



User's Manual



Video



## Features

- Support 1+1 and N+1 redundancy system
- 2 channels input and 1 output
- Suitable for redundancy operation of 12V/24V/48V system
- Output current up to 40A
- Cooling by free air convection
- -40~+80°C ultra-wide operating temperature ( >+60°C derating)
- 55mm slim width
- Built-in 2 channels DC OK signal and alarm relay contact
- 3 years warranty

## Applications

- Industrial control system
- Semiconductor fabrication equipment
- Factory automation
- Electro-mechanical apparatus

## GTIN CODE

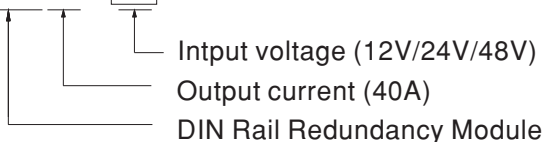
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

## Description

The DRDN40 series is a 40A redundancy module that can be used with a power supply to improve overall system operation reliability. Product key features include: 12V/24V/48V input voltage for selection, support N+1 and 1+1 redundancy systems, built-in two rails DC input contacts and single output. The MOSFET technology implemented can reduce heat loss and reduce the voltage difference between the input and output voltages, built-in 2 channels DC OK relay contacts for monitoring output status, ultra-wide operating temperature of -40 to +80°C and narrow width (55mm).

## Model Encoding

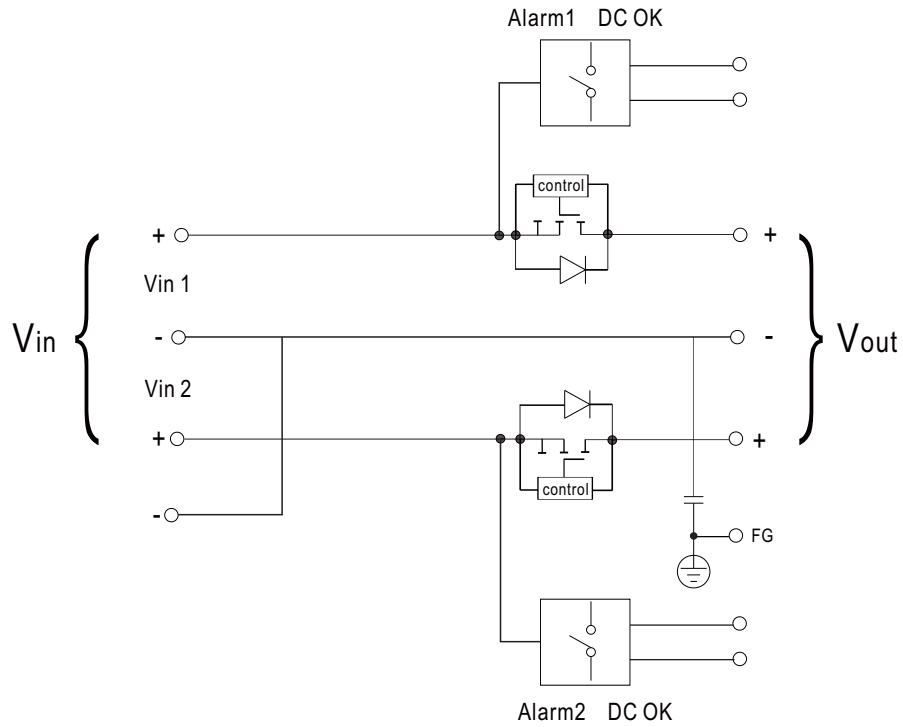
**DRDN40 - 24**



## SPECIFICATION

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                          |                        |                                                                    |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------------|--------------------------------------------------------------------|
| MODEL                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | DRDN40-□                                                                                                 |                        |                                                                    |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | □ =12V, 24V, 48V                                                                                         |                        |                                                                    |
| INPUT                    | NUMBER OF INPUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2 Channels                                                                                               |                        |                                                                    |
|                          | DC NORMAL VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 12Vdc                                                                                                    | 24Vdc                  | 48Vdc                                                              |
|                          | DC VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 9~14Vdc                                                                                                  | 19~29Vdc               | 36~60Vdc                                                           |
|                          | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0~40A per input                                                                                          | Continuous             |                                                                    |
|                          | VOLTAGE DROP (Vin-Vout) (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.3V                                                                                                     |                        |                                                                    |
|                          | PEAK CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0~60A per input                                                                                          | 5Sec.                  |                                                                    |
|                          | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 98%                                                                                                      |                        |                                                                    |
|                          | INPUT REVERSE CURRENT (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1mA                                                                                                      |                        |                                                                    |
|                          | INPUT REVERSE VOLTAGE (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 40Vdc                                                                                                    | 40Vdc                  | 65Vdc                                                              |
| OUTPUT                   | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0~40A, Continuous                                                                                        |                        |                                                                    |
|                          | PEAK CURRENT (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 60A, 5Sec.                                                                                               |                        |                                                                    |
|                          | CAPACITANCE(Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 320uF                                                                                                    |                        |                                                                    |
|                          | STANDBY POWER LOSSES(Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.5W                                                                                                     |                        |                                                                    |
| PROTECTION               | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <60A,5Sec. No damage                                                                                     |                        |                                                                    |
|                          | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <60A,5Sec. No damage                                                                                     |                        |                                                                    |
| FUNCTION                 | REDUNDANCY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | For 1+1 redundancy ,and support N+1 redundancy                                                           |                        |                                                                    |
|                          | BOTH INPUTS VOLTAGE ALARM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <8.5V or >14.7V (±5%)                                                                                    | <18V or >31V (±5%)     | <34.2V or >63V (±5%)                                               |
|                          | RELAY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30Vdc/1A resistive load                                                                                  |                        |                                                                    |
|                          | LED STATUS DISPLAY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Green LED OK                                                                                             |                        |                                                                    |
| ENVIRONMENT              | COOLING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Free air convection                                                                                      |                        |                                                                    |
|                          | WORKING TEMP. <span>Note.2</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -40 ~ +80℃ (Refer to "Derating Curve")                                                                   |                        |                                                                    |
|                          | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5 ~ 95% RH non-condensing                                                                                |                        |                                                                    |
|                          | STORAGE TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -40 ~ +85℃                                                                                               |                        |                                                                    |
|                          | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ±0.03%/℃ (0 ~ 60℃ )                                                                                      |                        |                                                                    |
|                          | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Component:10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC61373 |                        |                                                                    |
|                          | OPERATING ALTITUDE <span>Note.3</span>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5000 meters/OVC II                                                                                       |                        |                                                                    |
| SAFETY & EMC<br>(Note.4) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | IEC62368-1, UL62368-1, EAC TP TC 004 approved                                                            |                        |                                                                    |
|                          | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | IP/OP - Chassis : 0.5KVac ; IP/OP- Relay : 0.5KVac ; Relay - Chassis : 0.5KVac                           |                        |                                                                    |
|                          | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | IP/OP - Chassis, IP/OP- Relay, Relay - Chassis:>100M Ohms / 500Vdc / 25℃ / 70% RH                        |                        |                                                                    |
|                          | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Parameter                                                                                                | Standard               | Test Level / Note                                                  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Conducted                                                                                                | BS EN/EN55032(CISPR32) | Class B                                                            |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Radiated                                                                                                 | BS EN/EN55032(CISPR32) | Class B                                                            |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Voltage Flicker                                                                                          | -----                  | -----                                                              |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Harmonic Current                                                                                         | -----                  | -----                                                              |
|                          | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | BS EN/EN55035, BS EN/EN61000-6-2(BS EN/EN50082-2)                                                        |                        |                                                                    |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Parameter                                                                                                | Standard               | Test Level / Note                                                  |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ESD                                                                                                      | BS EN/EN61000-4-2      | Level 4, 15KV air ; Level 3, 8KV contact; criteria A               |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Radiated                                                                                                 | BS EN/EN61000-4-3      | Level 3, 10V/m ; criteria A                                        |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EFT / Burst                                                                                              | BS EN/EN61000-4-4      | Level 3, 2KV ; criteria A                                          |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Surge                                                                                                    | BS EN/EN61000-4-5      | Level 3, 1KV/Line-Line ;Level 3, 2KV/Line-Line-Chassis ;criteria A |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Conducted                                                                                                | BS EN/EN61000-4-6      | Level 3, 10V ; criteria A                                          |
|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Magnetic Field                                                                                           | BS EN/EN61000-4-8      | Level 4, 30A/m ; criteria A                                        |
| OTHERS                   | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1672.9K hrs min. Telcordia SR-332 (Bellcore) ; 499.5K hrs min. MIL-HDBK-217F (25℃)                       |                        |                                                                    |
|                          | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 55*125.2*100mm (W*H*D)                                                                                   |                        |                                                                    |
|                          | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0.5Kg;20psc/11Kg/1.49CUFT                                                                                |                        |                                                                    |
| NOTE                     | 1. All parameters NOT specially mentioned are measured at normal input(12V/24V/48V) , rated load and 25℃ of ambient temperature.<br>2. Derating may be needed over high ambient temperature. Please check the derating curve for more details.<br>3. 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>4. The power supply is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the EMC directives. For guidance on how to perform these EMC tests, please refer to “EMI testing of component power supplies.” (as available on <a href="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> |                                                                                                          |                        |                                                                    |

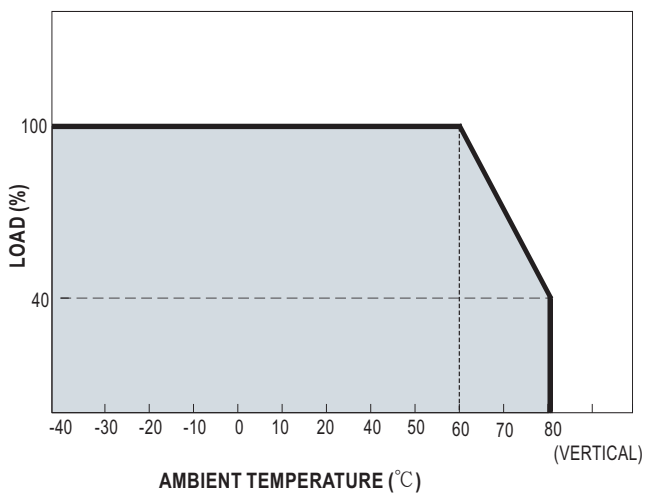
## ■ Block Diagram



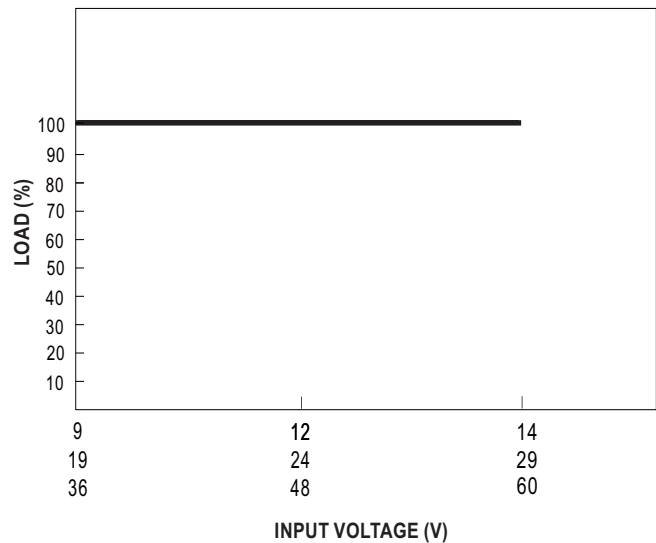
## ■ DC OK Relay Contact

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

## ■ Derating Curve



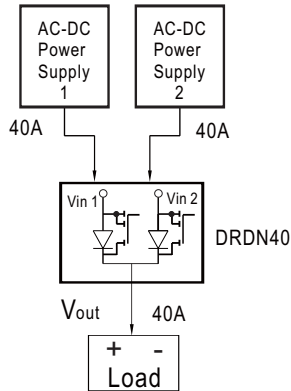
## ■ Output Derating VS Input Voltage



## Typical Application Notes

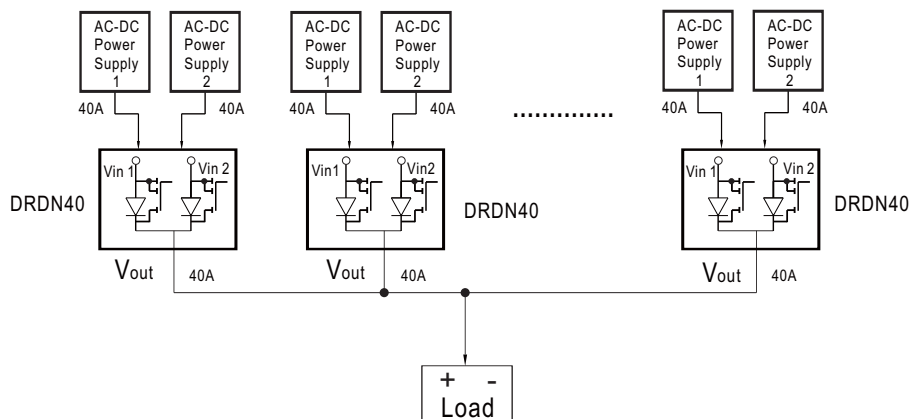
### 1. 1+1 Redundancy:

Using 1 more PSU as the redundant unit



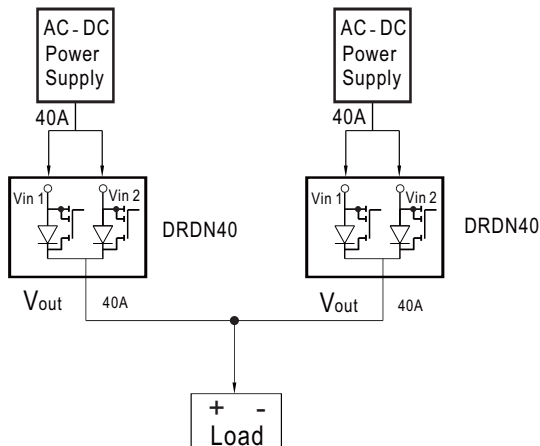
### 2. 1+N Redundancy:

Using more PSUs as the redundant units to increase the reliability

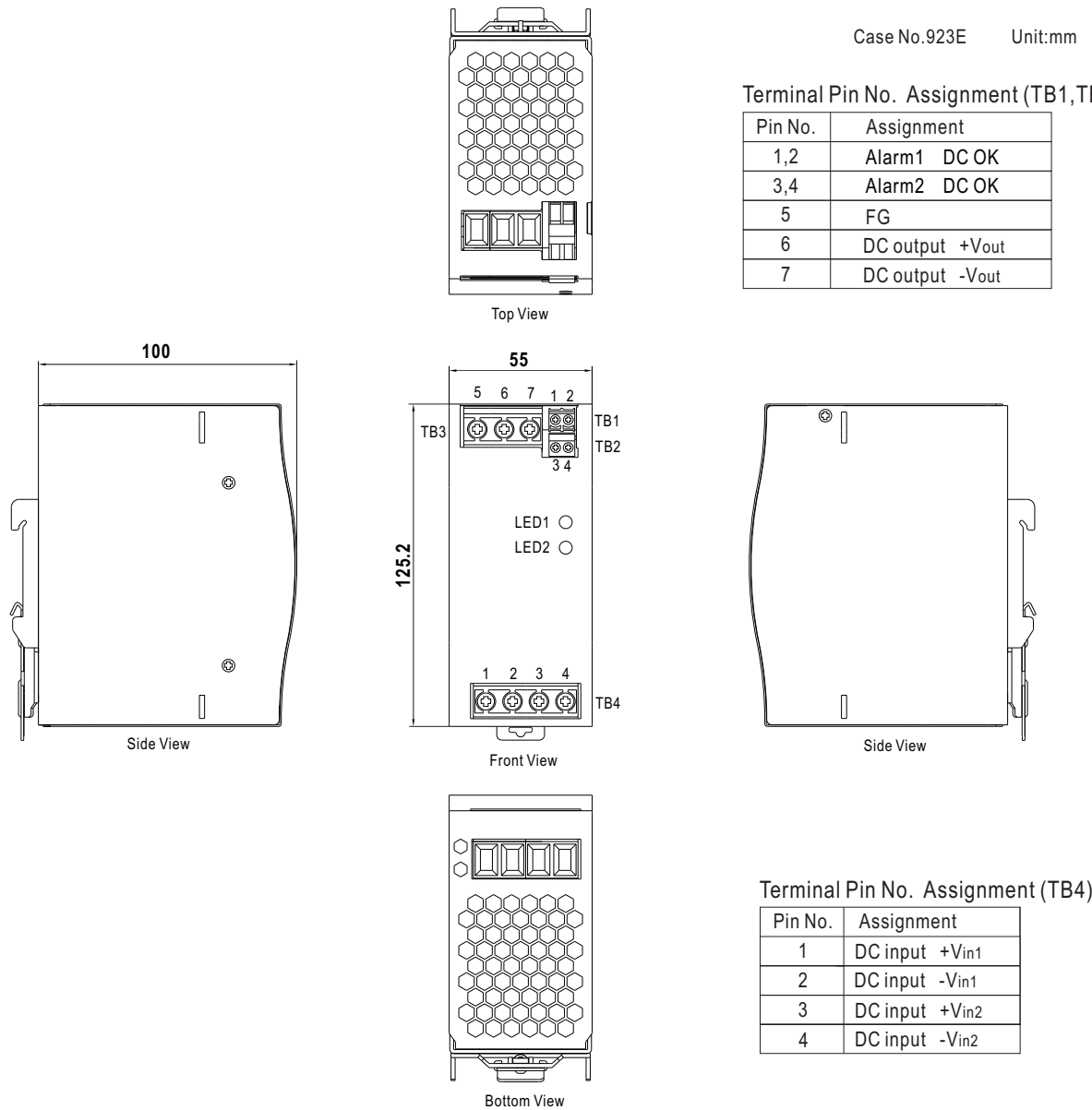


### 3. Single Use:

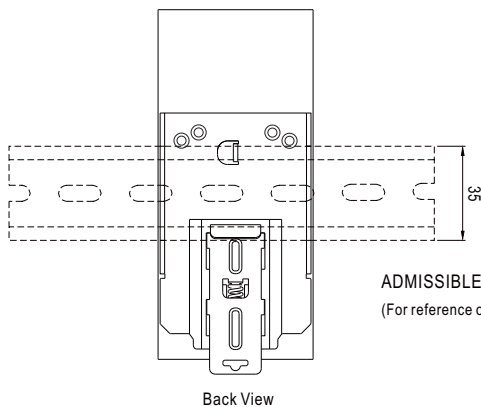
Connecting only one PSU to one DRDN40 to reduce the stress of the MOSFET and hence increase the reliability



## Mechanical Specification



## Installation Instruction



This series fits DIN rail TS35/7.5 or TS35/15.  
For installation details, please refer to the Instruction manual.

## Installation Manual

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