



### ■ Features

- Universal AC input / Full range
- Withstand 300VAC surge input for 5 second
- No load power consumption < 0.2W
- Miniature size and 1U low profile
- High operating temperature up to 70°C
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Compliance to IEC/EN 60335-1(PD3) and IEC/EN61558-1, -2-16 for household appliances
- Operating altitude up to 5000 meters (Note.8)
- Withstand 5G vibration test
- High efficiency, long life and high reliability
- LED indicator for power on
- Over voltage category III
- 100% full load burn-in test
- 3 years warranty

### ■ Applications

- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment
- Electronic instruments, equipments or apparatus
- Household appliances

### ■ Description

LRS-50 series is a 50W single-output enclosed type power supply with 30mm of low profile design. Adopting the full range 85~264VAC input, the entire series provides an output voltage line of 3.3V, 5V, 12V, 15V, 24V, 36V and 48V.

In addition to the high efficiency up to 90%, the design of metallic mesh case enhances the heat dissipation of LRS-50 that the whole series operates from -30°C through 70°C under air convection without a fan. Delivering an extremely low no load power consumption (less than 0.2W), it allows the end system to easily meet the worldwide energy requirement. LRS-50 has the complete protection functions and 5G anti-vibration capability; it is complied with the international safety regulations such as TUV EN60950-1, EN60335-1, EN61558-1/-2-16, UL60950-1 and GB4943. LRS-50 series serves as a high price-to-performance power supply solution for various industrial applications.

### ■ Model Encoding

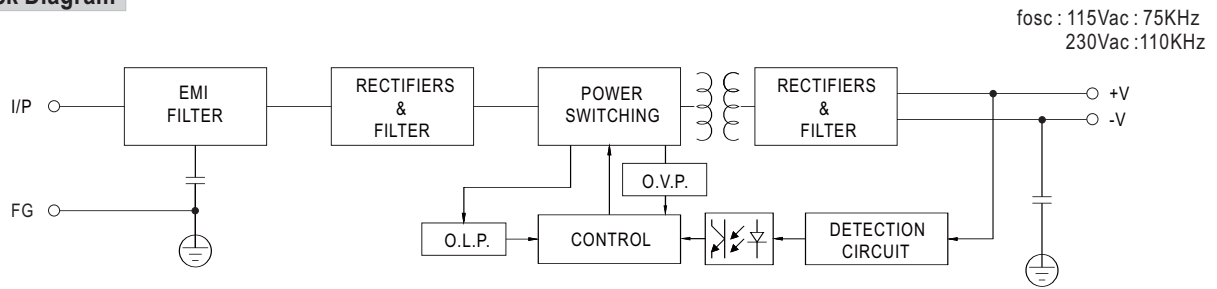
**LRS - 50 - 3.3**



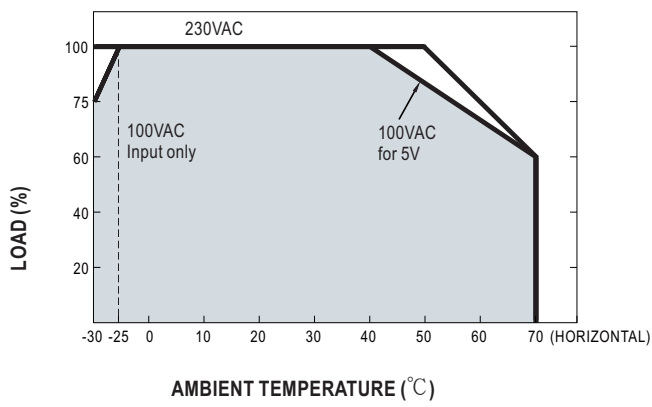
**SPECIFICATION**

| MODEL                 |  | LRS-50-3.3   | LRS-50-5   | LRS-50-12    | LRS-50-15      | LRS-50-24    | LRS-50-36    | LRS-50-48    |
|-----------------------|--|--|------------|--------------|----------------|--------------|--------------|--------------|
| OUTPUT                | DC VOLTAGE   | 3.3V   | 5V         | 12V          | 15V            | 24V          | 36V          | 48V          |
|                       | RATED CURRENT  | 10A  | 10A        | 4.2A         | 3.4A           | 2.2A         | 1.45A        | 1.1A         |
|                       | CURRENT RANGE  | 0 ~ 10A  | 0 ~ 10A    | 0 ~ 4.2A     | 0 ~ 3.4A       | 0 ~ 2.2A     | 0 ~ 1.45A    | 0 ~ 1.1A     |
|                       | RATED POWER  | 33W  | 50W        | 50.4W        | 51W            | 52.8W        | 52.2W        | 52.8W        |
|                       | RIPPLE & NOISE (max.) Note.2   | 80mVp-p  | 80mVp-p    | 120mVp-p     | 120mVp-p       | 150mVp-p     | 200mVp-p     | 200mVp-p     |
|                       | VOLTAGE ADJ. RANGE   | 2.97 ~ 3.6V  | 4.5 ~ 5.5V | 10.2 ~ 13.8V | 13.5 ~ 18V     | 21.6 ~ 28.8V | 32.4 ~ 39.6V | 43.2 ~ 52.8V |
|                       | VOLTAGE TOLERANCE Note.3   | ±3.0%  | ±2.0%      | ±1.0%        | ±1.0%          | ±1.0%        | ±1.0%        | ±1.0%        |
|                       | LINE REGULATION Note.4   | ±0.5%  | ±0.5%      | ±0.5%        | ±0.5%          | ±0.5%        | ±0.5%        | ±0.5%        |
|                       | LOAD REGULATION Note.5   | ±2.0%  | ±1.0%      | ±0.5%        | ±0.5%          | ±0.5%        | ±0.5%        | ±0.5%        |
|                       | SETUP, RISE TIME   | 1000ms, 30ms/230VAC      2000ms,30ms/115VAC at full load   |            |              |                |              |              |              |
| HOLD UP TIME (Typ.)   | 30ms/230VAC    12ms/115VAC at full load  |  |            |              |                |              |              |              |
| INPUT                 | VOLTAGE RANGE  | 85 ~ 264VAC    120 ~ 373VDC  |            |              |                |              |              |              |
|                       | FREQUENCY RANGE  | 47 ~ 63Hz  |            |              |                |              |              |              |
|                       | EFFICIENCY (Typ.)  | 80%  | 83%        | 86%          | 88%            | 88%          | 89%          | 90%          |
|                       | AC CURRENT (Typ.)  | 0.95A/115VAC    0.56A/230VAC   |            |              |                |              |              |              |
|                       | INRUSH CURRENT (Typ.)  | COLD START 45A/230VAC  |            |              |                |              |              |              |
|                       | LEAKAGE CURRENT  | <0.75mA / 240VAC   |            |              |                |              |              |              |
| PROTECTION            | OVER LOAD  | 110 ~ 150% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed            |            |              |                |              |              |              |
|                       | OVER VOLTAGE   | 3.8 ~ 4.45V  | 5.9~ 7.3V  | 13.8 ~ 16.2V | 18.75 ~ 21.75V | 28.8 ~ 33.6V | 41.4 ~ 48.6V | 55.2 ~ 64.8V |
| ENVIRONMENT           | WORKING TEMP.  | -30 ~ +70°C (Refer to "Derating Curve")  |            |              |                |              |              |              |
|                       | WORKING HUMIDITY   | 20 ~ 90% RH non-condensing   |            |              |                |              |              |              |
|                       | STORAGE TEMP., HUMIDITY  | -40 ~ +85°C, 10 ~ 95% RH non-condensing  |            |              |                |              |              |              |
|                       | TEMP. COEFFICIENT  | ±0.03%/°C (0 ~ 50°C)   |            |              |                |              |              |              |
|                       | VIBRATION  | 10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes   |            |              |                |              |              |              |
|                       | OVER VOLTAGE CATEGORY  | III; Compliance to EN61558, EN50178, EN60664-1, EN62477-1; altitude up to 2000 meters  |            |              |                |              |              |              |
| SAFETY & EMC (Note 9) | SAFETY STANDARDS   | UL60950-1, TUV EN60950-1, EN60335-1, EN61558-1/-2-16, CCC GB4943.1, BSMI CNS14336-1, EAC TP TC 004, AS/NZS 60950.1(by CB) approved |            |              |                |              |              |              |
|                       | WITHSTAND VOLTAGE  | I/P-O/P:4KVAC    I/P-FG:2KVAC    O/P-FG:1.25KVAC   |            |              |                |              |              |              |
|                       | ISOLATION RESISTANCE   | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH   |            |              |                |              |              |              |
|                       | EMC EMISSION   | Compliance to EN55032 (CISPR32) Class B, EN55014, EN61000-3-2,-3, GB/T 9254, BSMI CNS13438, EAC TP TC 020                          |            |              |                |              |              |              |
| OTHERS                | EMC IMMUNITY   | Compliance to EN61000-4-2,3,4,5,6,8,11, EN61000-6-2 (EN50082-2), heavy industry level, criteria A, EAC TP TC 020                   |            |              |                |              |              |              |
|                       | MTBF   | 645K hrs min.    MIL-HDBK-217F (25°C)  |            |              |                |              |              |              |
|                       | DIMENSION  | 99*82*30mm (L*W*H)   |            |              |                |              |              |              |
|                       | PACKING  | 0.23Kg; 60pcs/14.8Kg/0.88CUFT  |            |              |                |              |              |              |
| NOTE                  | <ol style="list-style-type: none"> <li>All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>Line regulation is measured from low line to high line at rated load.</li> <li>Load regulation is measured from 0% to 100% rated load.</li> <li>Length of set up time is measured at cold first start. Turning ON/OFF the power supply very quickly may lead to increase of the set up time.</li> <li>3.3V,5V when the load factor 0~50%, the switching power less is reduced by burst operation, which will cause ripple and ripple noise to go beyond the specifications.</li> <li>The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m(6500ft).</li> <li>The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a>)</li> </ol> |  |            |              |                |              |              |              |

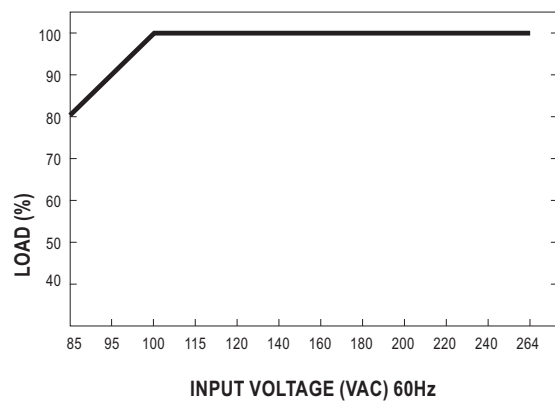
■ Block Diagram



■ Derating Curve

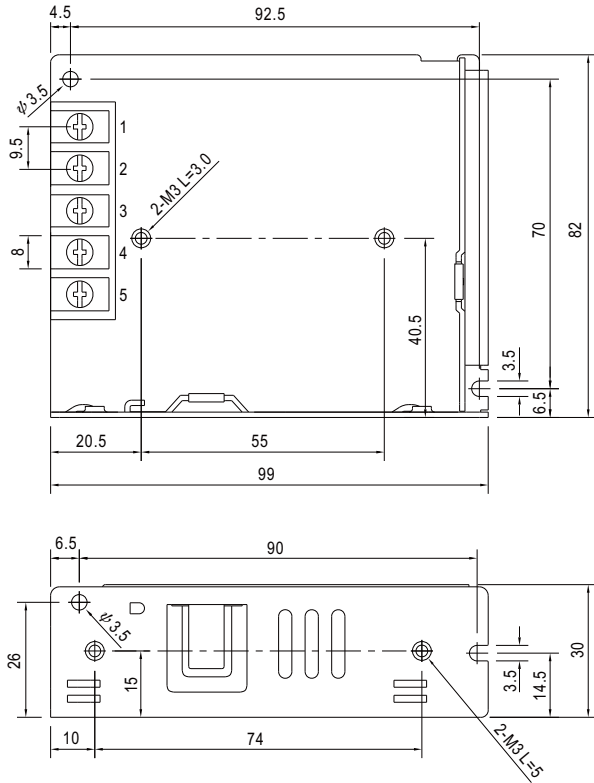


■ Static Characteristics



■ Mechanical Specification

Case No.239A Unit:mm



Terminal Pin No. Assignment

| Pin No. | Assignment | Pin No. | Assignment   |
|---------|------------|---------|--------------|
| 1       | AC/L       | 4       | DC OUTPUT -V |
| 2       | AC/N       | 5       | DC OUTPUT +V |
| 3       | FG $\perp$ |         |              |

■ Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>