



UL1741



BS EN/EN62109-1



TPTC004



IEC62109-1



## Features

- 250~1500Vdc 6:1 ultra-wide input range
- Withstand 1700Vdc surge input for 10 seconds
- 4KVac I/O high isolation(Reinforced isolation)
- Protections: Short circuit / Overload / Over voltage / Over temperature  
DC input under voltage / DC input reverse polarity
- Fanless design, half encapsulated, cooling by free air convection
- -40~+80°C ultra-wide operating temperature (> +55°C derating)
- Over voltage category II
- Operating altitude up to 5000 meters
- DC output voltage adjustable(12~15V, 24~29V, 30~36V, 48~58V)
- 1U low profile 41mm
- Half encapsulated
- 3 years warranty

## Description

RSDH-300 series is a 250 ~ 1500Vdc ultra-high input enclosed type DC-DC converter which can supply stable working voltage for the load. Main features are as following: -40~+80° C wide range operating temperature, 4KVac high isolation voltage, operation at 5000m altitude, high efficiency, low ripple & noise, complete protections and so on.

RSDH-300 is compliant with UL1741 and BS EN/EN-61000-6-2 standard regarding immunity for industrial environments. It is suitable for industrial automation, surveillance, telecommunication and can be widely deployed in the applications of new energy generation such as solar power, and windmill power generation, for instances, photovoltaic power systems, high voltage inverting, DC bus centralized application, ESS, charging pile, railway and so forth.

## Model Encoding

**RSDH - 300 - 24**

Output voltage(12V/24V/32V/48V)

Rated wattage

Series name



PV



Renewable Energy



Automate



Industrial



Security



Network



Telecom

## Applications

- Photovoltaic power generation
- Renewable energy system
- High voltage frequency conversion
- Industrial control system
- Semiconductor fabrication equipment
- Electro-mechanical apparatus
- DC bus centralized application
- Energy storage system(ESS)
- Charging pile
- Third rail

## GTIN CODE

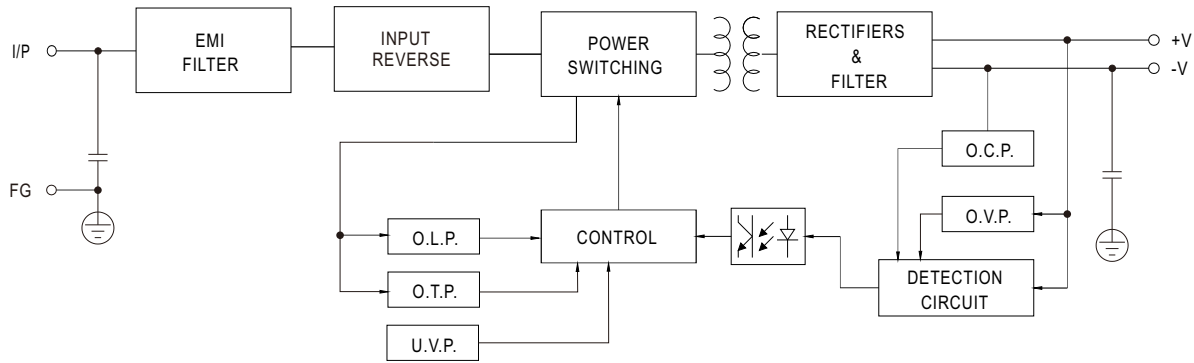
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

**SPECIFICATION**

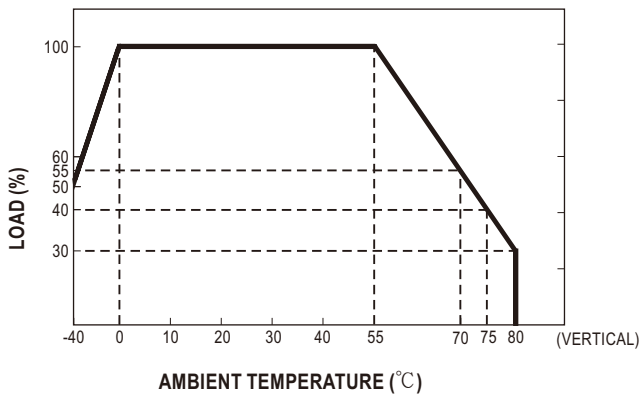
| MODEL                                   |                                             | RSDH-300-12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                        | RSDH-300-24            |          | RSDH-300-32 |                                                    | RSDH-300-48 |          |  |
|-----------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------|-------------|----------------------------------------------------|-------------|----------|--|
| OUTPUT                                  | DC VOLTAGE                                  | 12V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                        | 24V                    |          | 32V         |                                                    | 48V         |          |  |
|                                         | RATED CURRENT                               | 20A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                        | 12.5A                  |          | 9.37A       |                                                    | 6.25A       |          |  |
|                                         | CURRENT RANGE                               | 0 ~ 20A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                        | 0 ~ 12.5A              |          | 0 ~ 9.37A   |                                                    | 0 ~ 6.25A   |          |  |
|                                         | RATED POWER                                 | 240W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                        | 300W                   |          | 300W        |                                                    | 300W        |          |  |
|                                         | RIPPLE & NOISE (max.) <small>Note.2</small> | 120mVp-p                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                        | 240mVp-p               |          | 240mVp-p    |                                                    | 300mVp-p    |          |  |
|                                         | VOLTAGE ADJ. RANGE                          | 12 ~ 15V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                        | 24 ~ 29V               |          | 30 ~ 36V    |                                                    | 48 ~ 58V    |          |  |
|                                         | VOLTAGE TOLERANCE <small>Note.3</small>     | ± 1.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                        | ± 1.0%                 |          | ± 1.0%      |                                                    | ± 1.0%      |          |  |
|                                         | LINE REGULATION                             | ± 0.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                        | ± 0.5%                 |          | ± 0.5%      |                                                    | ± 0.5%      |          |  |
|                                         | LOAD REGULATION                             | ± 1.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                        | ± 1.5%                 |          | ± 1.0%      |                                                    | ± 1.0%      |          |  |
| EXTERNAL CAPACITANCE LOAD (Max.)        |                                             | 8000 μ F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                        | 5000 μ F               |          | 4000 μ F    |                                                    | 2000 μ F    |          |  |
| INPUT                                   | VOLTAGE RANGE <small>Note.4</small>         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 250 ~ 1500Vdc                                                                                                                                                                                                                          |                        |          |             |                                                    |             |          |  |
|                                         | EFFICIENCY (Typ.)                           | 300Vdc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 87%                                                                                                                                                                                                                                    |                        | 88%      |             | 88%                                                |             | 91%      |  |
|                                         |                                             | 800Vdc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 88%                                                                                                                                                                                                                                    |                        | 90%      |             | 90%                                                |             | 91%      |  |
|                                         |                                             | 1500Vdc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 86%                                                                                                                                                                                                                                    |                        | 86%      |             | 87%                                                |             | 87%      |  |
|                                         | INRUSH CURRENT (max.)                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | COLD START 500A/1500Vdc 300A/800Vdc 120A/300Vdc                                                                                                                                                                                        |                        |          |             |                                                    |             |          |  |
| EXTERNAL INPUT FUSE                     |                                             | 4A/1500VDC, required (Please refer to page 4 for more details)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                        |                        |          |             |                                                    |             |          |  |
| PROTECTION                              | OVERLOAD                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 105 ~ 135% rated output power                                                                                                                                                                                                          |                        |          |             |                                                    |             |          |  |
|                                         |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Protection type : Hiccup mode when output voltage<55%, recovers automatically after condition is removed;<br>Constant current limiting, recovers automatically after fault condition is removed within 55% ~ 100% rated output voltage |                        |          |             |                                                    |             |          |  |
|                                         | OVER VOLTAGE                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 16.5 ~ 21V                                                                                                                                                                                                                             |                        | 33 ~ 42V |             | 40 ~ 48V                                           |             | 62 ~ 70V |  |
|                                         |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Protection type : Hiccup mode, recovers automatically after fault condition is removed                                                                                                                                                 |                        |          |             |                                                    |             |          |  |
|                                         | OVER TEMPERATURE                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Protection type : Hiccup mode, recovers automatically after fault condition is removed                                                                                                                                                 |                        |          |             |                                                    |             |          |  |
| DC INPUT                                | REVERSE POLARITY                            | By internal Bridge Diode, <b>no damage</b> , recovers automatically after fault condition removed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                        |                        |          |             |                                                    |             |          |  |
|                                         | UNDER VOLTAGE LOCKOUT                       | Under voltage protection range: 200 ~ 225Vdc , Under voltage release range:225 ~ 246.5Vdc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                        |                        |          |             |                                                    |             |          |  |
| ENVIRONMENT                             | WORKING TEMP.                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -40 ~ +80℃ (Refer to "Derating Curve")                                                                                                                                                                                                 |                        |          |             |                                                    |             |          |  |
|                                         | WORKING HUMIDITY                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 20 ~ 90% RH non-condensing                                                                                                                                                                                                             |                        |          |             |                                                    |             |          |  |
|                                         | STORAGE TEMP., HUMIDITY                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -40 ~ +80℃, 10 ~ 95% RH non-condensing                                                                                                                                                                                                 |                        |          |             |                                                    |             |          |  |
|                                         | TEMP. COEFFICIENT                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ± 0.03%/℃ (0 ~ 55℃ )                                                                                                                                                                                                                   |                        |          |             |                                                    |             |          |  |
|                                         | VIBRATION                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Component: 10 ~ 500Hz, 3G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting clip: Compliance to IEC60068-2-6                                                                                                                     |                        |          |             |                                                    |             |          |  |
|                                         | OPERATING ALTITUDE <small>Note.5</small>    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5000m                                                                                                                                                                                                                                  |                        |          |             |                                                    |             |          |  |
|                                         | OVER VOLTAGE CATEGORY                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | OVC II 2000m; According to EN62109-1                                                                                                                                                                                                   |                        |          |             |                                                    |             |          |  |
| SAFETY & EMC<br><small>(Note.6)</small> | SAFETY STANDARDS                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | UL1741, CSA C22.2 No.107.1-16 , IEC62109-1, BS EN/EN62109-1, EAC TP TC 004 approved                                                                                                                                                    |                        |          |             |                                                    |             |          |  |
|                                         | WITHSTAND VOLTAGE                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | I/P-O/P:4KVAC I/P-FG:3.75KVAC O/P-FG:2KVAC                                                                                                                                                                                             |                        |          |             |                                                    |             |          |  |
|                                         | ISOLATION RESISTANCE                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | I/P-O/P, 100M Ohms / 500VDC / 25℃ / 70% RH                                                                                                                                                                                             |                        |          |             |                                                    |             |          |  |
|                                         | EMC EMISSION                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Parameter                                                                                                                                                                                                                              | Standard               |          |             | Test Level / Note                                  |             |          |  |
|                                         |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Conducted                                                                                                                                                                                                                              | BS EN/EN55032(CISPR32) |          |             | Class A                                            |             |          |  |
|                                         |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Radiated                                                                                                                                                                                                                               | BS EN/EN55032(CISPR32) |          |             | Class A                                            |             |          |  |
|                                         | EMC IMMUNITY                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | BS EN/EN55035, BS EN/EN61000-6-2                                                                                                                                                                                                       |                        |          |             |                                                    |             |          |  |
|                                         |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Parameter                                                                                                                                                                                                                              | Standard               |          |             | Test Level /Note                                   |             |          |  |
|                                         |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ESD                                                                                                                                                                                                                                    | BS EN/EN61000-4-2      |          |             | Level 3, 8KV air; Level 2, 4KV contact, criteria A |             |          |  |
|                                         |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Radiated Susceptibility                                                                                                                                                                                                                | BS EN/EN61000-4-3      |          |             | Level 3, 10V, criteria A                           |             |          |  |
|                                         |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | EFT/Burest                                                                                                                                                                                                                             | BS EN/EN61000-4-4      |          |             | Level 3, 2KV, criteria A                           |             |          |  |
|                                         |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Surge                                                                                                                                                                                                                                  | BS EN/EN61000-4-5      |          |             | Level 4, 2KV/Vin+ ~ Vin-, 4KV Vin~FG               |             |          |  |
|                                         |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Conducted                                                                                                                                                                                                                              | BS EN/EN61000-4-6      |          |             | Level 3, 10V, criteria A                           |             |          |  |
|                                         |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Magnetic Field                                                                                                                                                                                                                         | BS EN/EN61000-4-8      |          |             | Level 4, 30A, criteria A                           |             |          |  |
| OTHERS                                  | MTBF                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1323.8K hrs min. Telcordia SR-332 (Bellcore) ; 145.9K hrs min. MIL-HDBK-217F (25℃)                                                                                                                                                     |                        |          |             |                                                    |             |          |  |
|                                         | DIMENSION                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 237*100*41mm (L*W*H)                                                                                                                                                                                                                   |                        |          |             |                                                    |             |          |  |
|                                         | PACKING                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.1Kg;10pcs/12.7Kg/0.8CUFT                                                                                                                                                                                                             |                        |          |             |                                                    |             |          |  |
| NOTE                                    |                                             | <p>1. All parameters NOT specially mentioned are measured at 800Vdc input, rated load and 25℃ of ambient temperature.</p> <p>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 f &amp; #7 f parallel capacitor.</p> <p>3. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>4. Derating may be needed under low input voltage. Please check the derating curve for more details.</p> <p>5. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).</p> <p>6. The power supply is considered a component which will be installed into a final equipment. 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."<br/>(as available on <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a> )</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a></p> |                                                                                                                                                                                                                                        |                        |          |             |                                                    |             |          |  |

### Block Diagram

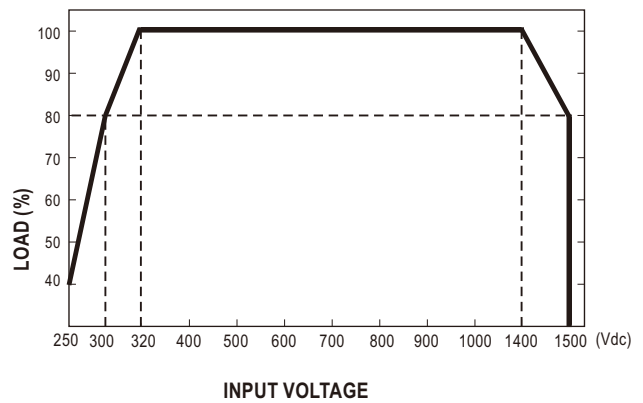
fosc : 65KHz



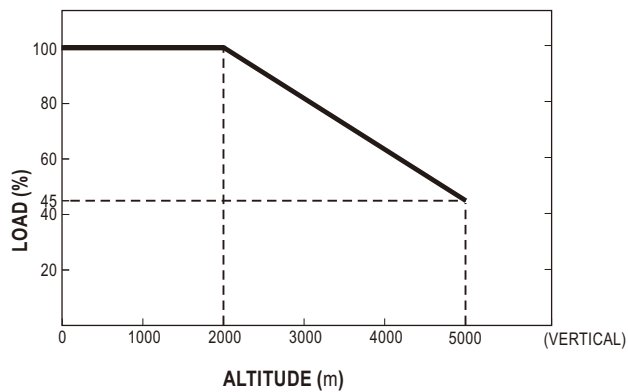
### Derating Curve



### Static Characteristics



### Altitude Curve

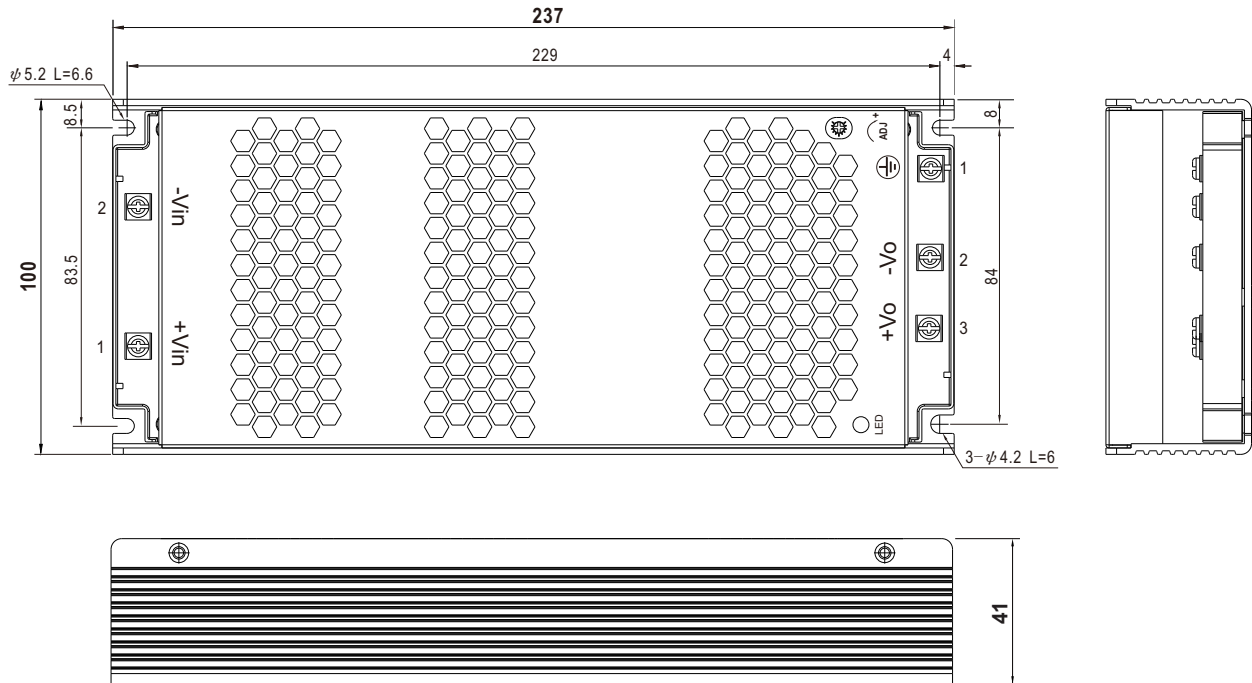


Note: Multiply by the regular power limit factor

## Mechanical Specification

(Unit: mm , tolerance  $\pm 1$ mm)

Case No.270D



Input Terminal Pin No. Assignment (TB1)

| Pin No. | Assignment |
|---------|------------|
| 1       | +Vin       |
| 2       | -Vin       |

Output Terminal Pin No. Assignment (TB2)

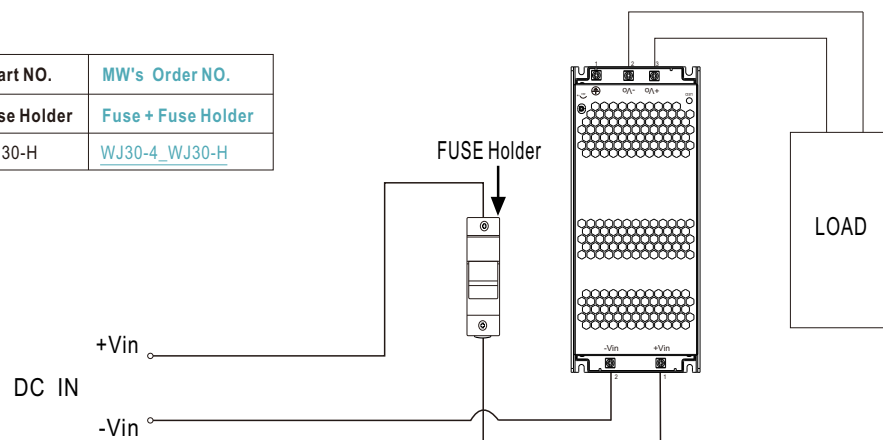
| Pin No. | Assignment |
|---------|------------|
| 1       | FG $\perp$ |
| 2       | -Vo        |
| 3       | +Vo        |

## External FUSE wiring instruction

External FUSE is required.FUSE specification : 4A/1500Vdc.

Suggested model:

| Fuse Brand | Manufacturer Part NO. |             | MW's Order NO.                |
|------------|-----------------------|-------------|-------------------------------|
|            | Fuse                  | Fuse Holder | Fuse + Fuse Holder            |
| WalterFuse | WJ30-4                | WJ30-H      | <a href="#">WJ30-4_WJ30-H</a> |



## Installation Manual

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