



20W 2"x1" 8.5~160Vdc Ultra-wide Input Railway DC-DC Converter

RSDW20UW & RDDW20UW series



## Features

- Compliance with railway standard EN50155
- DIP 2"x1" package with standard pinout
- 18:1(8.5~160Vdc) ultra-wide input range
- Wide operating temperature range -40 ~ +95°C
- No minimum load required
- Full encapsulated
- Protections: Short circuit (Continuous) / Overload / Over voltage / Input under voltage
- 3KVAC I/O isolation
- Operating altitude up to 5000 meters (Note.5)
- Remote ON/OFF control
- 3 years warranty

## Description

RSDW20UW and RDDW20UW series are 20W module type DC-DC reliable railway converter with 2"x1" package. It features international standard pins, a high efficiency up to 89%, wide working temperature range -40~+95°C, 3KVAC I/P-O/P isolation voltage, meet EN50155 with external circuits, continuous-mode short circuit protection, etc. The models account for 8.5~160VDC 18:1 ultra-wide input range, and various output voltage, 5V/12V/15V for single output and  $\pm 12V/\pm 15V/\pm 24V$  for dual outputs, which are suitable for railway, trams, buses and also can be used in the harsh environment with high vibration, high dust, extremely low or high temperature, etc.

## Model Encoding

RSDW20UW-12

Output voltage (5/12/15Vdc,  $\pm 12/\pm 15/\pm 24Vdc$ )

Ultra wide input voltage (8.5~160Vdc)

Rated wattage

Series name { S:Single output  
D:Dual output

## Applications

- Bus, tram, metro or railway system
- Telecom/datacom system
- Wireless network
- Industrial control facility
- Instrument
- Analyzer
- Highly vibrating, heavily dusty, extremely low or high temperature harsh environment

## GTIN CODE

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



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## RSDW20UW & RDDW20UW series

| MODEL SELECTION TABLE |                                                    |               |           |                   |                   |                      |                          |
|-----------------------|----------------------------------------------------|---------------|-----------|-------------------|-------------------|----------------------|--------------------------|
| ORDER NO.             | INPUT                                              |               |           | OUTPUT            |                   | EFFICIENCY<br>(Typ.) | CAPACITOR LOAD<br>(MAX.) |
|                       | INPUT VOLTAGE<br>(RANGE)                           | INPUT CURRENT |           | OUTPUT<br>VOLTAGE | OUTPUT<br>CURRENT |                      |                          |
|                       |                                                    | NO LOAD       | FULL LOAD |                   |                   |                      |                          |
| RSDW20UW-05           | Normal<br>12V,24V,48V,72V,96V,110V<br>(8.5 ~ 160V) | 5mA           | 323mA     | 5V                | 4000mA            | 85.5%                | 6800μF                   |
| RSDW20UW-12           |                                                    | 10mA          | 312mA     | 12V               | 1670mA            | 89%                  | 3300μF                   |
| RSDW20UW-15           |                                                    | 8mA           | 312mA     | 15V               | 1330mA            | 89%                  | 2200μF                   |
| RDDW20UW-12           |                                                    | 8mA           | 312mA     | ± 12V             | ±0 ~833mA         | 88%                  | *820μF                   |
| RDDW20UW-15           |                                                    | 9mA           | 312mA     | ± 15V             | ±0 ~ 667mA        | 89%                  | *680μF                   |
| RDDW20UW-24           |                                                    | 9mA           | 309mA     | ± 24V             | ±0 ~ 417mA        | 89%                  | *330μF                   |

\* For each output

| SPECIFICATION             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                           |                                                                                 |                                                                      |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------|
| INPUT                     | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8.5 ~ 160Vdc                                                              |                                                                                 |                                                                      |
|                           | SURGE VOLTAGE (100ms max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 200Vdc                                                                    |                                                                                 |                                                                      |
|                           | FILTER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Pi type                                                                   |                                                                                 |                                                                      |
|                           | PROTECTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4A fast acting fuse                                                       |                                                                                 |                                                                      |
| OUTPUT                    | VOLTAGE ACCURACY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ± 1.0%                                                                    |                                                                                 |                                                                      |
|                           | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 20W                                                                       |                                                                                 |                                                                      |
|                           | RIPPLE & NOISE    Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 100mVp-p                                                                  |                                                                                 |                                                                      |
|                           | LINE REGULATION   Note.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ±0.2%                                                                     |                                                                                 |                                                                      |
|                           | LOAD REGULATION   Note.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Single output models: ±0.3%, Dual output models: ±1%                      |                                                                                 |                                                                      |
|                           | SWITCHING FREQUENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 200KHz                                                                    |                                                                                 |                                                                      |
|                           | EXTERNAL TRIM ADJ. RANGE (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | -20% ~ +15% (Single output model only)                                    |                                                                                 |                                                                      |
| PROTECTION                | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Protection type : Continuous, automatic recovery                          |                                                                                 |                                                                      |
|                           | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 110 ~ 180% rated output power                                             |                                                                                 |                                                                      |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Protection type : Recovers automatically after fault condition is removed |                                                                                 |                                                                      |
|                           | OVER VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Protection type : Clamp by diode                                          |                                                                                 |                                                                      |
|                           | UNDER VOLTAGE LOCKOUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Start-up voltage                                                          | 9Vdc                                                                            |                                                                      |
| Shutdown voltage          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 8Vdc                                                                      |                                                                                 |                                                                      |
| FUNCTION                  | REMOTE CONTROL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Power ON: >4.0~160Vdc or open circuit<br>Power OFF: <1.2Vdc or short      |                                                                                 |                                                                      |
| ENVIRONMENT               | COOLING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Free-air convection                                                       |                                                                                 |                                                                      |
|                           | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | -40 ~ +95℃ (Refer to "Derating Curve")                                    |                                                                                 |                                                                      |
|                           | CASE TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | +105℃ max. (+110℃ thermal shutdown)                                       |                                                                                 |                                                                      |
|                           | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 20% ~ 90% RH non-condensing                                               |                                                                                 |                                                                      |
|                           | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | -55 ~ +125℃, 10 ~ 95% RH non-condensing                                   |                                                                                 |                                                                      |
|                           | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.03% / ℃ (0 ~ 95℃)                                                       |                                                                                 |                                                                      |
|                           | SOLDERING TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.5mm from case of 1 ~ 3sec./260℃ max.                                    |                                                                                 |                                                                      |
|                           | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes   |                                                                                 |                                                                      |
|                           | OPERATING ALTITUDE   Note.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5000 meters                                                               |                                                                                 |                                                                      |
| SAFETY & EMC<br>( Note.6) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | UL62368-1, EAC TP TC 004 approved                                         |                                                                                 |                                                                      |
|                           | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | I/P-O/P:3KVAC                                                             |                                                                                 |                                                                      |
|                           | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | I/P-O/P:100M Ohms / 500VDC / 25℃ / 70% RH                                 |                                                                                 |                                                                      |
|                           | ISOLATION CAPACITANCE (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 20pF                                                                      |                                                                                 |                                                                      |
|                           | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Parameter                                                                 | Standard                                                                        | Test Level / Note                                                    |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Conducted                                                                 | BS EN/EN50121-3-2                                                               | Class A/B with external components                                   |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Radiated                                                                  | BS EN/EN50121-3-2                                                               | N/A                                                                  |
|                           | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Parameter                                                                 | Standard                                                                        | Test Level / Note                                                    |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ESD                                                                       | BS EN/EN61000-4-2                                                               | Level 3, ±8KV air, ±6KV contact                                      |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Radiated Susceptibility                                                   | BS EN/EN61000-4-3                                                               | Level 3, 80~1000MHz, 20V/m                                           |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | EFT/Burest                                                                | BS EN/EN61000-4-4                                                               | Level 3, On power input port, ±2KV external input capacitor required |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Surge                                                                     | BS EN/EN61000-4-5                                                               | Level 4, Line to earth, ±4KV<br>Line to Line, ±2KV                   |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Conducted                                                                 | BS EN/EN61000-4-6                                                               | Level 3, 0.15~80MHz, 10V                                             |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | RAILWAY STANDARD                                                          | EN50155 / IEC60571 including EN61373 for shock & vibration, EN50121-3-2 for EMC |                                                                      |
| OTHERS                    | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1570Khrs   MIL-HDBK-217F(25℃)                                             |                                                                                 |                                                                      |
|                           | DIMENSION (L*W*H)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 50.8*25.4*10.2mm (2*1*0.4 inch)                                           |                                                                                 |                                                                      |
|                           | CASE MATERIAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Black coated copper with Non-Conductive Base                              |                                                                                 |                                                                      |
|                           | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 35g ; 12pcs/per tube, 300pcs/25 tube/per carton                           |                                                                                 |                                                                      |
| NOTE                      | 1.All parameters are specified at normal input(72Vdc), rated load, 25℃ 70% RH ambient.<br>2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1µf & 47µf capacitor.<br>3.Line regulation is measured from low line to high line at rated load.<br>4.Load regulation is measured from 0% to 100% rated load.<br>5.The ambient temperature derating of 3.5℃/1000m for operating altitude higher than 2000m(6500ft).<br>6.The final equipment must be re-confirm that it still meet EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."(as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a> )<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> |                                                                           |                                                                                 |                                                                      |

## External Output Trimming

In order to trim the voltage up or down, one needs to connect the trim resistor either between the trim pin and -Vout for trim-up or between trim pin and +Vout for trim-down. The output voltage trim range is -20% to +15%. This is shown in Figures 1 and 2:

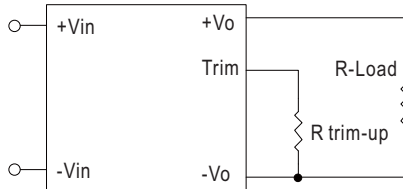


Figure 1. Trim-up Voltage Setup

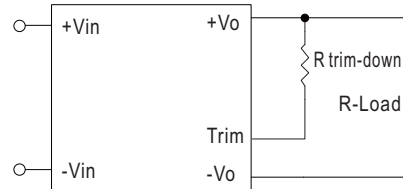


Figure 2. Trim-down Voltage Setup

### 1. The RSDW20UW-05 value of R<sub>trim-up</sub> defined as:

$$R_{\text{trim-up}} = \frac{22.13 - 3.976 \times (V_o - V_{o, \text{nom}})}{7.017 \times (V_o - V_{o, \text{nom}})} - 3.3 \text{ (K}\Omega\text{)}$$

### 2. The RSDW20UW-12 value of R<sub>trim-up</sub> defined as:

$$R_{\text{trim-up}} = \frac{120.76}{3 \times (V_o - V_{o, \text{nom}})} - 18 \text{ (K}\Omega\text{)}$$

### 3. The RSDW20UW-15 value of R<sub>trim-up</sub> defined as:

$$R_{\text{trim-up}} = \frac{104.42}{2.28 \times (V_o - V_{o, \text{nom}})} - 18 \text{ (K}\Omega\text{)}$$

Where

R<sub>trim-up</sub> is the external resistor in Kohm.

V<sub>o, nom</sub> is the nominal output voltage.

V<sub>o</sub> is the desired output voltage.

Trim up Resistor Values are internal to the unit and are defined in Table 1.

For example, to trim-up the output voltage of 5V module (RSDW20UW-05) by 5% to 5.25V, R<sub>trim-up</sub> is calculated as follows:

$$R_{\text{trim-up}} = \frac{22.13 - 3.976 \times (5.25 - 5)}{7.017 \times (5.25 - 5)} - 3.3 = 8.75 \text{ (K}\Omega\text{)}$$

Table 1 – The typical value of R<sub>trim-up</sub>

| R <sub>trim up</sub><br>% | 5V                        | 12V    | 15V    |
|---------------------------|---------------------------|--------|--------|
|                           | R <sub>trim up</sub> (KΩ) |        |        |
| 1%                        | 59.21                     | 317.46 | 287.32 |
| 2%                        | 27.67                     | 149.73 | 134.66 |
| 3%                        | 17.16                     | 93.82  | 83.77  |
| 4%                        | 11.90                     | 65.86  | 58.33  |
| 5%                        | 8.75                      | 49.09  | 43.06  |
| 6%                        | 6.65                      | 37.91  | 32.89  |
| 7%                        | 5.14                      | 29.92  | 25.62  |
| 8%                        | 4.02                      | 23.93  | 20.17  |
| 9%                        | 3.14                      | 19.27  | 15.92  |
| 10%                       | 2.44                      | 15.55  | 12.53  |
| 11%                       | 1.87                      | 12.50  | 9.76   |
| 12%                       | 1.39                      | 9.95   | 7.44   |
| 13%                       | 0.99                      | 7.80   | 5.49   |
| 14%                       | 0.64                      | 5.96   | 3.81   |
| 15%                       | 0.34                      | 4.36   | 2.35   |

#### 4. The RSDW20UW-05 value of $R_{\text{trim-down}}$ defined as:

$$R_{\text{trim-down}} = \frac{42 - 16.803 \times (V_{o, \text{nom}} - V_o)}{7.017 \times (V_{o, \text{nom}} - V_o)} - 3.3 \text{ (K}\Omega\text{)}$$

#### 5. The RSDW20UW-12 value of $R_{\text{trim-down}}$ defined as:

$$R_{\text{trim-down}} = \frac{206.116}{3 \times (V_{o, \text{nom}} - V_o)} - 27.08 \text{ (K}\Omega\text{)}$$

#### 6. The RSDW20UW-15 value of $R_{\text{trim-down}}$ defined as:

$$R_{\text{trim-down}} = \frac{206.116}{2.28 \times (V_{o, \text{nom}} - V_o)} - 27.08 \text{ (K}\Omega\text{)}$$

Where

$R_{\text{trim-down}}$  is the external resistor in Kohm.

$V_{o, \text{nom}}$  is the nominal output voltage.

$V_o$  is the desired output voltage.

Trim down Resistor Values are internal to the unit and are defined in Table 2.

For example, to trim-down the output voltage of 12V module (RSDW20UW-12) by 5% to 11.4V,  $R_{\text{trim-down}}$  is calculated as follows:

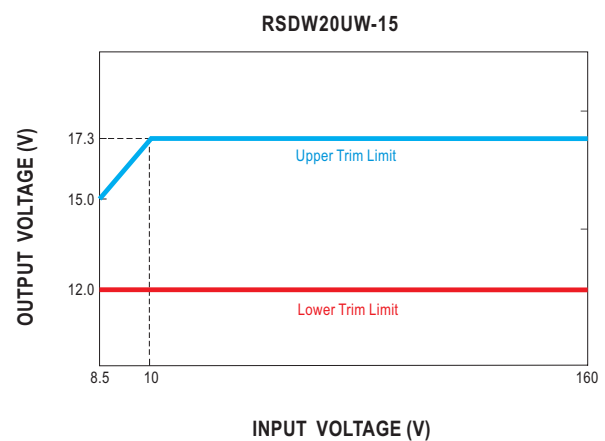
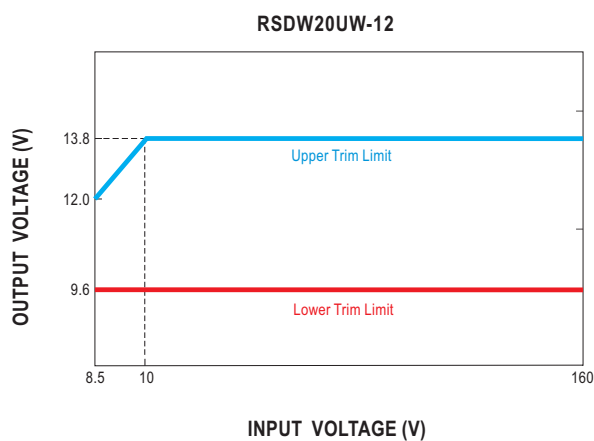
$$R_{\text{trim-down}} = \frac{206.116}{3 \times (12 - 11.4)} - 27.08 = 87.43 \text{ (K}\Omega\text{)}$$

Table 2 – The typical value of  $R_{\text{trim-down}}$

| Rtrim down % | 5V              | 12V    | 15V    |
|--------------|-----------------|--------|--------|
|              | Rtrim down (KΩ) |        |        |
| 1%           | 114.03          | 545.46 | 575.60 |
| 2%           | 54.17           | 259.19 | 274.26 |
| 3%           | 34.21           | 163.77 | 173.81 |
| 4%           | 24.24           | 116.06 | 123.59 |
| 5%           | 18.25           | 87.43  | 93.46  |
| 6%           | 14.26           | 68.34  | 73.37  |
| 7%           | 11.41           | 54.71  | 59.02  |
| 8%           | 9.27            | 44.49  | 48.25  |
| 9%           | 7.61            | 36.54  | 39.88  |
| 10%          | 6.28            | 30.17  | 33.19  |
| 11%          | 5.19            | 24.97  | 27.71  |
| 12%          | 4.28            | 20.63  | 23.14  |
| 13%          | 3.52            | 16.96  | 19.28  |
| 14%          | 2.86            | 13.82  | 15.97  |
| 15%          | 2.29            | 11.09  | 13.10  |
| 16%          | 1.79            | 8.70   | 10.59  |
| 17%          | 1.35            | 6.60   | 8.37   |
| 18%          | 0.96            | 4.73   | 6.40   |
| 19%          | 0.61            | 3.05   | 4.64   |
| 20%          | 0.29            | 1.55   | 3.05   |

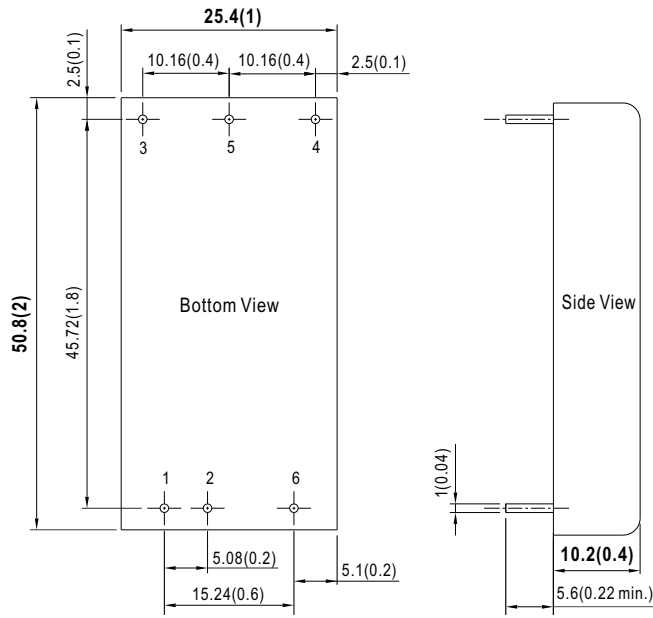
The RSDW20UW-05 models is adjustable within the range of -20% to +15%.

For RSDW20UW-12 and RSDW20UW-15 models, see input & output trim curves for trim up and trim down ranges.



### Mechanical Specification

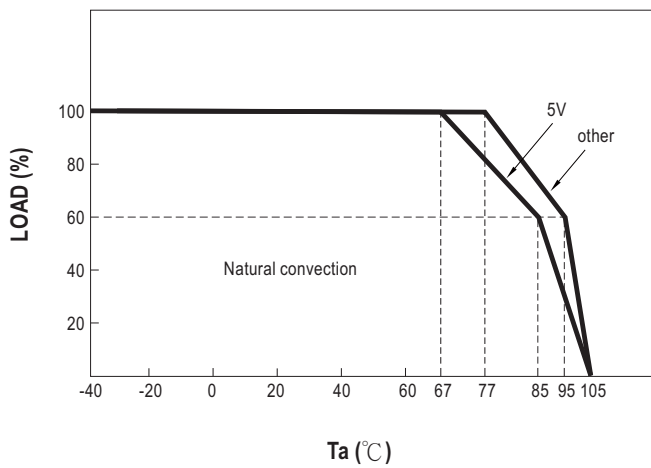
- All dimensions in mm(inch)
- Tolerance:  $x.x \pm 0.5\text{mm}$  ( $x.xx \pm 0.02"$ )  
 $x.xx \pm 0.25\text{mm}$  ( $x.xxx \pm 0.010"$ )
- Pin size is:  $0.5 \pm 0.05\text{mm}$  ( $0.02" \pm 0.002"$ )



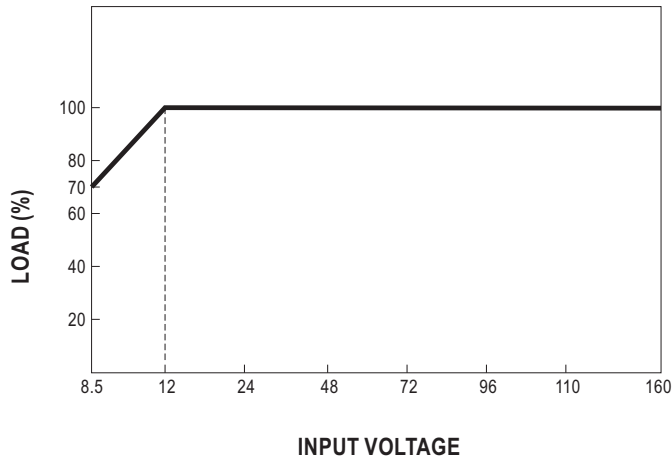
### Plug Assignment

| Pin-Out |                             |                           |
|---------|-----------------------------|---------------------------|
| Pin No. | RSDW20UW<br>(Single output) | RDDW20UW<br>(Dual output) |
| 1       | +Vin                        | +Vin                      |
| 2       | -Vin                        | -Vin                      |
| 3       | +Vout                       | +Vout                     |
| 4       | Trim                        | -Vout                     |
| 5       | -Vout                       | Common                    |
| 6       | Remote ON/OFF               | Remote ON/OFF             |

### Derating Curve

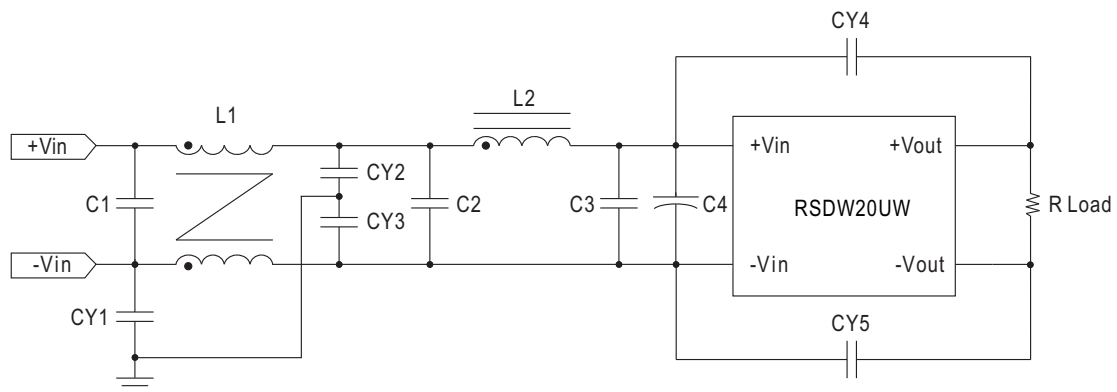


### ■ Output derating VS Input voltage



### ■ EMC Suggestion Circuit

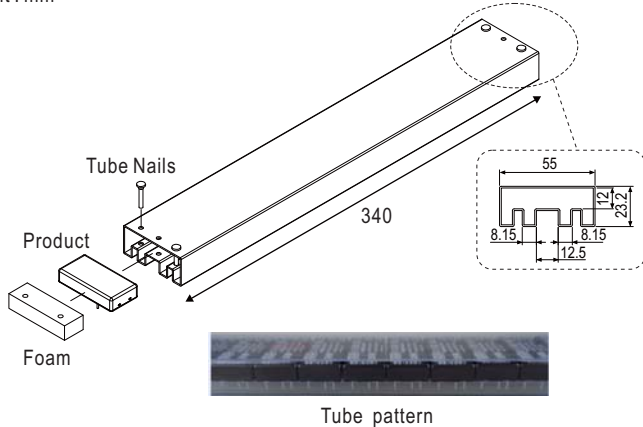
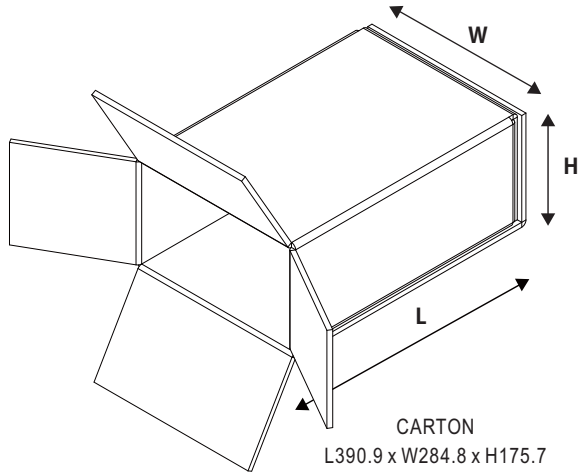
※ EMI Test standard: BS EN/EN55032 Conducted & Radiated Emission, BS EN/EN50121-3-2:2016 Output Conducted Emission  
Test Condition: Input Voltage: 110Vdc, Output Load: Full Load



| Model No.   | BS EN/EN55032 Class B                    |                                                   |                                 |                                 |                                  |                                                 |                             |
|-------------|------------------------------------------|---------------------------------------------------|---------------------------------|---------------------------------|----------------------------------|-------------------------------------------------|-----------------------------|
|             | C1,C2,C3                                 | C4                                                | CY1                             | CY2, CY3                        | CY4, CY5                         | L1                                              | L2                          |
| RSDW20UW-05 | 1uF/250V<br>1812<br>Ceramic<br>capacitor | 120uF/220V<br>KXJ Series<br>Aluminum<br>capacitor | 680pF<br>400VAC<br>Y1 capacitor | 500pF<br>400VAC<br>Y1 capacitor | 2200pF<br>400VAC<br>Y1 capacitor | 1.4mH<br>φ 0.4mmx1/13T<br>ACME A151<br>T10x5x5C | 10μH/7A<br>2525CZ<br>Vishay |
| RSDW20UW-12 |                                          |                                                   |                                 |                                 |                                  |                                                 |                             |
| RSDW20UW-15 |                                          |                                                   |                                 |                                 |                                  |                                                 |                             |
| RDDW20UW-15 |                                          |                                                   | 470pF<br>400VAC<br>Y1 capacitor |                                 |                                  |                                                 |                             |
| RDDW20UW-15 |                                          |                                                   |                                 |                                 |                                  |                                                 |                             |

Note: C1, C2, C3: 1812 X7R ceramic capacitor.  
C4: NIPPON CHEMI-CON KXJ series aluminum capacitor or equivalent.  
CY1, CY2, CY3, CY4, CY5: TDK Y1 capacitor or equivalent.  
L1: 1.4mH φ 0.4mmx1/13T ACME A151 T10x5x5C (G91C9925115).  
L2: 10μH/7A 2525CZ VISHAY (G91B0904007).

## Packing

| Standard Tube Packing                                                                                                                                                                                                                                                                                                                                      | MPQ<br>Per Tube<br>(PCS) | One Tube<br>G.W. | Max. Q'TY/<br>Carton(PCS) | One Carton<br>G.W. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------|---------------------------|--------------------|
| <p>Unit : mm</p>  <p>Tube Nails</p> <p>Product</p> <p>Foam</p> <p>340</p> <p>55</p> <p>23.2</p> <p>8.15</p> <p>12.5</p> <p>Tube pattern</p>  <p>CARTON<br/>L390.9 x W284.8 x H175.7</p> | 12                       | 498g             | 300                       | 14.5Kg             |

## Installation Manual

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