



Power supplies are used to supply different voltages to different applications.

Available in different voltages & multiple outputs.

MEANWELL - Taiwan



## Ordering Information

| Order No | Model No    | Product      | Watt | Class | Type | Ampere |
|----------|-------------|--------------|------|-------|------|--------|
| 275 111  | LRS-50-12   | Power Supply | 50W  |       |      | 4.2    |
| 275 113  | LRS-50-24   | Power Supply | 50W  |       |      | 2.2    |
| 275 104  | LRS-50-48   | Power Supply | 50W  |       |      |        |
| 275 131  | LRS-100-12  | Power Supply | 100  |       |      | 8.5    |
| 275 151  | LRS-150F-12 | Power Supply | 150  |       |      | 12.5   |
| 275 173  | LRS-350-24  | Power Supply | 350  |       |      | 14.6   |
| 275 201  | MDR-60-12   | Power Supply | 150  |       | DIN  | 5      |
| 275 203  | MDR-60-24   | Power Supply | 125  |       | DIN  | 2.5    |
| 275 303  | RS-150-24   | Power Supply | 150  |       |      | 6.5    |
| 275 350  | RD-125-1224 | Power Supply | 125  |       |      |        |
| 275 403  | LPV-35-24   | Power Supply | 35   |       |      |        |

## Technical Details

### LRS-50

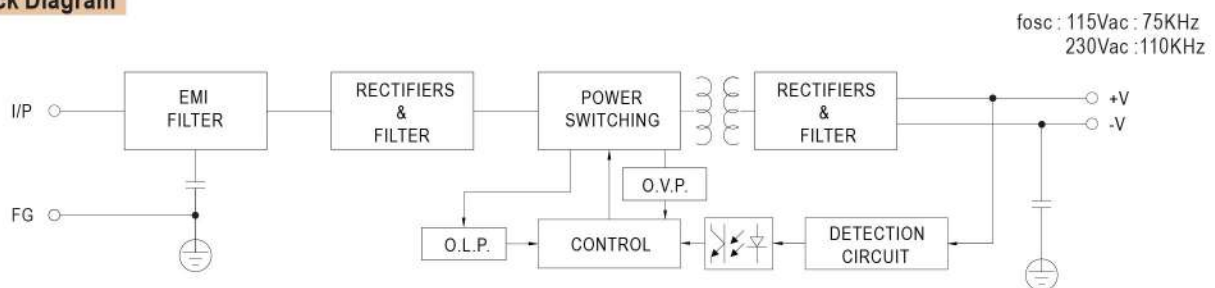
- Universal AC input/ Full range
- Withstand 300VAC surge input for 5 sec.
- No load power consumption <0.3W
- Miniature size and 1U low profile.
- High operating temperature up to 70°C.
- Protections: short circuit/ Overload/ Over voltage.
- Cooling by free air convection.
- Compliance to IEC/ BS EN/EN 60335-1 (PD3) and IEC/BS EN/EN 61558-1, -2-16 for household appliances.
- Operating altitude up to 5000 meters.
- Withstand 5G Vibration test.
- High efficiency, long life and high reliability.
- LED indicator for power on.
- Over vpltage category III.
- 100% full load burn-in test.



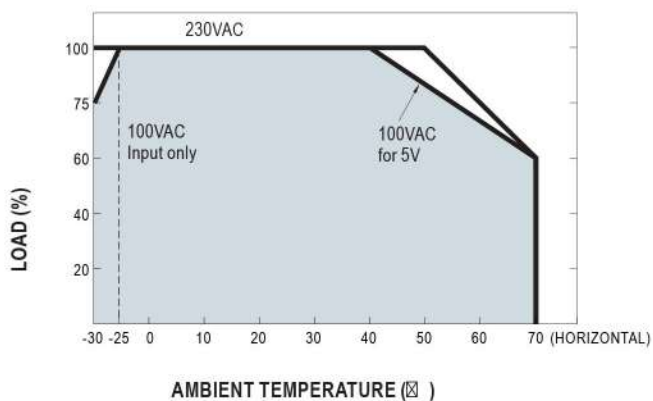
| MODEL      |                                             | LRS-50-12                                                                              | LRS-50-24                | LRS-50-48    |
|------------|---------------------------------------------|----------------------------------------------------------------------------------------|--------------------------|--------------|
| OUTPUT     | DC VOLTAGE                                  | 12V                                                                                    | 24V                      | 48V          |
|            | RATED CURRENT                               | 4.2A                                                                                   | 2.2A                     | 1.1A         |
|            | CURRENT RANGE                               | 0 ~ 4.2A                                                                               | 0 ~ 2.2A                 | 0 ~ 1.1A     |
|            | RATED POWER                                 | 50.4W                                                                                  | 52.8W                    | 52.8W        |
|            | RIPPLE & NOISE (max.) <small>Note.2</small> | 120mVp-p                                                                               | 150mVp-p                 | 200mVp-p     |
|            | VOLTAGE ADJ. RANGE                          | 10.2 ~ 13.8V                                                                           | 21.6 ~ 28.8V             | 43.2 ~ 52.8V |
|            | VOLTAGE TOLERANCE <small>Note.3</small>     | ± 1.0%                                                                                 | ± 1.0%                   | ± 1.0%       |
|            | LINE REGULATION <small>Note.4</small>       | ± 0.5%                                                                                 | ± 0.5%                   | ± 0.5%       |
|            | LOAD REGULATION <small>Note.5</small>       | ± 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.)                           | 86%                                                                                    | 88%                      | 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                                                          |                          |              |
|            |                                             | Protection type : Hiccup mode, recovers automatically after fault condition is removed |                          |              |
|            | OVER VOLTAGE                                | 13.8 ~ 17.2V                                                                           | 28.8 ~ 36.6V             | 55.2 ~ 67.8V |
|            |                                             | Protection type : Shut down o/p voltage, re-power on to recover                        |                          |              |

|                          |                         |                                                                                                                                                                                                                                      |
|--------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 BS EN/EN61558, BS EN/EN50178, BS EN/EN60664-1, BS EN/EN62477-1; altitude up to 2000 meters                                                                                                                         |
| SAFETY & EMC<br>(Note 9) | SAFETY STANDARDS        | UL62368-1, TUV BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16, CCC GB4943.1, BSMI CNS14336-1, EAC TP TC 004, AS/NZS 60950.1(by CB), KC K60950-1(for LRS-50-12/24 only), BIS IS13252(Part1): 2010/IEC 60950-1: 2005 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% / 70% RH                                                                                                                                                                            |
|                          | EMC EMISSION            | Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN55014, BS EN/EN61000-3-2, -3, GB/T 9254, BSMI CNS13438, EAC TP TC 020, KC KN32, KN35(for LRS-50-12/24 only)                                                                   |
| OTHERS                   | EMC IMMUNITY            | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN61000-6-2 (BS EN/EN50082-2), BS EN/EN55035, heavy industry level, EAC TP TC 020, KC KN32, KN35(for LRS-50-12/24 only)                                                          |
|                          | MTBF                    | 3149.8K hrs min. Telcordia SR-332 (Bellcore) ; 561.6Khrs min. MIL-HDBK-217F (25% )                                                                                                                                                   |
|                          | DIMENSION               | 99*82*30mm (L*W*H)                                                                                                                                                                                                                   |
|                          | PACKING                 | 0.23Kg; 60pcs/14.8Kg/0.88CUFT                                                                                                                                                                                                        |

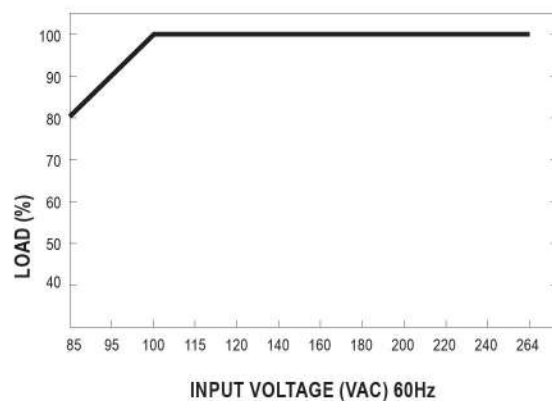
#### ■ Block Diagram



#### ■ Derating Curve

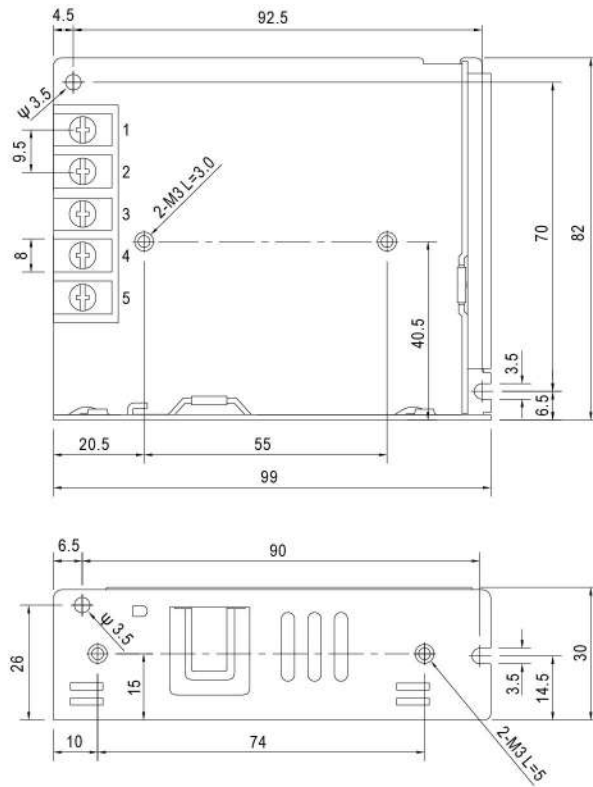


#### ■ Static Characteristics



## ■ Mechanical Specification

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 $\perp$ |         |              |



## LRS-100

- Constant voltage design
- Universal AC input / Full range
- Withstand 300VAC surge input for 5 sec.
- Protections : Short circuit / Overload / Over Voltage.
- Cooling by free air convection.
- Miniature size and 1U low profile.
- Compliance to IEC/BS EN/EN 60335-1 (PD3) and IEC/BS EN/EN61558-1, 2-16 for household appliances.
- Operating altitude up to 5000 meters.
- Withstand 5G vibration test.
- LED indicator for power on.
- No load power consumption <0.3W.
- Over voltage category III.
- 100% full burn-in test.
- High operating temperature up to 70°C.
- High efficiency, long life and high reliability.



| MODEL       |                              | LRS-100-3.3                                                                                                             | LRS-100-5    | LRS-100-12   | LRS-100-15     | LRS-100-24   | LRS-100-36   | LRS-100-48   |
|-------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------|--------------|----------------|--------------|--------------|--------------|
| OUTPUT      | DC VOLTAGE                   | 3.3V                                                                                                                    | 5V           | 12V          | 15V            | 24V          | 36V          | 48V          |
|             | RATED CURRENT                | 20A                                                                                                                     | 18A          | 8.5A         | 7A             | 4.5A         | 2.8A         | 2.3A         |
|             | CURRENT RANGE                | 0 ~ 20A                                                                                                                 | 0 ~ 18A      | 0 ~ 8.5A     | 0 ~ 7A         | 0 ~ 4.5A     | 0 ~ 2.8A     | 0 ~ 2.3A     |
|             | RATED POWER                  | 66W                                                                                                                     | 90W          | 102W         | 105W           | 108W         | 100.8W       | 110.4W       |
|             | RIPPLE & NOISE (max.) Note.2 | 100mVp-p                                                                                                                | 100mVp-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             | 500ms, 30ms/230VAC      500ms, 30ms/115VAC at full load                                                                 |              |              |                |              |              |              |
|             | HOLD UP TIME (Typ.)          | 55ms/230VAC      10ms/115VAC at full load                                                                               |              |              |                |              |              |              |
| INPUT       | VOLTAGE RANGE                | 85 ~ 264VAC      120 ~ 373VDC (Withstand 300VAC surge for 5sec. Without damage)                                         |              |              |                |              |              |              |
|             | FREQUENCY RANGE              | 47 ~ 63Hz                                                                                                               |              |              |                |              |              |              |
|             | EFFICIENCY (Typ.)            | 84.5%                                                                                                                   | 86%          | 88%          | 88.5%          | 90%          | 90.5%        | 91%          |
|             | AC CURRENT (Typ.)            | 1.9A/115VAC      1.2A/230VAC                                                                                            |              |              |                |              |              |              |
|             | INRUSH CURRENT (Typ.)        | COLD START 50A/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                                                                                                             | 5.75 ~ 6.75V | 13.8 ~ 16.2V | 18.75 ~ 21.75V | 28.8 ~ 33.6V | 41.4 ~ 48.6V | 55.2 ~ 64.8V |
|             |                              | Protection type : Shut down o/p voltage, re-power on to recover                                                         |              |              |                |              |              |              |
| 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 BS EN/EN61558, BS EN/EN50178, BS EN/EN60664-1, BS EN/EN62477-1; altitude up to 2000 meters            |              |              |                |              |              |              |





## LRS-150F-12

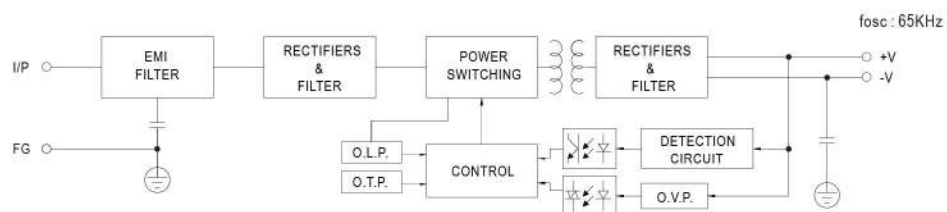
- Universal AC input/ Full range
- Withstand 300VAC surge input for 5 sec.
- No load power consumption<0.5W
- Protections : Short circuit / Overload / Over Voltage.
- Miniature size and 1U low profile.
- Miniature size and 1U low profile.
- Compliance to IEC/BS EN/EN 60335-1 (PD3) and IEC/BS EN/EN61558-1, 2-16 for household appliances.
- Operating altitude up to 5000 meters.
- Withstand 5G vibration test.
- LED indicator for power on.
- No load power consumption <0.3W.
- Over voltage category III.
- 100% full burn-in test.
- High operating temperature up to 70°C.
- High efficiency, long life and high reliability.



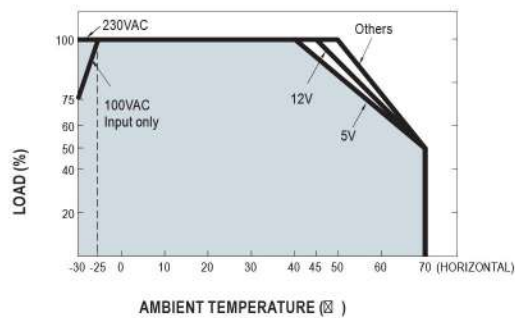
| MODEL       | LRS-150F-12                  |                                                                                                                         |
|-------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| OUTPUT      | DC VOLTAGE                   | 12V                                                                                                                     |
|             | RATED CURRENT                | 12.5A                                                                                                                   |
|             | CURRENT RANGE                | 0 ~ 12.5A                                                                                                               |
|             | RATED POWER                  | 150W                                                                                                                    |
|             | RIPPLE & NOISE (max.) Note.2 | 150mVp-p                                                                                                                |
|             | VOLTAGE ADJ. RANGE           | 10.2 ~ 13.8V                                                                                                            |
|             | VOLTAGE TOLERANCE Note.3     | ± 1.0%                                                                                                                  |
|             | LINE REGULATION Note.4       | ± 0.5%                                                                                                                  |
|             | LOAD REGULATION Note.5       | ± 0.5%                                                                                                                  |
|             | SETUP, RISE TIME             | 500ms, 30ms/230VAC    500ms,30ms/115VAC at full load                                                                    |
|             | HOLD UP TIME (Typ.)          | 16ms/230VAC    12ms/115VAC at full load                                                                                 |
| INPUT       | VOLTAGE RANGE                | 85 ~ 264VAC    120 ~ 370VDC                                                                                             |
|             | FREQUENCY RANGE              | 47 ~ 63Hz                                                                                                               |
|             | EFFICIENCY (Typ.)            | 87.5%                                                                                                                   |
|             | AC CURRENT (Typ.)            | 3A/115VAC    1.7A/230VAC                                                                                                |
|             | INRUSH CURRENT (Typ.)        | COLD STAR 60A/230VAC                                                                                                    |
|             | LEAKAGE CURRENT              | <0.75mA / 240VAC                                                                                                        |
| PROTECTION  | OVER LOAD                    | 110 ~ 140% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed |
|             | OVER VOLTAGE                 | 13.8 ~ 16.2V<br>Protection type : Shut down o/p voltage, re-power on to recover                                         |
|             | OVER TEMPERATURE             | Shut down o/p voltage, re-power on to recover                                                                           |
|             | WORKING TEMP.                | -30 ~ +70°C (Refer to "Derating Curve")                                                                                 |
| ENVIRONMENT | 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 BS EN/EN61558, BS EN/EN50178, BS EN/EN60664-1, BS EN/EN62477-1; altitude up to 2000 meters            |

|                          |                      |                                                                                                                                                      |
|--------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| SAFETY & EMC<br>(Note 7) | SAFETY STANDARDS     | UL62368-1, TUV BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16, CCC GB4943.1, BSMI CNS14336-1, EAC TP TC004, AS/NZS 62368.1 (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% / 70% RH                                                                                            |
|                          | EMC EMISSION         | Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN55014, BS EN/EN61000-3-2 Class A(≤80% Load ), GB/T 9254, BSMI CNS13438, EAC TP TC 020         |
|                          | EMC IMMUNITY         | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN61000-6-2 (BS EN/EN50082-2), heavy industry level, EAC TP TC 020                               |
| OTHERS                   | MTBF                 | 2761.8K hrs min. Telcordia SR-332 (Bellcore) ; 592.4Khrs min. MIL-HDBK-217F (25% )                                                                   |
|                          | DIMENSION            | 159*97*30mm (L*W*H)                                                                                                                                  |
|                          | PACKING              | 0.48Kg ; 30pcs/15.4Kg/0.75CUFT                                                                                                                       |

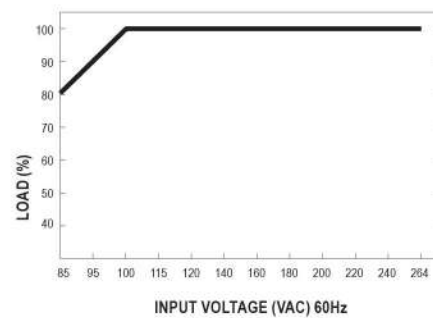
#### ■ Block Diagram



#### ■ Derating Curve

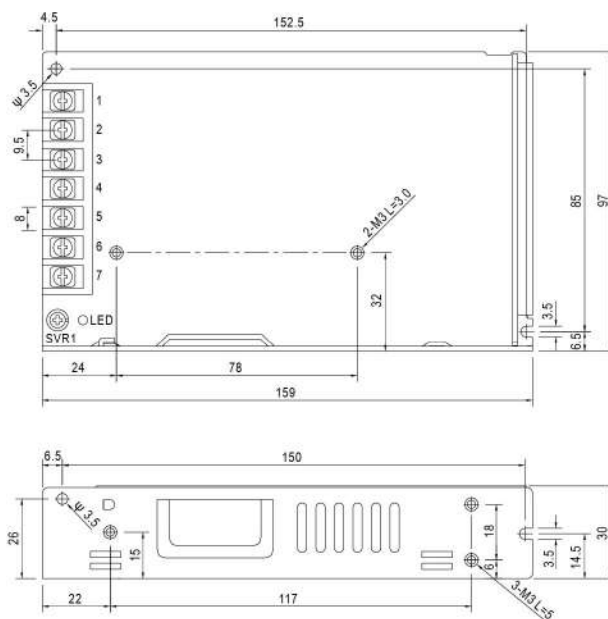


#### ■ Static Characteristics



#### ■ Mechanical Specification

nit:mm



Terminal Pin No. Assignment

| Pin No. | Assignment | Pin No. | Assignment   |
|---------|------------|---------|--------------|
| 1       | AC/L       | 4,5     | DC OUTPUT +V |
| 2       | AC/N       | 6,7     | DC OUTPUT +V |
| 3       | FG         |         |              |



## LRS-350-24

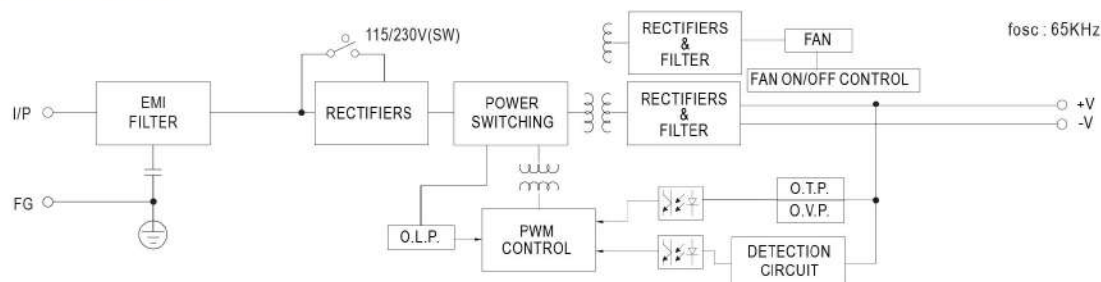
- AC input range selectable by switch.
- Withstand 300VAC surge input for 5 sec.
- Protections : Short circuit/ Overload/ Over Voltage.
- Protections : Short circuit / Overload / Over Voltage/ Over temperature.
- Forced air cooling by built-in DC fan.
- Built-in cooling Fan ON-OFF
- 1U low profile.
- Withstand 5G vibration test.
- LED indicator for power on.
- No load power consumption<0.75W.
- 100% full load burn-in test.
- High operating temperature up to 70°C.
- Operating altitude up to 5000 meters.
- High efficiency, long life and high reliability



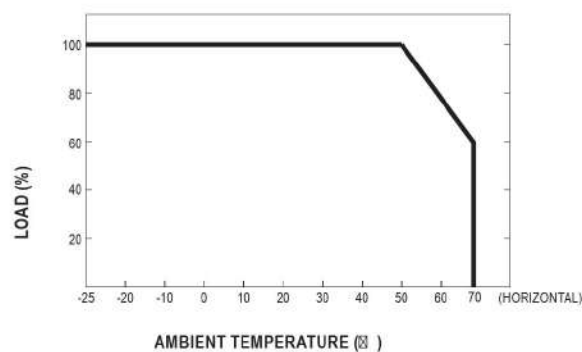
|             |                              |                                                                                                                                                                                    |
|-------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MODEL       | LRS-350-24                   |                                                                                                                                                                                    |
|             | DC VOLTAGE                   | 24V                                                                                                                                                                                |
|             | RATED CURRENT                | 14.6A                                                                                                                                                                              |
|             | CURRENT RANGE                | 0 ~ 14.6A                                                                                                                                                                          |
| OUTPUT      | RATED POWER                  | 350.4W                                                                                                                                                                             |
|             | RIPPLE & NOISE (max.) Note.2 | 150mVp-p                                                                                                                                                                           |
|             | VOLTAGE ADJ. RANGE           | 21.6 ~ 28.8V                                                                                                                                                                       |
|             | VOLTAGE TOLERANCE Note.3     | ± 1.0%                                                                                                                                                                             |
|             | LINE REGULATION Note.4       | ± 0.5%                                                                                                                                                                             |
|             | LOAD REGULATION Note.5       | ± 0.5%                                                                                                                                                                             |
|             | SETUP, RISE TIME             | 1300ms, 50ms/230VAC    1300ms, 50ms/115VAC at full load                                                                                                                            |
|             | HOLD UP TIME (Typ.)          | 16ms/230VAC    12ms/115VAC at full load                                                                                                                                            |
| INPUT       | VOLTAGE RANGE                | 90 ~ 132VAC / 180 ~ 264VAC by switch    240 ~ 370VDC (switch on 230VAC)                                                                                                            |
|             | FREQUENCY RANGE              | 47 ~ 63Hz                                                                                                                                                                          |
|             | EFFICIENCY (Typ.)            | 88%                                                                                                                                                                                |
|             | AC CURRENT (Typ.)            | 6.8A/115VAC    3.4A/230VAC                                                                                                                                                         |
|             | INRUSH CURRENT (Typ.)        | 60A/115VAC    60A/230VAC                                                                                                                                                           |
|             | LEAKAGE CURRENT              | <2mA / 240VAC                                                                                                                                                                      |
| PROTECTION  | OVER LOAD                    | 110 ~ 140% rated output power<br>3.3~36V Hiccup mode, recovers automatically after fault condition is removed.<br>48V Shut down and latch off o/p voltage, re-power on to recover. |
|             | OVER VOLTAGE                 | 28.8 ~ 33.6V<br>3.3~36V Hiccup mode, recovers automatically after fault condition is removed.<br>48V Shut down and latch off o/p voltage, re-power on to recover.                  |
|             | OVER TEMPERATURE             | 3.3~36V Hiccup mode, recovers automatically after fault condition is removed.<br>48V Shut down and latch off o/p voltage, re-power on to recover.                                  |
|             |                              |                                                                                                                                                                                    |
| FUNCTION    | FAN ON/OFF CONTROL (Typ.)    | RTH3 50 FAN ON, 40 FAN OFF                                                                                                                                                         |
| ENVIRONMENT | WORKING TEMP.                | -25 ~ +70°C (Refer to "Derating Curve")                                                                                                                                            |
|             | WORKING HUMIDITY             | 20 ~ 90% RH non-condensing                                                                                                                                                         |
|             | STORAGE TEMP., HUMIDITY      | -40 ~ +85°C, 10 ~ 95% RH                                                                                                                                                           |
|             | TEMP. COEFFICIENT            | ± 0.03%/°C (0 ~ 50°C)                                                                                                                                                              |
|             | VIBRATION                    | 10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes                                                                                                                       |

|        |                             |                                                                                                                                                                                          |
|--------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SAFETY | <b>SAFETY STANDARDS</b>     | IEC/UL 62368-1, BSMI CNS14336-1, EAC TP TC 004, KC K60950-1(for LRS-350-12/24 only), BIS IS13252(Part1): 2010/IEC 60950-1: 2005, AS/NZS62368.1 approved; Design refer to BS EN/EN62368-1 |
|        | <b>WITHSTAND VOLTAGE</b>    | I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC                                                                                                                                                |
|        | <b>ISOLATION RESISTANCE</b> | I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC / 25% / 70% RH                                                                                                                                  |
|        | <b>EMC EMISSION</b>         | Compliance to BSMI CNS13438, EAC TP TC 020, KC KN32,KN35(for LRS-350-12/24 only)                                                                                                         |
|        | <b>EMC IMMUNITY</b>         | Compliance to BS EN/EN55035, EAC TP TC 020, KC KN32,KN35(for LRS-350-12/24 only)                                                                                                         |
| OTHERS | <b>MTBF</b>                 | 2099.9K hrs min. Telcordia SR-332 (Bellcore); 328.6Khrs min. MIL-HDBK-217F (25% )                                                                                                        |
|        | <b>DIMENSION</b>            | 215*115*30mm (L*W*H)                                                                                                                                                                     |
|        | <b>PACKING</b>              | 0.76Kg; 15pcs/12.4Kg/0.78CUFT                                                                                                                                                            |

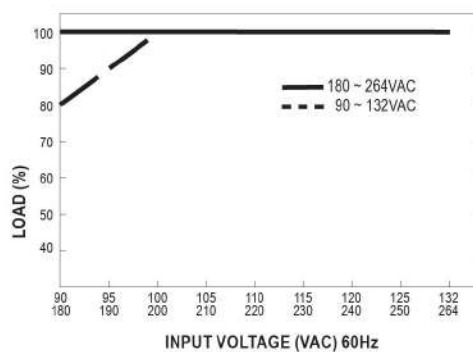
#### ■ Block Diagram



#### ■ Derating Curve

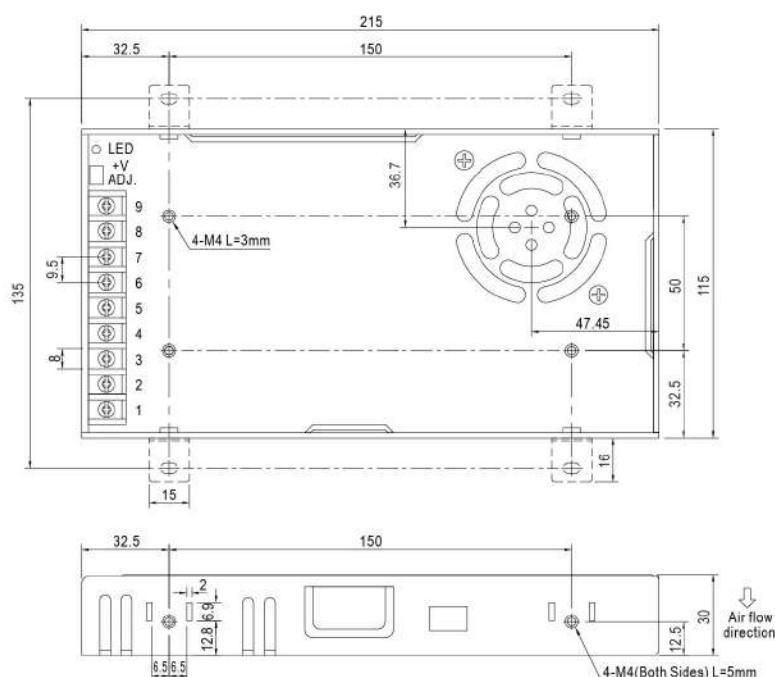


#### ■ Static Characteristics



#### ■ Mechanical Specification

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         |         |              |

## MDR-60

- Universal AC input/Full range.
- Protections : short circuit/ Overload/ Over voltage.
- Cooling by free air convection.
- Can be installed on DIN rail TS-35/7.5 or 15.
- Class I, Div 2 Hazardous locations t4.
- LED indicator for power on.
- DC OK relay contact.
- No load power consumption<0.75W.
- 100% full load burn-in test.

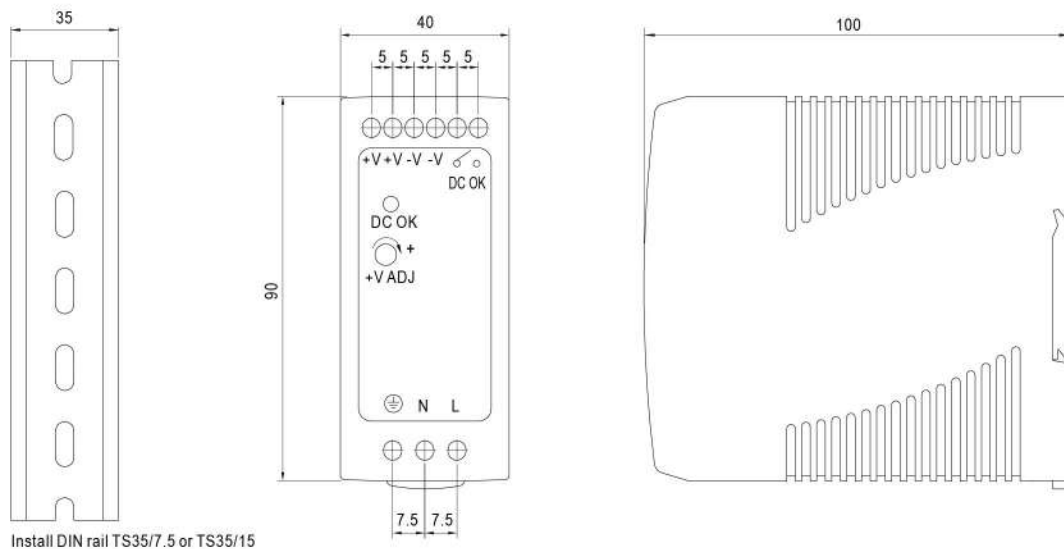


| MODEL                 |                              | MDR-60-12                                                                                                                                                                          | MDR-60-24                       |
|-----------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| OUTPUT                | DC VOLTAGE                   | 12V                                                                                                                                                                                | 24V                             |
|                       | RATED CURRENT                | 5A                                                                                                                                                                                 | 2.5A                            |
|                       | CURRENT RANGE                | 0 ~ 5A                                                                                                                                                                             | 0 ~ 2.5A                        |
|                       | RATED POWER                  | 60W                                                                                                                                                                                | 60W                             |
|                       | RIPPLE & NOISE (max.) Note.2 | 120mVp-p                                                                                                                                                                           | 150mVp-p                        |
|                       | VOLTAGE ADJ. RANGE           | 12 ~ 15V                                                                                                                                                                           | 24 ~ 30V                        |
|                       | VOLTAGE TOLERANCE Note.3     | ± 1.0%                                                                                                                                                                             | ± 1.0%                          |
|                       | LINE REGULATION              | ± 1.0%                                                                                                                                                                             | ± 1.0%                          |
|                       | LOAD REGULATION              | ± 1.0%                                                                                                                                                                             | ± 1.0%                          |
|                       | SETUP, RISE TIME Note.5      | 500ms, 30ms/230VAC                                                                                                                                                                 | 500ms, 30ms/115VAC at full load |
|                       | HOLD UP TIME (Typ.)          | 50ms/230VAC                                                                                                                                                                        | 20ms/115VAC at full load        |
| INPUT                 | VOLTAGE RANGE                | 85 ~ 264VAC                                                                                                                                                                        | 120 ~ 370VDC                    |
|                       | FREQUENCY RANGE              | 47 ~ 63Hz                                                                                                                                                                          |                                 |
|                       | EFFICIENCY (Typ.)            | 86%                                                                                                                                                                                | 88%                             |
|                       | AC CURRENT (Typ.)            | 1.8A/115VAC                                                                                                                                                                        | 1A/230VAC                       |
|                       | INRUSH CURRENT (Typ.)        | COLD START 30A/115VAC                                                                                                                                                              | 60A/230VAC                      |
|                       | LEAKAGE CURRENT              | <1mA / 240VAC                                                                                                                                                                      |                                 |
| PROTECTION            | OVERLOAD                     | 105 ~ 150% rated output power<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed                                              |                                 |
|                       | OVER VOLTAGE                 | 15.6 ~ 18V                                                                                                                                                                         | 31.2 ~ 36V                      |
|                       |                              | Protection type : Shut down o/p voltage, re-power on to recover                                                                                                                    |                                 |
| FUNCTION              | DC OK SIGNAL                 | Relay contact rating(max.): 30V/1A resistive                                                                                                                                       |                                 |
| ENVIRONMENT           | WORKING TEMP.                | -20 ~ +70°C (Refer to "Derating Curve")                                                                                                                                            |                                 |
|                       | WORKING HUMIDITY             | 20 ~ 90% RH non-condensing                                                                                                                                                         |                                 |
|                       | STORAGE TEMP., HUMIDITY      | -40 ~ +85°C, 10 ~ 95% RH                                                                                                                                                           |                                 |
|                       | TEMP. COEFFICIENT            | ± 0.03%/°C (0 ~ 50°C)                                                                                                                                                              |                                 |
|                       | VIBRATION                    | Component : 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes ; Mounting : Compliance to IEC60068-2-6                                                        |                                 |
| SAFETY & EMC (Note 4) | SAFETY STANDARDS             | UL508, UL62368-1, TUV BS EN/EN62368-1, Class I, Div. 2 Group A, B, C, D Hazardous Locations T4, EAC TP TC 004, BSMI CNS14336-1, AS/NZS 60950.1, IS13252(Part1)/IEC60950-1 approved |                                 |
|                       | WITHSTAND VOLTAGE            | I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC                                                                                                                                          |                                 |
|                       | ISOLATION RESISTANCE         | I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25% / 70% RH                                                                                                                         |                                 |
|                       | EMC EMISSION                 | Compliance to BS EN/EN55032 (CISPR32), BS EN/EN61204-3 Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020, CNS14338 Class B                                                              |                                 |
|                       | EMC IMMUNITY                 | Compliance to BS EN/EN61000-4-2, 3, 4, 5, 6, 8, 11, BS EN/EN55035, BS EN/EN61000-6-2, BS EN/EN61204-3, heavy industry level, EAC TP TC 020                                         |                                 |
| OTHERS                | MTBF                         | 2355.2K hrs min. Telcordia SR-332 (Bellcore) ; 489.9K hrs min. MIL-HDBK-217F (25% )                                                                                                |                                 |
|                       | DIMENSION                    | 40*90*100mm (W*H*D)                                                                                                                                                                |                                 |
|                       | PACKING                      | 0.33Kg, 42pcs/14.8Kg/0.82CUFT                                                                                                                                                      |                                 |



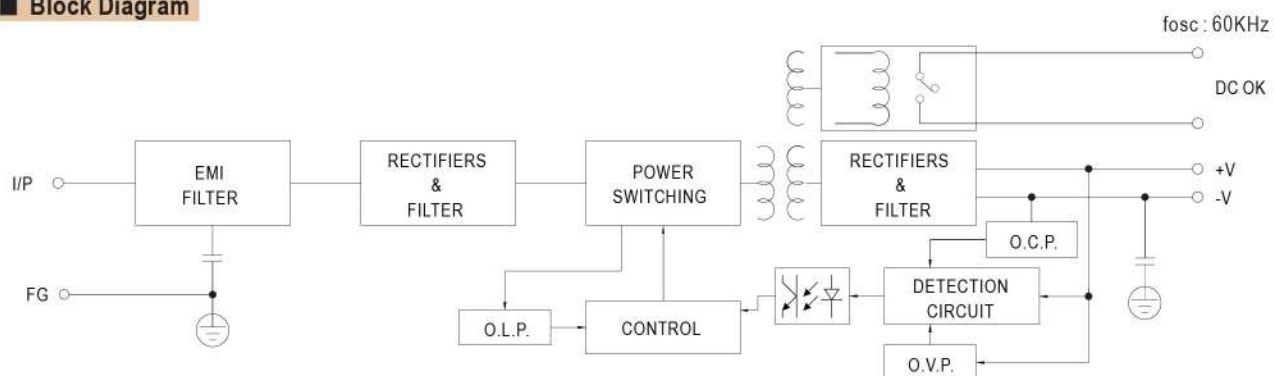
## ■ Mechanical Specification

Unit:mm



Install DIN rail TS35/7.5 or TS35/15

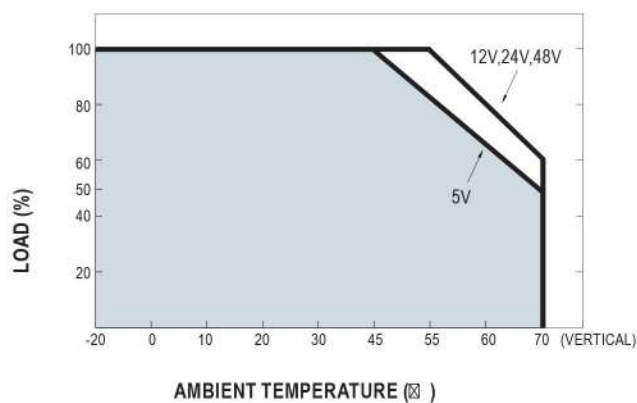
## ■ Block Diagram



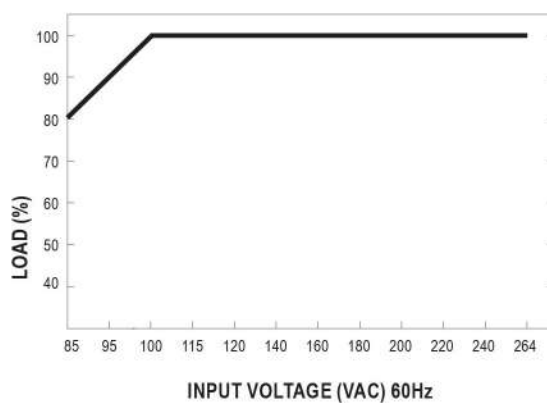
## ■ DC OK Relay Contact

|                        |                          |
|------------------------|--------------------------|
| Contact Close          | PSU turns on / DC OK.    |
| Contact Open           | PSU turns off / DC Fail. |
| Contact Ratings (max.) | 30V/1A resistive load.   |

## ■ Derating Curve



## ■ Output Derating VS Input Voltage



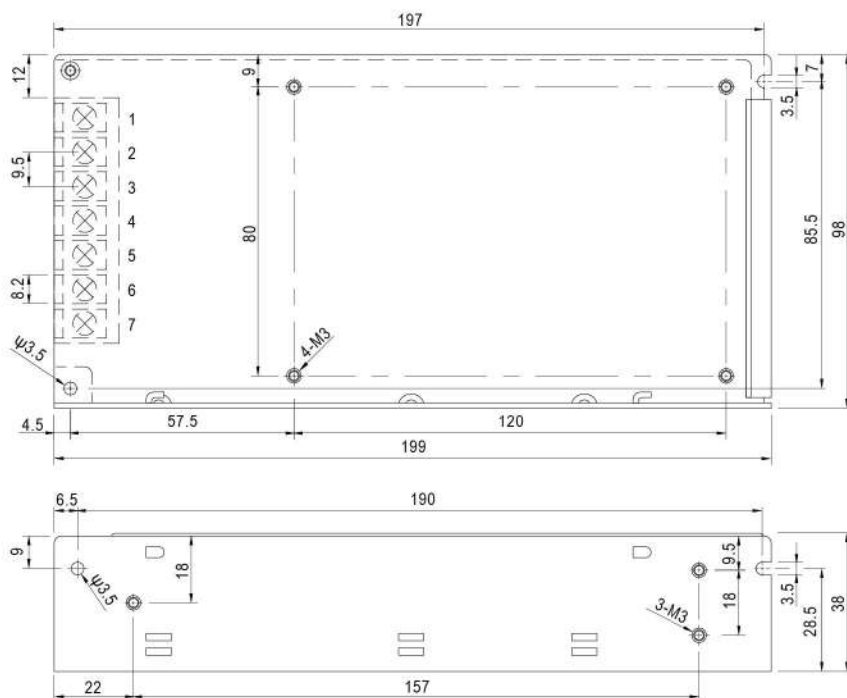
## RS-150-24

- Protections : Short circuit/ Overload/ Over voltage.
- Cooling by free air convection.
- LED indicator for power on.
- 100% full load burn-in test.
- All using 105 long life electrolytic capacitors.
- Withstand 300VAC surge input for 5 sec.
- High Operating temperature up to 70°C
- Withstand 5G vibration test.
- High efficiency, long life and high reliability.



|                       |                              |                                                                                                                                       |  |
|-----------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--|
| MODEL                 |                              | RS-150-24                                                                                                                             |  |
| OUTPUT                | DC VOLTAGE                   | 24V                                                                                                                                   |  |
|                       | RATED CURRENT                | 6.5A                                                                                                                                  |  |
|                       | CURRENT RANGE                | 0 ~ 6.5A                                                                                                                              |  |
|                       | RATED POWER                  | 156W                                                                                                                                  |  |
|                       | RIPPLE & NOISE (max.) Note.2 | 120mVp-p                                                                                                                              |  |
|                       | VOLTAGE ADJ. RANGE           | 22.8 ~ 26.4V                                                                                                                          |  |
|                       | VOLTAGE TOLERANCE Note.3     | ±1.0%                                                                                                                                 |  |
|                       | LINE REGULATION Note.4       | ±0.5%                                                                                                                                 |  |
|                       | LOAD REGULATION Note.5       | ±0.5%                                                                                                                                 |  |
|                       | SETUP, RISE TIME             | 800ms, 20ms/230VAC      1200ms, 30ms/115VAC at full load                                                                              |  |
|                       | HOLD UP TIME (Typ.)          | 28ms/230VAC      20ms/115VAC at full load                                                                                             |  |
| INPUT                 | VOLTAGE RANGE                | 88 ~ 132VAC / 176 ~ 264VAC selected by switch      248 ~ 373VDC(Withstand 300VAC surge for 5sec. Without damage)                      |  |
|                       | FREQUENCY RANGE              | 47 ~ 63Hz                                                                                                                             |  |
|                       | EFFICIENCY(Typ.)             | 86%                                                                                                                                   |  |
|                       | AC CURRENT (Typ.)            | 3A/115VAC      2A/230VAC                                                                                                              |  |
|                       | INRUSH CURRENT (Typ.)        | COLD START 40A/230VAC                                                                                                                 |  |
|                       | LEAKAGE CURRENT              | <2mA / 240VAC                                                                                                                         |  |
| PROTECTION            | OVERLOAD Note.8              | 110 ~ 150% rated output power                                                                                                         |  |
|                       |                              | Protection type : Hiccup mode, recovers automatically after fault condition is removed                                                |  |
|                       | OVER VOLTAGE                 | 27.6 ~ 32.4V                                                                                                                          |  |
|                       |                              | Protection type : Hiccup mode, recovers automatically after fault condition is removed                                                |  |
| ENVIRONMENT           | WORKING TEMP.                | -25 ~ +70°C (Refer to "Derating Curve")                                                                                               |  |
|                       | WORKING HUMIDITY             | 20 ~ 90% RH non-condensing                                                                                                            |  |
|                       | STORAGE TEMP., HUMIDITY      | -40 ~ +85°C, 10 ~ 95% RH                                                                                                              |  |
|                       | TEMP. COEFFICIENT            | ±0.03%/°C (0 ~ 50°C)                                                                                                                  |  |
|                       | VIBRATION                    | 10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes                                                               |  |
| SAFETY & EMC (Note 6) | SAFETY STANDARDS             | UL62368-1, TUV BS EN/EN62368-1, AS/NZS 62368.1, EAC TP TC 004 approved                                                                |  |
|                       | WITHSTAND VOLTAGE            | I/P-O/P:3KVAC    I/P-FG:2KVAC    O/P-FG:0.5KVAC                                                                                       |  |
|                       | ISOLATION RESISTANCE         | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C/ 70% RH                                                                             |  |
|                       | EMC EMISSION                 | Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020                                                    |  |
|                       | EMC IMMUNITY                 | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55035, BS EN/EN61000-6-2 (BS EN/EN50082-2), heavy industry level, EAC TP TC 020 |  |
| OTHERS                | MTBF                         | 3044.1K hrs min.    Telcordia SR-332 (Bellcore) ; 437.3K hrs min.    MIL-HDBK-217F (25 )                                              |  |
|                       | DIMENSION                    | 199*98*38mm (L*W*H)                                                                                                                   |  |
|                       | PACKING                      | 0.7Kg; 20pcs/14Kg/0.85CUFT                                                                                                            |  |

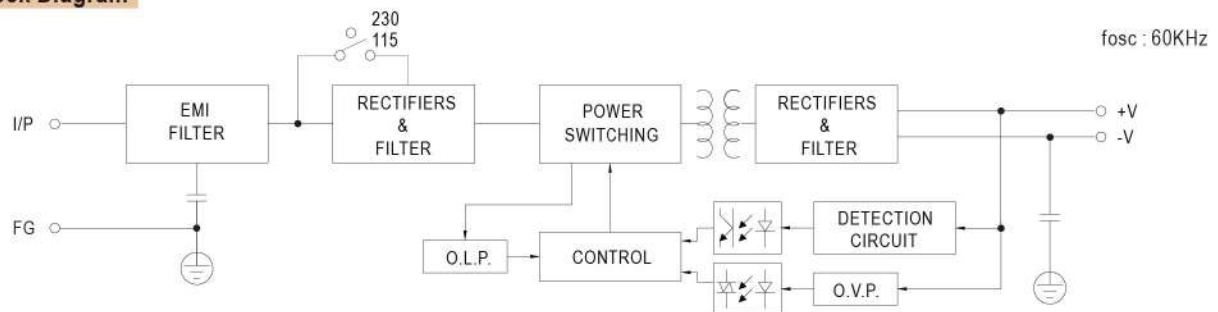
## Mechanical Specification



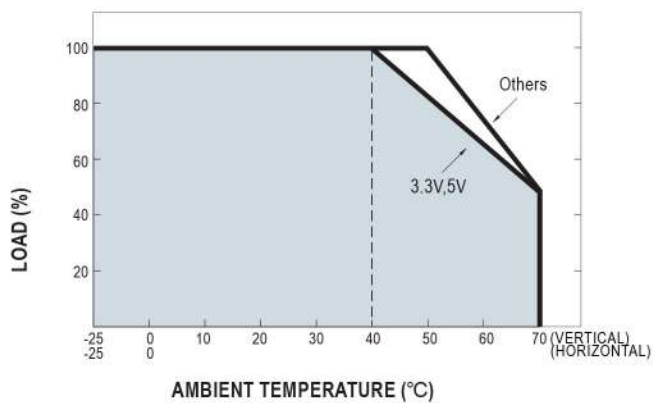
Terminal Pin No. Assignment

| Pin No. | Assignment  | Pin No. | Assignment   |
|---------|-------------|---------|--------------|
| 1       | AC/L        | 4,5     | DC OUTPUT -V |
| 2       | AC/N        | 6,7     | DC OUTPUT +V |
| 3       | FG $\equiv$ |         |              |

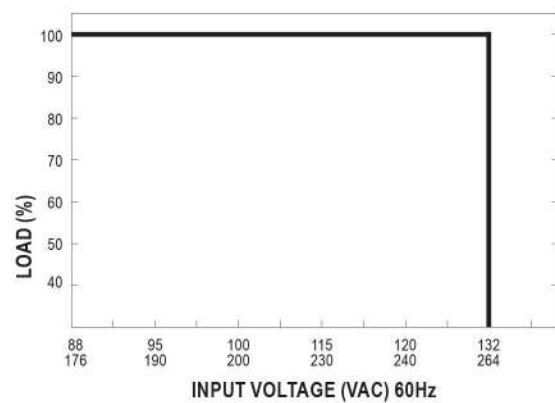
## Block Diagram



## Derating Curve



## Static Characteristics





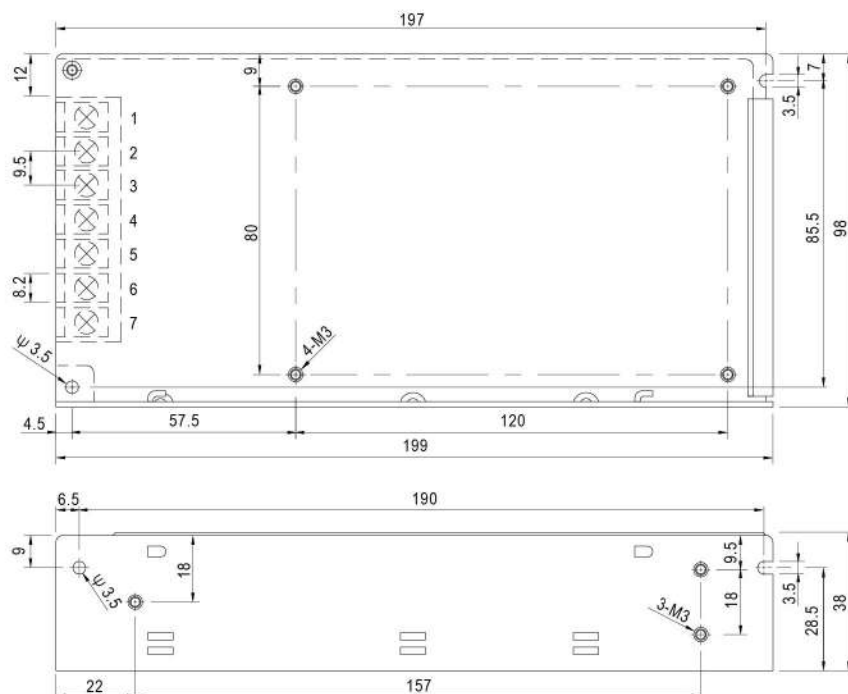
## RD-125-1224

- Protections : Short circuit / Overload / Over voltage.
- Cooling by free air convection.
- LED indicator for power on.
- 100% full load turn-in test.
- All using 105 long life electrolytic capacitors.
- Withstand 300VAC surge input for 5 second.
- High operating temperature up to 70°C.
- Withstand 5G
- High efficiency, long life and high reliability.



| MODEL                    |                                             | RD-125-1224                                                                                                                           |                                  |
|--------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| OUTPUT                   | OUTPUT NUMBER                               | CH1                                                                                                                                   | CH2                              |
|                          | DC VOLTAGE                                  | 12V                                                                                                                                   | 24V                              |
|                          | RATED CURRENT                               | 3.7A                                                                                                                                  | 3.7A                             |
|                          | CURRENT RANGE <small>Note.3</small>         | 0 ~ 7A                                                                                                                                | 0 ~ 5A                           |
|                          | RATED POWER <small>Note.6</small>           | 133.2W                                                                                                                                |                                  |
|                          | RIPPLE & NOISE (max.) <small>Note.2</small> | 120mVp-p                                                                                                                              | 200mVp-p                         |
|                          | VOLTAGE ADJ. RANGE                          | CH1: 11.4 ~ 13.2V                                                                                                                     |                                  |
|                          | VOLTAGE TOLERANCE <small>Note.3</small>     | ±2.0%                                                                                                                                 | ±8.0%                            |
|                          | LINE REGULATION <small>Note.4</small>       | ±0.5%                                                                                                                                 | ±1.0%                            |
|                          | LOAD REGULATION <small>Note.5</small>       | ±1.0%                                                                                                                                 | ±5.0%                            |
|                          | SETUP, RISE TIME                            | 500ms, 20ms/230VAC                                                                                                                    | 1200ms, 30ms/115VAC at full load |
|                          | HOLD UP TIME (Typ.)                         | 25ms/230VAC                                                                                                                           | 30ms/115VAC at full load         |
| INPUT                    | VOLTAGE RANGE                               | 88 ~ 132VAC / 176 ~ 264VAC selected by switch      248 ~ 373VDC(Withstand 300VAC surge for 5sec. Without damage)                      |                                  |
|                          | FREQUENCY RANGE                             | 47 ~ 63Hz                                                                                                                             |                                  |
|                          | EFFICIENCY (Typ.)                           | 85%                                                                                                                                   |                                  |
|                          | AC CURRENT (Typ.)                           | 3A/115VAC                                                                                                                             | 2A/230VAC                        |
|                          | INRUSH CURRENT (Typ.)                       | COLD START 50A/230VAC                                                                                                                 |                                  |
|                          | LEAKAGE CURRENT                             | <2mA / 240VAC                                                                                                                         |                                  |
| PROTECTION               | OVERLOAD                                    | 110 ~ 150% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed               |                                  |
|                          | OVER VOLTAGE                                | CH1: 13.8 ~ 16.2V<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed                           |                                  |
|                          |                                             |                                                                                                                                       |                                  |
| ENVIRONMENT              | WORKING TEMP.                               | -25 ~ +70℃ (Refer to "Derating Curve")                                                                                                |                                  |
|                          | WORKING HUMIDITY                            | 20 ~ 90% RH non-condensing                                                                                                            |                                  |
|                          | STORAGE TEMP., HUMIDITY                     | -40 ~ +85℃ , 10 ~ 95% RH                                                                                                              |                                  |
|                          | TEMP. COEFFICIENT                           | ± 0.03%/ (0 ~ 50 )on CH1 output                                                                                                       |                                  |
|                          | VIBRATION                                   | 10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes                                                               |                                  |
| SAFETY & EMC<br>(Note 7) | SAFETY STANDARDS                            | UL62368-1, TUV BS EN/EN62368-1, IS 13252(Part 1)(only for RD-125-1224), EAC TP TC 004 approved                                        |                                  |
|                          | WITHSTAND VOLTAGE                           | I/P-O/P:3KVAC    I/P-FG:2KVAC    O/P-FG:0.5KVAC                                                                                       |                                  |
|                          | ISOLATION RESISTANCE                        | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃ / 70% RH                                                                             |                                  |
|                          | EMC EMISSION                                | Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020                                                    |                                  |
|                          | EMC IMMUNITY                                | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55035, BS EN/EN61000-6-2 (BS EN/EN50082-2), heavy industry level, EAC TP TC 020 |                                  |
|                          |                                             |                                                                                                                                       |                                  |
|                          | MTBF                                        | 2755.4K hrs min.    Telcordia SR-332 (Bellcore) ; 425.8K hrs min.    MIL-HDBK-217F (25℃ )                                             |                                  |
|                          | DIMENSION                                   | 199*98*38mm (L*W*H)                                                                                                                   |                                  |
|                          | PACKING                                     | 0.7Kg; 20pcs/15Kg/0.85CUFT                                                                                                            |                                  |

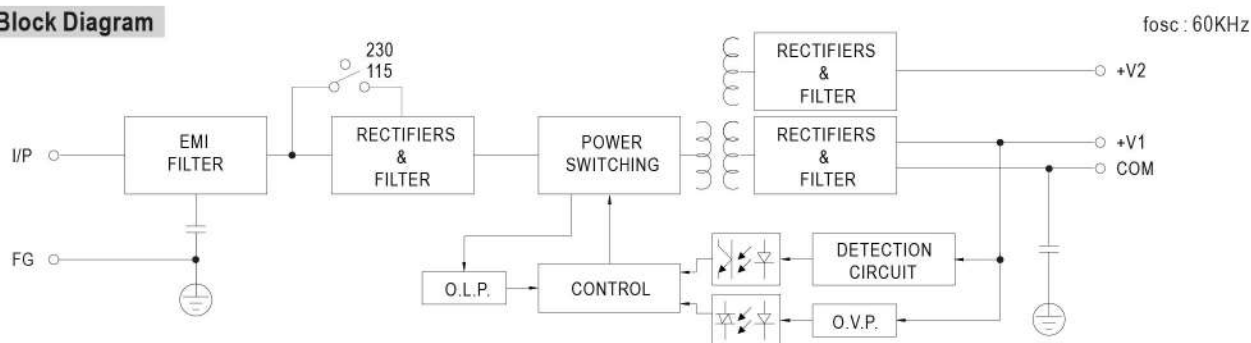
## Mechanical Specification



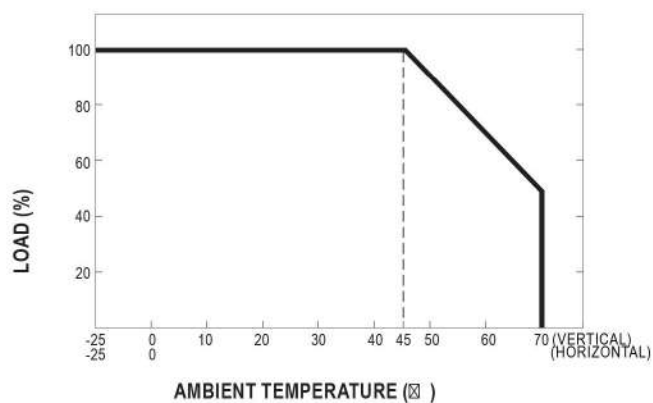
Terminal Pin No. Assignment

| Pin No. | Assignment | Pin No. | Assignment    |
|---------|------------|---------|---------------|
| 1       | AC/L       | 4,6     | DC OUTPUT COM |
| 2       | AC/N       | 5       | DC OUTPUT +V2 |
| 3       | FG $\perp$ | 7       | DC OUTPUT +V1 |

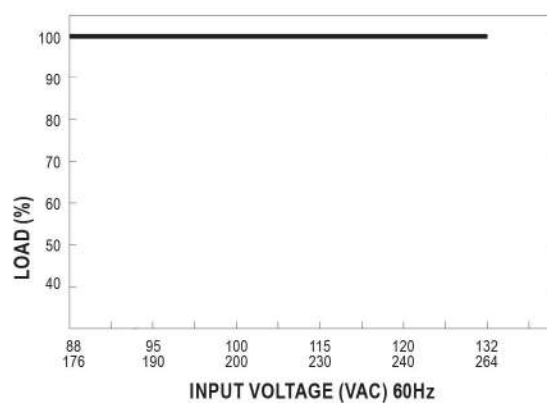
## Block Diagram



## Derating Curve



## Static Characteristics



## LPV-35-24

- Constant voltage design
- Universal AC input / Full range
- Withstand 300VAC surge input for 5 sec.
- Protections : Short circuit / Overload / Over Voltage.
- Cooling by free air convection.
- Full encapsulated with IP67 level.
- Fully isolated plastic case.
- Class II power unit, no FG.
- Class 2 power unit.
- Pass LPS

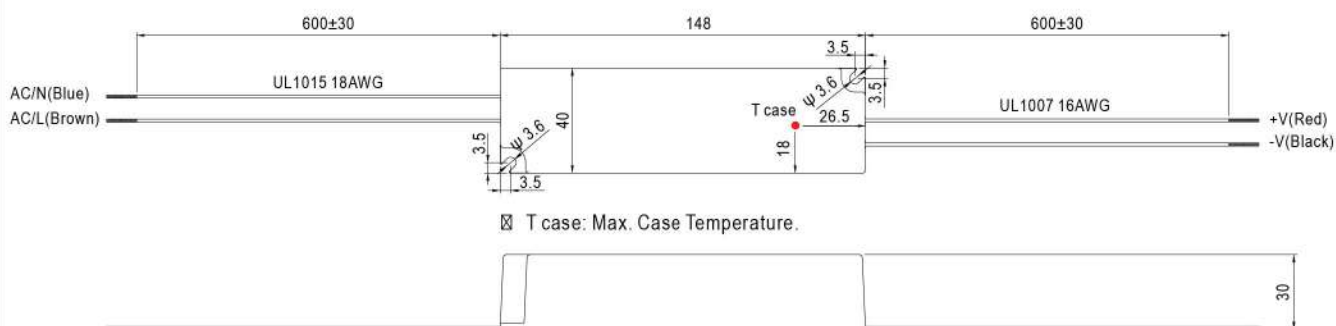


| MODEL        |                                         | LPV-35-24                                                                                                                                  |
|--------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| OUTPUT       | DC VOLTAGE                              | 24V                                                                                                                                        |
|              | RATED CURRENT                           | 1.5A                                                                                                                                       |
|              | CURRENT RANGE                           | 0 ~ 1.5A                                                                                                                                   |
|              | RATED POWER                             | 36W                                                                                                                                        |
|              | RIPPLE & NOISE (max.) Note.2            | 150mVp-p                                                                                                                                   |
|              | SETUP, RISE TIME Note.6                 | 500ms, 20ms / 230VAC    500ms, 20ms / 115VAC at full load                                                                                  |
| INPUT        | HOLD UP TIME (Typ.)                     | 50ms/230VAC    16ms/115VAC at full load                                                                                                    |
|              | FREQUENCY RANGE                         | 47 ~ 63Hz                                                                                                                                  |
|              | EFFICIENCY (Typ.)                       | 85%                                                                                                                                        |
|              | AC CURRENT (Typ.)                       | 1.1A/115VAC    0.7A/230VAC                                                                                                                 |
|              | INRUSH CURRENT(Typ.)                    | COLD START 55A(twidth=510µs measured at 50% Ipeak) at 230VAC                                                                               |
|              | MAX. No. of PSUs on 16A CIRCUIT BREAKER | 4 units (circuit breaker of type B) / 7 units (circuit breaker of type C) at 230VAC                                                        |
| PROTECTION   | LEAKAGE CURRENT                         | 0.25mA / 240VAC                                                                                                                            |
|              | OVERLOAD                                | 110 ~ 150% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed                    |
|              | OVER VOLTAGE                            | 27.6 ~ 32.4V<br>Protection type : Shut down o/p voltage, re-power on to recover                                                            |
|              |                                         |                                                                                                                                            |
| ENVIRONMENT  | WORKING TEMP.                           | -30 ~ +65°C (Refer to "Derating Curve")                                                                                                    |
|              | WORKING HUMIDITY                        | 20 ~ 90% RH non-condensing                                                                                                                 |
|              | STORAGE TEMP., HUMIDITY                 | -40 ~ +80°C, 10 ~ 95% RH                                                                                                                   |
|              | TEMP. COEFFICIENT                       | ±0.03%/°C (0 ~ 50°C)                                                                                                                       |
|              | VIBRATION                               | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes                                                                    |
| SAFETY & EMC | SAFETY STANDARDS                        | UL1310 class 2, CAN/CSA No. 223-M91, BIS IS15885(for LPV-35-12, LPV-35-24 only), IEC62368-1, EAC TP TC 004, IP67, BS EN/EN62368-1 approved |
|              | WITHSTAND VOLTAGE                       | I/P-O/P:3KVAC                                                                                                                              |
|              | ISOLATION RESISTANCE                    | I/P-O/P:>100M Ohms / 500VDC / 25°C/ 70% RH                                                                                                 |
|              | EMC EMISSION                            | Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN61000-3-2 Class A, BS EN/EN61000-3-3, EAC TP TC 020                                 |
|              | EMC IMMUNITY                            | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55035, light industry level, EAC TP TC 020                                           |
| OTHERS       | MTBF                                    | 5170.3K hrs min. Telcordia SR-332 (Bellcore) ; 743.5Khrs min. MIL-HDBK-217F (25% )                                                         |
|              | DIMENSION                               | 148*40*30mm (L*W*H)                                                                                                                        |
|              | PACKING                                 | 0.34Kg; 40pcs/14.6Kg/0.70CUFT                                                                                                              |

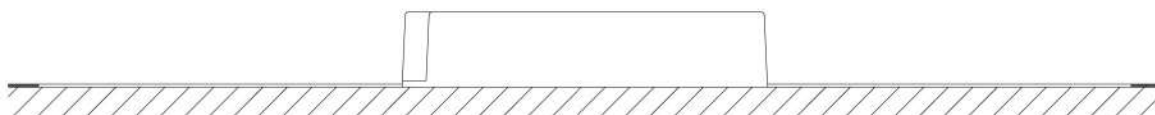


### ■ Mechanical Specification

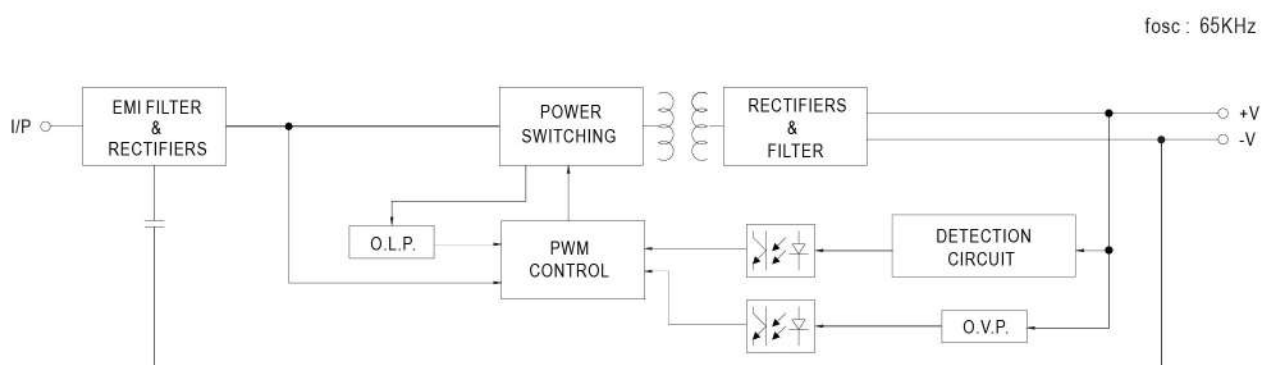
Unit:mm



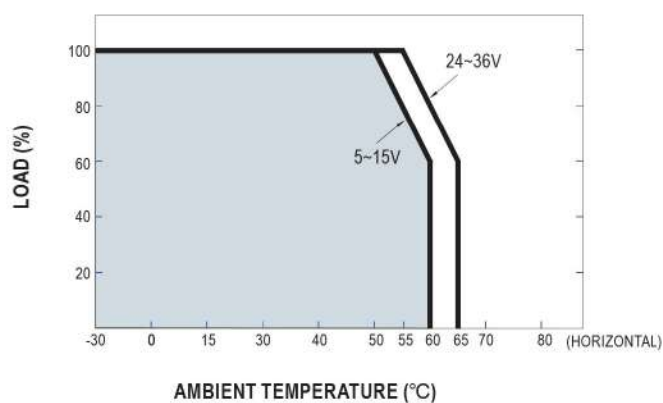
■ Recommend Mounting Direction



### ■ Block Diagram



### Derating Curve



### ■ Static Characteristics

