

**SNP-S15F-M SPECIFICATION**

**SPECIFICATION**

and

**PERFORMANCE**

for

SWITCHING POWER SUPPLY

**M/N : SNP-S15F-M**

SNP-S15F-MH

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|                                |                |  |                      |  |  |  |
|--------------------------------|----------------|--|----------------------|--|--|--|
| Reviewed by<br>Project Manager | Jim<br>9-20-24 |  |                      |  |  |  |
| Typed by<br>Document Assistant | 王瑞英<br>091924  |  |                      |  |  |  |
| <b>SKYNET ELECTRONIC</b>       |                |  | <b>LAST REV. NO.</b> |  |  |  |

## 1.0 INTRODUCTIONS

SNP-S15F-M is a series of SNP-S family. It's an input class I line and EMI class B design. SNP-S15F-M is a 150W quad outputs convection cooling power supply. For longer life time, forced air cooling is not suggested. This family Intend for medical BF application. IF what you want is class II , please choose our SNP-S15F-MH.

## 2.0 INPUT SPECIFICATIONS

### 2.1 Input Voltage

The range of input voltage is from 90VAC to 264VAC, nominal line is 115VAC/230VAC. (Label 100 ~ 240VAC)

### 2.2 Input Frequency

The range of input frequency is from 47Hz to 63Hz.

### 2.3 Input Current

The maximum input current is 3A at 115VAC or 2A at 230VAC.

### 2.4 Inrush Current

The inrush current will not exceed 50A at 115VAC input or 100A at 230VAC input cold start, 25°C.

## 3.0 OUTPUT SPECIFICATIONS

### 3.1 Load range

| output | min. load | rated load | peak load | voltage accuracy |
|--------|-----------|------------|-----------|------------------|
| +5V    | 0A        | 5A         |           | +4.9V to +5.1V   |
| +24V   | 0A        | 4A         | 6A        | +22.8V to +25.2V |
| +12V   | 0A        | 2A         |           | +11.4V to +12.6V |
| -12V   | 0A        | 0.3A       |           | -11.4V to -12.6V |

At factory, the +5V output is set between +4.90V to +5.10V at 60% rated load and nominal line input, and the other outputs should be checked within the accuracy range. At peak load and nominal line, the output can last for 2 seconds without shut down.

### 3.2 Ripple and noise

The peak to peak ripple and noise for each output is less than 1% of each output voltage at rated load, nominal line. Measuring is done by 15MHz bandwidth limited oscilloscope and terminated each output with a 0.47uF capacitor.

### 3.3 Line regulation

The output line regulation, for all outputs are less than + -1% while measuring at rated load and + -10% of nominal line input voltage changing.

### 3.4 Load regulation

The load regulation for +5V and +24V is less than + -3%, for +12V and -12V is less than + -5%, which are measured by changing the output load + -40% from 60% rated load, and the other outputs are kept at 60% rated load and nominal line input.

## 4.0 GENERAL FEATURES

### 4.1 Efficiency

The efficiency is 82% typ. while measuring at nominal line and rated load.

### 4.2 Hold up time

The hold up time is 16ms typ. at 115VAC input and rated load, which is measured from the end of the last charging pulse to when the main output drops down to 95% output voltage.

### 4.3 Protection

#### 4.3.1 Over voltage protection

The built-in crowbar circuit will shut down the outputs to avoid damaging the external circuits. The trip point of over voltage protection is around +5.7V to +7.0V. To recover from over voltage protection, cycle the AC line OFF and ON is necessary.

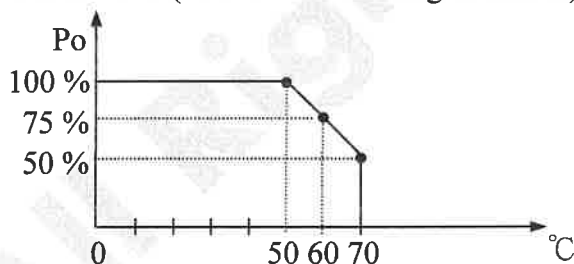
#### 4.3.2 Short circuit and over load protection

The power supply will generate a hiccup mode to protect itself against short circuit or over load conditions, and will automatically return to normal after fault conditions are removed.

## 5.0 ENVIRONMENT SPECIFICATIONS

### 5.1 Operating temperature

0°C to 70°C (>50°C with derating as below.)



### 5.2 Storage temperature

-40°C to +75°C

### 5.3 Operating humidity

10% to 90% Non-Condensing.

### 5.4 Altitude

Will operate properly at any altitude between 0 to 5000m.

## 6.0 INTERNATIONAL STANDARDS

### 6.1 Safety standards

Designed to meet the following regulations :

UL/CSA/EN/IEC 60601-1 Ed.3.2

### 6.2 EMI standards

Designed to meet the following limits :

FCC docket 20780 curve "B"

EN55032 class "B"

EN61000-3-3

### 6.3 EMS standards

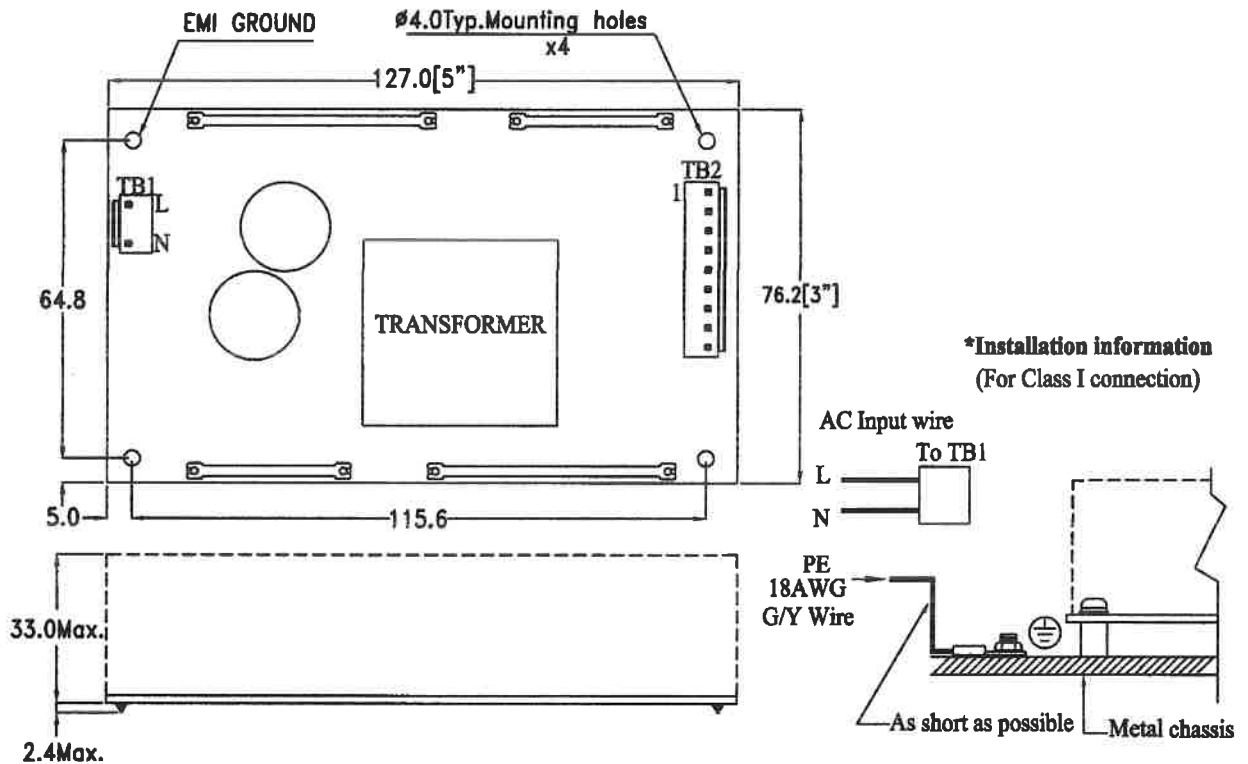
Designed to meet the following limits :

|              |  |                         |
|--------------|--|-------------------------|
| EN61000-4-2  | 8KV contact, 15KV air discharge        | Criterion A             |
| EN61000-4-3  | 10V/M with 80% AM                      | Criterion A             |
| EN61000-4-4  | 2KV (100KHZ)                           | Criterion A             |
| EN61000-4-5  | Line to Line 1KV ; Line to ground 2KV. | Criterion A             |
| EN61000-4-6  | 10V with 80% AM                        | Criterion A             |
| EN61000-4-8  | 30A/m                                  | Criterion A             |
| EN61000-4-11 | 30% dips 500ms,                        | Criterion A             |
|              | 60% dips 200ms,                        | Criterion B             |
|              | 100% dips 10ms,                        | Criterion A (at 115VAC) |
|              | 100% dips 20ms,                        | Criterion B             |
|              | 100% dips 5000ms,                      | Criterion B             |

**7.0 MECHANICAL SPECIFICATION**

**7.1 Dimensions**

Dimensions below are shown in mm [inch]. Tolerance specified is + - 0.4mm.



Note:

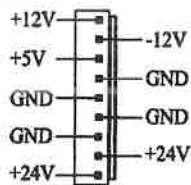
1. The PSU can't be directly attached and fixed on the plastic chassis.
2. Must be fixed properly after the ground wire go into chassis for safety reason.

**7.2 Connectors**

TB1--AC input : JST B2P3-VH or equivalent  
 TB2--DC output : JST B9P-VH or equivalent

**7.3 DC output pin assignment**

TB2

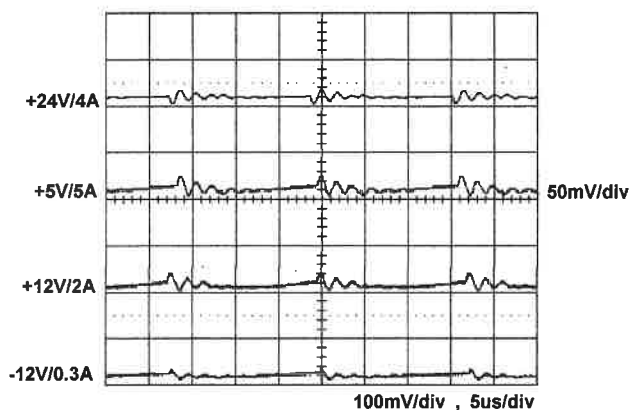


**7.4 Packing**

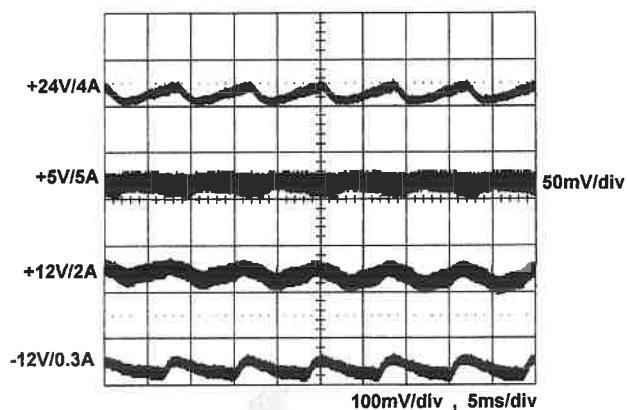
Net weight : 298 g approx. / unit  
 Carton size (mm) : 339 (L) x 339 (W) x 327 (H)  
 Quantity : 36 units / carton  
 Gross weight : 13.0 kg approx. / carton

8.0 PERFORMANCE (input voltage is 115VAC, unless others specified)

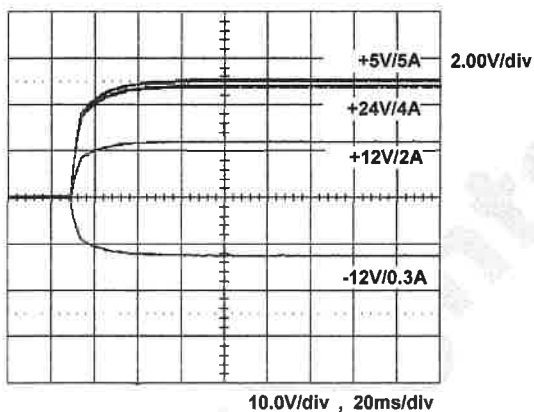
8.1 Switching frequency ripple



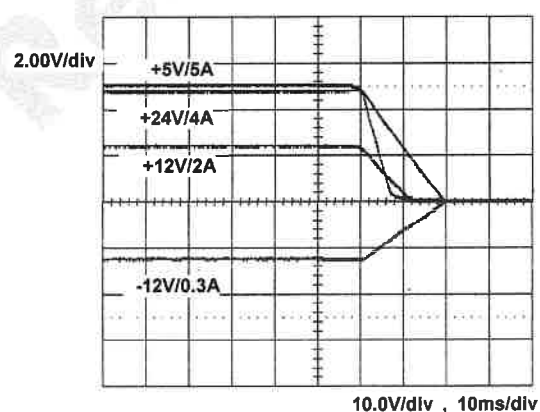
8.2 Line frequency ripple



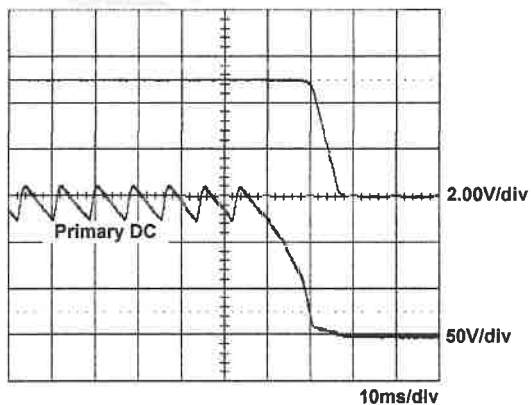
8.3 Output turn on wave form



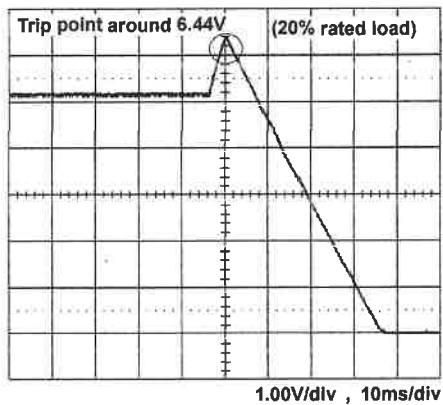
8.4 Output turn off wave form



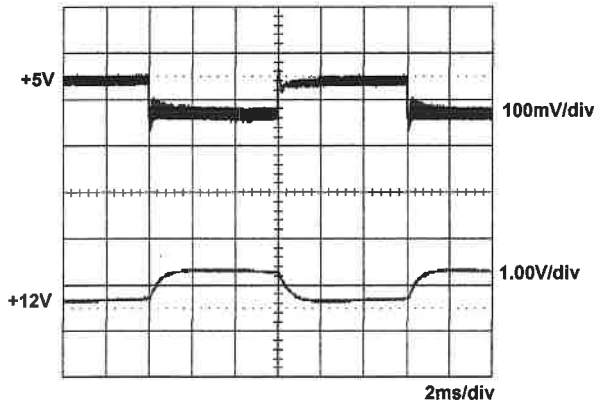
8.5 Hold-up time



8.6 Over voltage protection

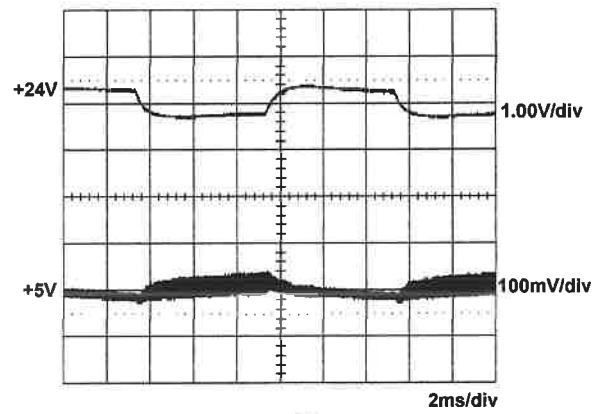


8.7 +5V step response



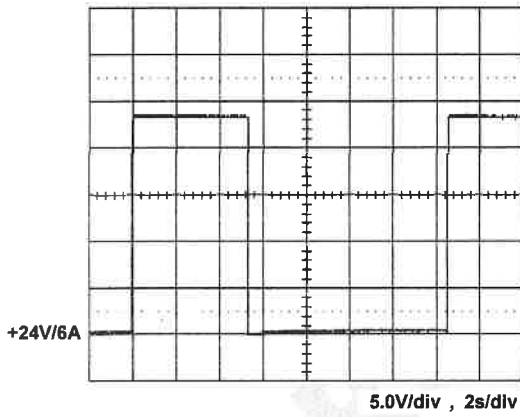
+5V step from 1A to 5A  
other output at 60% load

8.8 +24V step response

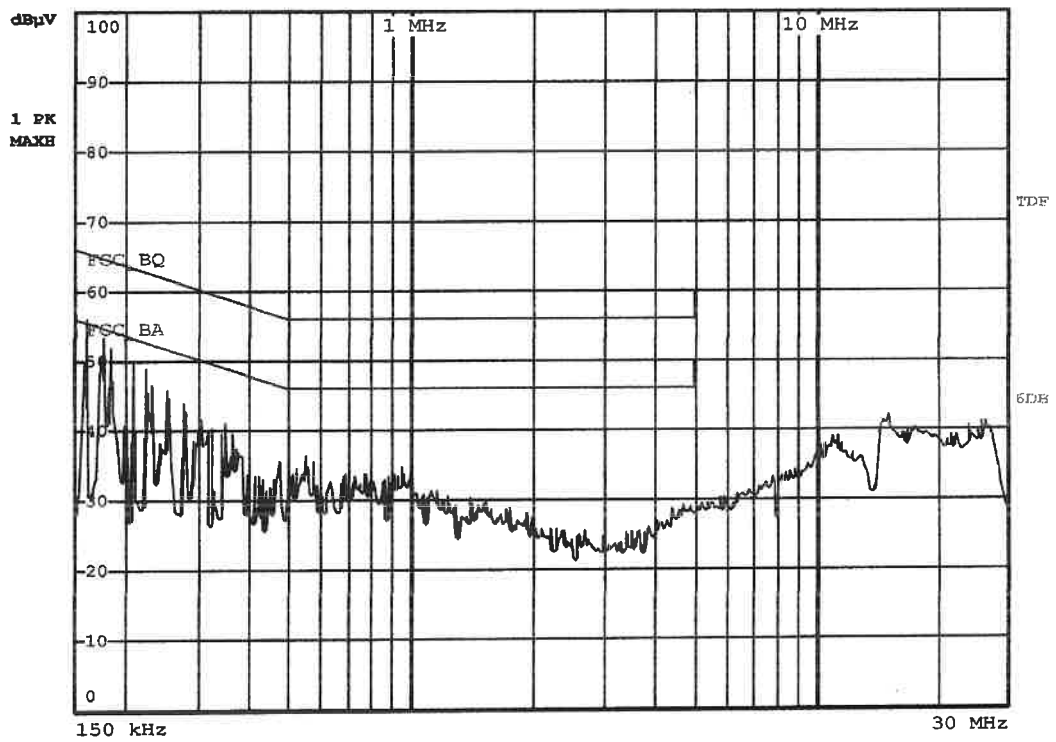


+24V step from 0.8A to 4A  
other output at 60% load

8.9 peak load



8.10 FCC "B"



8.11 CISPR "B"

