

SNP-V209 SPECIFICATION

SPECIFICATION

For

SWITCHING POWER SUPPLY

- **SNP-V209**
- **SNP-V209-C**
- **SNP-V209-U**
- **SNP-V209-F**

STANDARD PRODUCT

Reviewed by Product Engineer	<i>Jmy</i> 5-18-18	<i>Jmy</i> 7-24-18				
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SKYNET ELECTRONIC			LAST REV. NO.			

1.0 INTRODUCTIONS

SNP-V209 is an active PFC 200W open frame universal power converter with high power density. It is designed to comply with EN61000-3-2 regulations.

SNP-V209-U is with U-chassis.

SNP-V209-C is with enclosed case.

SNP-V209-F is with a built-in 16CFM fan on top of the enclosed case, output 300W.

2.0 INPUT SPECIFICATIONS

2.1 Input Voltage

The range of input voltage is from 90VAC to 264VAC. Nominal line 115VAC/230VAC. Withstand 300Vac surge input for 5sec.

2.2 Input frequency

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

2.3 Input current

The maximum input current is 4A at 115VAC or 2A at 230VAC.

2.4 Inrush current

The inrush current will not exceed 40A at 115VAC input or 80A at 230VAC input, cold start at 25°C. (EMI capacitors excluded)

2.5 Power Factor

PF > 0.93 at 115Vac/230Vac and rated load.

3.0 OUTPUT SPECIFICATIONS

3.1 Load range

output	min. load	rated load	max. load	peak load	voltage range
+24V	0A	8.3A	12.5A	16.6A	21.6V to 26.4V

At factory, the output in 60% rated load and nominal line condition, the +24V output is set to between 23.9V and 24.1V.

At peak load and nominal line, the output can last for 5sec without shut down.

3.1.1 Total output power

SNP-V209, SNP-V209-U, and SNP-V209-C are 200W with convection cooling; 200W~300W with 18CFM forced air cooling.

SNP-V209-F is 300W with 16CFM forced air cooling.

3.2 Ripple and noise

The peak to peak ripple and noise for each output is less than 200mV at rated load and nominal line. Measuring is done by 15MHz band width limited oscilloscope and terminated output with a 0.47uF +47uF capacitor.

3.3 Line regulation

The line regulation for +24V output is less than + -0.5% while measuring at rated load and + -10% of nominal line input voltage changing.

3.4 Load regulation

The load regulation for +24V output is less than $\pm 1\%$ measuring are done by changing the measured output load $\pm 40\%$ from 60% rated load and nominal line.

3.5 Capacitance loading capability

The capacitance load start-up capability can be up to 60000uF at rated load and nominal ad.

4.0 GENERAL FEATURES

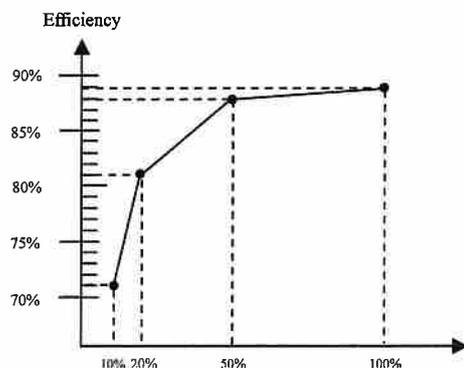
4.1 Efficiency

The efficiency is 90% typ. while measuring at nominal line and rated load.

4.2 Step efficiency

- >71% at 10% rated load
- >81% at 20% rated load
- >88% at 50% rated load
- >89% at 100% rated load

4.3 Efficiency Curve



4.4 Hold up time

The hold-up time is higher than 16mS 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.

4.5 Protection

4.5.1 Over current protection

Trip point : 110% to 130% of max load.
Protection mode : Auto-recovery.

4.5.2 Short protection

Protection mode : Auto-recovery

4.5.3 Over voltage protection

Trip point : +26.2 to 31V.
Protection mode : Latch-off.

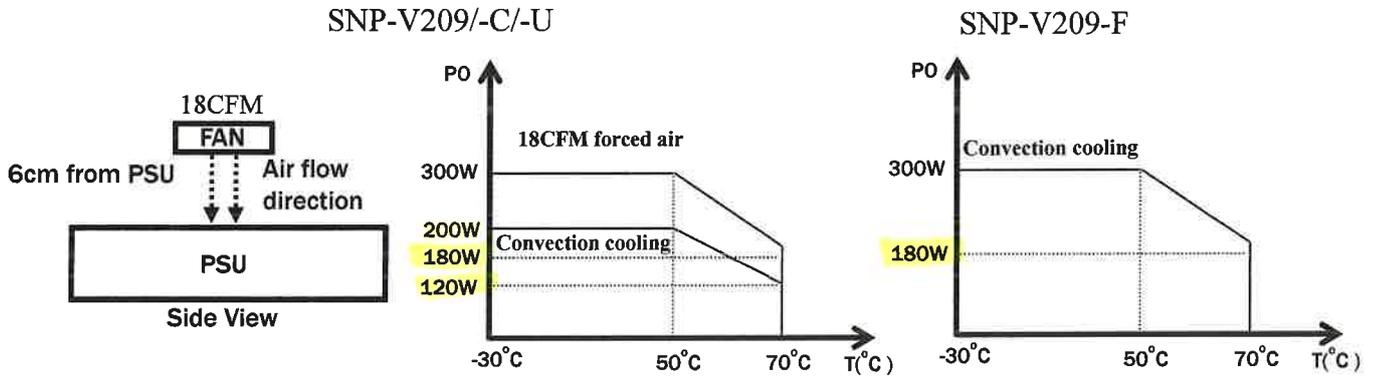
4.6 Fan control

The fan output is only activated at $> 30\% \pm 5\%$ of rated load.

5.0 ENVIRONMENT SPECIFICATIONS

5.1 Operating temperature

-30°C to 70°C, -30°C to 50°C no derating, above 50°C, derate at 2% per degree from 50°C to 70°C. (start up at -30°C/ nominal line and -20°C/ Low Line.)



5.2 Storage temperature

-20°C to 85°C

5.3 Operating humidity

5% to 95% RH, non-condensing

5.3 Altitude

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

5.5 MTBF

>150,000hrs(based on MIL-HDBK-217F, rated load, 50°C)

6.0 INTERNATIONAL STANDARDS

6.1 Safety standards (Label voltage: 100Vac to 240Vac)

UL/CSA/EN 60950-1, 2nd edition

ANSI/AAMI/CSA/EN 60601-1, 3rd edition

6.2 EMI standards

FCC level "B"

EN55022, level "B"

EN55011, level "B"

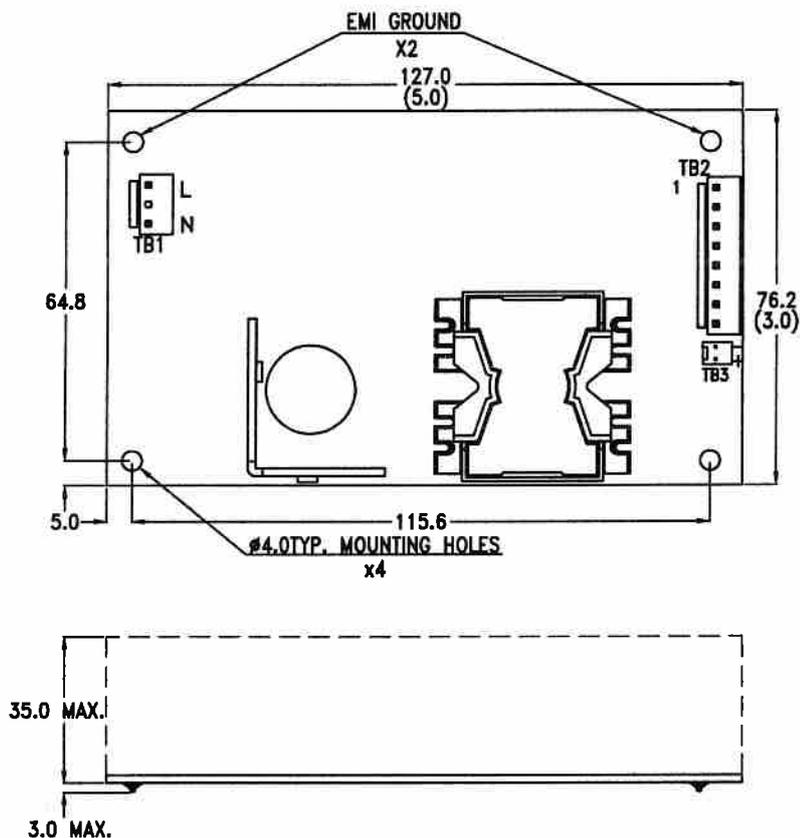
EN 61000-3-2 class "D"

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	Criterion A
EN61000-4-5	2kV/Line-Line, 4kV/Line-Earth	Criterion A
EN61000-4-6	10V with 80% AM	Criterion A
EN61000-4-8	10A/m	Criterion A
EN61000-4-11	30% dips 500mS	Criterion A
	60% dips 200mS	Criterion B
	100% dips 10mS	Criterion A
	100% dips 5000mS	Criterion B
	100% dips 20mS	Criterion A

7.0 MECHANICAL SPECIFICATION



7.1 Dimensions

Dimensions shown in mm (inch) as above.
Tolerance specified is +/-0.4mm (0.016inch).

7.2 Connectors

- TB1--AC Input : JST B2P3-VH or equivalent.
- TB2--DC Output : JST B8P-VH or equivalent.
- TB3--For +24V fan use : Molex 5045-02A or equivalent.

7.3 DC output pin assignment

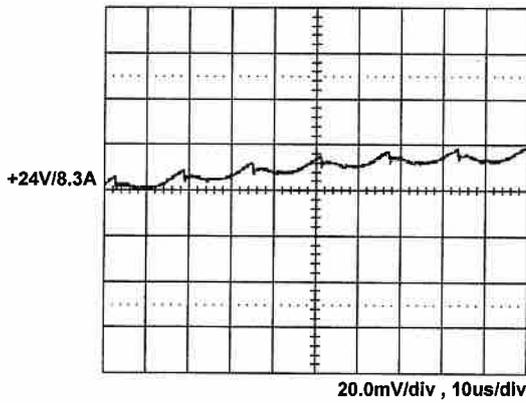
Pin 1.	+24V	5	GND
2.	+24V	6	GND
3.	+24V	7.	GND
4.	+24V	8.	GND

7.4 Packing

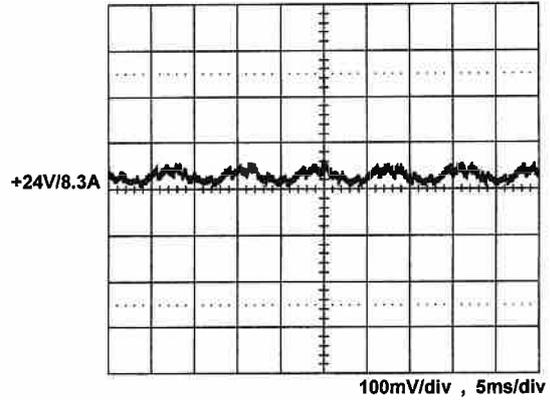
- Net weight : 345g approx. /unit
- Carton size(mm) : 384 (L) x 339 (W) x 327 (H)
- Quantity : 36 units / carton
- Gross weight : 14.5 kg approx. / carton

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

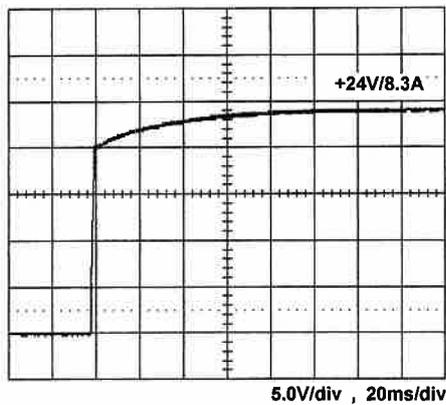
8.1 Switching frequency ripple



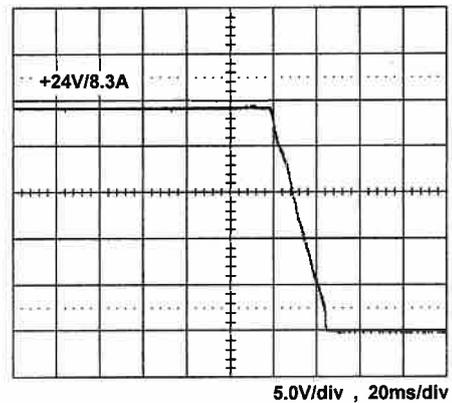
8.2 Line frequency ripple



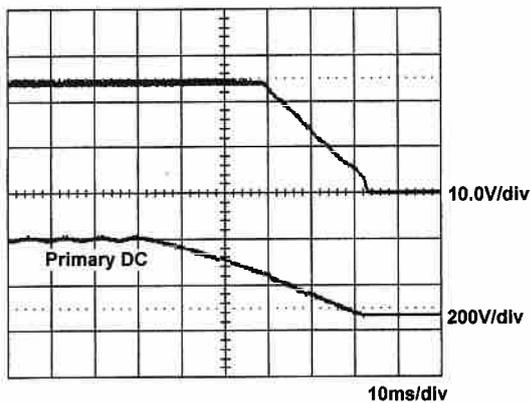
8.3 Output turn on wave form



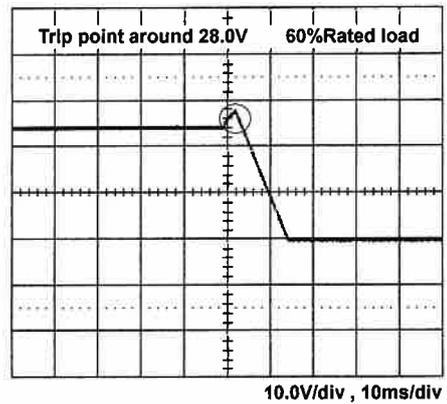
8.4 Output turn off wave form



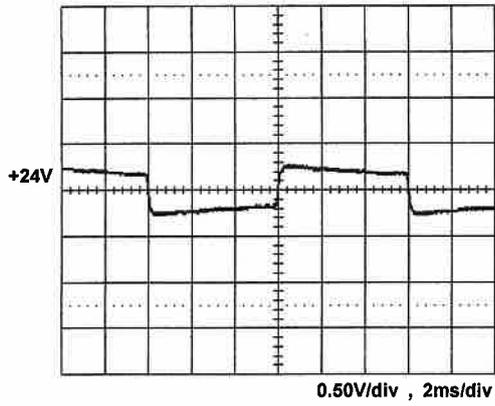
8.5 Hold-up time



8.6 Over voltage protection

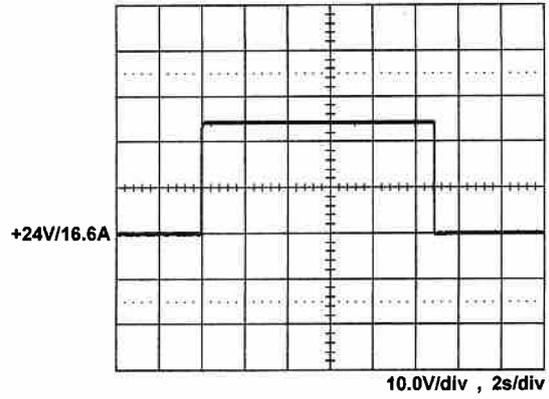


8.7 +24V Step response

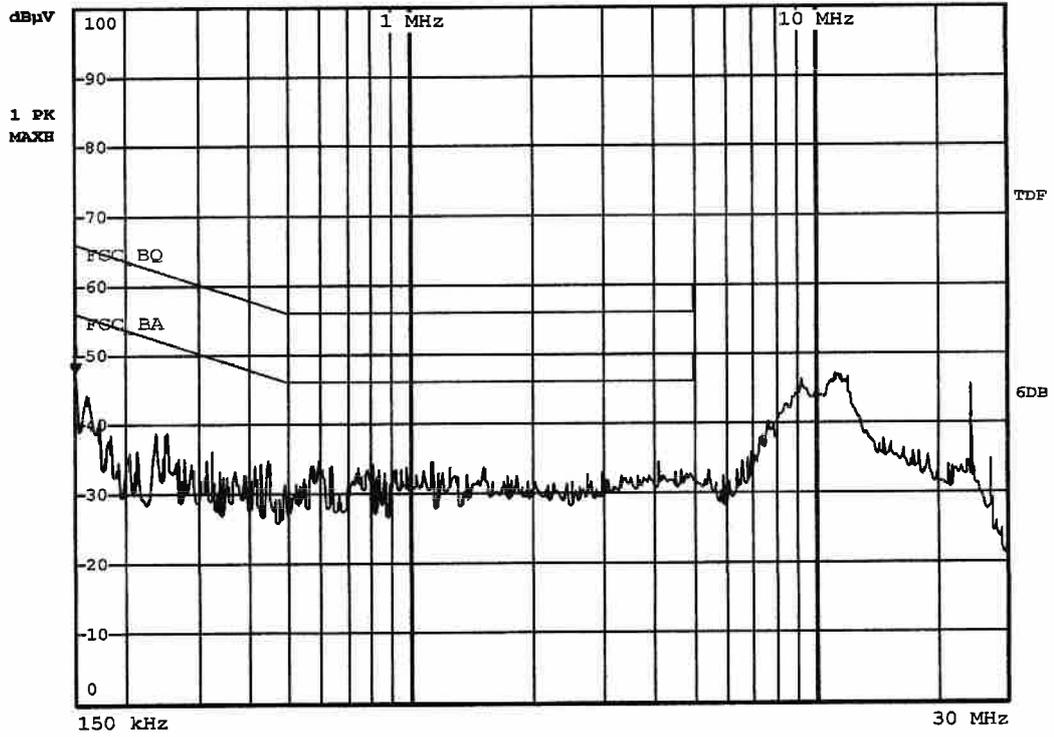


+24V step from 1.66A to 8.3A

8.8 Peak Load



8.9 FCC B QP performance Class I



8.10 EN55011 22 "B" QP performance Class I

