

**SPECIFICATION**

**For**

SWITCHING POWER SUPPLY

**M/N : SNP-G169-MA**

STANDARD PRODUCT

Reviewed by Product Engineer	李明輝 081514	李明輝 042715	Hw. 072315	Jr~ 6-14-16	Jr~ 12-25-18	
Typed by Document Assistant	葉瑞英 081514	葉瑞英 042715	葉瑞英 072315	葉瑞英 061416	葉瑞英 12-25-18	
<b>SKYNET ELECTRONIC</b>			<b>LAST REV. NO.</b>			

## 1.0 INTRODUCTIONS

SNP-G169-MA is an open frame 24V/160W SMPS for general purpose use. It also features in Medical safety and nonaudible noise green power.

## 2.0 INPUT SPECIFICATIONS

### 2.1 Input Voltage

Input voltage range : 90Vac to 264Vac

Nominal line voltage : 115Vac/230Vac

### 2.2 Input frequency

47Hz to 63Hz

### 2.3 Input current

4A<sub>rms</sub> max/115Vac, 2A<sub>rms</sub> max/230Vac

### 2.4 Inrush current

30A max/115Vac, 60A max/230Vac (EMI capacitors excluded, cold start at 25°C)

### 2.5 Test Condition

All specs except international standards or specs with special notes are defined and tested at nominal line input, rated load and 25°C.

## 3.0 OUTPUT SPECIFICATIONS

### 3.1 Load range

Vo	min. load	rated load	max. load	peak load
+24V	0A	6.66A	10.0A	13.3A

#### 3.1.1 Factory adjustment

+23.9V to +24.1V (60% rated load, 115Vac)

#### 3.1.2 Peak load max duration

10sec typ. (duty cycle < 10%, average power < 160W)

### 3.2 Ripple and noise

< 120mV (20MHz bandwidth limited, 1X probe with 0.47uF parallel capacitor)

### 3.3 Line regulation

< ±0.5% (90Vac to 264Vac, comparing with 115Vac)

### 3.4 Load regulation

< ±1% (20% to 100% rated load, comparing with 60% rated load)

### 3.5 Capacitive load start-up capability

< 7000uF

## 4.0 GENERAL FEATURES

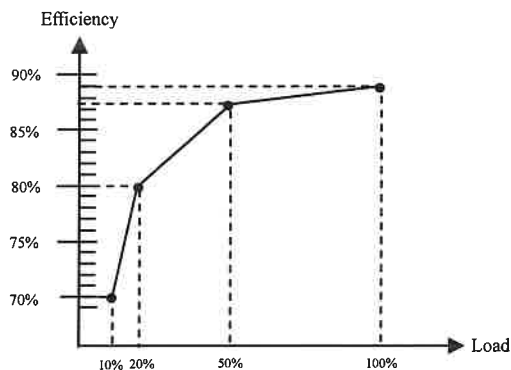
### 4.1 Average efficiency

>86% typ.(Average from 20%, 50%, and 100% efficiency)

**4.2 step efficiency**

- >70% at 10% rated load
- >80% at 20% rated load
- >87.5% at 50% rated load
- >89% at 100% rated load

**4.3 Efficiency Curve**



**4.4 Hold up time**

25ms typical

**4.5 No load input power**

<4.5W (without FAN connection)

**4.6 Protection**

**4.6.1 Over-voltage protection**

Trip point : +26V to +30V (60% rated load)

Protection mode : Latch-off

**4.6.2 Short circuit and over-load protection**

Protection mode : Auto-recovery

**5.0 ENVIRONMENT SPECIFICATIONS**

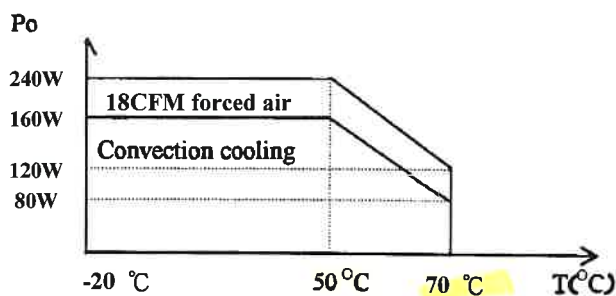
**5.1 Operating temperature**

-40°C to 70°C

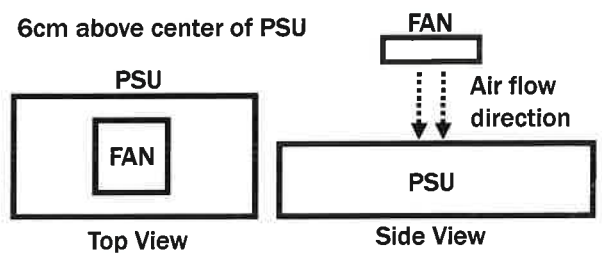
(For both rated and max load. output load derates linearly to 50% from 50°C to 70°C)

(Rated load with convection cooling; max load with 18 CFM forced air cooling)

Output derating curve



Max load fan location



**5.2 Storage temperature**

-40°C to 85°C

**5.3 Operating humidity**

5% to 95% RH, non-condensing

**5.4 Altitude**

0 to 5000m

**5.5 MTBF**

&gt; 180Khrs (based on MIL-HDBK-217F, rated load, 50 °C)

**6.0 INTERNATIONAL STANDARDS****6.1 Safety standards**

Label voltage : 100Vac to 240Vac

UL 60601-1

CSA 22.2 NO.60601-1

EN 60601-1

**6.2 EMI standards**

FCC docket 20780 curve "B"

CISPR 22 "B"

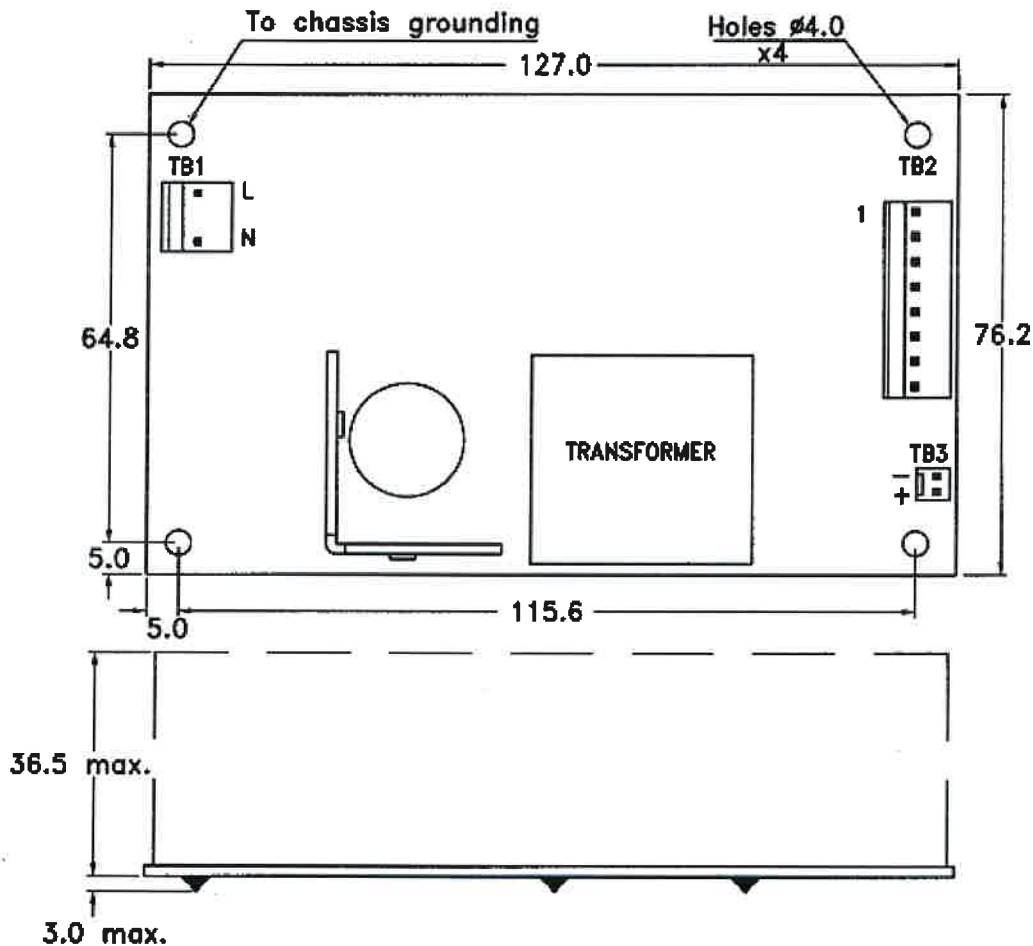
EN 61000-3-2 class "D"

EN 61000-3-3

**6.3 EMS standards**

EN61000-4-2	8kV/contact discharge, 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	1kV/Line-Line, 2kV/Line-Earth	Criterion A
EN61000-4-6	10V with 80% AM	Criterion A
EN61000-4-8	30A/m	Criterion A
EN61000-4-11	100% dips 10ms,	Criterion A
	100% dips 20ms,	Criterion B
	30% dips 500ms,	Criterion A
	60% dips 200ms,	Criterion B
	100% dips 5000ms,	Criterion B

7.0 MECHANICAL SPECIFICATION



7.1 Dimensions

Dimensions shown in mm as above. Tolerance is specified  $\pm 0.4$ mm dimension.

7.2 Connectors

- TB1-- AC Input : Molex 5277-02A or equivalent , mating with Molex 5239-03 or equivalent
- TB2-- DC Output : Molex 5273-08A or equivalent , mating with Molex 5239-08 or equivalent
- TB3-- For +12V Fan use only : Molex 5045-02A or equivalent , mating with Molex 5051-02 or equivalent

7.3 DC Output pin assignment

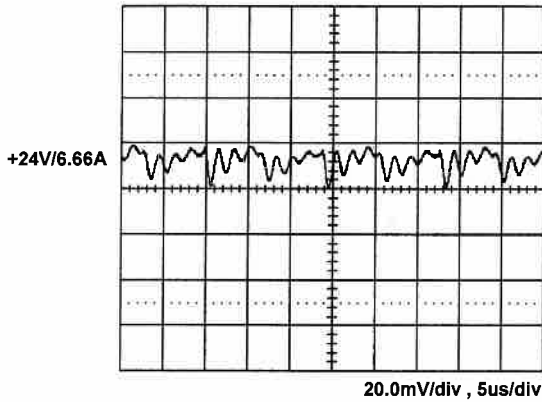
- Pin 1 : +V    5 : GND
- 2 : +V    6 : GND
- 3 : +V    7 : GND
- 4 : +V    8 : GND

7.4 Packing

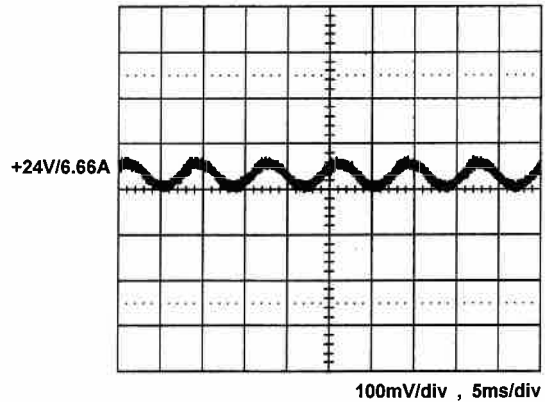
- Net weight : 333 g approx. / unit
- Carton size(mm) : 384 (L) x 339 (W) x 327(H)
- Quantity : 36 units / carton
- Gross weight : 14.2 kg approx. / carton

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

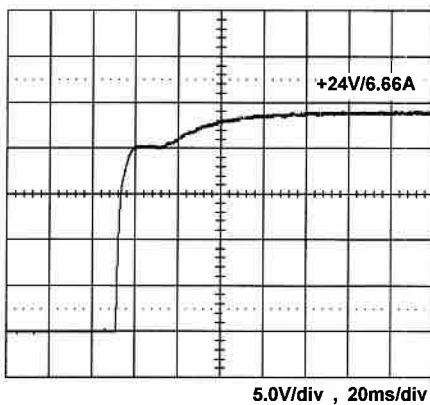
8.1 Switching frequency ripple



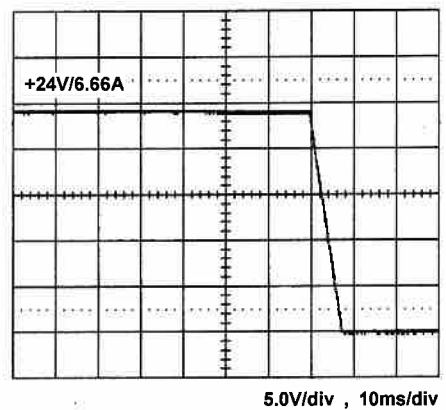
8.2 Line frequency ripple



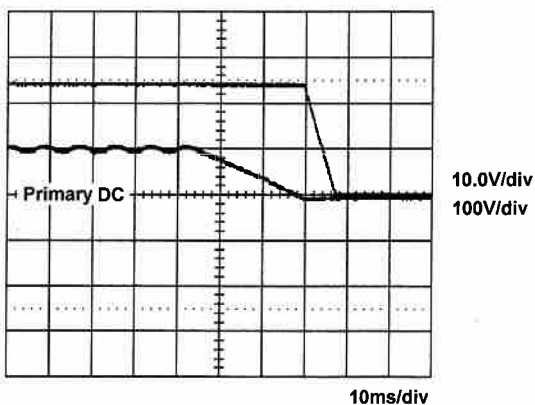
8.3 Output turn on wave form



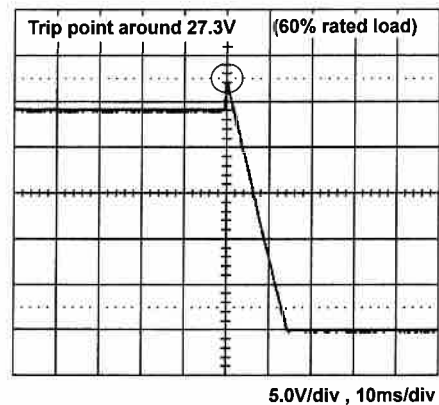
8.4 Output turn off wave form



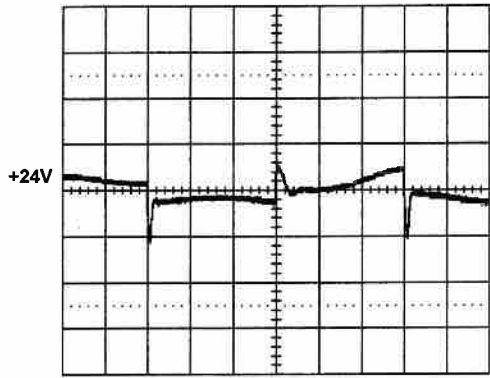
8.5 Hold-up time



8.6 Over voltage protection



8.7 +24V Step response

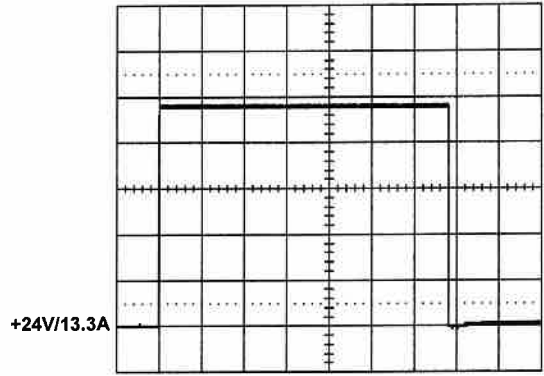


200mV/div , 2ms/div

+24V step from 1.998A to 6.66A

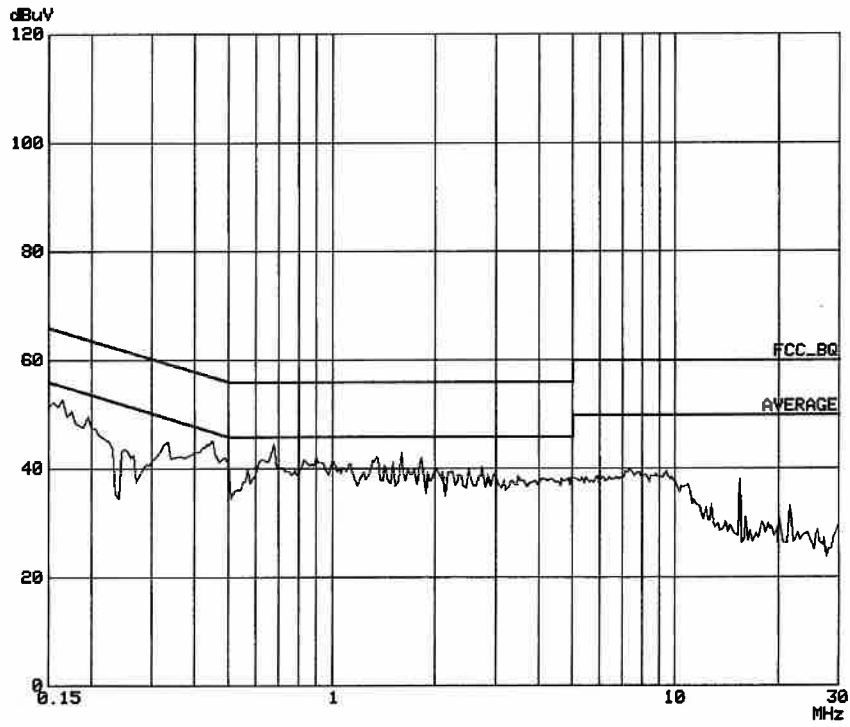
1.332A 13.3A

8.8 Peak Load



5.0V/div , 2s/div

8.9 FCC B performance



8.10 EN55022 "B"

