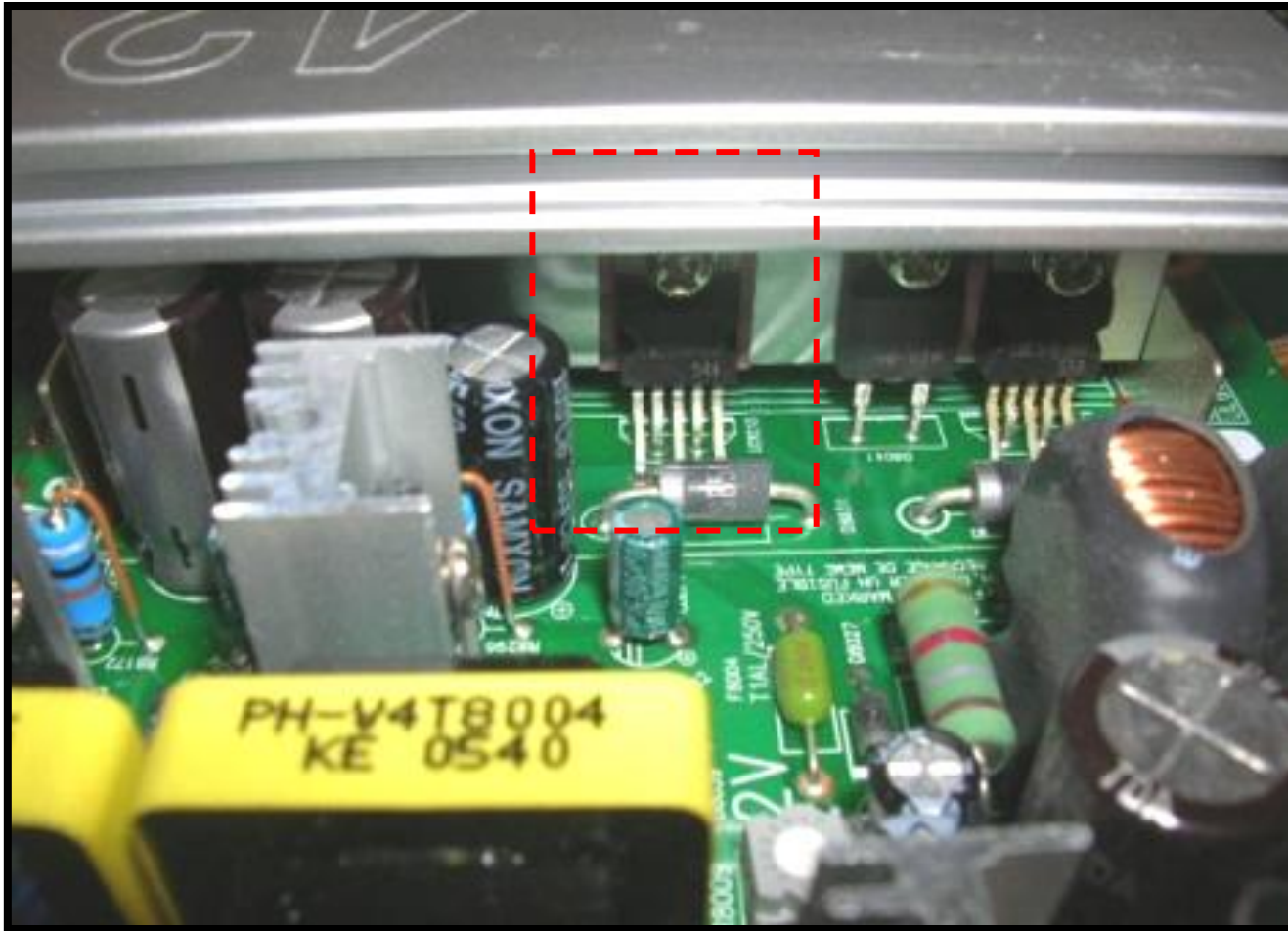
4) Vtun NO VOLTAGE → F8004 OPEN, R8120 OPEN



# Symptom 5: Error 6 and/or Error 12

■ Check or change:

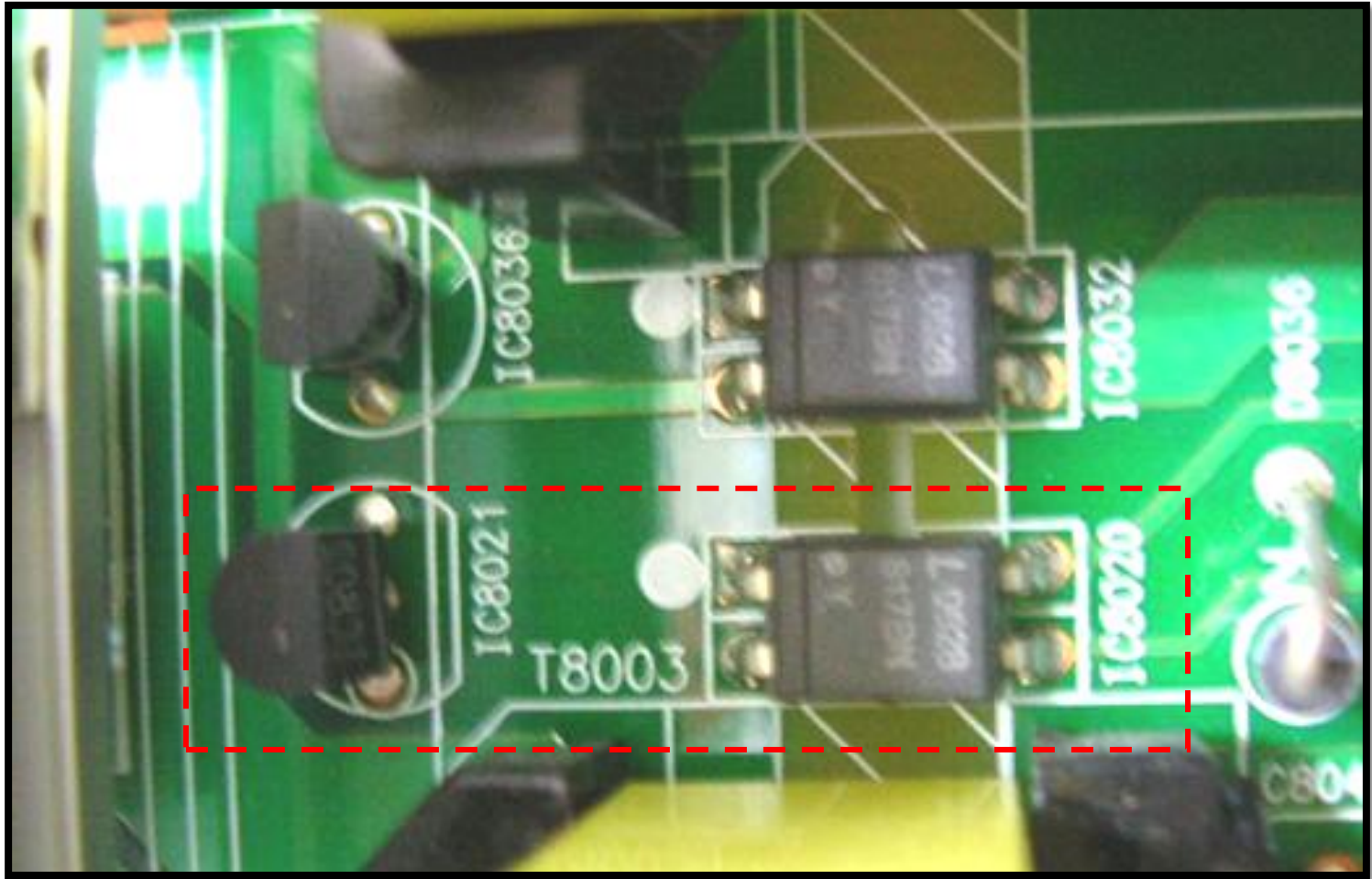
5) 5V\_SW NO VOLTAGE → IC8013



# Symptom 5: Error 6 and/or Error 12

■ Check or change:

6) 12V NO VOLTAGE → IC8020, IC8021



# Symptom 5: Error 6 and/or Error 12

■ Check or change:

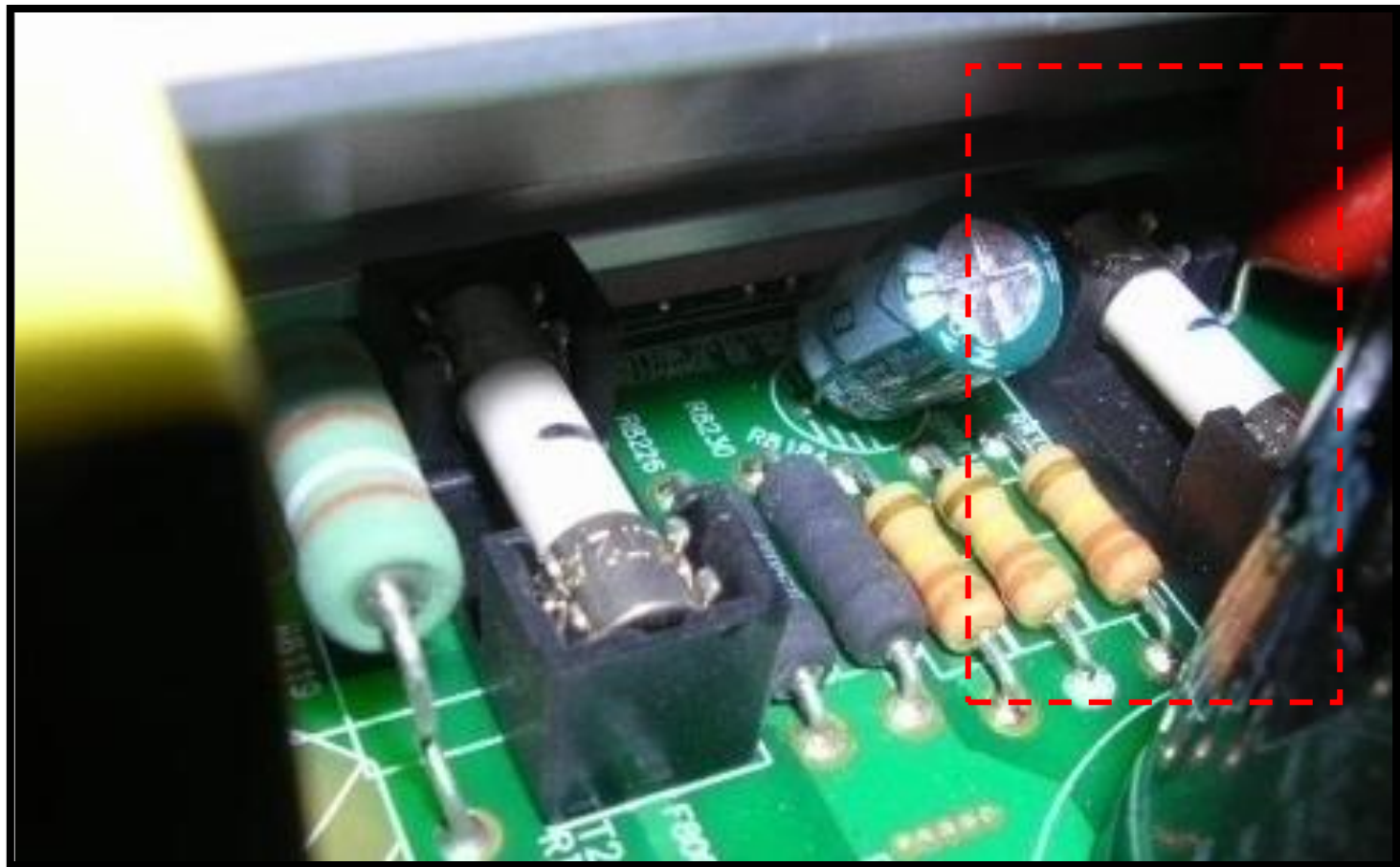
7) 12VL NO VOLTAGE → Q8220



# Symptom 6: Error 13 and/or Error 4

■ Check or change:

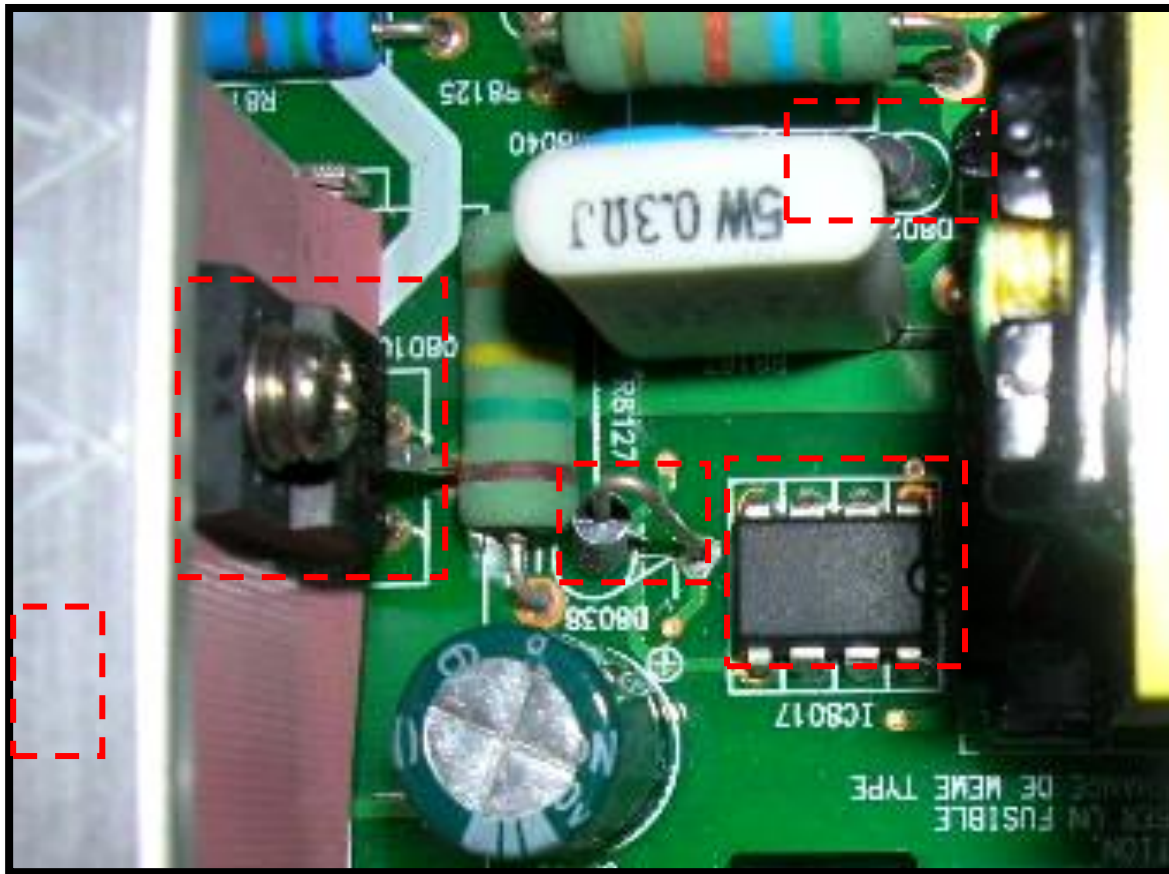
1) F8007 (250V/4A) OPEN



# Symptom 6: Error 13 and/or Error 4

■ Check or change:

2a) IC8017, Q8016, D8038, D8029, ZD8202(Below heat sink H8002)







# Symptom 6: Error 13 and/or Error 4

■ Check or change:

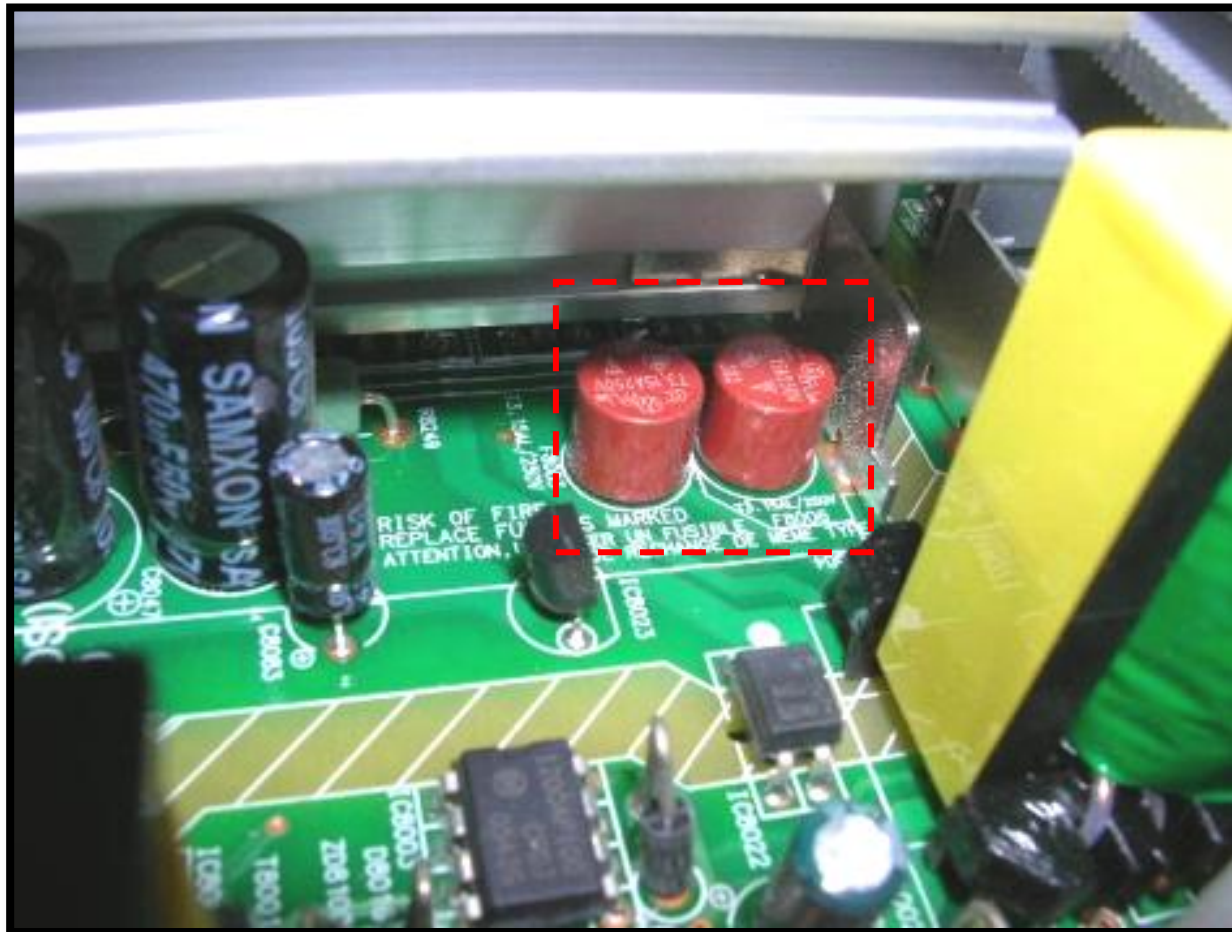
**3) SEQUENCE VOLTAGE “B” 18V CHECK (IC8005)**

I couldn't find the IC8005  
in Rev 0.7 PSU. If you  
find it in other Revisions,  
please let me know

# Symptom 6: Error 13 and/or Error 4

■ Check or change:

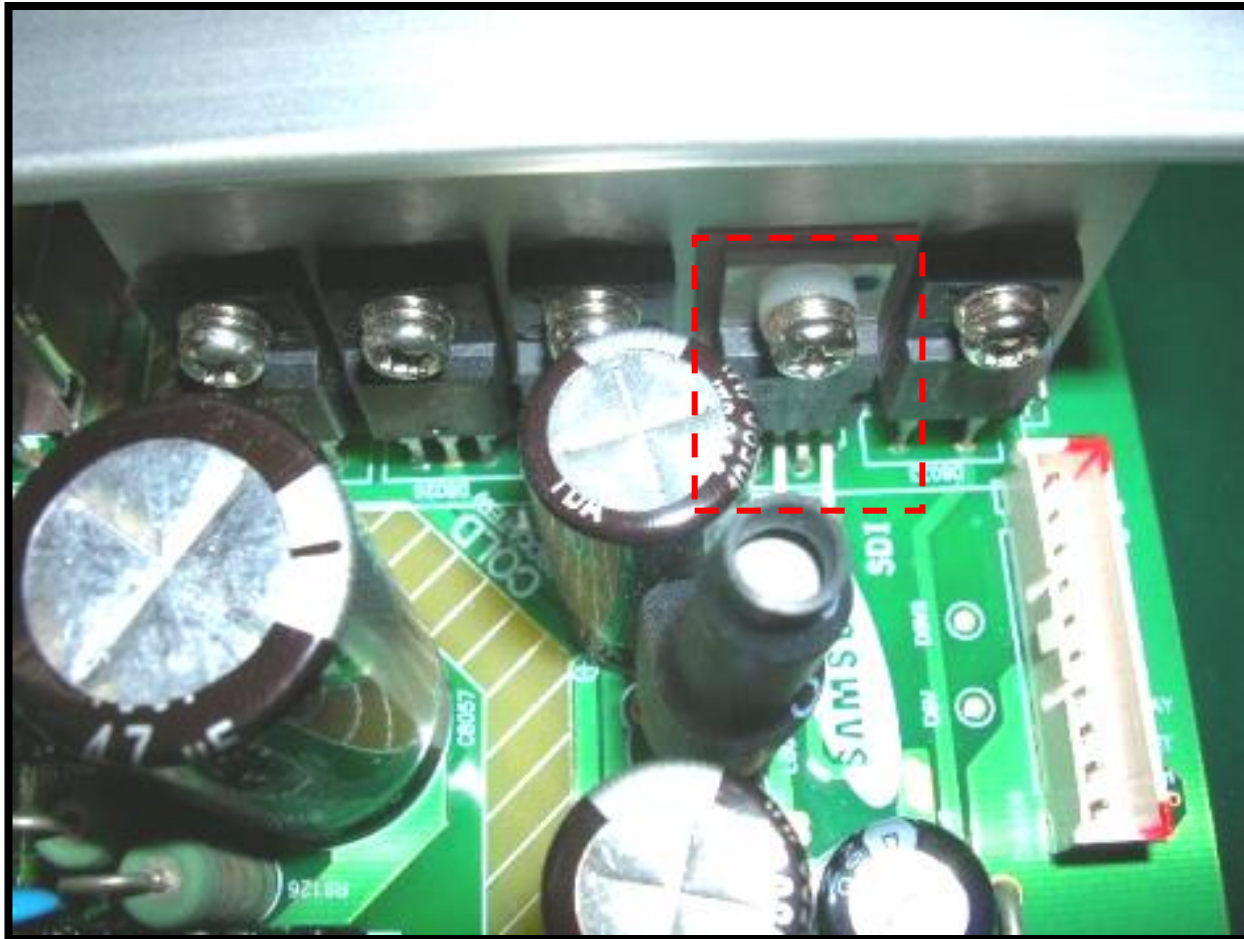
4)  $V_{snd} \pm 18V$  NO VOLTAGE → F8003(250V/3.15A) OR F8006(250V/3.15A) OPEN



# Symptom 6: Error 13 and/or Error 4

■ Check or change:

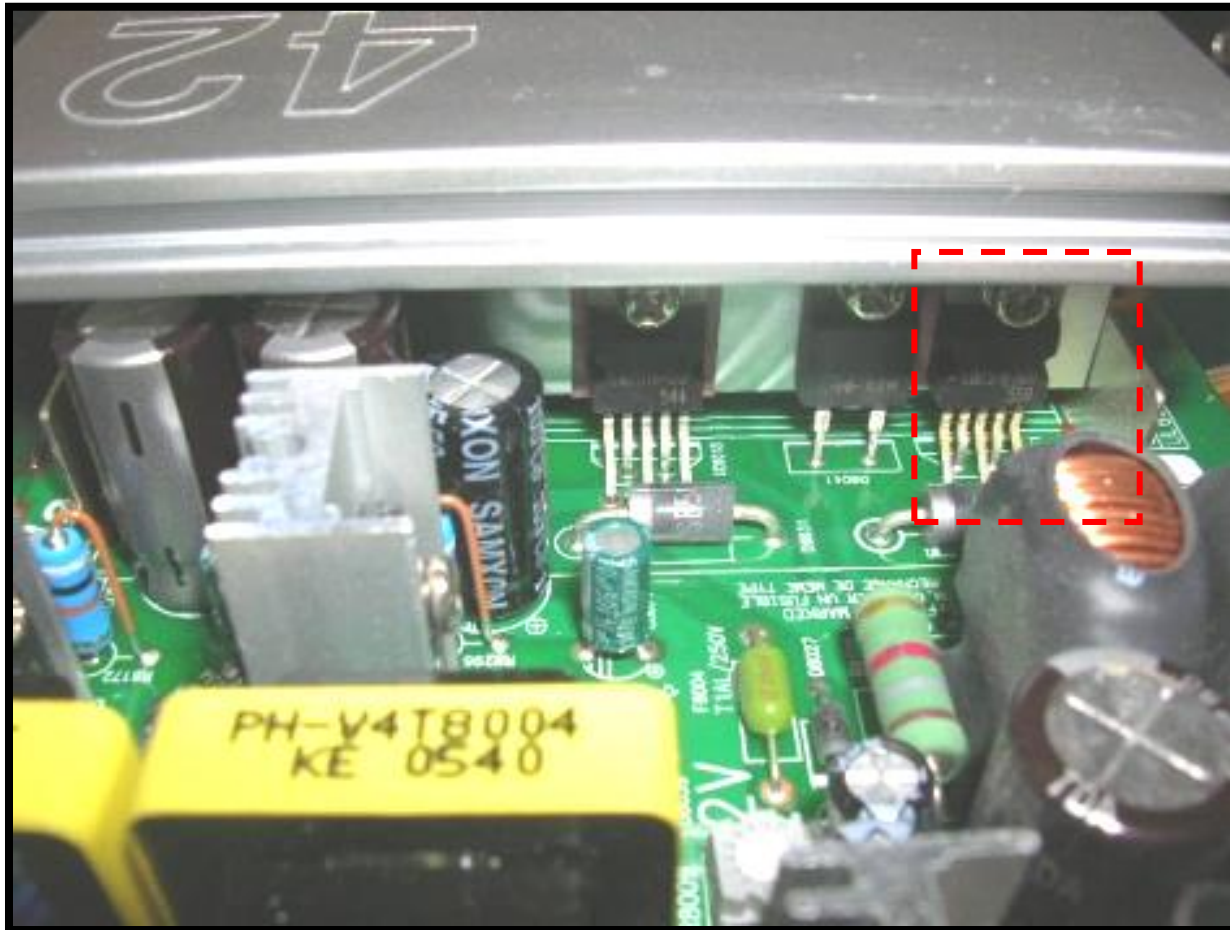
5) D5V NO VOLTAGE → IC8014 CHANGE



# Symptom 6: Error 13 and/or Error 4

■ Check or change:

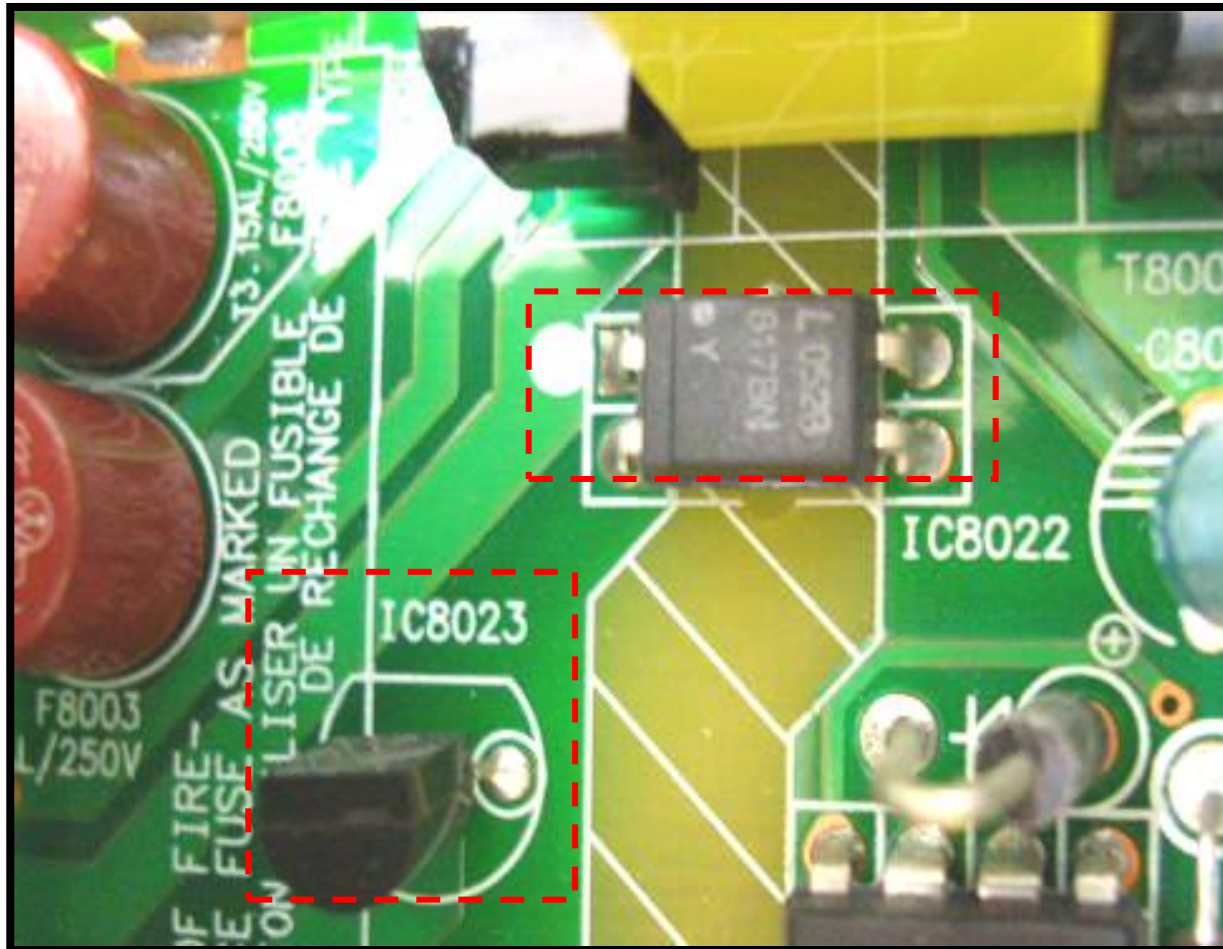
6) 8V6 NO VOLTAGE → IC8041 CHANGE



# Symptom 6: Error 13 and/or Error 4

■ Check or change:

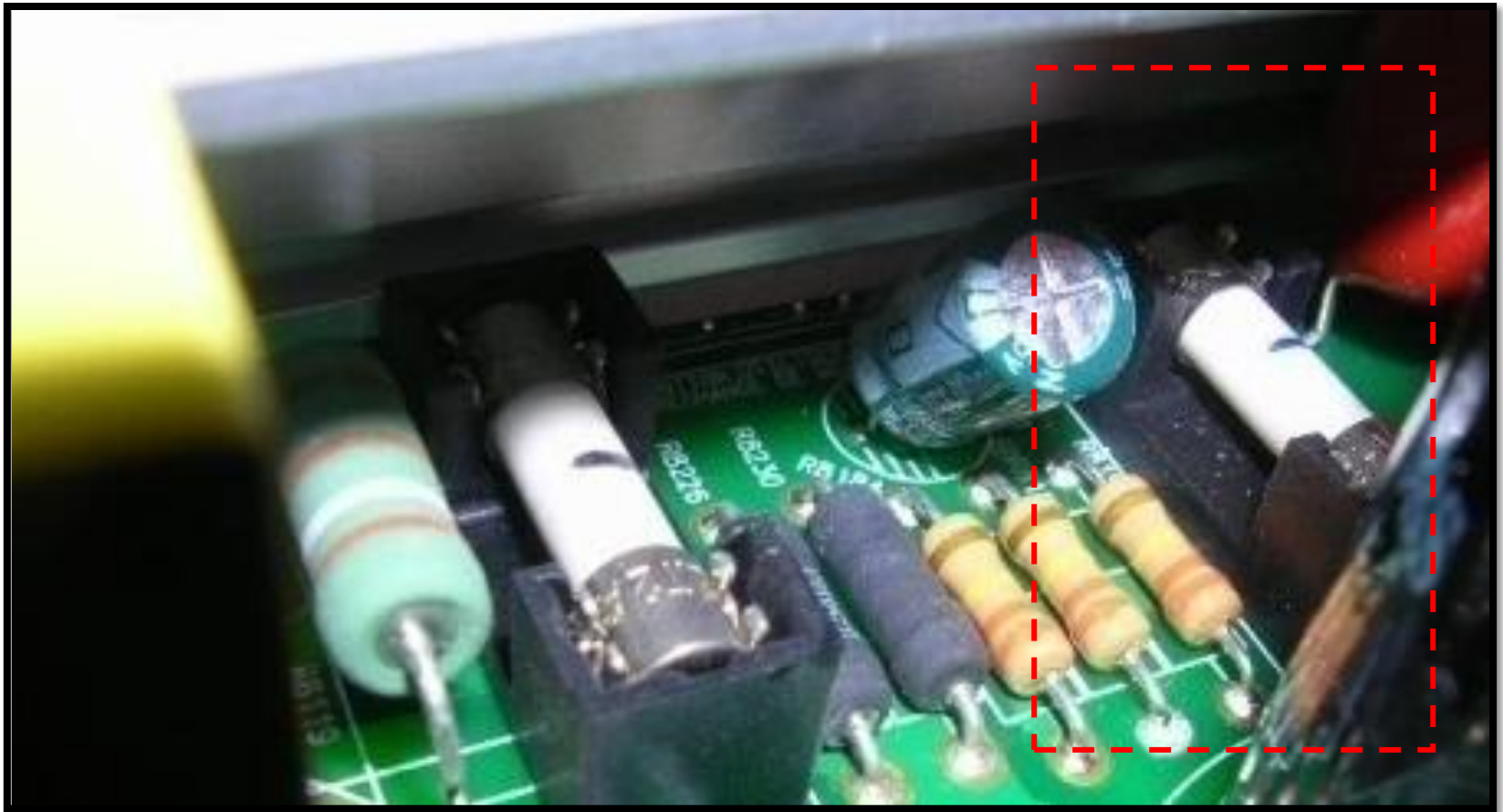
7) D3VD NO VOLTAGE → IC8022, IC8023



# Symptom 7: Error 1 (Va Protection)

■ Check or change:

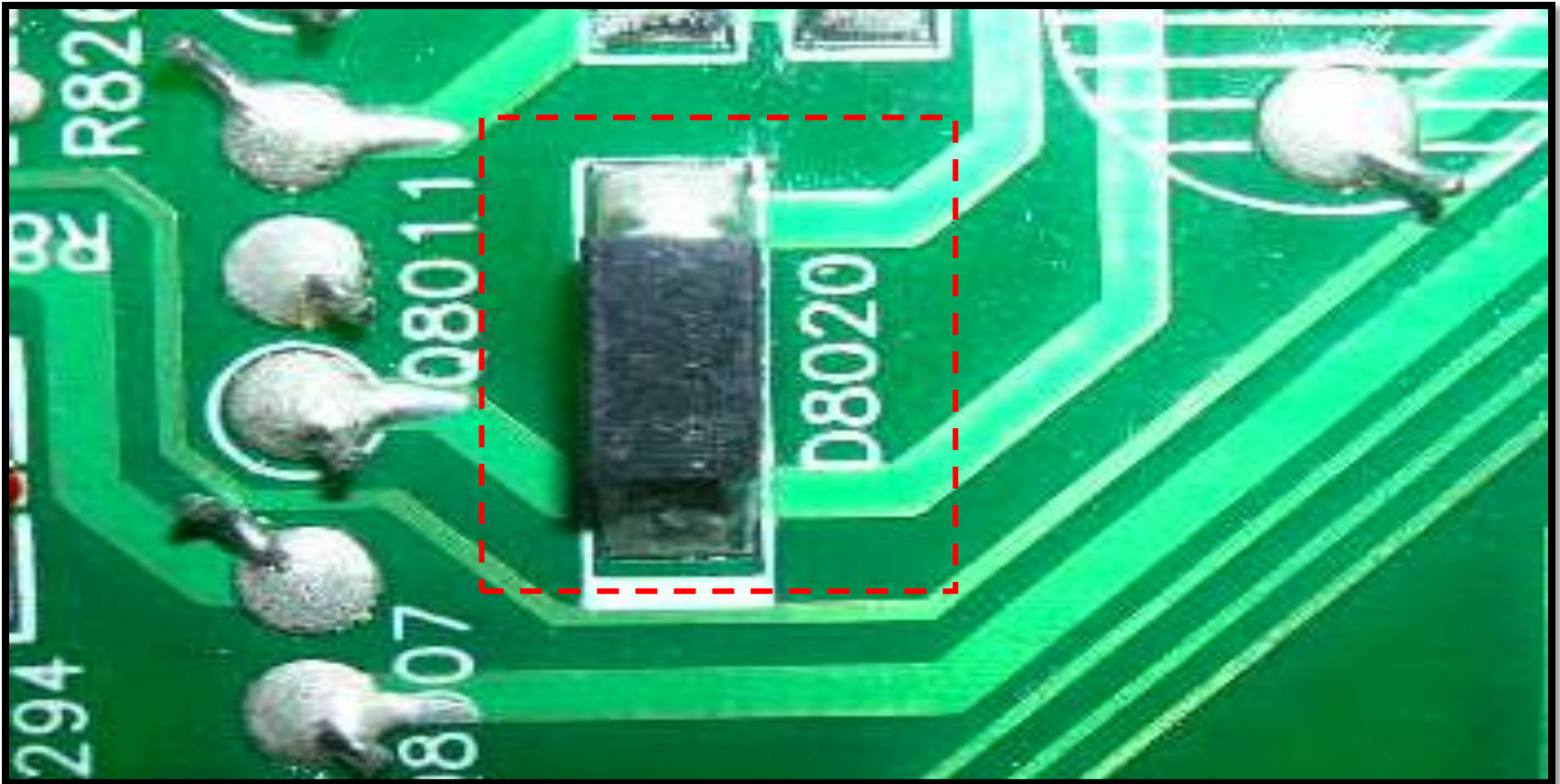
1) F8007 (250V/4A) OPEN



# Symptom 7: Error 1 (Va Protection)

■ Check or change:

2) SEQUENCE VOLTAGE “DC\_VCC” 18V: CHECK (D8020)

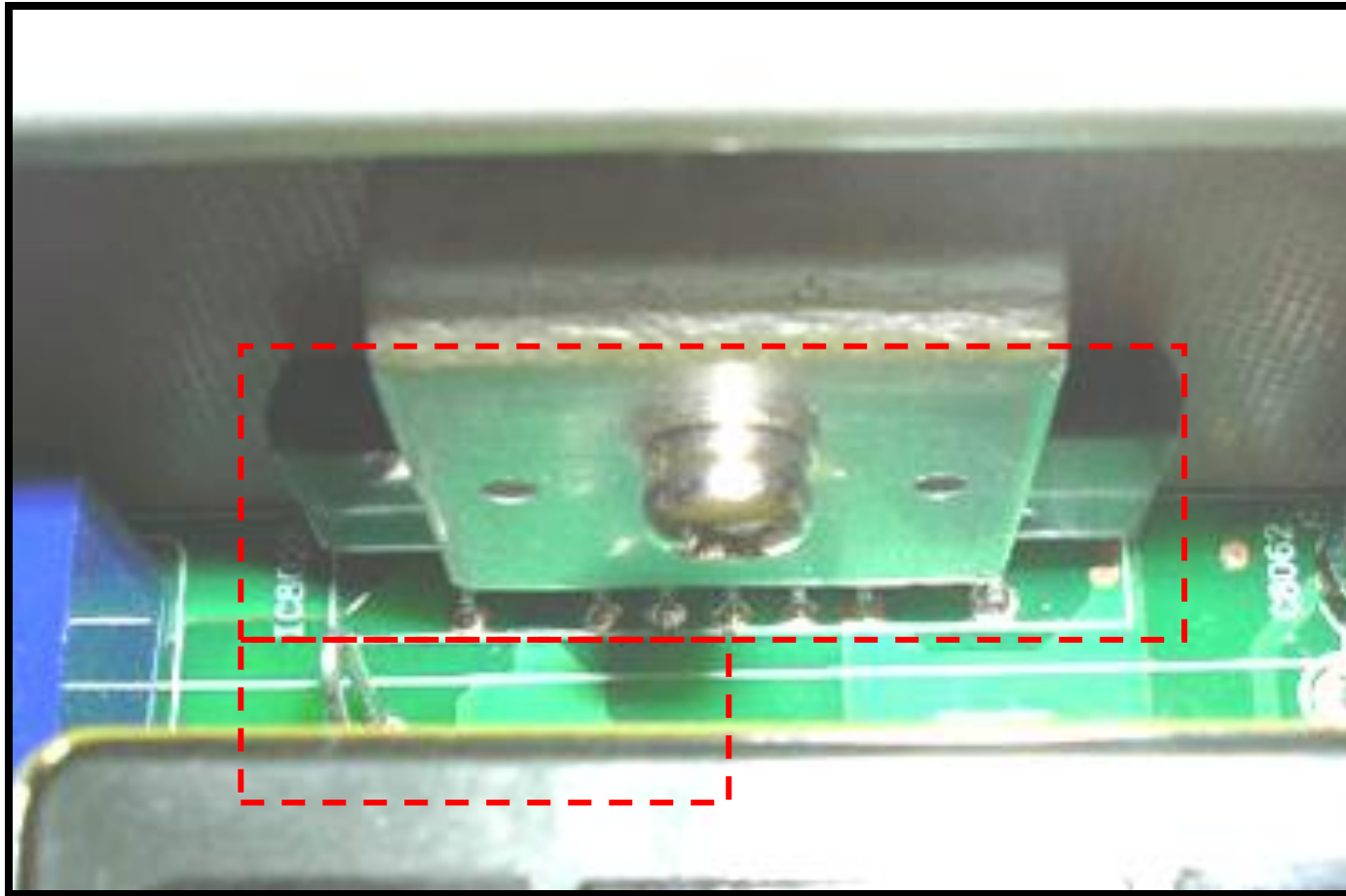




# Symptom 7: Error 1 (Va Protection)

■ Check or change:

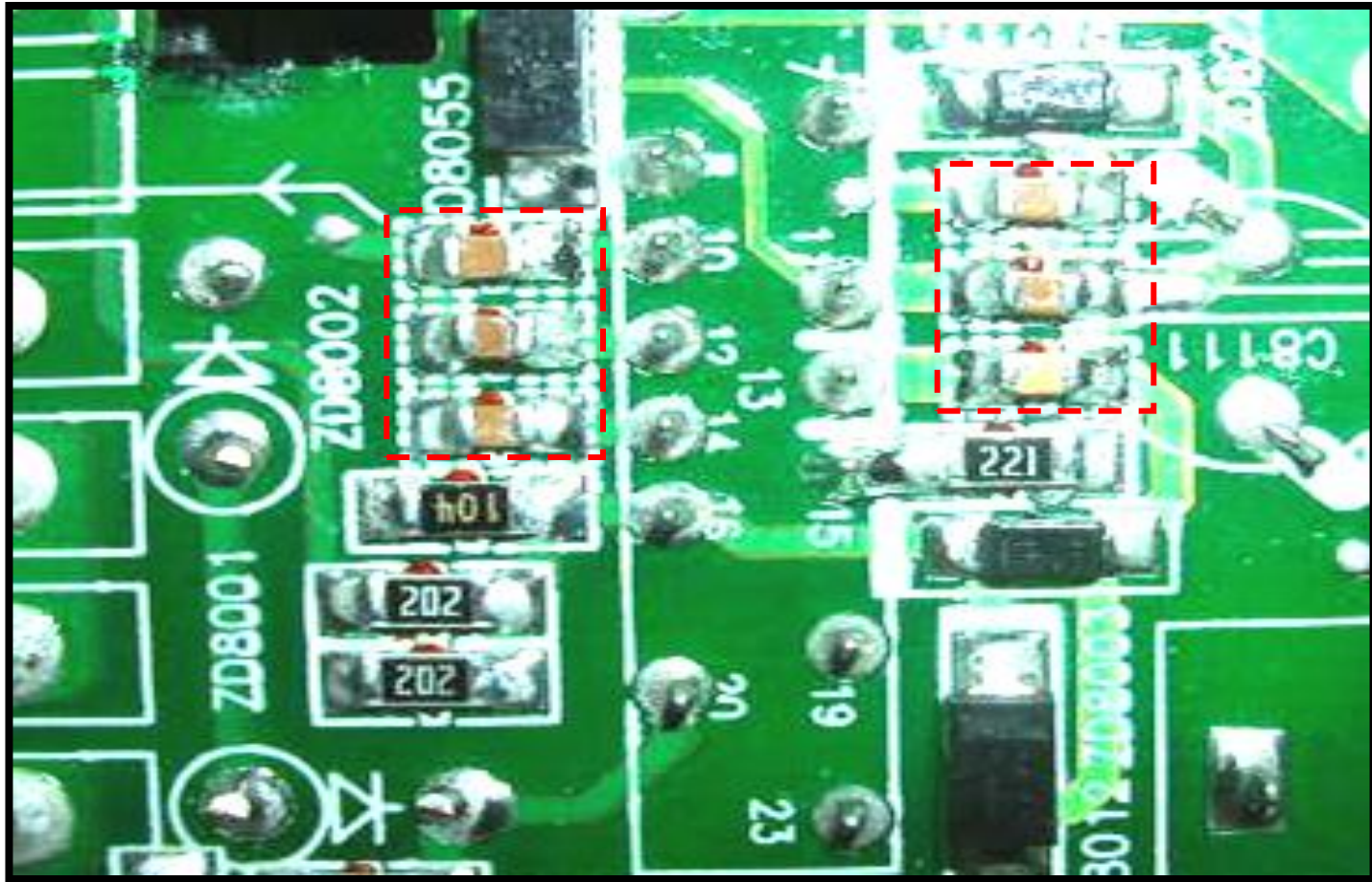
3) IC8028, ZD8001, ZD8002



# Symptom 7: Error 1 (Va Protection)

■ Check or change:

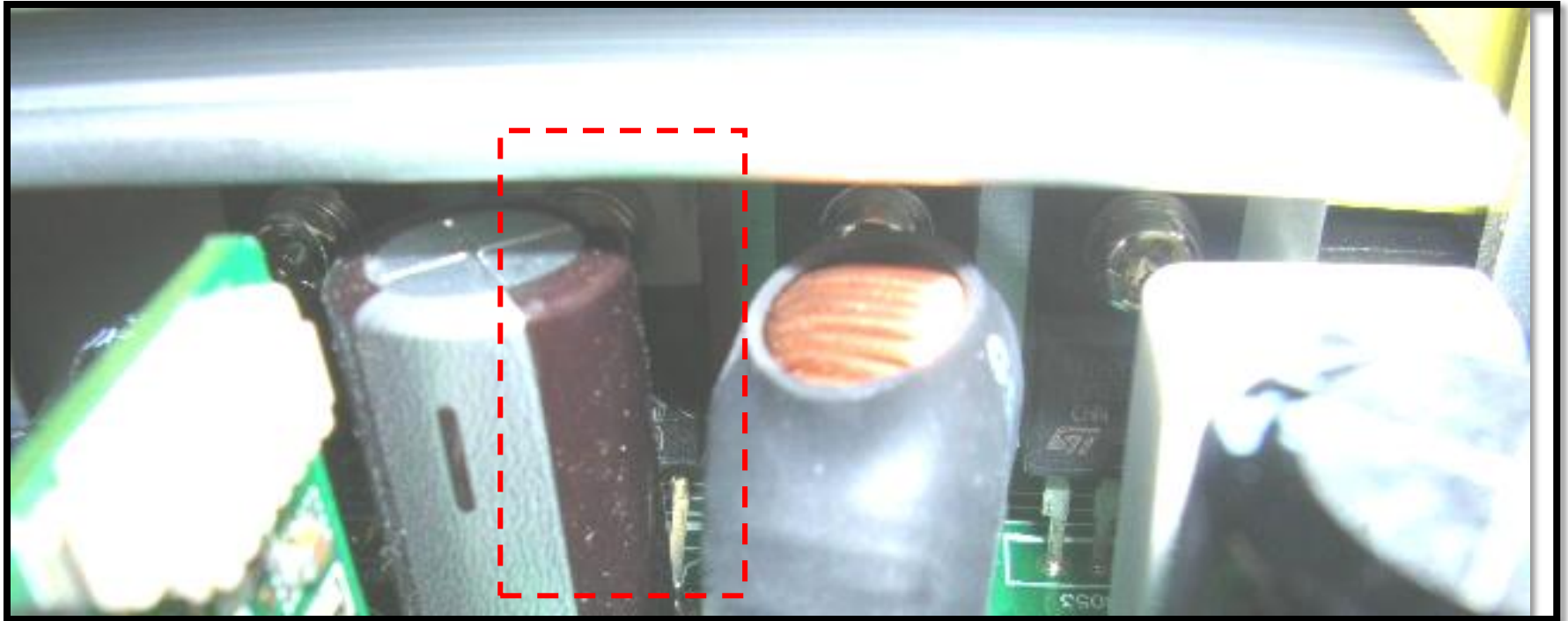
4) C8112, C8107, C8102, C8116, C8103, C8110



# Symptom 7: Error 1 (Va Protection)

■ Check or change:

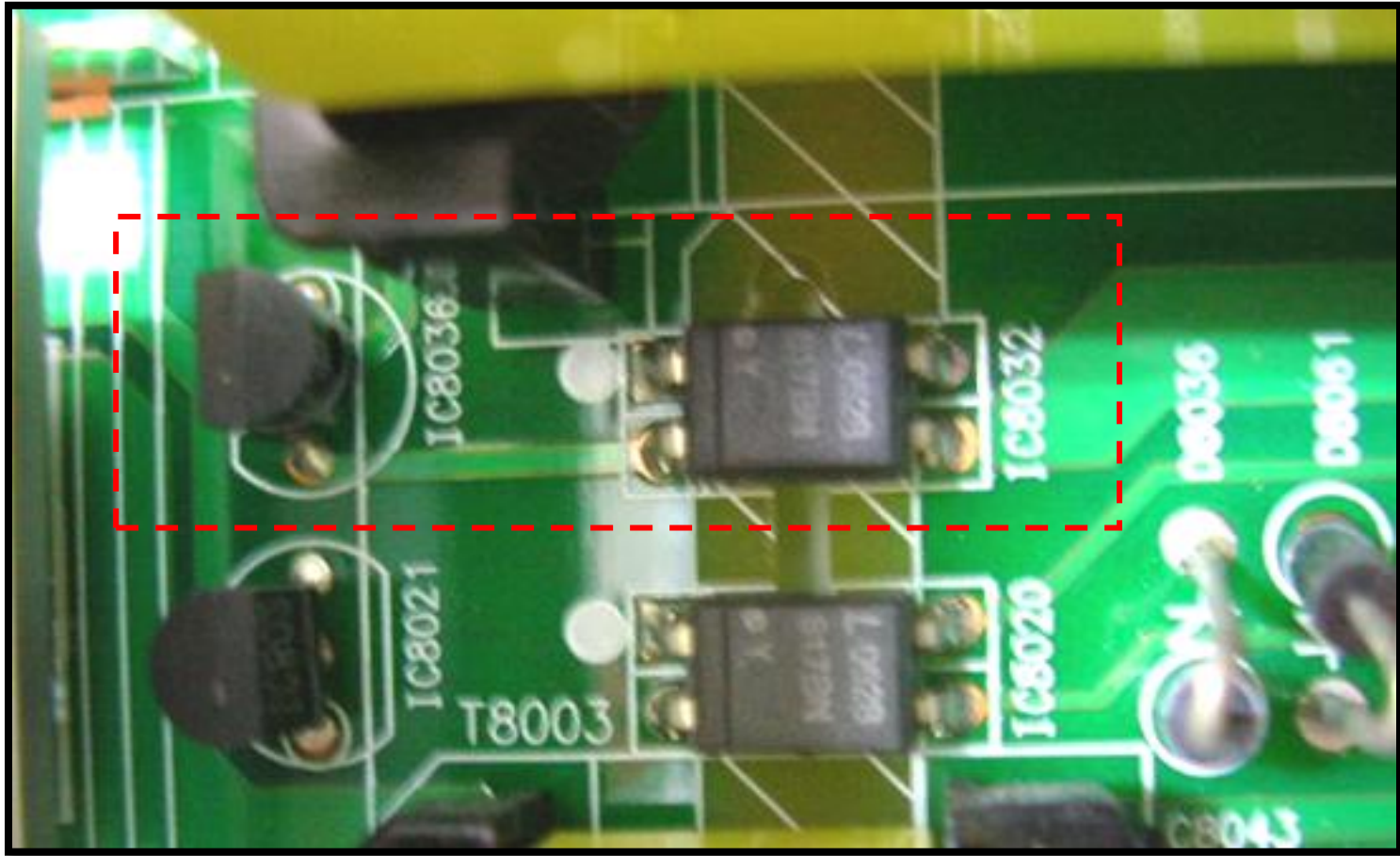
5) VG NO VOLTAGE OR VA 90V↑ → Change IC8026



# Symptom 7: Error 1 (Va Protection)

■ Check or change:

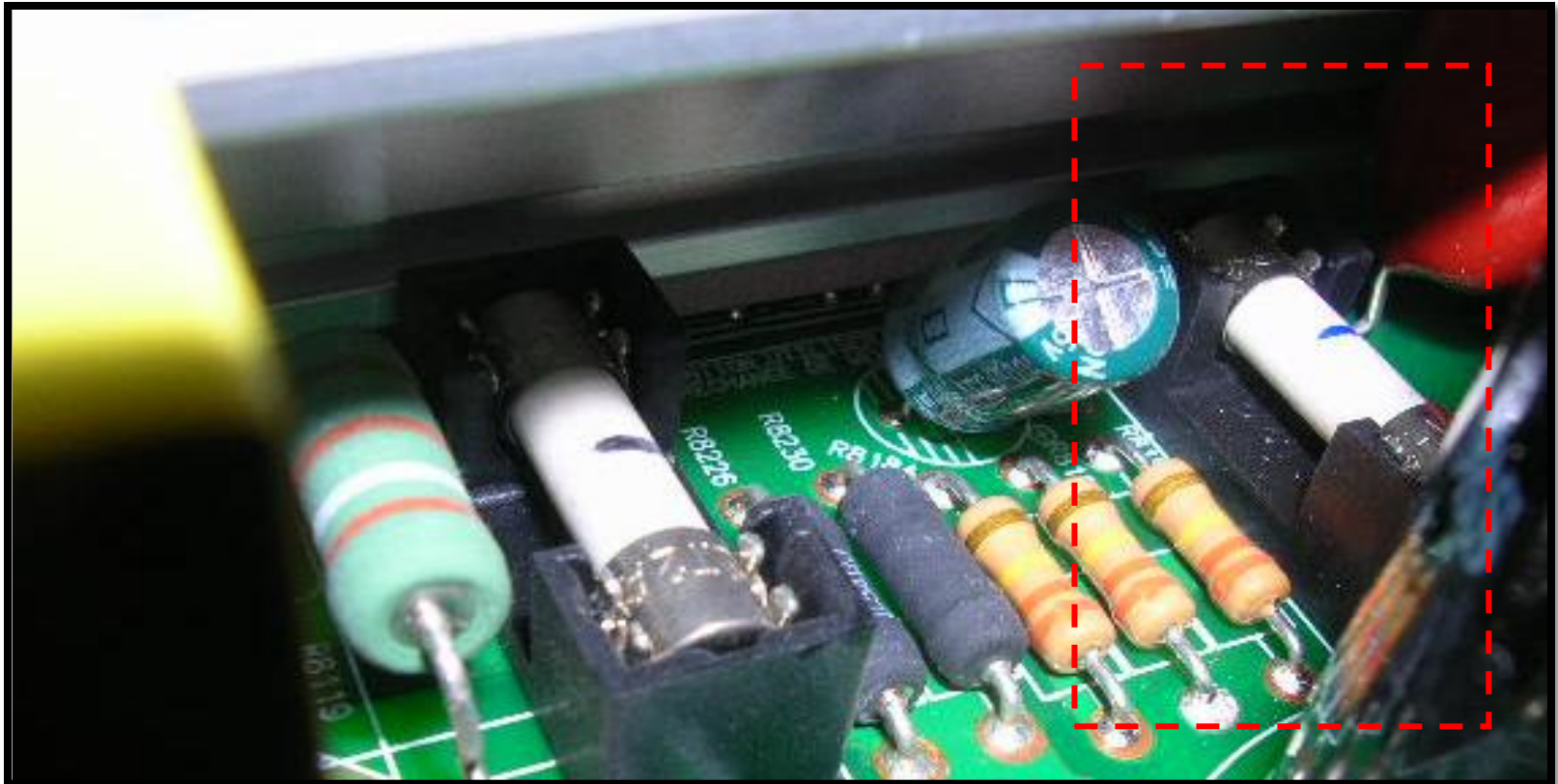
6) VA NO VOLTAGE → IC8032, IC8036



# Symptom 8: Error 5 (Vs Protection)

■ Check or change:

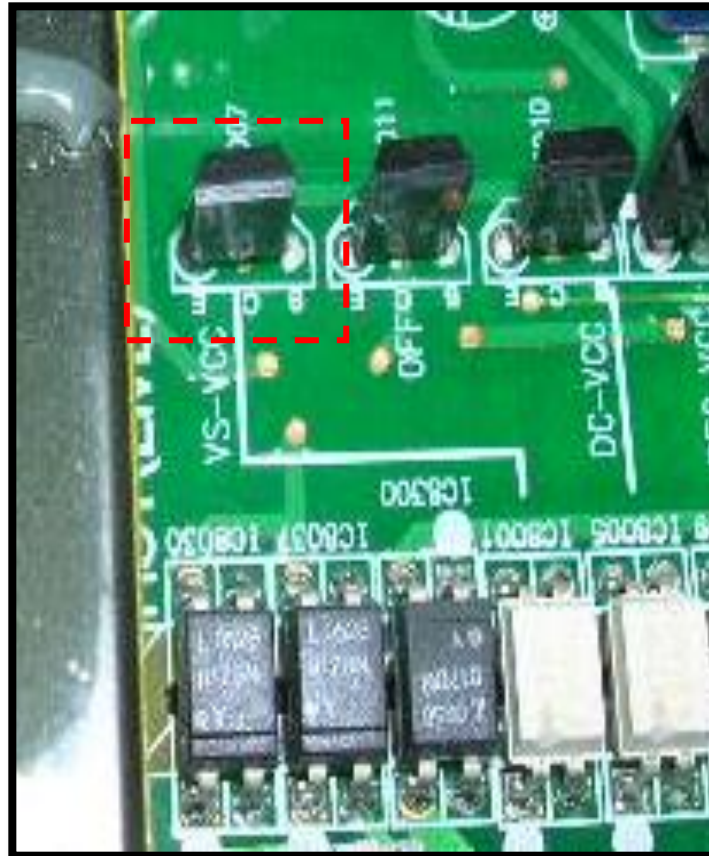
1) F8007(250V/4A) OPEN



# Symptom 8: Error 5 (Vs Protection)

- Check or change:

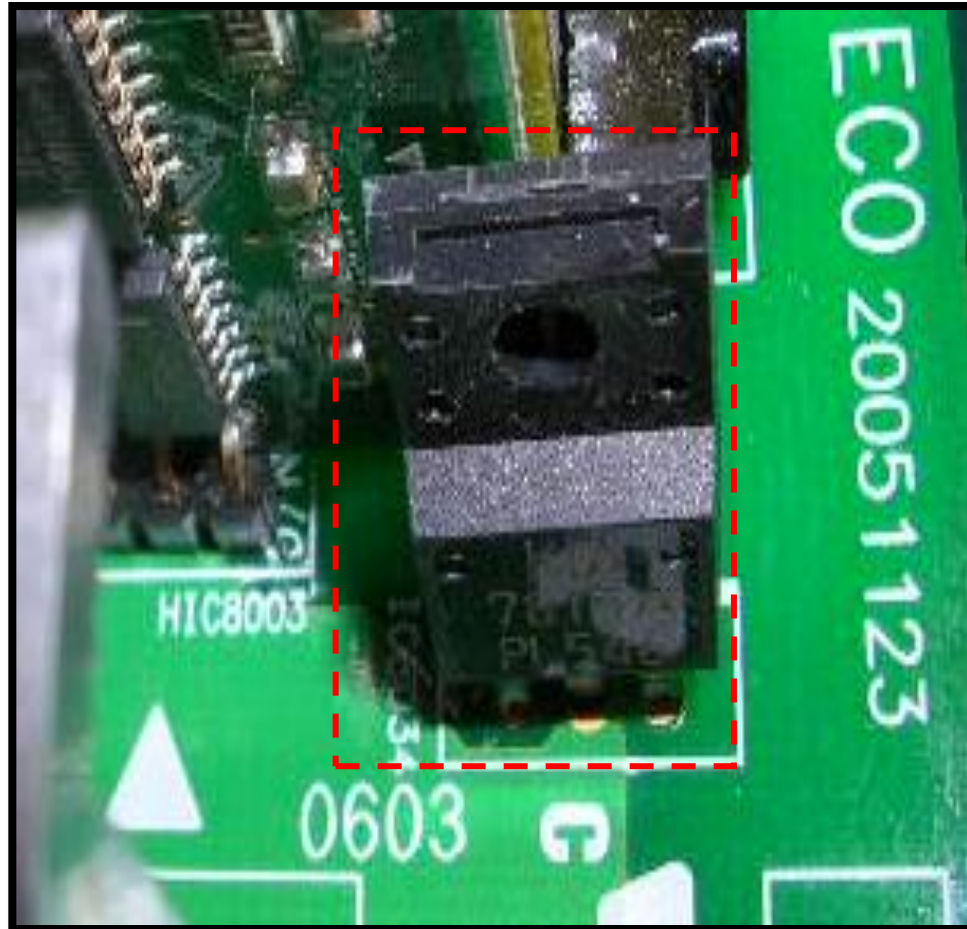
## 2) SEQUENCE VOLTAGE VS\_VCC 18V: Q8007



# Symptom 8: Error 5 (Vs Protection)

- Check or change:

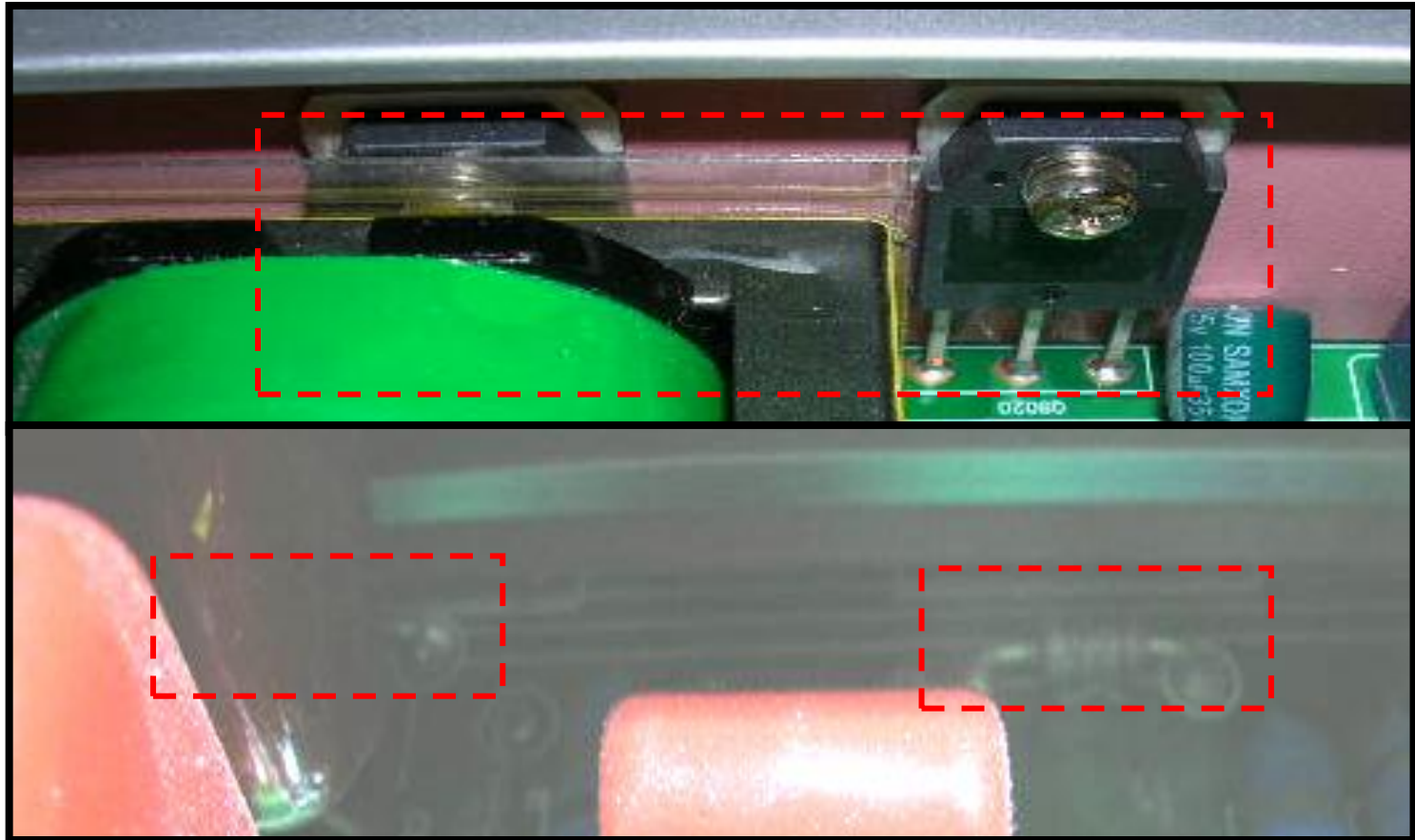
## 3) VSVCC 15V: IC8034



# Symptom 8: Error 5 (Vs Protection)

■ Check or change:

4) Q8020, Q8022, ZD8203, ZD8204

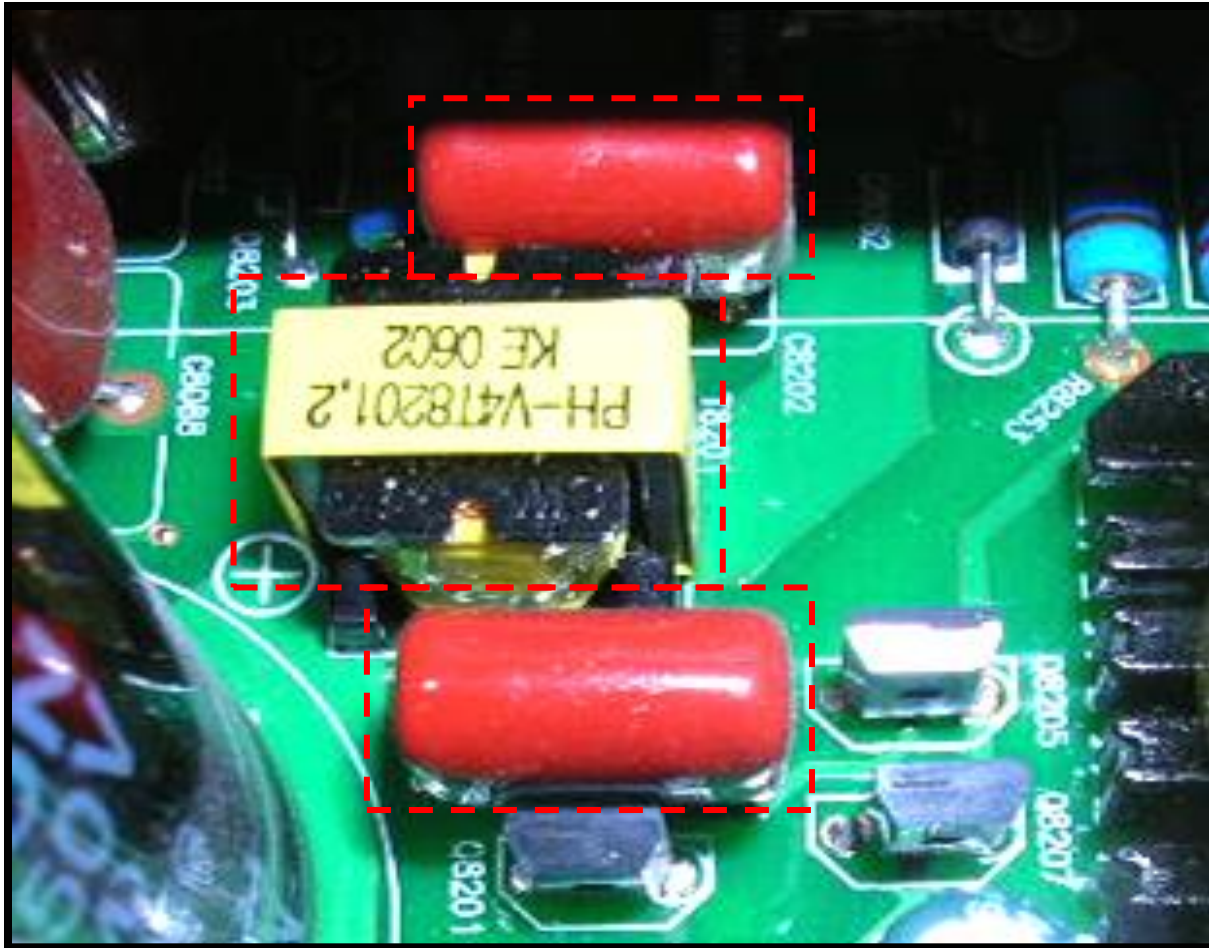




# Symptom 8: Error 5 (Vs Protection)

■ Check or change:

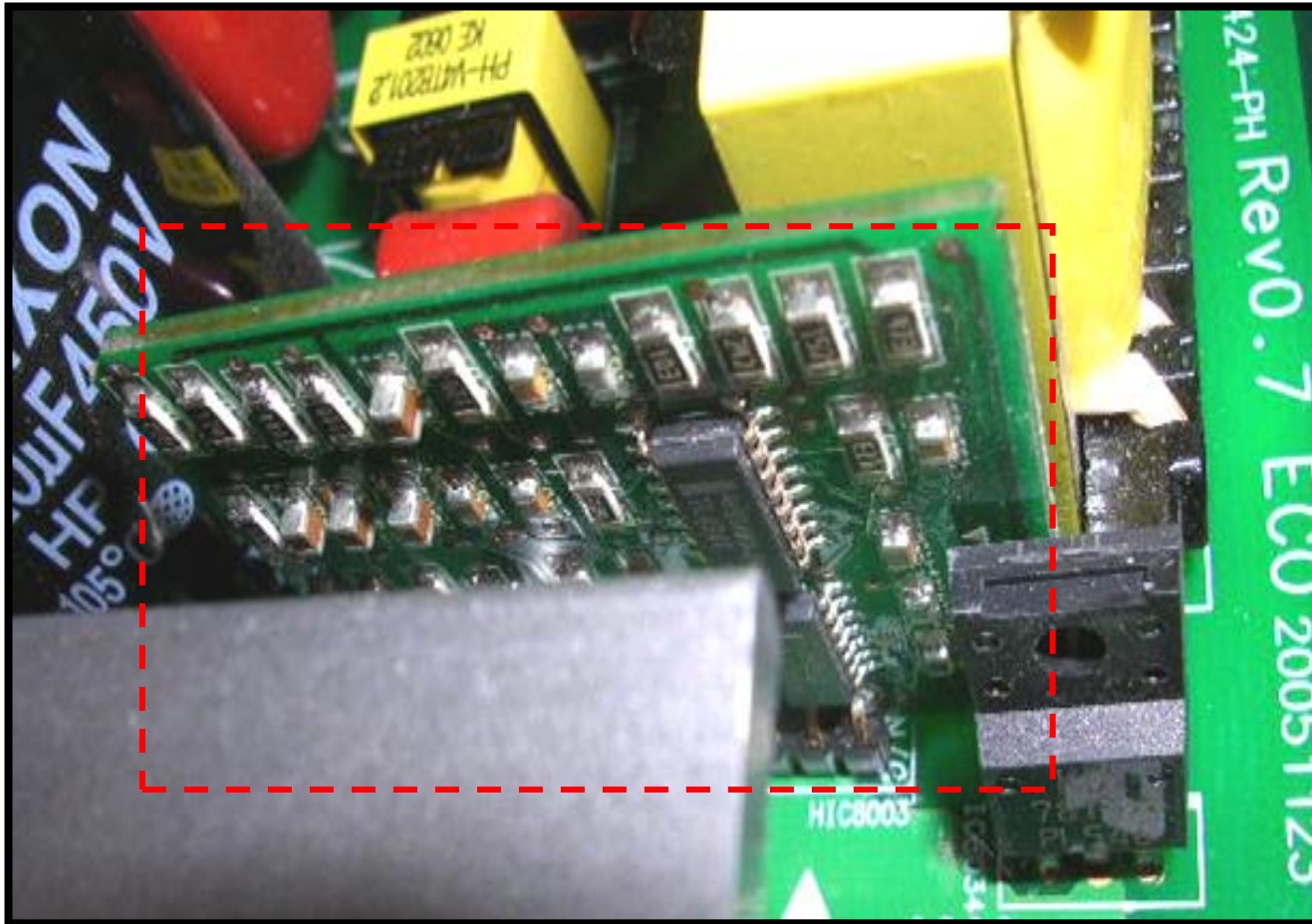
5) T8201, C8202, C8203



# Symptom 8: Error 5 (Vs Protection)

- Check or change:

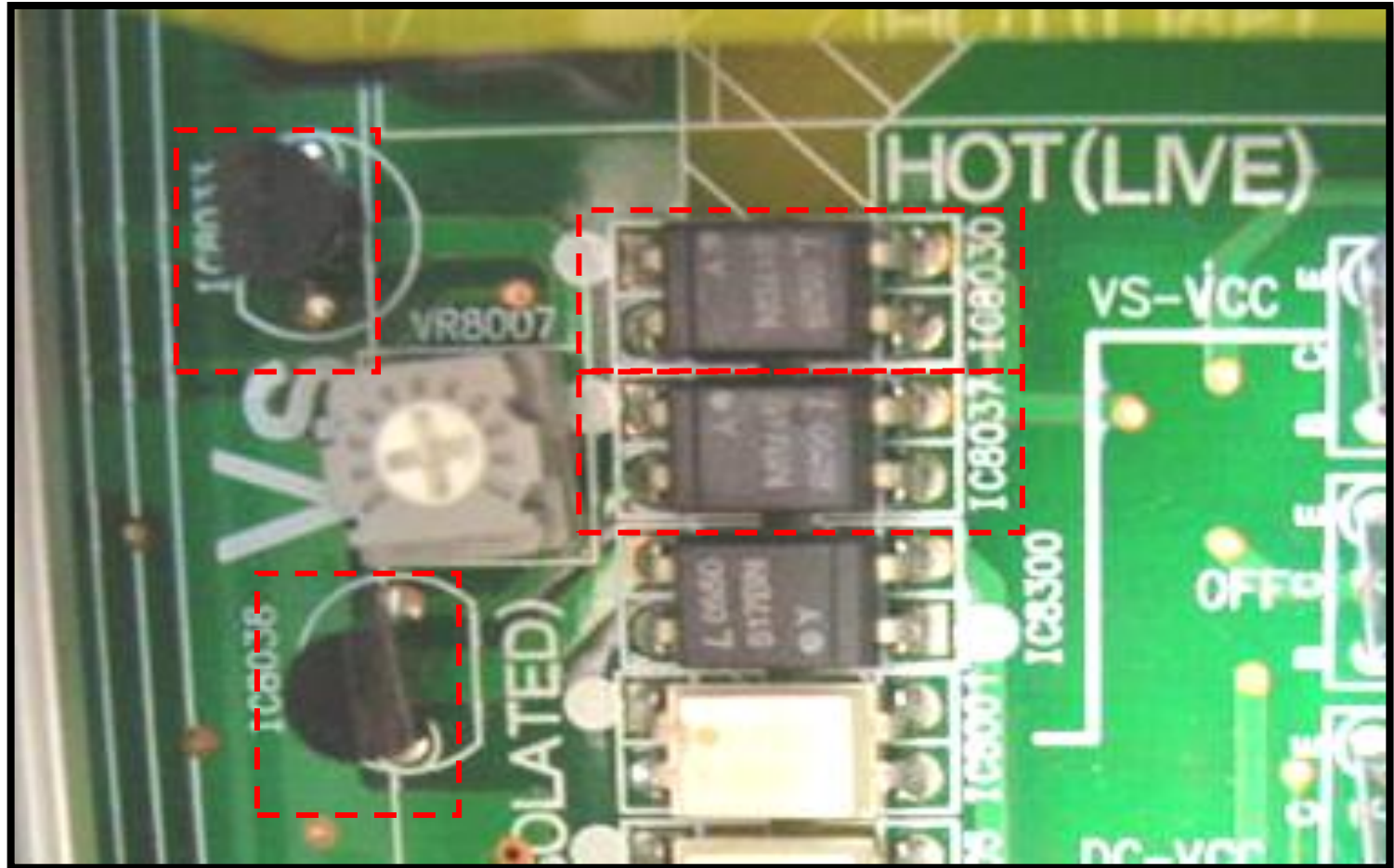
## 6) PWM Board HIC8003



# Symptom 8: Error 5 (Vs Protection)

■ Check or change:

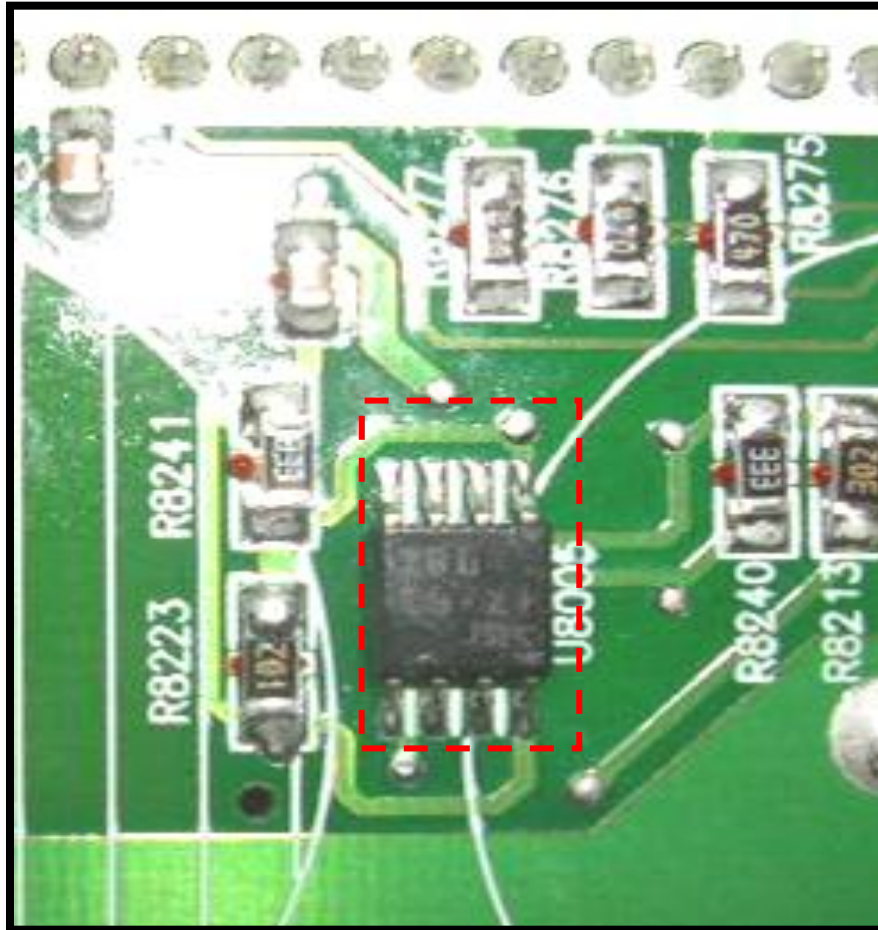
7) IC8030, IC8033, IC8037, IC8038



# Symptom 8: Error 5 (Vs Protection)

■ Check or change:

8) U8005



## Symptom 9: Error 7, 3, 8

■ Check or change:

### 1. VSET, VSCAN PROTECTION

a) F8008 (250V/1A) OPEN

b) VSET NO VOLTAGE

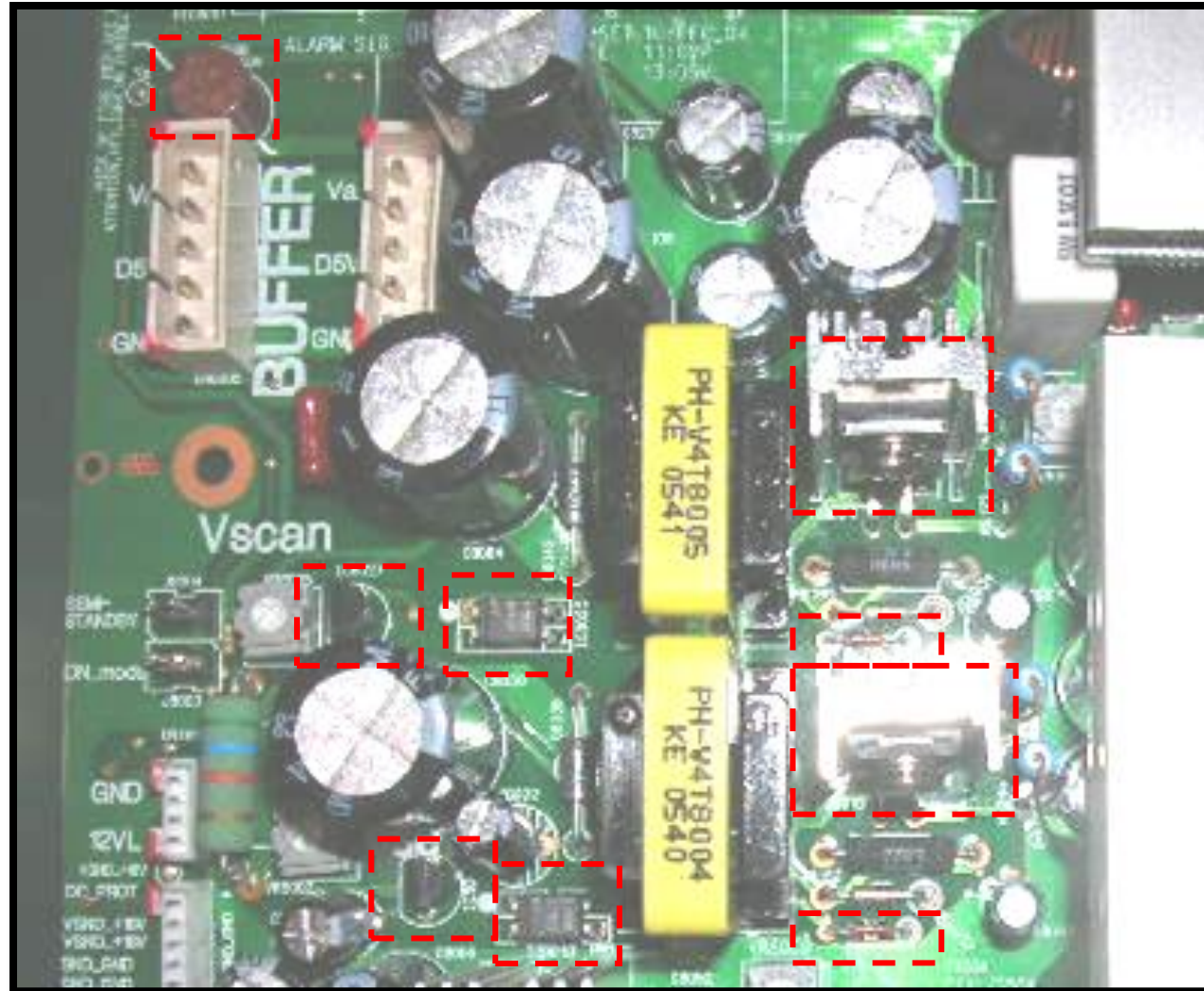
→ IC8015, D8039

→ IC8018, IC8019

c) VSCAN NO VOLTAGE

→ IC8024, D8044

→ IC8025, IC8027



## Symptom 9: Error 7, 3, 8

■ Check or change:

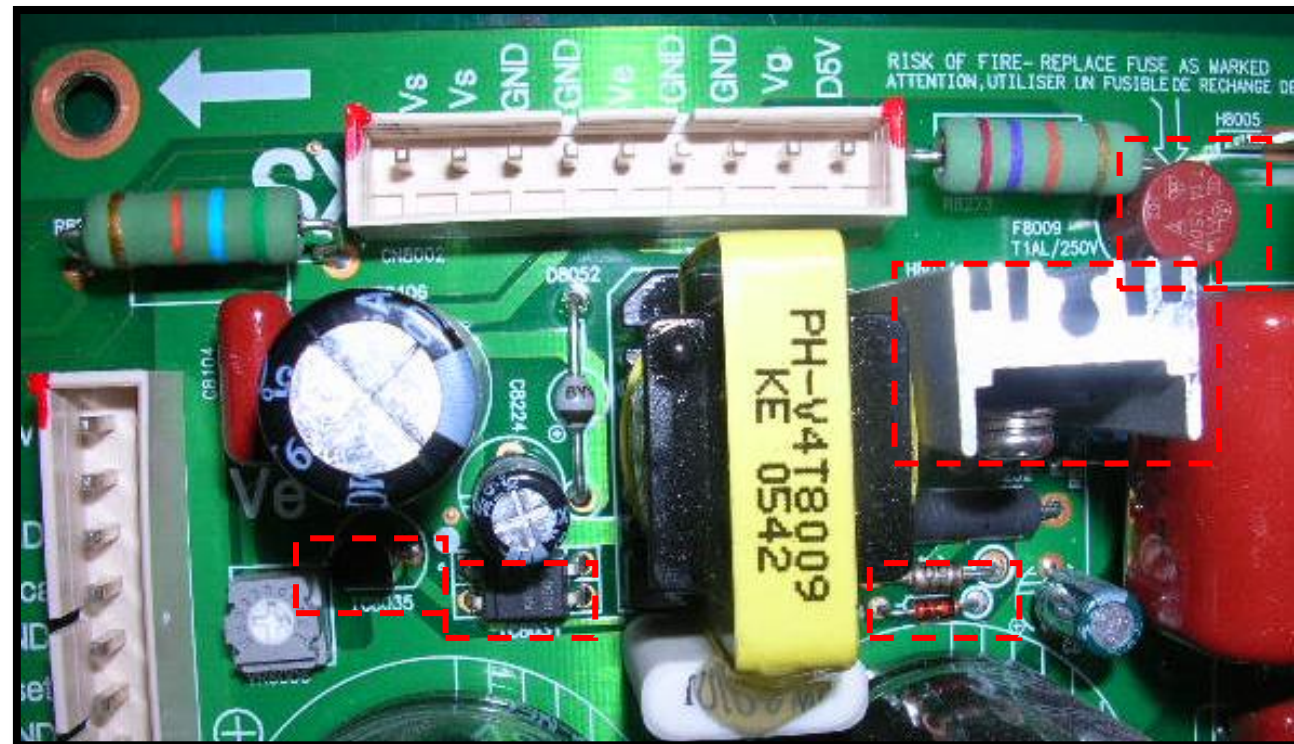
### 2. VE PROTECTION

a) F8009(250V/1A) OPEN

b) VE NO VOLTAGE

→ IC8029, D8054

→ IC8031, IC8035



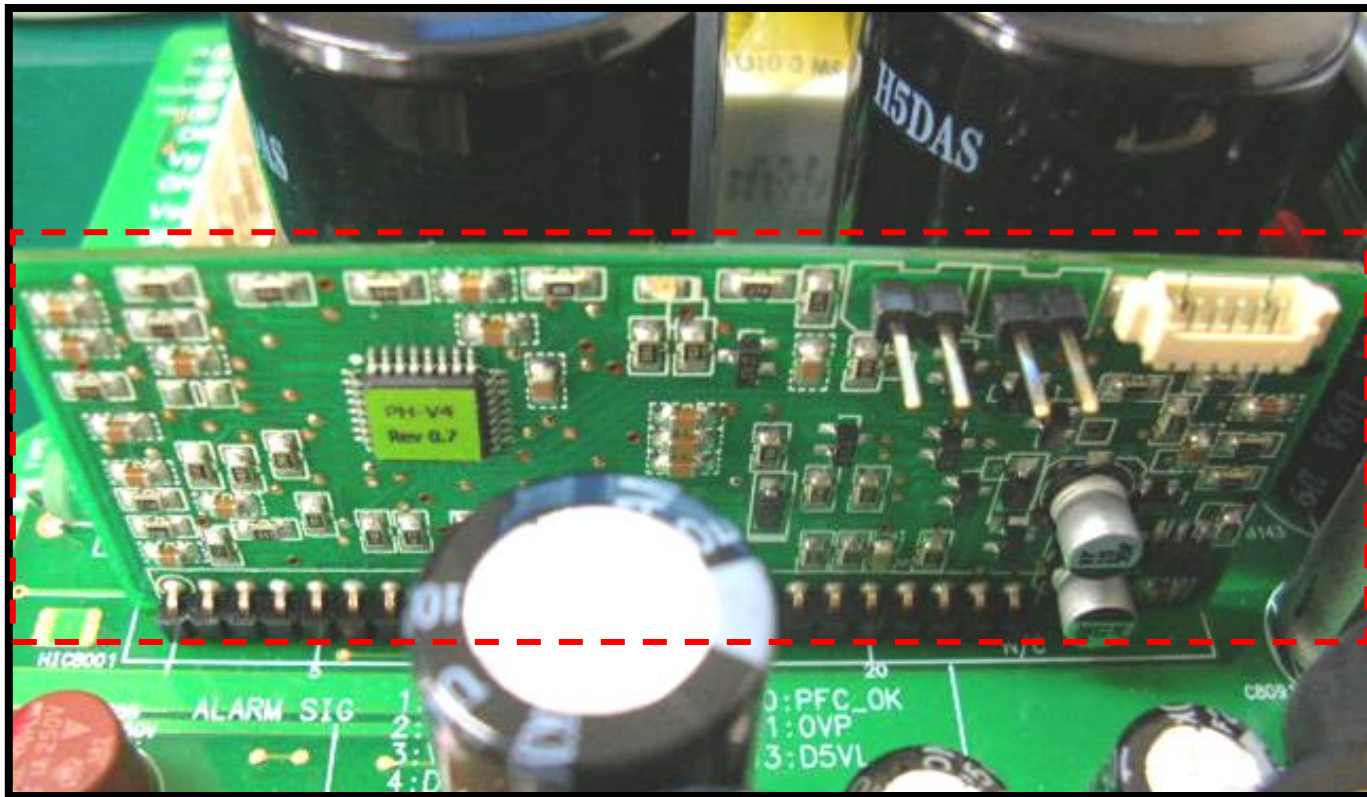
# Symptom 10: Error 11 (5V2 Over voltage protection)

■ Check or change:

**5V2 OVP PROTECTION or Active DC protection**

a) HIC8001 Change Alarm board

b) Check STANDBY OUTPUT section

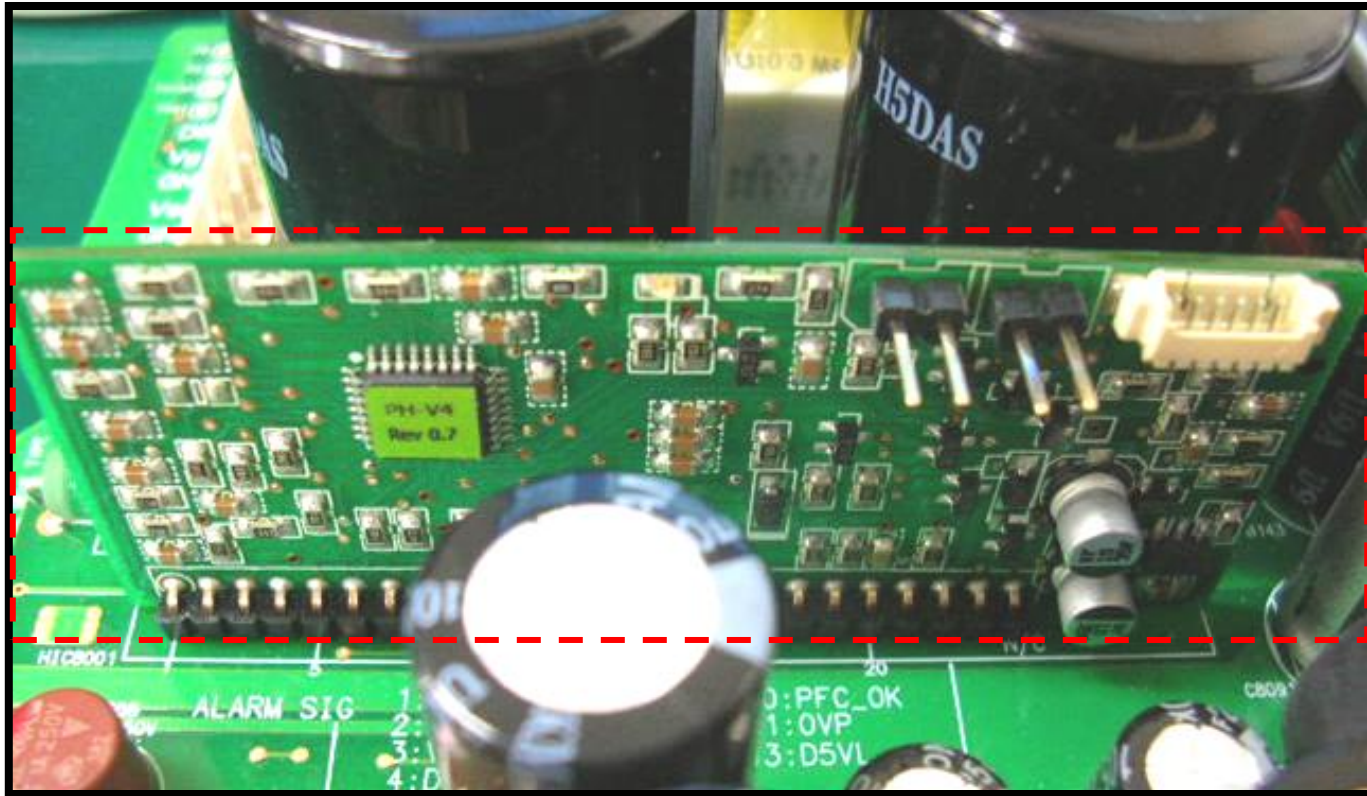


# Symptom 11: Error 12 (Time over protection)

- Check or change:

## TIME OVER PROTECTION (REV 0.7 EXCEPTION)

→ Change alarm board HIC8001



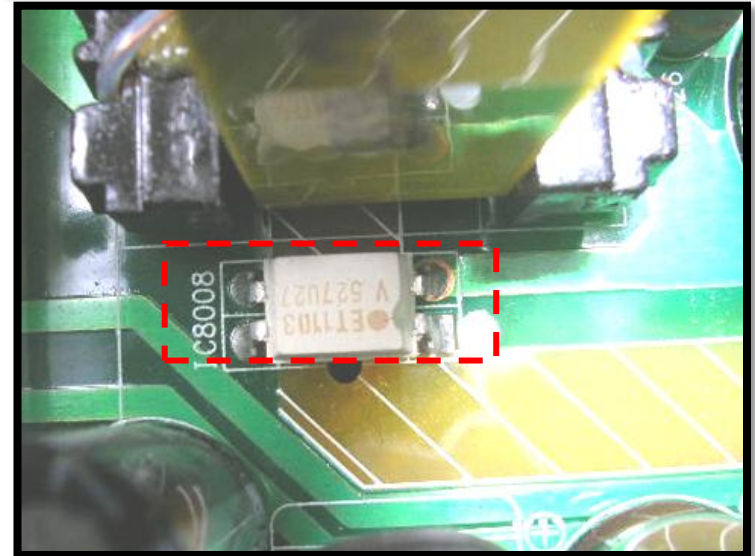
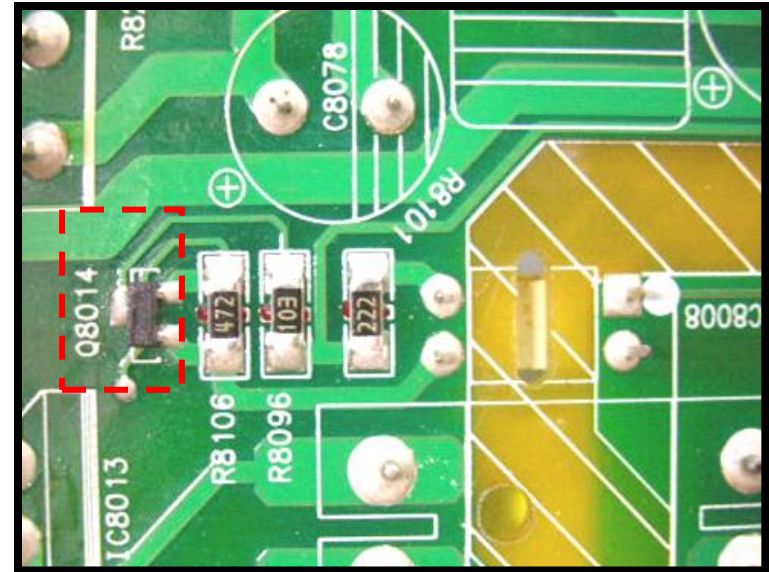
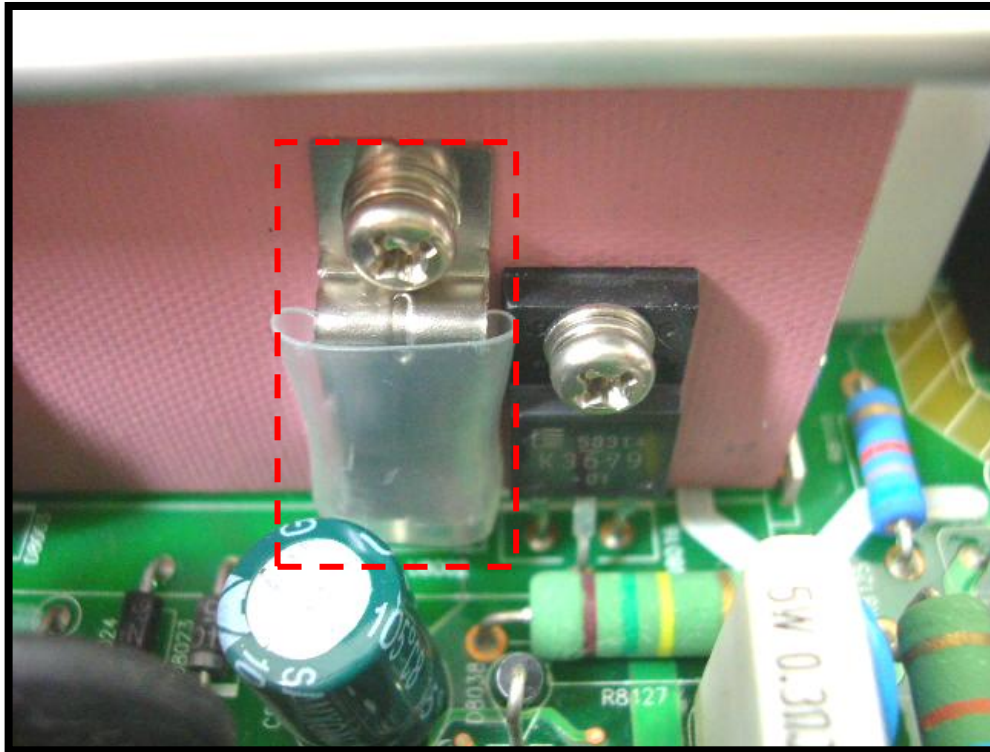


## Symptom 12: Error 9 (Thermal protection)

- Check or change:

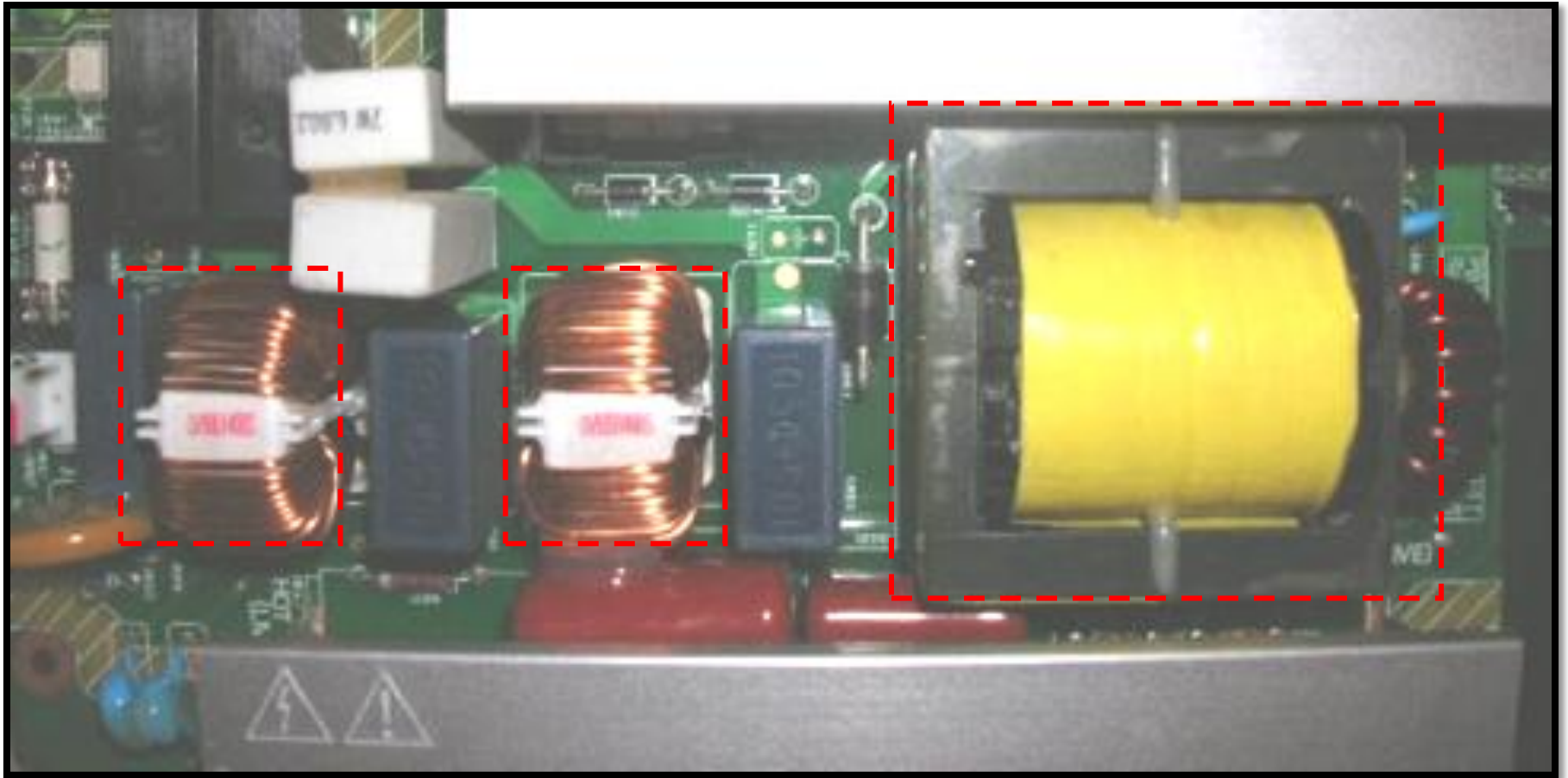
### THERMAL PROTECTION (REV 0.7 EXCEPTION)

- 1) U8002
- 2) IC8008, Q8014



# Symptom 13: Noise from inductors

- Check or change:  
L8002, L8005, L8006



## Symptom 14: Intermittently, TV Auto off after some time, error 8 or error 13 via alarm board

- Cure: Replace following items:
  - C8059 3300uF/10V [Becomes dry or burst]
  - C8060 3300uF/10V [Becomes dry or burst]
  - R8094 1M $\Omega$  SMD resistor [If you find 910K then change to 1M $\Omega$  1%]

