



UL1741



BS EN/EN62109-1



TPTC004



IEC62109-1



CE



UKCA

## 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

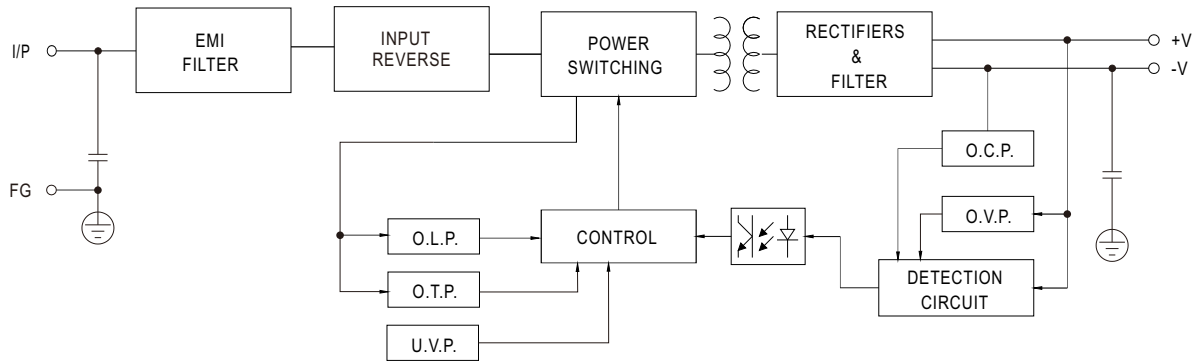
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

**SPECIFICATION**

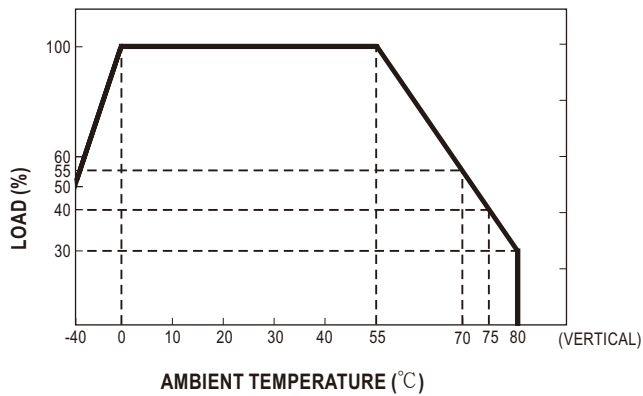
| MODEL                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 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 $\mu$ F                                                                              | 5000 $\mu$ F                                                                                                                                                                                                                           | 4000 $\mu$ F                                                                       | 2000 $\mu$ 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, no damage, 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                                    | 1. All parameters NOT specially mentioned are measured at 800Vdc input, rated load and 25℃ of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 f & #7 f parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. Derating may be needed under low input voltage. Please check the derating curve for more details.<br>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).<br>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> )<br>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a> |                                                                                           |                                                                                                                                                                                                                                        |                                                                                    |              |                                                    |

### Block Diagram

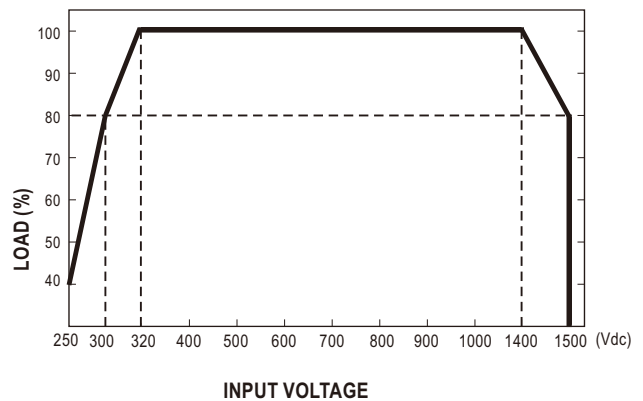
fosc : 65KHz



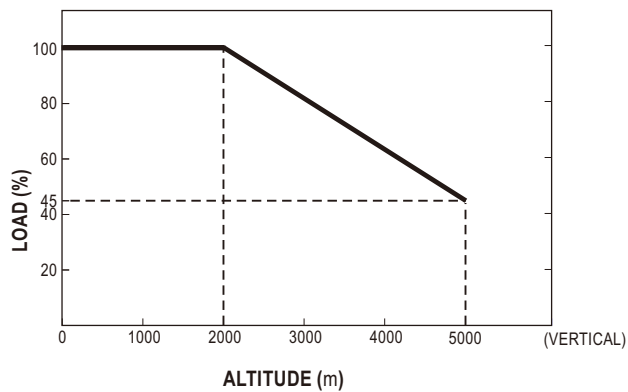
### Derating Curve



### Static Characteristics



### Altitude Curve

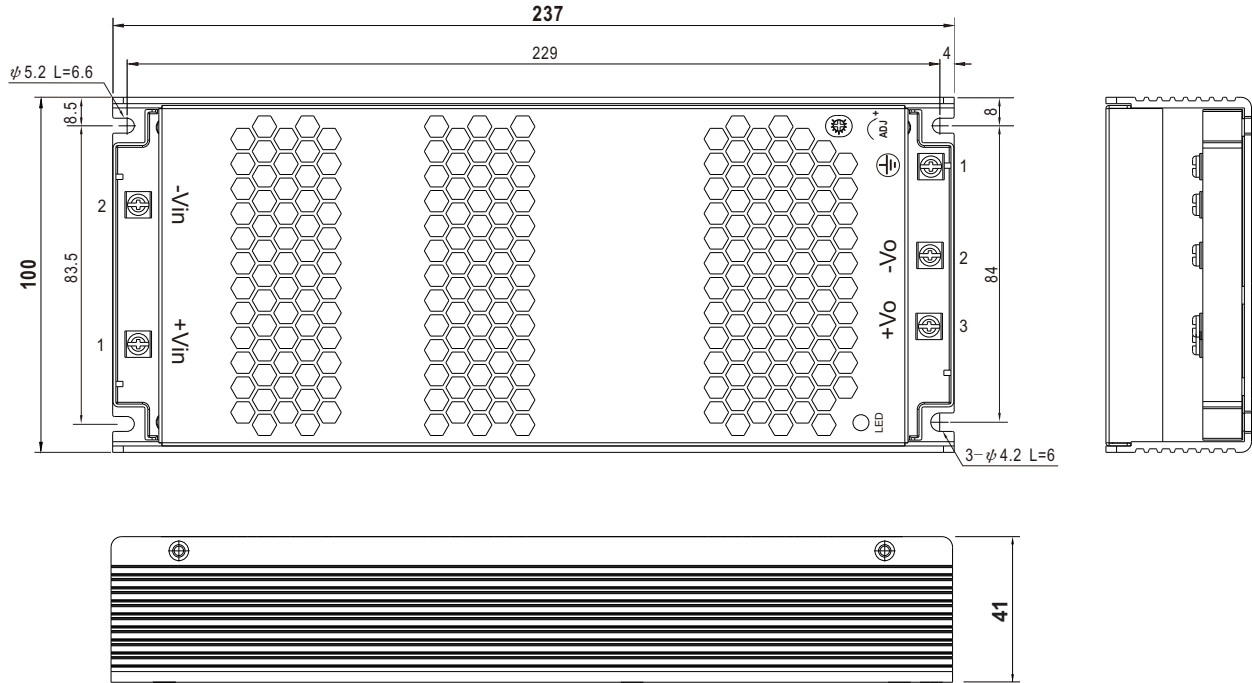


Note: Multiply by the regular power limit factor

## 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)

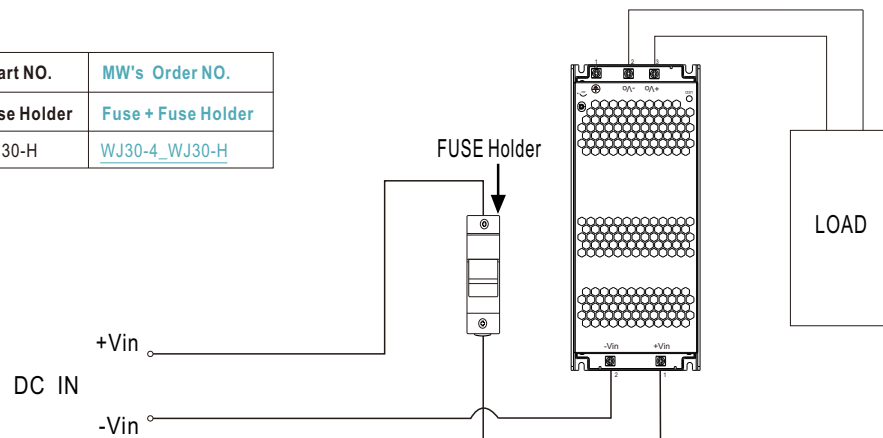
| Pin No. | Assignment |
|---------|------------|
| 1       | FG $\perp$ |
| 2       | -Vo        |
| 3       | +Vo        |

## 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>