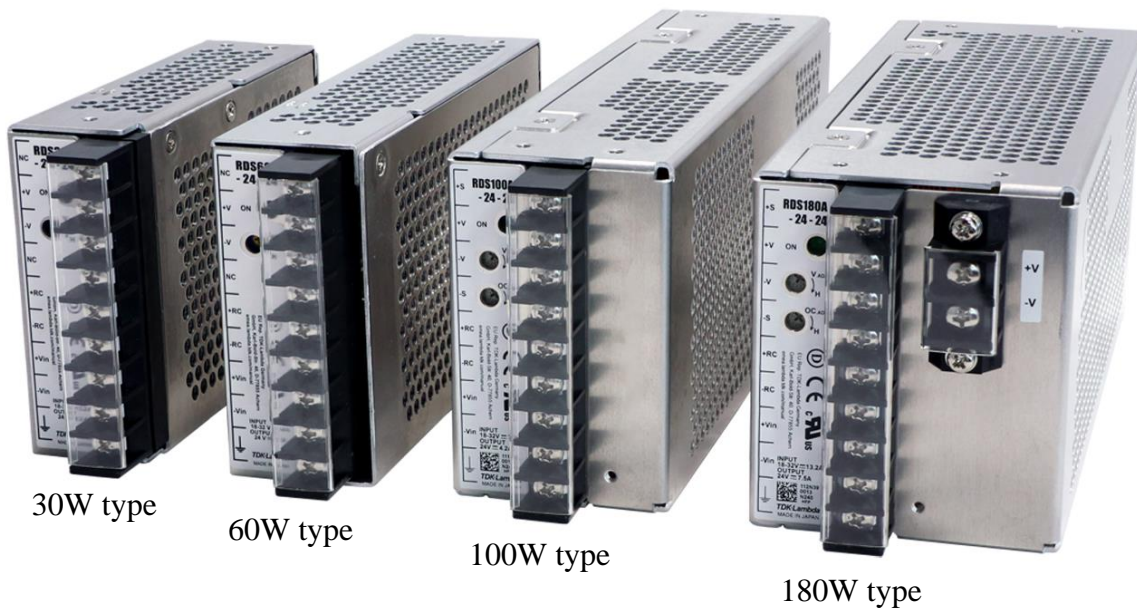


RDS-A series

Application Note For Railway (EN50155)



Product Line up list

● 24VDC input

| Output Power | | 30W | | 60W | | 100W | | 180W | |
|----------------|----------------|--------------|----------------|--------------|----------------|---------------|----------------|---------------|--|
| Output Voltage | Output Current | Model Name | Output Current | Model Name | Output Current | Model Name | Output Current | Model Name | |
| 5V | 6.0A | RDS30A-24-5 | 12.0A | RDS60A-24-5 | 20.0A | RDS100A-24-5 | 36.0A | RDS180A-24-5 | |
| 12V | 2.5A | RDS30A-24-12 | 5.0A | RDS60A-24-12 | 8.3A | RDS100A-24-12 | 15.0A | RDS180A-24-12 | |
| 15V | 2.0A | RDS30A-24-15 | 4.0A | RDS60A-24-15 | 6.6A | RDS100A-24-15 | 12.0A | RDS180A-24-15 | |
| 24V | 1.3A | RDS30A-24-24 | 2.5A | RDS60A-24-24 | 4.2A | RDS100A-24-24 | 7.5A | RDS180A-24-24 | |

● 48VDC input

| Output Power | | 30W | | 60W | |
|----------------|----------------|--------------|----------------|--------------|--|
| Output Voltage | Output Current | Model Name | Output Current | Model Name | |
| 5V | 6.0A | RDS30A-48-5 | 12.0A | RDS60A-48-5 | |
| 12V | 2.5A | RDS30A-48-12 | 5.0A | RDS60A-48-12 | |
| 15V | 2.0A | RDS30A-48-15 | 4.0A | RDS60A-48-15 | |
| 24V | 1.3A | RDS30A-48-24 | 2.5A | RDS60A-48-24 | |

⚠ This application note is an explanation for conformance against List of tests (Table2) in EN50155. Our product is considered a component which be installed into a final equipment. The final equipment should be re-evaluated whether specifications in the equipment can be met.

Model : RDS30A-24-, RDS30A-48-**, RDS60A-24-**, RDS60A-48-**
RDS100A-24-**, RDS180A24-****

** is the value of Output voltage, 5 or 12 or 15 or 24.

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1. Visual Inspection

Our product is performed Visual inspection for all products before shipping.
 When our product is tested reliability test and immunity test, checked appearance that there are not any change.

Refer to Reliability Data and Immunity Data of each model.

2. Performance test

Refer to Evaluation Data of each model.
 As for Supply interruption test, refer to 2-3. Hold up time characteristics in Evaluation Data.

3. Cooling test

Verified each product can meet T1 requirement of Table1 - Ambient temperature in EN50155.

4. Dry heat test

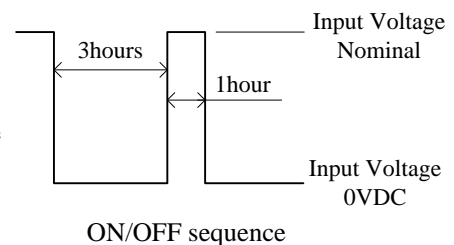
We performed more than 4hours, at Ta : maximum temperature + 10°C for each product.

5. Damp heat test, cyclic

Tested based on following conditions using representative model.

◆ Test Conditions

- Input Voltage : 0V ⇔ Nominal
- Output Voltage : Nominal
- Output Load : 0A
- Ambient Temperature : 85°C
- Humidity : 85%RH
- ON/OFF Duty : ON 1hour
 OFF 3 hours
 (1cycle 4 hours)
 *Refer to right fig. for ON/OFF sequence
- Test Time : 300hours



◆ Test Method

Check if there is no abnormal output before test. Then fix the D.U.T. in testing chamber, and the ambient temperature is gradually increased from 25°C to 85°C. Operate the D.U.T. for 300 hours according to above conditions and leave the D.U.T. for 1 hour at the room temperature, then check if there is no abnormal output.

◆ Test Result

There is no abnormal output after test.

*Tested model : RDS30A-24-5, RDS30A-48-24, RDS60A24-5, RDS60A48-24,
 RDS100A-24-5, RDS100A-24-24, RDS180A-24-5, RDS180A-24-24

6. Supply overvoltage

Tested based on EN50155 requirement, (12.2.6).
24VDC INPUT model : Apply 33.6VDC
48VDC INPUT model : Apply 67.2VDC

◆Test Result

There is not any failure.

7. Surges

Tested based on EN50121-3-2.

◆Test Result

Pass (Test level for Line – Line : 1kV, Line – Ground : 2kV)

*For RDS30A-48 and RDS60A-48 model, it is necessary to add input capacitor externally to meet above test conditions.

8. Electric discharge susceptibility test

Tested based on EN50121-3-2.

◆Test Result

Pass (Test level for Contact discharge : 6kV, Air discharge : 8kV)

9. Transient burst susceptibility test

Tested based on EN50121-3-2.

◆Test Result

Pass (Test Voltage for all test port (Input, Output and signal) : 2kV)

10. Radio interference test

1) Radio frequency interference test

Tested based on EN50121-3-2.

◆Test Result

Pass

(Test level for 30W and 60W model : 5V/m, 100W and 180W model : 10V/m)

2) Radio frequency interference emission test

Designed to meet to EN55011/EN55032-B, FCC-ClassB, VCCI-B, EN50121-3-2.

Refer to Specifications and Evaluation Data of each model.

11. Insulation test

1) Insulation measurement test.

No failure and Impedance is more than 100Mohm when apply 500VDC between Output to Ground (FG).

2) Voltage withstand test

No failure when apply 2,000VAC between Input to Output and Input to Ground (FG).

12. Salt mist test

No test under power supply only. Please verify in final equipment if necessary.

13. Vibration, shock and bump test

Tested based on IEC61373-Category 1-Grade B.

◆ Test Result

Pass

14. Watertightness test

According to EN50155, unnecessary to do this test because electric equipment is generally mounted either inside the body of the vehicle or in boxes outside.

15. Equipment stress screening

When our product is adopted on your equipment, contact us if necessary.

16. Low temperature storage test

We performed the test more than 8hours, at 10°C lower than Minimum operating temperature of Specifications for each product.

17. Others

1) Interruptions of voltage supply

Output of our product may drop when 10ms interruptions of voltage supply if output load is full.

If you need to keep voltage in 10ms interruptions of voltage supply conditions, please put diode and capacitor at input side as shown in Fig.A.

2) Variations of voltage supply

Output of our product may drop at 0.1s, 0.6 Un.

If you need to keep voltage at 0.1s, 0.6 Un., please put diode and capacitor at input side as shown in Fig.A.

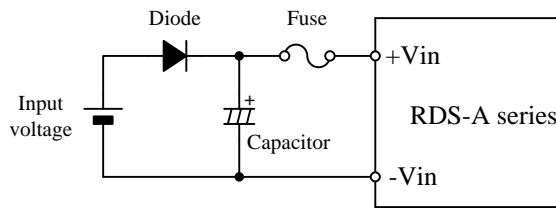


Fig.A Put diode and capacitor at input side

18. Link of Technical Notes

| Model | Specification | OUTLINE | Evaluation Data | Reliability Data | Immunity Data |
|------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| RDS30A-24 | Link | Link | Link | Link | Link |
| RDS30A-48 | Link | Link | Link | Link | Link |
| RDS60A-24 | Link | Link | Link | Link | Link |
| RDS60A-48 | Link | Link | Link | Link | Link |
| RDS100A-24 | Link | Link | Link | Link | Link |
| RDS180A-24 | Link | Link | Link | Link | Link |

Instruction Manual >>> [Link](#)