



## 350W Single Output Switching Power Supply

## NES-350 series



### ■ Features :

- AC input range selectable by switch
- Protections: Short circuit / Overload / Over voltage/ Over temperature
- Forced air cooling by built-in DC fan
- Withstand 300vac surge input for 5 second
- Built-in cooling Fan ON-OFF control
- Built-in constant current limiting circuit
- 100% full load burn-in test
- LED indicator for power on
- Fixed switching frequency at 90KHz
- Low cost,high reliability
- 2 years warranty

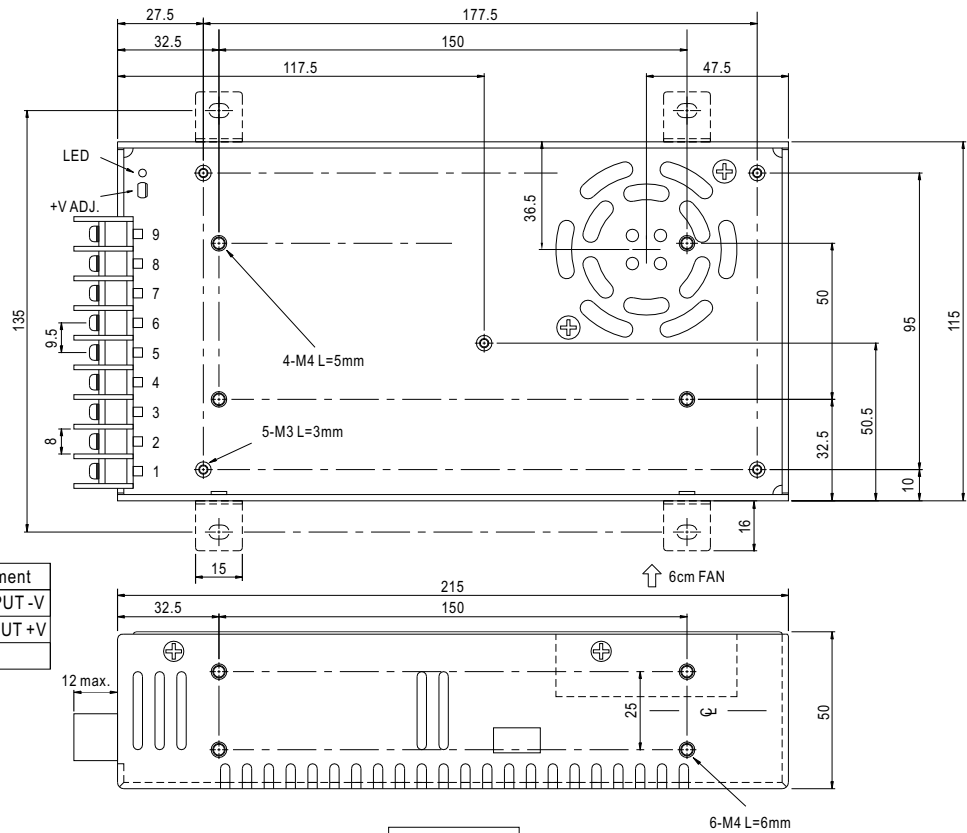


### SPECIFICATION

| MODEL               |                                                                                                                                                                                                                                                                                                                                                  | NES-350-3.3                                                                                                                                                                                                           | NES-350-5  | NES-350-7.5 | NES-350-12 | NES-350-15 | NES-350-24 | NES-350-27 | NES-350-36 | NES-350-48 |  |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------|------------|------------|------------|------------|------------|------------|--|
| OUTPUT              | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                       | 3.3V                                                                                                                                                                                                                  | 5V         | 7.5V        | 12V        | 15V        | 24V        | 27V        | 36V        | 48V        |  |
|                     | RATED CURRENT                                                                                                                                                                                                                                                                                                                                    | 60A                                                                                                                                                                                                                   | 60A        | 46A         | 29A        | 23.2A      | 14.6A      | 13A        | 9.7A       | 7.3A       |  |
|                     | CURRENT RANGE                                                                                                                                                                                                                                                                                                                                    | 0 ~ 60A                                                                                                                                                                                                               | 0 ~ 60A    | 0 ~ 46A     | 0 ~ 29A    | 0 ~ 23.2A  | 0 ~ 14.6A  | 0 ~ 13A    | 0 ~ 9.7A   | 0 ~ 7.3A   |  |
|                     | RATED POWER                                                                                                                                                                                                                                                                                                                                      | 198W                                                                                                                                                                                                                  | 300W       | 345W        | 348W       | 348W       | 350.4W     | 351W       | 349.2W     | 350.4W     |  |
|                     | RIPPLE & NOISE (max.) Note.2                                                                                                                                                                                                                                                                                                                     | 150mVp-p                                                                                                                                                                                                              | 150mVp-p   | 150mVp-p    | 150mVp-p   | 150mVp-p   | 150mVp-p   | 200mVp-p   | 240mVp-p   | 240mVp-p   |  |
|                     | VOLTAGE ADJ. RANGE                                                                                                                                                                                                                                                                                                                               | 2.97 ~ 3.7V                                                                                                                                                                                                           | 4.5 ~ 5.6V | 6 ~ 9V      | 10 ~ 13.5V | 13.5 ~ 18V | 20 ~ 26.4V | 26 ~ 32V   | 32~40V     | 41 ~ 56V   |  |
|                     | VOLTAGE TOLERANCE Note.3                                                                                                                                                                                                                                                                                                                         | +3%,-4.5%                                                                                                                                                                                                             | ±3.0%      | ±2.0%       | ±1.5%      | ±1.0%      | ±1.0%      | ±1.0%      | ±1.0%      | ±1.0%      |  |
|                     | LINE REGULATION                                                                                                                                                                                                                                                                                                                                  | ±0.5%                                                                                                                                                                                                                 | ±0.5%      | ±0.5%       | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      |  |
|                     | LOAD REGULATION                                                                                                                                                                                                                                                                                                                                  | ±2.5%                                                                                                                                                                                                                 | ±2.0%      | ±2.0%       | ±1.0%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      | ±0.5%      |  |
|                     | SETUP, RISE TIME                                                                                                                                                                                                                                                                                                                                 | 1000ms, 50ms/230VAC      1000ms,50ms/115VAC at full load                                                                                                                                                              |            |             |            |            |            |            |            |            |  |
| HOLD UP TIME (Typ.) | 20ms/230VAC      16ms/115VAC at full load                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                       |            |             |            |            |            |            |            |            |  |
| INPUT               | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                    | 90 ~ 132VAC / 180 ~ 264VAC by switch      254 ~ 370VDC                                                                                                                                                                |            |             |            |            |            |            |            |            |  |
|                     | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                  | 47 ~ 63Hz                                                                                                                                                                                                             |            |             |            |            |            |            |            |            |  |
|                     | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                | 74%                                                                                                                                                                                                                   | 78%        | 80%         | 83%        | 84%        | 87%        | 88%        | 87.5%      | 87.5%      |  |
|                     | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                | 7A/115VAC      4A/230VAC                                                                                                                                                                                              |            |             |            |            |            |            |            |            |  |
|                     | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                            | 40A/115VAC      60A/230VAC                                                                                                                                                                                            |            |             |            |            |            |            |            |            |  |
|                     | LEAKAGE CURRENT                                                                                                                                                                                                                                                                                                                                  | <3.5mA / 240VAC                                                                                                                                                                                                       |            |             |            |            |            |            |            |            |  |
| PROTECTION          | OVER LOAD                                                                                                                                                                                                                                                                                                                                        | 105 ~ 135% rated output power<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed                                                                                 |            |             |            |            |            |            |            |            |  |
|                     | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                     | 3.8 ~ 4.6V      5.75 ~ 7.5V      9.4 ~ 11.25V      13.8 ~ 16.2V      18 ~ 21V      27.6 ~ 32.4V      33.7 ~ 39.2V      41.4~46.8V      57.6 ~ 67.2V<br>Protection type :Shut down O/P voltage, re-power on to recover |            |             |            |            |            |            |            |            |  |
|                     | OVER TEMPERATURE                                                                                                                                                                                                                                                                                                                                 | 85℃±5℃ (3.3~7.5V);    80℃±5℃ (12V);    75℃±5℃ (15~48V) (TSW1) Detect on case<br>Protection type : Shut down O/P voltage, recovers automatically after temperature goes down                                           |            |             |            |            |            |            |            |            |  |
|                     |                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                       |            |             |            |            |            |            |            |            |  |
| FUNCTION            | FAN ON/OFF CONTROL(Typ.)                                                                                                                                                                                                                                                                                                                         | RTH2≥50℃ FAN ON, ≤45℃ FAN OFF (3.3 ~ 7.5V)<br>RTH2≥55℃ FAN ON, ≤50℃ FAN OFF (12 ~ 48V)                                                                                                                                |            |             |            |            |            |            |            |            |  |
| ENVIRONMENT         | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                    | -20 ~ +60℃ (Refer to output load derating curve)                                                                                                                                                                      |            |             |            |            |            |            |            |            |  |
|                     | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                 | 20 ~ 90% RH non-condensing                                                                                                                                                                                            |            |             |            |            |            |            |            |            |  |
|                     | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                          | -20 ~ +85℃, 10 ~ 95% RH                                                                                                                                                                                               |            |             |            |            |            |            |            |            |  |
|                     | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                | ±0.03%/℃ (0 ~ 50℃)                                                                                                                                                                                                    |            |             |            |            |            |            |            |            |  |
|                     | VIBRATION                                                                                                                                                                                                                                                                                                                                        | 10 ~ 500Hz, 3G 10min./1cycle, 60min. each along X, Y, Z axes                                                                                                                                                          |            |             |            |            |            |            |            |            |  |
| SAFETY & EMC        | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                 | UL60950-1 approved                                                                                                                                                                                                    |            |             |            |            |            |            |            |            |  |
|                     | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                | I/P-O/P:3KVAC    I/P-FG:1.5KVAC    O/P-FG:0.5KVAC                                                                                                                                                                     |            |             |            |            |            |            |            |            |  |
|                     | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                             | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC / 25℃ / 70% RH                                                                                                                                                               |            |             |            |            |            |            |            |            |  |
|                     | EMI CONDUCTION & RADIATION                                                                                                                                                                                                                                                                                                                       | Design refer to EN55022 (CISPR22) Class A                                                                                                                                                                             |            |             |            |            |            |            |            |            |  |
|                     | EMS IMMUNITY                                                                                                                                                                                                                                                                                                                                     | Design refer to EN61000-4-2, 3, 4, 5, 6, 8, 11, ENV50204, EN55024, light industry level, criteria A                                                                                                                   |            |             |            |            |            |            |            |            |  |
| OTHERS              | MTBF                                                                                                                                                                                                                                                                                                                                             | 234.3K hrs min.    MIL-HDBK-217F (25℃)                                                                                                                                                                                |            |             |            |            |            |            |            |            |  |
|                     | DIMENSION                                                                                                                                                                                                                                                                                                                                        | 215*115*50mm (L*W*H)                                                                                                                                                                                                  |            |             |            |            |            |            |            |            |  |
|                     | PACKING                                                                                                                                                                                                                                                                                                                                          | 1.07Kg; 12pcs/13.5Kg/0.92CUFT                                                                                                                                                                                         |            |             |            |            |            |            |            |            |  |
| NOTE                | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation. |                                                                                                                                                                                                                       |            |             |            |            |            |            |            |            |  |

## Mechanical Specification

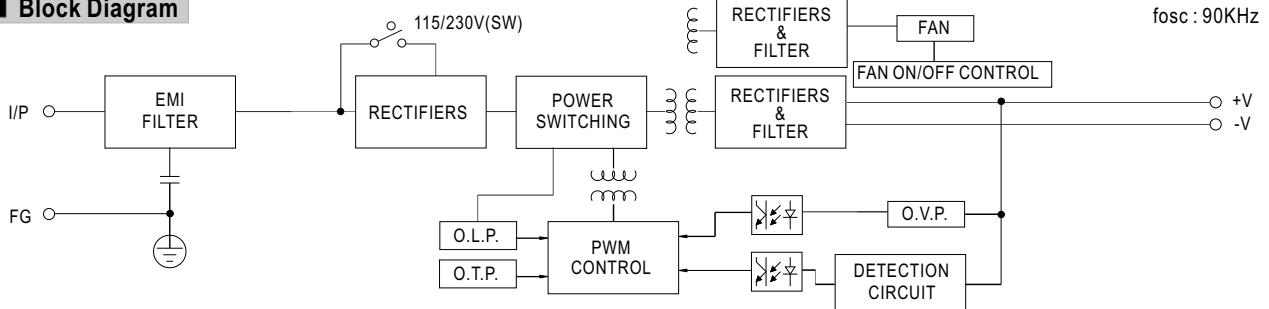
Case No. 912C Unit:mm



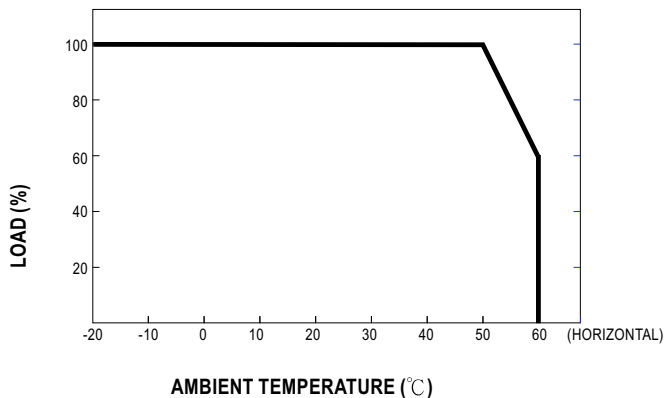
Terminal Pin No. assignment :

| Pin No. | Assignment | Pin No. | Assignment   |
|---------|------------|---------|--------------|
| 1       | AC/L       | 4~6     | DC OUTPUT -V |
| 2       | AC/N       | 7~9     | DC OUTPUT +V |
| 3       | FG $\perp$ |         |              |

## Block Diagram



## Derating Curve



## Static Characteristics

