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# CE

#### Features

- Compliance to EN50155 and EN45545-2 railway standard
- Ultra compact and 1U low profile(25mm)
- 4:1 wide input range
- No minimum load required
- Protections: Short circuit / Overload / Over voltage / Input reverse polarity
- 4000VDC I/O isolation (reinforced isolation)
- · Half encapsulated, cooling by free air convection
- -40~+70°C wide working temperature
- · Built-in constant current limiting circuit
- · LED indicator for power on
- 3 years warranty









## Applications

- · Bus,tram,metro or railway system
- Wireless network
- Telecom or datacom system
- Highly vibrating, highly dusty, extremely low or high temperature harsh environment

# ■ Description

RSD-30 is a 30W enclosed type DC-DC reliable railway converter. This series is compliant with EN50155/ IEC60571 railway standard, constituting three types of models with 4:1 wide but different input ranges 9~36V/18~72V/40~160V, suitable for railway and all kinds of transportation systems exploiting the frequently used standard input voltages such as 12V, 24V, 36V, 48V, 72V, 96V and 110V. Various output voltages, 3.3V, 5V, 12V and 24V are available for selection.

This series has the capability of working under -40 $^{+}$ 70 $^{\circ}$ C, low ripple and noise, supreme EMC characteristics, 4KVDC I/P-OP, low enclosure profile 25mm and an interior with semi-potted silicone. It does not only well fits the in-car systems or the facilities by rails for railway, trams and buses but also can be used in the harsh environment with high vibration, high dust, extremely low or high temperature, etc.

## **■** Model Encoding



Series name



## **SPECIFICATION**

| 9 ~ 36VDC<br>84%<br>1.1A/24V<br>20A/24VDC<br>105 ~ 135% rat<br>Protection type<br>3.8 ~ 4.5V<br>Protection type<br>-40 ~ +55°C (no)<br>5 ~ 95% RH no<br>-40 ~ +85°C, 10<br>±0.03%/°C (0)<br>10 ~ 500Hz, 56<br>Meet IEC60950<br>I/P-O/P:4KVDO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | with S1 level(3  85%  1.5A/24V  ded output powe constant curre  5.75 ~ 7V condensing 0 ~ 95% RH non ~ 50°C) 6.10min./1cycle, 0-1 (LVD) Condensing 0 ~ 1/P-FG:2.5K                                                                                                                                               | 86.5%  rent limiting, recomposite of the second of the sec | 89%  overs automatical 27.6 ~ 32.4V  ver on to recover by free air conve                                                                                                                                                                                                                                                                                                                                                                                                                                | 18 ~ 72VDC<br>84%<br>0.52A/48V<br>20A/48VDC<br>ly after fault cond<br>3.8 ~ 4.5V<br>ction; +70°C (no                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 86% 0.8A/48V  ition is removed 5.75 ~ 7V  derating with ex                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 13.8 ~ 16.2V<br>xternal base plate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 91%<br>27.6~32.4V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| 0 ~ 6A 19.8W 70mVp-p ±2.0% ±0.5% ±0.5% 120ms, 85ms a G type comply 9 ~ 36VDC 84% 1.1A/24V 20A/24VDC 105 ~ 135% rat Protection type 3.8 ~ 4.5V Protection type 40 ~ +55°C (nd 5 ~ 95% RH no -40 ~ +85°C, 10 ±0.03%°C (0 10 ~ 500Hz, 56 Meet IEC60950 I/P-O/P:4KVDO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0 ~ 6A 30W 70mVp-p ±2.0% ±0.5% ±0.5% t full load with S1 level(3)  85% 1.5A/24V  red output powe 1: Constant curr 5.75 ~ 7V 1: Shut down o/p 1: o derating); +70 1: n-condensing 1: ~ 95% RH non 1: ~ 50°C) 1: 6 10min./1cycle, 1: 0-1 (LVD) 1: I/P-FG:2.5K                                                     | 0 ~ 2.5A 30W 60mVp-p ±2.0% ±0.3% ±0.3%  ±0.3%  ms) @full load, 86.5%  rent limiting, record 13.8 ~ 16.2V p voltage, re-pow 0°C @ 60% load n-condensing , 60min. each all                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0 ~ 1.25A 30W 50mVp-p ±2.0% ±0.2% ±0.2%  89%  89%  overs automatical 27.6 ~ 32.4V ever on to recover by free air conve                                                                                                                                                                                                                                                                                                                                                                                  | 0 ~ 6A<br>19.8W<br>70mVp-p<br>±2.0%<br>±0.5%<br>±0.5%<br>280% load; L typ<br>18 ~ 72VDC<br>84%<br>0.52A/48V<br>20A/48VDC<br>ly after fault cond<br>3.8 ~ 4.5V<br>ction; +70°C (no                                                                                                                                                                                                                                                                                                                                                                      | 0 ~ 6A<br>30W<br>70mVp-p<br>±2.0%<br>±0.5%<br>±0.5%<br>e comply with \$<br>86%<br>0.8A/48V<br>ition is removed<br>5.75 ~ 7V<br>derating with ex                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0 ~ 2.5A<br>30W<br>60mVp-p<br>±2.0%<br>±0.3%<br>±0.3%<br>S2 level(10ms) @<br>90%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0~1.25A<br>30W<br>50mVp-p<br>±2.0%<br>±0.2%<br>±0.2%<br>20 full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |  |
| 19.8W 70mVp-p ±2.0% ±0.5% ±0.5% 120ms, 85ms a G type comply 9 ~ 36VDC 84% 1.1A/24V 20A/24VDC 105 ~ 135% rat Protection type -40 ~ +55°C (not) 5 ~ 95% RH not -40 ~ +85°C, 10 ±0.03%/°C (0) 10 ~ 500Hz, 506 Meet IEC60950 I/P-O/P:4KVDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 30W 70mVp-p ±2.0% ±0.5% ±0.5% t full load with S1 level(3)  85% 1.5A/24V  ded output powe 1: Constant curr 5.75 ~ 7V 1: Shut down o/r 1: o derating); +70 1: n-condensing 10 ~ 95% RH non 10 ~ 50°C) 10 10min./1cycle, 10-1 (LVD) 11/P-FG:2.5K                                                                  | 30W 60mVp-p ±2.0% ±0.3% ±0.3%  #ms) @full load, 86.5%  #ment limiting, record 13.8 ~ 16.2V p voltage, re-pow 0°C @ 60% load in-condensing 4,60min. each all                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 30W 50mVp-p ±2.0% ±0.2% ±0.2%  \$\frac{1}{2}\$ 0.2%  89%  bovers automatical 27.6 \simplified 32.4V ver on to recover by free air conve                                                                                                                                                                                                                                                                                                                                                                 | 19.8W 70mVp-p ±2.0% ±0.5% ±0.5%  080% load; L typ 18 ~ 72VDC 84% 0.52A/48V 20A/48VDC  ly after fault cond 3.8 ~ 4.5V  ction; +70°C (no                                                                                                                                                                                                                                                                                                                                                                                                                 | 30W 70mVp-p ±2.0% ±0.5% ±0.5%  e comply with \$ 86% 0.8A/48V  ition is removed 5.75 ~ 7V  derating with ex                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 30W<br>60mVp-p<br>±2.0%<br>±0.3%<br>±0.3%<br>52 level(10ms) @<br>90%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| 70mVp-p ±2.0% ±0.5% ±0.5% 120ms, 85ms a G type comply 9 ~ 36VDC 84% 1.1A/24V 20A/24VDC 105 ~ 135% rat Protection type 3.8 ~ 4.5V Protection type -40 ~ +55°C (no. 5 ~ 95% RH no40 ~ +85°C, 10. ±0.03%/°C (0. 10 ~ 500Hz, 56. Meet IEC60950 I/P-O/P:4KVDO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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                                                                                                   | 60mVp-p ±2.0% ±0.3% ±0.3%  sms) @full load, 86.5%  rent limiting, recc 13.8 ~ 16.2V p voltage, re-pov 0°C @ 60% load n-condensing , 60min. each all                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 50mVp-p ±2.0% ±0.2% ±0.2%  \$2 level(10ms) @  89%  by overs automatical 27.6 ~ 32.4V  ver on to recover by free air conve                                                                                                                                                                                                                                                                                                                                                                               | 70mVp-p ±2.0% ±0.5% ±0.5%  ±0.5%  18 ~ 72VDC  84%  0.52A/48V  20A/48VDC  ly after fault cond 3.8 ~ 4.5V  ction; +70°C (no                                                                                                                                                                                                                                                                                                                                                                                                                              | $70 \text{mVp-p}$ $\pm 2.0\%$ $\pm 0.5\%$ $\pm 0.5\%$ e comply with \$\frac{9}{2}\$ $86\%$ $0.8 \text{A}/48 \text{V}$ ition is removed \$\frac{5.75}{7}\$ \text{V}  derating with ex                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 60mVp-p ±2.0% ±0.3% ±0.3%  \$\pm\$ 0.3%  S2 level(10ms) @  90%  13.8 ~ 16.2V  xternal base plate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 50mVp-p<br>±2.0%<br>±0.2%<br>±0.2%<br>2full load<br>91%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |  |
| ±2.0% ±0.5% ±0.5% 120ms, 85ms a G type comply 9 ~ 36VDC 84% 1.1A/24V 20A/24VDC 105 ~ 135% rat Protection type 3.8 ~ 4.5V Protection type -40 ~ +55°C (nc 5 ~ 95% RH no -40 ~ +85°C, 10 ±0.03%°C (0 10 ~ 500Hz, 56 Meet IEC60950 I/P-O/P:4KVDO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ±2.0% ±0.5% ±0.5% t full load with S1 level(3  85% 1.5A/24V  ded output powe : Constant curre  5.75 ~ 7V : Shut down o/p o derating); +70 n-condensing 0 ~ 95% RH non ~ 50°C) 6 10min./1cycle, 0-1 (LVD) C I/P-FG:2.5K                                                                                          | #2.0% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3%  | ±2.0% ±0.2% ±0.2%  S2 level(10ms) @  89%  evers automatical 27.6 ~ 32.4V ever on to recover by free air conve                                                                                                                                                                                                                                                                                                                                                                                           | ±2.0%<br>±0.5%<br>±0.5%<br>280% load; L typ<br>18 ~ 72VDC<br>84%<br>0.52A/48V<br>20A/48VDC<br>ly after fault cond<br>3.8 ~ 4.5V<br>ction; +70°C (no                                                                                                                                                                                                                                                                                                                                                                                                    | $\pm 2.0\%$ $\pm 0.5\%$ $\pm 0.5\%$ e comply with \$\frac{9}{2}\$ 86% $0.8A/48V$ ition is removed $5.75 \sim 7V$ derating with expenses the second s | ±2.0% ±0.3% ±0.3%  ±0.3%  S2 level(10ms) @  90%  13.8 ~ 16.2V  external base plate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ±2.0%<br>±0.2%<br>±0.2%<br>±0.2%<br>2full load<br>91%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |  |
| ±2.0% ±0.5% ±0.5% 120ms, 85ms a G type comply 9 ~ 36VDC 84% 1.1A/24V 20A/24VDC 105 ~ 135% rat Protection type 3.8 ~ 4.5V Protection type -40 ~ +55°C (nc 5 ~ 95% RH no -40 ~ +85°C, 10 ±0.03%°C (0 10 ~ 500Hz, 56 Meet IEC60950 I/P-O/P:4KVDO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ±2.0% ±0.5% ±0.5% t full load with S1 level(3  85% 1.5A/24V  ded output powe : Constant curre  5.75 ~ 7V : Shut down o/p o derating); +70 n-condensing 0 ~ 95% RH non ~ 50°C) 6 10min./1cycle, 0-1 (LVD) C I/P-FG:2.5K                                                                                          | #2.0% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3% #0.3%  | ±2.0% ±0.2% ±0.2%  S2 level(10ms) @  89%  evers automatical 27.6 ~ 32.4V ever on to recover by free air conve                                                                                                                                                                                                                                                                                                                                                                                           | ±2.0%<br>±0.5%<br>±0.5%<br>280% load; L typ<br>18 ~ 72VDC<br>84%<br>0.52A/48V<br>20A/48VDC<br>ly after fault cond<br>3.8 ~ 4.5V<br>ction; +70°C (no                                                                                                                                                                                                                                                                                                                                                                                                    | $\pm 2.0\%$ $\pm 0.5\%$ $\pm 0.5\%$ e comply with \$\frac{9}{2}\$ 86% $0.8A/48V$ ition is removed $5.75 \sim 7V$ derating with expenses the second s | ±2.0% ±0.3% ±0.3%  ±0.3%  S2 level(10ms) @  90%  13.8 ~ 16.2V  external base plate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ±2.0%<br>±0.2%<br>±0.2%<br>±0.2%<br>2full load<br>91%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |  |
| ±0.5% 120ms, 85ms a G type comply 9 ~ 36VDC 84% 1.1A/24V 20A/24VDC 105 ~ 135% rat Protection type 3.8 ~ 4.5V Protection type -40 ~ +55°C (nc 5 ~ 95% RH no -40 ~ +85°C, 10 ±0.03%°C (0 10 ~ 500Hz, 56 Meet IEC60950 I/P-O/P:4KVDO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ±0.5%  It full load with S1 level(3)  85%  1.5A/24V  Ited output powe Example Constant curry 5.75 ~ 7V Example Shut down o/p O derating); +70 Example Condensing O ~ 95% RH non C ~ 50°C) Example Condensing O ~ 10min./1cycle, O-1 (LVD) C I/P-FG:2.5K                                                         | ±0.3%  ims) @full load,  86.5%  rent limiting, record 13.8 ~ 16.2V p voltage, re-pout 0°C @ 60% load n-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ±0.2%  S2 level(10ms) @  89%  evers automatical  27.6 ~ 32.4V  ever on to recover by free air conve                                                                                                                                                                                                                                                                                                                                                                                                     | ±0.5%<br>±0.5%<br>280% load; L typ<br>18 ~ 72VDC<br>84%<br>0.52A/48V<br>20A/48VDC<br>ly after fault cond<br>3.8 ~ 4.5V<br>ction; +70°C (no                                                                                                                                                                                                                                                                                                                                                                                                             | ±0.5%  e comply with \$  86%  0.8A/48V  ition is removed  5.75 ~ 7V  derating with ex                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ±0.3%  S2 level(10ms) @  90%  13.8 ~ 16.2V  xternal base plate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |  |  |
| 120ms, 85ms a G type comply 9 ~ 36VDC 84% 1.1A/24V 20A/24VDC 105 ~ 135% rat Protection type 3.8 ~ 4.5V Protection type -40 ~ +55°C (not) 5 ~ 95% RH not -40 ~ +85°C, 10 ±0.03%/°C (0) 10 ~ 500Hz, 50 Meet IEC60950 I/P-O/P:4KVDO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | t full load with S1 level(3  85% 1.5A/24V  ted output powe : Constant curn 5.75 ~ 7V :: Shut down o/r o derating); +70 n-condensing 0 ~ 95% RH non ~ 50°C) 6.10min./1cycle, 0-1 (LVD) C. I/P-FG:2.5K                                                                                                            | er ent limiting, record 13.8 ~ 16.2V p voltage, re-power @ 60% load n-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 89%  89%  by vers automatical  27.6 ~ 32.4V  ever on to recover by free air conve                                                                                                                                                                                                                                                                                                                                                                                                                       | 280% load; L typ  18 ~ 72VDC  84%  0.52A/48V  20A/48VDC  ly after fault cond  3.8 ~ 4.5V  ction; +70°C (no                                                                                                                                                                                                                                             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| G type comply $9 \sim 36 \text{VDC}$ $84\%$ $1.1 \text{A}/24 \text{V}$ $20 \text{A}/24 \text{VDC}$ $105 \sim 135\%$ rat Protection type $3.8 \sim 4.5 \text{V}$ Protection type $-40 \sim +55\%$ (no $5 \sim 95\%$ RH no $-40 \sim +85\%$ , $10 \sim 500 \text{Hz}$ , $50 \sim 500 \sim 500 \text{Hz}$ , $50 \sim 500 \sim 500$ | with S1 level(3  85%  1.5A/24V  ded output powe constant curre  5.75 ~ 7V condensing 0 ~ 95% RH non ~ 50°C) 6.10min./1cycle, 0-1 (LVD) Condensing 0 ~ 1/P-FG:2.5K                                                                                                                                               | er ent limiting, record 13.8 ~ 16.2V p voltage, re-power @ 60% load n-condensing                                                                                                                                                                                                                                                                                                   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                                                                                                                                                                    | 18 ~ 72VDC<br>84%<br>0.52A/48V<br>20A/48VDC<br>ly after fault cond<br>3.8 ~ 4.5V<br>ction; +70°C (no                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 86% 0.8A/48V  ition is removed 5.75 ~ 7V  derating with ex                                                                                                                                                                                                                                                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| 9 ~ 36VDC<br>84%<br>1.1A/24V<br>20A/24VDC<br>105 ~ 135% rat<br>Protection type<br>3.8 ~ 4.5V<br>Protection type<br>-40 ~ +55°C (no)<br>5 ~ 95% RH no<br>-40 ~ +85°C, 10<br>±0.03%/°C (0)<br>10 ~ 500Hz, 56<br>Meet IEC60950<br>I/P-O/P:4KVDO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 85% 1.5A/24V  sed output powe c Constant curr 5.75 ~ 7V c Shut down o/p o derating); +70 n-condensing 0 ~ 95% RH non ~ 50°C) 6 10min./1cycle, 0-1 (LVD) C I/P-FG:2.5K                                                                                                                                           | 86.5%  rent limiting, recomposite of the second of the sec | 89%  overs automatical 27.6 ~ 32.4V  ver on to recover by free air conve                                                                                                                                                                                                                                                                                                                                                                                                                                | 18 ~ 72VDC<br>84%<br>0.52A/48V<br>20A/48VDC<br>ly after fault cond<br>3.8 ~ 4.5V<br>ction; +70°C (no                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 86% 0.8A/48V  ition is removed 5.75 ~ 7V  derating with ex                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| 84% 1.1A/24V 20A/24VDC 105 ~ 135% rat Protection type 3.8 ~ 4.5V Protection type -40 ~ +55°C (nc 5 ~ 95% RH no -40 ~ +85°C, 10 ±0.03%/°C (0 10 ~ 500Hz, 56 Meet IEC60950 I/P-O/P:4KVDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ied output powe : Constant curn   5.75 ~ 7V : Shut down o/p o derating); +70 n-condensing 0 ~ 95% RH non ~ 50°C) 6 10min./1cycle, 0-1 (LVD) C I/P-FG:2.5K                                                                                                                                                       | rent limiting, record 13.8 ~ 16.2 V p voltage, re-power 60% load a-condensing , 60min. each all                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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                                                                                                                                                                                                                                                                                                                                                                                                           | 0.8A/48V  ition is removed  5.75 ~ 7V  derating with ex                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| 1.1A/24V<br>20A/24VDC<br>105 ~ 135% rat<br>Protection type<br>3.8 ~ 4.5V<br>Protection type<br>-40 ~ +55°C (no<br>5 ~ 95% RH no<br>-40 ~ +85°C, 10<br>$\pm$ 0.03%/°C (0<br>10 ~ 500Hz, 50<br>Meet IEC60950<br>I/P-O/P:4KVDO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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                                                                                                                                                                                                                                                                                                                                                                                                           | 0.8A/48V  ition is removed  5.75 ~ 7V  derating with ex                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| 20A/24VDC<br>105 ~ 135% rat<br>Protection type<br>$3.8 \sim 4.5V$<br>Protection type<br>$-40 \sim +55^{\circ}$ C (no<br>$5 \sim 95\%$ RH no<br>$-40 \sim +85^{\circ}$ C, 10<br>$\pm 0.03\%$ C (0<br>10 ~ 500Hz, 50<br>Meet IEC60950<br>I/P-O/P:4KVDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ted output powe : Constant curn   5.75 ~ 7V :: Shut down o/r to derating); +70 n-condensing 0 ~ 95% RH non ~ 50°C) 6 10min./1cycle, 0-1 (LVD) C 1/P-FG:2.5K                                                                                                                                                     | rent limiting, recording to the limiting and limiting and limiting are limited as a second sec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| 105 ~ 135% rat<br>Protection type<br>$3.8 \sim 4.5V$<br>Protection type<br>$-40 \sim +55^{\circ}C$ (no<br>$5 \sim 95\%$ RH no<br>$-40 \sim +85^{\circ}C$ , 10<br>$\pm 0.03\%'^{\circ}C$ (0<br>$10 \sim 500$ Hz, 56<br>Meet IEC60950<br>I/P-O/P:4KVDO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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| Protection type<br>-40 ~ +55°C (no<br>5 ~ 95% RH no<br>-40 ~ +85°C, 10<br>±0.03%°C (0<br>10 ~ 500Hz, 56<br>Meet IEC60950<br>I/P-O/P:4KVD0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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                | o derating); +70<br>n-condensing<br>0 ~ 95% RH non<br>~ 50°C)<br>G 10min./1cycle,<br>0-1 (LVD)<br>C I/P-FG:2.5K                                                                                                                                                                                                 | 0°C @ 60% load<br>n-condensing<br>, 60min. each al                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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| $5 \sim 95\%$ RH no $-40 \sim +85^{\circ}\text{C}$ , 10 $\pm 0.03\%/^{\circ}\text{C}$ (0 $10 \sim 500$ Hz, 5G Meet IEC60950 I/P-O/P:4KVDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | n-condensing 0 ~ 95% RH non ~ 50°C) 6 10min./1cycle, 0-1 (LVD) C 1/P-FG:2.5K                                                                                                                                                                                                                                    | n-condensing<br>, 60min. each al                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| -40 ~ +85°C, 10<br>±0.03%/°C (0<br>10 ~ 500Hz, 5G<br>Meet IEC60950<br>I/P-O/P:4KVDO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| I C y d                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Parameter ESD Radiated Field EFT / Burst Surge Conducted Compliance to E 196.9K hrs min 13*60*25mm 0.25Kg; 56pcs/ mentioned at 1 at 20MHz of olderance, line of the discompone with 1mm of the discompone with 1mm of the discompone of the discompone with 1mm of the discompone of the discompone with 1mm of | Radiated Field  EFT / Burst  Surge  Conducted  Compliance to EN45545-2 for fin 196.9K hrs min. MIL-HDBK 13*60*25mm (L*W*H) 1.25Kg; 56pcs/15Kg/0.83CUF  mentioned are measured at 1 at 20MHz of bandwidth by to 1 olerance, line regulation and the line of a component which will be 1 with 1mm of thickness. The 1 isase refer to "EMI testing of of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Parameter  State  ESD  Radiated Field  EN  Radiated Field  EN  EFT / Burst  EN  Compliance to EN45545-2 for fire protection; Me  296.9K hrs min. MIL-HDBK-217F (25°C)  13*60*25mm (L*W*H)  0.25Kg; 56pcs/15Kg/0.83CUFT  mentioned are measured at 24,48VDC inputate 20MHz of bandwidth by using a 12" twist ollerance, line regulation and load regulation.  The decomponent which will be installed into a with 1mm of thickness. The final equipment wase refer to "EMI testing of component powers." | Parameter  Standard  ESD  EN61000-4-2  Radiated Field  EN61000-4-3  EFT / Burst  EN61000-4-4  EN61000-4-5  EN61000-4-5  EN61000-4-6  Compliance to EN45545-2 for fire protection; Meet EN50155 / IECG  13*60*25mm (L*W*H)  0.25Kg; 56pcs/15Kg/0.83CUFT  mentioned are measured at 24,48VDC input, rated load and at 20MHz of bandwidth by using a 12" twisted pair-wire term olderance, line regulation and load regulation.  red a component which will be installed into a final equipment with 1mm of thickness. The final equipment must be re-con | Parameter  Standard  EN61000-4-2  Radiated Field  EN61000-4-3  EFT / Burst  EN61000-4-4  EN61000-4-5  EN61000-4-5  EN61000-4-6  Compliance to EN45545-2 for fire protection; Meet EN50155 / IEC60571 including IE  196.9K hrs min. MIL-HDBK-217F (25°C)  13*60*25mm (L*W*H)  1.25Kg; 56pcs/15Kg/0.83CUFT  mentioned are measured at 24,48VDC input, rated load and 25°C of ambient at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0-collerance, line regulation and load regulation.  Treed a component which will be installed into a final equipment. All the EMC tees with 1mm of thickness. The final equipment must be re-confirmed that it still lease refer to "EMI testing of component power supplies." (as available on http                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Parameter  Standard  EN61000-4-2  EN61000-4-3  EN61000-4-3  Evel 3,  Evel 4,  Surge  EN61000-4-5  EN61000-4-5  Evel 3,  Level 3,  Level 3,  Level 3,  Level 3,  Evel 4,  Conducted  EN61000-4-6  EN61000-4-6  Level 3,  Compliance to EN45545-2 for fire protection; Meet EN50155 / IEC60571 including IEC61373 for shoot of the standard of t | Parameter  Standard  EN61000-4-2  EN61000-4-3  Evel 3, ±8KV air; Level  EN61000-4-3  Evel 3, 2KV at power  Level 3, 2KV at signal  Evel 4, 2KV at signal  Evel 3, 1KV Line-Line, Level  Conducted  EN61000-4-6  EN61000-4-6  Evel 3  Compliance to EN45545-2 for fire protection; Meet EN50155 / IEC60571 including IEC61373 for shock & vibration, EN5  196.9K hrs min. MIL-HDBK-217F (25°C)  13*60*25mm (L*W*H)  1.25Kg; 56pcs/15Kg/0.83CUFT  mentioned are measured at 24,48VDC input, rated load and 25°C of ambient temperature.  Lat 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.  Dierance, line regulation and load regulation.  Tevel a component which will be installed into a final equipment. All the EMC tests are been executed by mount of with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guid hase refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com) |  |  |  |  |



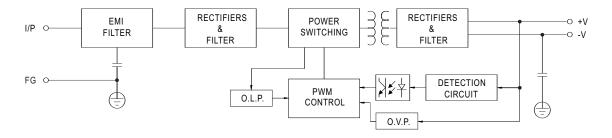
## **SPECIFICATION**

| MODEL           |                                                                                                                                                                             | RSD-30H-3.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | RSD-30H-5         | RSD-30H-12        | RSD-30H-24                                      |  |  |  |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|-------------------------------------------------|--|--|--|
|                 | DC VOLTAGE                                                                                                                                                                  | 3.3V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5V                | 12V               | 24V                                             |  |  |  |
|                 | RATED CURRENT                                                                                                                                                               | 6A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 6A                | 2.5A              | 1.25A                                           |  |  |  |
| OUTPUT          | CURRENT RANGE                                                                                                                                                               | 0 ~ 6A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0 ~ 6A            | 0 ~ 2.5A          | 0 ~ 1.25A                                       |  |  |  |
|                 | RATED POWER                                                                                                                                                                 | 19.8W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 30W               | 30W               | 30W                                             |  |  |  |
|                 | RIPPLE & NOISE (max.) Note.2                                                                                                                                                | 70mVp-p                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 70mVp-p           | 60mVp-p           | 50mVp-p                                         |  |  |  |
|                 | VOLTAGE TOLERANCE Note.3                                                                                                                                                    | ±2.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |                   | ±2.0%                                           |  |  |  |
|                 | LINE REGULATION                                                                                                                                                             | ±0.5% ±0.5% ±0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                   | ±0.3%             | ±0.2%                                           |  |  |  |
|                 | LOAD REGULATION                                                                                                                                                             | ±0.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ±0.5%             | ±0.3%             | ±0.2%                                           |  |  |  |
|                 | SETUP, RISE TIME                                                                                                                                                            | 120ms, 85ms at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |                   |                                                 |  |  |  |
|                 | HOLD UP TIME (Typ.)                                                                                                                                                         | H-type comply with S2 level(10ms) @ full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                   |                   |                                                 |  |  |  |
| INPUT           | VOLTAGE RANGE CONTINUOUS                                                                                                                                                    | 40 ~ 160VDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |                   |                                                 |  |  |  |
|                 | EFFICIENCY (Typ.)                                                                                                                                                           | 87%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 89%               | 89%               | 89%                                             |  |  |  |
|                 | DC CURRENT (Typ.)                                                                                                                                                           | 0.23A/110V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.35A/110V        | 0970              | 0376                                            |  |  |  |
|                 | INRUSH CURRENT (Typ.)                                                                                                                                                       | 20A/110VDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.55A/110V        |                   |                                                 |  |  |  |
|                 | INKOSH COKKENT (Typ.)                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | _                 |                   |                                                 |  |  |  |
|                 | OVERLOAD                                                                                                                                                                    | 105 ~ 135% rated output power                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                   |                   | a ta anno ann d                                 |  |  |  |
| PROTECTION      |                                                                                                                                                                             | Protection type : Constant curre                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   | <u> </u>          |                                                 |  |  |  |
|                 | OVER VOLTAGE                                                                                                                                                                | 3.8 ~ 4.5V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.75 ~ 7V         | 13.8 ~ 16.2V      | 27.6 ~ 32.4V                                    |  |  |  |
|                 |                                                                                                                                                                             | Protection type : Shut down o/p                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                   |                                                 |  |  |  |
|                 | WORKING TEMP.                                                                                                                                                               | -40 ~ +55°C (no derating); +70°C @ 60% load by free air convection; +70°C (no derating with external base plate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   |                   |                                                 |  |  |  |
|                 | WORKING HUMIDITY                                                                                                                                                            | 5 ~ 95% RH non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |                   |                                                 |  |  |  |
| ENVIRONMENT     | STORAGE TEMP., HUMIDITY                                                                                                                                                     | -40 ~ +85°C, 10 ~ 95% RH non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |                   |                                                 |  |  |  |
|                 | TEMP. COEFFICIENT                                                                                                                                                           | ±0.03%/°C (0 ~ 50°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |                   |                                                 |  |  |  |
|                 | VIBRATION                                                                                                                                                                   | 10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: compliance to IEC61373                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                   |                   |                                                 |  |  |  |
|                 | SAFETY STANDARDS                                                                                                                                                            | Meet IEC60950-1 (LVD)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |                   |                                                 |  |  |  |
|                 | WITHSTAND VOLTAGE                                                                                                                                                           | I/P-O/P:4KVDC I/P-FG:2.5KVDC O/P-FG:2.5KVDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |                   |                                                 |  |  |  |
|                 | ISOLATION RESISTANCE                                                                                                                                                        | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C/ 70% RH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   |                   |                                                 |  |  |  |
|                 |                                                                                                                                                                             | Parameter Standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                   | Test Level / Note |                                                 |  |  |  |
|                 | EMC EMISSION                                                                                                                                                                | Conducted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | EN55032           |                   | Class A                                         |  |  |  |
|                 |                                                                                                                                                                             | Radiated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | EN55032           |                   | Class B                                         |  |  |  |
|                 |                                                                                                                                                                             | Harmonic Current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | EN6100-3-2        |                   | Class A                                         |  |  |  |
|                 |                                                                                                                                                                             | Voltage Flicker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EN6100-3-3        |                   |                                                 |  |  |  |
| SAFETY &        | EMC IMMUNITY                                                                                                                                                                | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Standard          |                   | Test Level / Note                               |  |  |  |
| EMC<br>(Note 4) |                                                                                                                                                                             | ESD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | EN61000-4         | 2                 | Level 3, ±8KV air; Level 3, ±6KV contac         |  |  |  |
| (Note 4)        |                                                                                                                                                                             | Radiated Field                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | EN61000-4         | 3                 | Level X                                         |  |  |  |
|                 |                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                   | Level 3, 2KV at power                           |  |  |  |
|                 |                                                                                                                                                                             | EFT / Burst                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | EN61000-4         | 4                 | Level 4, 2KV at signal                          |  |  |  |
|                 |                                                                                                                                                                             | Surge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Surge EN61000-4-5 |                   | Level 3,1KV Line-Line, Level 3, 2KV Line-E      |  |  |  |
|                 |                                                                                                                                                                             | Conducted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | EN61000-4         |                   | Level 3                                         |  |  |  |
|                 | RAILWAY STANDARD                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                   | 1373 for shock & vibration, EN50121-3-2 for EMC |  |  |  |
|                 | MTBF                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ,                 |                   |                                                 |  |  |  |
| OTHERS          | DIMENSION                                                                                                                                                                   | 396.9K hrs min. MIL-HDBK-217F (25°C)<br>113*60*25mm (L*W*H)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |                   |                                                 |  |  |  |
| OTHER9          | PACKING                                                                                                                                                                     | 0.25Kg; 56pcs/15Kg/0.83CUFT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                   |                   |                                                 |  |  |  |
| NOTE            | 1. All parameters NOT special 2. Ripple & noise are measure 3. Tolerance : includes set up 4. The power supply is consid a 360mm*360mm metal pla perform these EMC tests, p | ally mentioned are measured at 110VDC input, rated load and 25°C of ambient temperature.  red at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.  to tolerance, line regulation and load regulation.  dered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on late with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com)  at external output capacitance should not exceed 5000uF. |                   |                   |                                                 |  |  |  |



## ■ Block Diagram

fosc: 110KHz



#### ■ Input Fuse

There is one fuse connected in series to the positive input line, which is used to protect against abnormal surge. Fuse specifications of each model are shown as below.

| Туре | Fuse Type | Reference and Rating    |
|------|-----------|-------------------------|
| G    | Time-Lag  | CONQUE MST, 6.3A, 250V  |
| L    | Time-Lag  | CONQUE MST, 3.15A, 250V |
| Н    | Time-Lag  | CONQUE MST, 2A, 250V    |

## ■ Input Reverse Polarity Protection

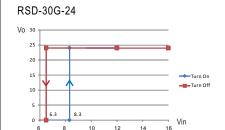
There is a MOSFET connected in series to the negative input line. If the input polarity is connected reversely, the MOSFET opens and there will be no output to protect the unit.

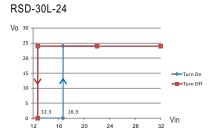
#### ■ Input Range and Transient Ability

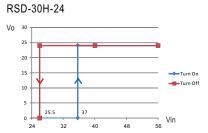
The series has a wide range input capability. With  $\pm 40\%$  of rated input voltage, it can withstand that for 1 second.

#### ■ Input Under-Voltage Protection

If input voltage drops below Vimin, the internal control IC shuts down and there is no output voltage. It recovers automatically when input voltage reaches above Vimin, please refer to the cruve below.







### ■ Inrush Current

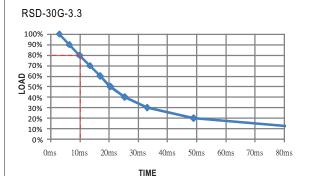
Inrush current is suppressed by a resistor during the initial start-up, and then the resistor is bypassed by a MOSFET to reduce power consumption after accomplishing the start-up.

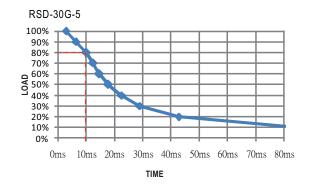


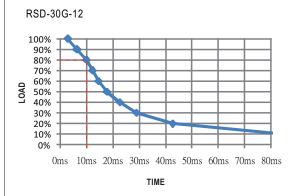
## ■ Hold-up Time

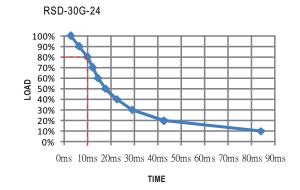
H type is in compliance with S1 level (10ms), while G and L types are in compliance with S1 level (3ms) at full load output condition.

To fulfil the requirements of S2 level (10ms), G types require de-rating their output load to 80%, please refer to the curve diagrams below.









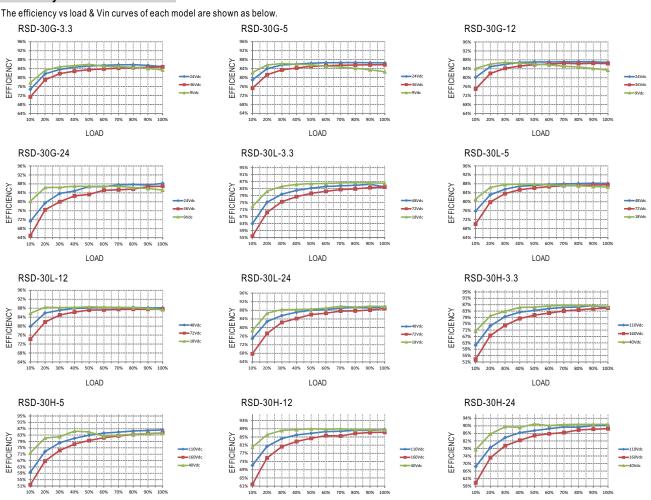
## ■ Output Voltage Adjustment

This function is optional, which the standard product does not have it. If you do need the function, please contact MW for details.

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#### ■ Parallel and Series Connection

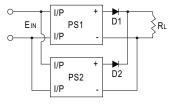
LOAD

#### A.Operation in Parallel

Since RSD-30 series don't have built-in parallel circuit, it can only use external circuits to achieve the redundant operation but not increase the current rating.

LOAD

1.Add a diode at the positive-output of each power supply (as shown as below), the current rating of the diode should be larger than the maximum output current rating and attached to a suitable heat sink. This is only for redundant use (increase the reliability of the system) and users have to check suitability of the circuit by themselves.

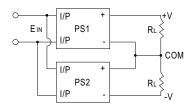


2. When using S.P.S. in parallel connection, the leakage current will increase at the same time. This could pose as a shock hazard for the user. So please contact the supplier if you have this kind of application.

#### **B.Operation in Series**

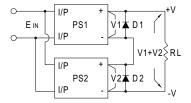
RSD-30 can be operated in series. Here are the methods of doing it:

1. Positive and negative terminals are connected as shown as below. According to the connection, you can get the positive and negative output voltages for your loads.



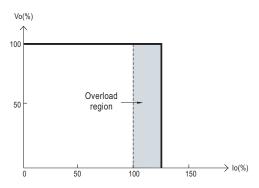


2. Increase the output voltage (current does not change). Because RSD-30 series have no reverse blocking diode in the unit, you should add an external blocking diode to prevent the damage of every unit while starting up. The voltage rating of the external diode should be larger than V1+V2 (as shown as below).



#### ■ Overload Protection

If the output draw up to 105~135% of its output power rating, the converter will go into overload protection which is constant current mode. After the faulty condition is removed, it will recover automatically. Please refer to the diagram below for the detail operation characteristic. Please note that it's not suitable to operate within the overload region continuously, or it may cause to over temperature and reduce the life of the power supply unit or even damage it.



#### ■ Over Voltage Protection

The converter shuts off to protect itself when the output voltage drawn exceeds 115~140% of its output rating. It must be repowered on to recover.

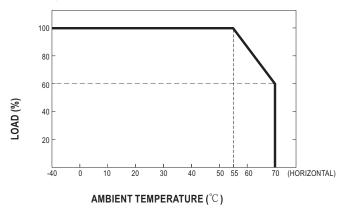
#### ■ LED Indicator

Equipped with a built-in LED indicator, the converter provides an easy way for users to check its condition through the LED indicator. Green: normal operation; No signal: no power or failure.

#### ■ Derating Curve

#### a.Single unit operation

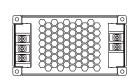
If the unit has no iron plate mounted on its bottom, the maximum ambient temperature for the unit will be 55°C as operating under full load condition. It requires de-rating output current when ambient temperature is between 55~70°C, please refer to the de-rating curve as below.

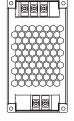


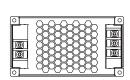


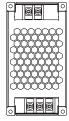
Suitable installation methods are shown as below. Since RSD-30 is a semi-potted model, its thermal performances for the following installation methods are similar and share the same derating curve.





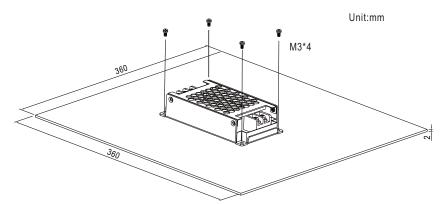




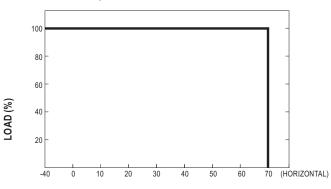


#### b. Operate with additional iron plate

If it is necessary to fulfil the requirements of EN50155 TX level that operate the unit fully-loaded at  $70^{\circ}$ C, RSD-30 series must be installed onto an iron plate on the bottom. The size of the suggested iron plate is shown as below. In order for optimal thermal performance, the iron plate must have an even & smooth surface and RSD-30 series must be firmly mounted at the center of the iron plate.

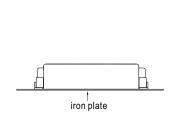


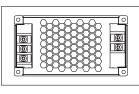
The load vs ambient temperature curve is shown as below.

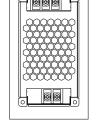


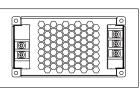
AMBIENT TEMPERATURE (°C)

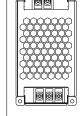
Suitable installation methods are shown as below. Since RSD-30 is a semi-potted model, its thermal performances for the following installation methods are similar and share the same derating curve.













## ■ Immunity to Environmental Conditions

| Test method                  | Standard                                                                                                                          | Test conditions                                                                             | Status    |  |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------|--|
| Cooling Test                 | EN 50155 section 12.2.3 (Column 2, Class TX)<br>EN 60068-2-1                                                                      | Temperature: -40°C<br>Dwell Time: 2 hrs/cycle                                               | No damage |  |
| Dry Heat Test                | EN 50155 section 12.2.4 (Column 2, Class TX)<br>EN 50155 section 12.2.4 (Column 3, Class TX & Column 4, Class TX)<br>EN 60068-2-2 | Temperature: 70°C / 85°C<br>Duration: 6 hrs / 10min                                         | PASS      |  |
| Damp Heat Test, Cyclic       | EN 50155 section 12.2.5<br>EN 60068-2-30                                                                                          | Temperature: 25°C~55°C<br>Humidity: 90%~100% RH<br>Duration: 48 hrs                         | PASS      |  |
| Vibration Test               | EN 50155 section 12.2.11<br>EN 61373                                                                                              | Temperature: 19°C<br>Humidity: 65%<br>Duration: 10 mins                                     | PASS      |  |
| Increased Vibration Test     | EN 50155 section 12.2.11<br>EN 61373                                                                                              | Temperature: 19°C<br>Humidity: 65%<br>Duration: 5 hrs                                       | PASS      |  |
| Shock Test                   | EN 50155 section 12.2.11<br>EN 61373                                                                                              | Temperature: $21\pm3^{\circ}\text{C}$<br>Humidity: $65\pm5\%$<br>Duration: $30\text{ms*}18$ | PASS      |  |
| Low Temperature Storage Test | EN 50155 section 12.2.3 (Column 2, Class TX)<br>EN 60068-2-1                                                                      | Temperature: -40°C<br>Dwell Time: 16 hrs                                                    | PASS      |  |
| Salt Mist Test               | EN 50155 section 12.2.10 (Class ST4)                                                                                              | Temperature: 35°C ±2°C<br>Duration: 96 hrs                                                  | PASS      |  |

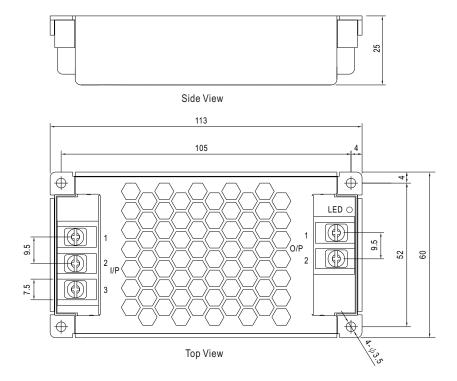
## ■ EN45545-2 Fire Test Conditions

| Test Items Hazard Level |                     |                                               |      |      |      |
|-------------------------|---------------------|-----------------------------------------------|------|------|------|
| Items                   |                     | Standard                                      | HL1  | HL2  | HL3  |
| R24                     | Oxygen index test   | EN 45545-2:2013+A1:2015<br>EN ISO 4589-2:1996 | PASS | PASS | PASS |
| R25                     | Glow-wire test      | EN 45545-2:2013+A1:2015<br>EN 60695-2-11:2000 | PASS | PASS | PASS |
| R26                     | Vertical flame test | EN 45545-2:2013+A1:2015<br>EN 60695-11:2003   | PASS | PASS | PASS |



## ■ Mechanical Specification

Case No.253A Unit:mm



Input Terminal Pin No. Assignment:

Output Terminal Pin No. Assignment:

| Pin No. | Assignment  |
|---------|-------------|
| 1       | DC INPUT V+ |
| 2       | DC INPUT V- |
| 3       | FG ±        |

| Pin No. | Assignment   |
|---------|--------------|
| 1       | DC OUTPUT -V |
| 2       | DC OUTPUT +V |

## **■** Installation Manual

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