## Warranty 10 years



## General Specifications:

| Input voltage ......................................... 90VAC to 264VAC |  |
| :---: | :---: |
| Input frequency........................................... 47 Hz to 63 Hz |  |
| Inrush current .............................. less than 40A at 115VAC |  |
|  | less than 70A at 230 VAC |
|  | cold start, $25^{\circ} \mathrm{C}$ |
| Efficiency . | ........... $77 \% \sim 87 \%$ depends on models at rated load and 115 VAC |
| Hold up time | $\qquad$ 16 mS typical, or 50 mS typical at rated load and 115 VAC , or 230 VAC |
| Over load pr | ... auto recovery |

## Mechanical Specifications:


-Jim, Kevin-

## Features:

- Only 1.28 inch height
- 6.3 Watt per cubic inch
- With ITE \& Medical safety
- Efficiency between $77 \%$ to $87 \%$
- Operation from $0^{\circ} \mathrm{C}$ to $70^{\circ} \mathrm{C}$ by convection

| Short circuit protection ........................................ auto recovery |  |
| :---: | :---: |
| Over voltage protection | .. latch off |
| Operating temperature ............................... 0 to $70^{\circ} \mathrm{C}$ convection |  |
|  |  |
| Cooling .................................................... free air convection |  |
| Storage temperature ......................................... $40^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$ |  |
| EMI.......................................................................FCC"B" |  |
|  | EN55022"B", EN55011"B" |
| EMS ...................................... EN61000-4-2,-3,-4,-5,-6,-8,-11 |  |
| Safety . | ......UL60950, UL 2601 |
|  | CSA 22.2 No.234, No. 601.1 |
|  | EN 60950, EN 60601-1 |

## Notes:

1. Dimensions shown in mm as left. Tolerance: +-1 mm (Excluding cables).
2. Size:
50.8 X 101.6 X 32.4 (mm)
$2^{\prime \prime}$ X 4 " X $1.28^{\prime \prime}$
3. Packing:

Net weight: 140 g approx. / unit
Gross weight: 13.5 kg approx. / carton, 80 units / carton
Carton size (mm): 382 (L) x 374 (W) x 277 (H)
4. Connectors:

AC input: JST B2P3-VH or equivalent
DC output : JST B4P-VH or equivalent for single output JST B7P-VH or equivalent for multiple outputs
5. Output Pin assignment:

| PIN NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SNP-Z061 | -12 V | +5 V | +5 V | GND | GND | +12 V | +12 V |
| SNP-Z06D | +12 V | +5 V | +5 V | GND | GND | +3.3 V | +3.3 V |
| SNP-Z063 | NC | +5 V | +5 V | GND | GND | +12 V | +12 V |
| SNP-Z06A | NC | +5 V | +5 V | GND | GND | +24 V | +24 V |
| SNP-Z066 | GND | GND | GND | +5 V | +5 V | +5 V |  |
| SNP-Z066-1 | GND | GND | GND | +5 V | +5 V | +5 V |  |
| SNP-Z067 | +5 V | GND | GND | GND | +12 V | +12 V |  |
| SNP-Z067-1 | NC | GND | GND | GND | +12 V | +12 V |  |
| SNP-Z068 | +5 V | GND | GND | GND | +24 V | +24 V |  |
| SNP-Z068-1 | NC | GND | GND | GND | +24 V | +24 V |  |
| SNP-Z069 | +5 V | GND | GND | GND | +24 V | +24 V |  |
| SNP-Z069-1 | NC | GND | GND | GND | +24 V | +24 V |  |
| SNP-Z06T | NC | GND | GND | GND | +48 V | +48 V |  |
| SNP-Z06B | GND | GND | GND | +3.3 V | +3.3 V | +3.3 V |  |

## Output Specifications:

| MODEL <br> NO. | OUTPUT <br> RAIL | LOAD |  |  |  | VOLTAGE <br> ACCURACY | RIPPLE <br> NOISE | $\begin{gathered} \text { LINE } \\ \text { REG. } \end{gathered}$ | $\begin{aligned} & \text { LOAD } \\ & \text { REG. } \end{aligned}$ | EFFICIENCY <br> TYPICAL |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | MIN. | RATED | MAX. | PEAK |  |  |  |  |  |
| SNP-Z061 | $\begin{array}{r} +5 \mathrm{~V} \\ +12 \mathrm{~V} \\ -12 \mathrm{~V} \end{array}$ | $\begin{aligned} & \text { 0A } \\ & \text { 0A } \\ & \text { 0A } \end{aligned}$ | $\begin{array}{r} 3 \mathrm{~A} \\ 3 \mathrm{~A} \\ 0.3 \mathrm{~A} \end{array}$ |  | $\begin{aligned} & 5 \mathrm{~A} \\ & 5 \mathrm{~A} \\ & 1 \mathrm{~A} \end{aligned}$ | $\begin{gathered} +4.95 \mathrm{~V} \sim+5.05 \mathrm{~V} \\ +11.4 \mathrm{~V} \sim+12.6 \mathrm{~V} \\ -11.4 \mathrm{~V} \sim-12.6 \mathrm{~V} \end{gathered}$ | $\begin{aligned} & 1 \% \\ & 1 \% \\ & 1 \% \end{aligned}$ | $\begin{aligned} & \pm 1 \% \\ & \pm 1 \% \\ & \pm 1 \% \end{aligned}$ | $\begin{aligned} & \pm 3 \% \\ & \pm 3 \% \\ & \pm 5 \% \end{aligned}$ | 82\% |
| SNP-Z06D | $\begin{array}{r} +3.3 \mathrm{~V} \\ +5 \mathrm{~V} \\ +12 \mathrm{~V} \end{array}$ | $\begin{aligned} & \text { 0A } \\ & \text { 0A } \\ & \text { 0A } \end{aligned}$ | $\begin{gathered} 4.5 \mathrm{~A} \\ 3 \mathrm{~A} \\ 0.7 \mathrm{~A} \end{gathered}$ | $\begin{aligned} & \text { 6A } \\ & 5 \mathrm{~A} \end{aligned}$ | $\begin{array}{r} 10 \mathrm{~A} \\ 7 \mathrm{~A} \\ 1 \mathrm{~A} \end{array}$ | $\begin{array}{r} +3.2 \mathrm{~V} \sim+3.4 \mathrm{~V} \\ +4.75 \mathrm{~V} \sim+5.25 \mathrm{~V} \\ +11.4 \mathrm{~V} \sim+12.6 \mathrm{~V} \end{array}$ | $\begin{gathered} 50 \mathrm{mV} \\ 1 \% \\ 1 \% \end{gathered}$ | $\begin{aligned} & \pm 1 \% \\ & \pm 1 \% \\ & \pm 1 \% \end{aligned}$ | $\begin{aligned} & \pm 3 \% \\ & \pm 3 \% \\ & \pm 5 \% \end{aligned}$ | 80\% |
| SNP-Z063 | $\begin{array}{r} +5 \mathrm{~V} \\ +12 \mathrm{~V} \end{array}$ | $\begin{aligned} & \text { 0A } \\ & 0 \mathrm{~A} \end{aligned}$ | $\begin{aligned} & 3 \mathrm{~A} \\ & 3 \mathrm{~A} \end{aligned}$ |  | $\begin{aligned} & 6 \mathrm{~A} \\ & 5 \mathrm{~A} \end{aligned}$ | $\begin{aligned} & +4.95 \mathrm{~V} \sim+5.05 \mathrm{~V} \\ & +11.4 \mathrm{~V} \sim+12.6 \mathrm{~V} \end{aligned}$ | $\begin{aligned} & 1 \% \\ & 1 \% \end{aligned}$ | $\begin{aligned} & \pm 1 \% \\ & \pm 1 \% \end{aligned}$ | $\begin{aligned} & \pm 3 \% \\ & \pm 3 \% \end{aligned}$ | 82\% |
| SNP-Z06A | $\begin{array}{r} +5 \mathrm{~V} \\ +24 \mathrm{~V} \end{array}$ | $\begin{aligned} & \text { 0A } \\ & \text { 0A } \end{aligned}$ | $\begin{gathered} 4 \mathrm{~A} \\ 1.5 \mathrm{~A} \end{gathered}$ |  | $\begin{aligned} & \text { 6A } \\ & 3 \mathrm{~A} \end{aligned}$ | $\begin{aligned} & +4.95 \mathrm{~V} \sim+5.05 \mathrm{~V} \\ & +22.8 \mathrm{~V} \sim+25.2 \mathrm{~V} \end{aligned}$ | $\begin{aligned} & 1 \% \\ & 1 \% \end{aligned}$ | $\begin{aligned} & \pm 1 \% \\ & \pm 1 \% \end{aligned}$ | $\begin{aligned} & \pm 3 \% \\ & \pm 3 \% \end{aligned}$ | 83\% |
| SNP-Z066 | $+5 \mathrm{~V}$ | 0A | 10A |  | 18A | +4.95V $\sim+5.05 \mathrm{~V}$ | 1\% | $\pm 0.5 \%$ | $\pm 0.5 \%$ | 80\% |
| SNP-Z066-1 | $+5 \mathrm{~V}$ | 0A | 12A |  | 18A | $+4.95 \mathrm{~V} \sim+5.05 \mathrm{~V}$ | 1\% | $\pm 0.5 \%$ | $\pm 0.5 \%$ | 85\% |
| SNP-Z067 | $\begin{array}{r} +12 \mathrm{~V} \\ +5 \mathrm{~V} \end{array}$ | $\begin{array}{r} 0.1 \mathrm{~A} \\ 0 \mathrm{~A} \end{array}$ | $\begin{aligned} & 4.8 \mathrm{~A} \\ & 0.5 \mathrm{~A} \end{aligned}$ |  | $\begin{array}{r} 7.5 \mathrm{~A} \\ 1 \mathrm{~A} \end{array}$ | $\begin{array}{r} +11.88 \mathrm{~V} \sim+12.12 \mathrm{~V} \\ +4.75 \mathrm{~V} \sim+5.25 \mathrm{~V} \end{array}$ | $\begin{aligned} & 1 \% \\ & 1 \% \end{aligned}$ | $\begin{array}{r}  \pm 0.5 \% \\ \pm 1 \% \end{array}$ | $\begin{array}{r}  \pm 0.5 \% \\ \pm 1 \% \end{array}$ | 82\% |
| SNP-Z067-1 | +12V | 0 A | 5A |  | 7.5A | $+11.88 \mathrm{~V} \sim+12.12 \mathrm{~V}$ | 1\% | $\pm 0.5 \%$ | $\pm 0.5 \%$ | 85\% |
| SNP-Z068 | $\begin{array}{r} +15 \mathrm{~V} \\ +5 \mathrm{~V} \end{array}$ | $\begin{aligned} & \text { 0A } \\ & \text { 0A } \end{aligned}$ | $\begin{aligned} & 3.8 \mathrm{~A} \\ & 0.5 \mathrm{~A} \end{aligned}$ |  | $\begin{aligned} & 6 \mathrm{~A} \\ & 1 \mathrm{~A} \end{aligned}$ | $\begin{array}{r} +14.85 \mathrm{~V} \sim+15.15 \mathrm{~V} \\ +4.75 \mathrm{~V} \sim+5.25 \mathrm{~V} \end{array}$ | $\begin{aligned} & 1 \% \\ & 1 \% \end{aligned}$ | $\begin{array}{r}  \pm 0.5 \% \\ \pm 1 \% \end{array}$ | $\begin{array}{r}  \pm 0.5 \% \\ \pm 1 \% \end{array}$ | 84\% |
| SNP-Z068-1 | +15V | 0.1A | 4.3A |  | 6A | +14.85V $\sim+15.15 \mathrm{~V}$ | 1\% | $\pm 0.5 \%$ | $\pm 0.5 \%$ | 85\% |
| SNP-Z069 | $\begin{array}{r} +24 \mathrm{~V} \\ +5 \mathrm{~V} \end{array}$ | $\begin{array}{r} 0.1 \mathrm{~A} \\ 0 \mathrm{~A} \end{array}$ | $\begin{aligned} & 2.4 \mathrm{~A} \\ & 0.5 \mathrm{~A} \end{aligned}$ |  | $\begin{array}{r} 3.7 \mathrm{~A} \\ 1 \mathrm{~A} \end{array}$ | $\begin{array}{r} +23.75 \mathrm{~V} \sim+24.24 \mathrm{~V} \\ +4.75 \mathrm{~V} \sim+5.25 \mathrm{~V} \end{array}$ | $\begin{aligned} & 1 \% \\ & 1 \% \end{aligned}$ | $\begin{array}{r}  \pm 0.5 \% \\ \pm 1 \% \end{array}$ | $\begin{array}{r}  \pm 0.5 \% \\ \pm 1 \% \end{array}$ | 85\% |
| SNP-Z069-1 | $+24 \mathrm{~V}$ | 0.1A | 2.7A |  | 3.8A | +23.75V $\sim+24.24 \mathrm{~V}$ | 1\% | $\pm 0.5 \%$ | $\pm 0.5 \%$ | 85\% |
| SNP-Z06T | +48V | 0A | 1.35A |  | 1.9A | +47.6V $\sim+48.4 \mathrm{~V}$ | 1\% | $\pm 0.5 \%$ | $\pm 0.5 \%$ | 87\% |
| SNP-Z06B | $+3.3 \mathrm{~V}$ | 0A | 10A |  | 18A | $+3.26 \mathrm{~V} \sim+3.33 \mathrm{~V}$ | 50 mV | $\pm 0.5 \%$ | $\pm 1 \%$ | 77\% |

## Note:

1. At peak load, the output can last for 8 seconds without shut down.
2. The maximum combinational load of SNP-Z06D for $+3.3 \mathrm{~V} \&+5 \mathrm{~V}$ is 30 W .
3. At factory, all outputs in $60 \%$ rated load condition, each output is checked to be within the accuracy range while the main output is setting to within the specified accuracy range at rated load.
4. Line regulation is defined by changing $\pm 10 \%$ of input voltage from nominal line at rated load.
5. Load regulation is defined by changing $\pm 40 \%$ of measured output load from $60 \%$ rated load at another output set to $60 \%$ rated load.
6. Ripple \& noise is measured by using 15 MHz bandwidth limited oscilloscope and terminated each output with a 0.47 uF capacitor at rated load and nominal line.
7. Hold up time is measured from the end of the last charging pulse to the time which the main output drop down to regulation limit at rated load and nominal line.
8. The efficiency is measured at nominal line and rated load.
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## Performance for SNP-Z061:

1. Switching frequency ripple

2. Output turn on wave form

3. Hold-up time

4. Line frequency ripple

5. Output turn off wave form

6. Over voltage protection

7. +5 V step response

8. FCCB

9. +12 V step response

10. EN 55022 B


[^0]:    -Jim, Kevin-

