

# WDA-series



## Feature

For DIN (35mm) Rail Products  
Built in overcurrent protection, overvoltage protection circuits  
Economical design

## Safety agency approvals

UL62368-1  
C-UL (equivalent to CAN/CSA-C22.2 No.62368-1)  
EN62368-1

## CE marking

Low Voltage Directive  
RoHS Directive

## 5-year warranty (See Instruction Manual)

## EMI

Complies with CISPR32-B, EN55032-B and EN55011-B

## EMS Compliance : EN61204-3, EN61000-6-2

EN61000-4-2  
EN61000-4-3  
EN61000-4-4  
EN61000-4-5  
EN61000-4-6  
EN61000-4-8  
EN61000-4-11

# WDA30F

① **WD**    ② **A**    ③ **30**    ④ **F**    ⑤ **-□**    ⑥ **-□**

WDA



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Option : \*5  
C : With Coating

\*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

| MODEL                 | WDA30F-5 | WDA30F-12 | WDA30F-24 | WDA30F-48 |
|-----------------------|----------|-----------|-----------|-----------|
| MAX OUTPUT WATTAGE[W] | 30       | 30        | 31.2      | 33.6      |
| DC OUTPUT             | 5V6A     | 12V2.5A   | 24V1.3A   | 48V0.7A   |

## SPECIFICATIONS

|                                    | MODEL                              | WDA30F-5  | WDA30F-12                                     | WDA30F-24    | WDA30F-48    |       |
|------------------------------------|------------------------------------|---|---|--------------|--------------|-------|
| INPUT                              | VOLTAGE[V]                         | AC85 - 264 1φ   |   |              |              |       |
|                                    | CURRENT[A]                         | ACIN 115V   | 0.6   |              |              |       |
|                                    |                                    | ACIN 230V   | 0.3   |              |              |       |
|                                    | FREQUENCY[Hz]                      | 50/60 (47-63)   |   |              |              |       |
|                                    | EFFICIENCY[%]                      | ACIN 115V   | 80typ   | 85typ        | 86typ        | 87typ |
|                                    |                                    | ACIN 230V   | 82typ   | 86typ        | 87typ        | 88typ |
|                                    | INRUSH CURRENT[A]                  | ACIN 115V   | 20typ Ta=25°C (at cold start)                 |              |              |       |
| ACIN 230V                          |                                    | 40typ Ta=25°C (at cold start)   |   |              |              |       |
| LEAKAGE CURRENT[mA]                | ACIN115V                           | 0.25max   |   |              |              |       |
|                                    | ACIN240V                           | 0.5max  |   |              |              |       |
| OUTPUT                             | VOLTAGE[V]                         | 5   | 12  | 24           | 48           |       |
|                                    | CURRENT[A]                         | 6   | 2.5   | 1.3          | 0.7          |       |
|                                    | WATTAGE[W]                         | 30  | 30  | 31.2         | 33.6         |       |
|                                    | LINE REGULATION[mV] *1             | 50max   | 120max  | 240max       | 480max       |       |
|                                    | LOAD REGULATION[mV] *1             | 50max   | 120max  | 240max       | 480max       |       |
|                                    | RIPPLE NOISE [mVp-p] *2 Io=100%    | 150(Bandwidth 20MHz)  |   |              |              |       |
|                                    | TEMPERATURE REGULATION[mV] 0~+50°C | 100max  | 180max  | 360max       | 720max       |       |
|                                    | START-UP TIME[ms]                  | ACIN 115V   | 100typ  |              |              |       |
|                                    |                                    | ACIN 230V   | 100typ  |              |              |       |
|                                    | HOLD-UP TIME[ms]                   | ACIN 115V   | 10typ   |              |              |       |
| ACIN 230V                          |                                    | 20typ   |   |              |              |       |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | 4.50 to 5.50                       | 10.8 to 13.2  | 21.6 to 26.4                                  | 43.2 to 52.8 |              |       |
| OUTPUT VOLTAGE SETTING[V]          | 4.90 to 5.30                       | 11.75 to 12.25  | 23.5 to 24.5                                  | 47.0 to 49.0 |              |       |
| PROTECTION CIRCUIT AND OTHERS      | OVERCURRENT PROTECTION [A]         | Works over 105% of rating and recovers automatically  |   |              |              |       |
|                                    | OVERVOLTAGE PROTECTION[V]          | 5.75 to 7.00  | 13.8 to 16.8                                  | 27.6 to 33.6 | 54.0 to 67.2 |       |
|                                    | OPERATING INDICATION               | LED (Green)   |   |              |              |       |
| ISOLATION                          | INPUT-OUTPUT                       | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)  |   |              |              |       |
|                                    | INPUT-FG                           | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)  |   |              |              |       |
|                                    | OUTPUT-FG                          | AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)   |   |              |              |       |
| ENVIRONMENT                        | OPERATING TEMP., HUMID.*3          | -20 to +70°C, 20 - 90%RH (Non condensing)   |   |              |              |       |
|                                    | STORAGE TEMP., HUMID.              | -30 to +85°C, 20 - 90%RH (Non condensing)   |   |              |              |       |
|                                    | VIBRATION                          | 10 - 55Hz, 19.6m/s <sup>2</sup> (2G) , 3minutes period, 60minutes each along Z axis (Non operating.mounted on DIN Rail) |   |              |              |       |
|                                    | IMPACT                             | 196.1m/s <sup>2</sup> (20G) , 11ms, once each X, Y and Z axis (Packing state)   |   |              |              |       |
| SAFETY AND EMC                     | AGENCY APPROVALS                   | UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1) , EN62368-1  |   |              |              |       |
|                                    | EMC EMISSION                       | Complies with CISPR32-B, EN55032-B, EN55011-B   |   |              |              |       |
|                                    | EMC IMMUNITY                       | Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11  |   |              |              |       |
| OTHERS                             | HARMONIC ATTENUATOR                | Complies with IEC61000-3-2 (Class A) No built-in active PFC   |   |              |              |       |
|                                    | CASE SIZE/WEIGHT                   | 32x90x90mm (WxHxD) [1.26x3.54x3.54 inches] / 200g max   |   |              |              |       |
|                                    | COOLING METHOD                     | Convection  |   |              |              |       |
| WARRANTY                           | WARRANTY                           | *4  | 5 years (subject to the operating conditions) |              |              |       |

\*1 Consult us about dynamic load and input response. Measure the output voltage by using the average mode of the tester to deal with the burst operation at low (Io=0~20%typ) load.

\*2 This is the result of measurement of the testing board with capacitors of 47μF and 0.1μF placed at 150 mm from the output terminals by a 20MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-GikenRM104.

When the load factor is low (Io=0~20%Atp), the switching power loss is reduced by burst operation, which will cause ripple noise to go beyond the specifications.

\*3 Output power derating is required. Refer to "Derating"

\*4 Consult us about details.

\*5 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.

\* All parameters not specially mentioned are measured at ACIN 230V, rated load and 25°C of ambient temperature.

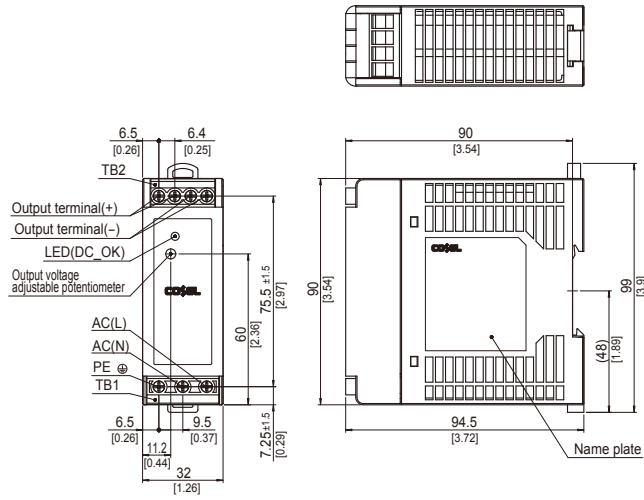
\* Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.

\* Parallel operation is not possible with this model.

\* Acoustic noise may be heard from the power supply when used for pulse load.

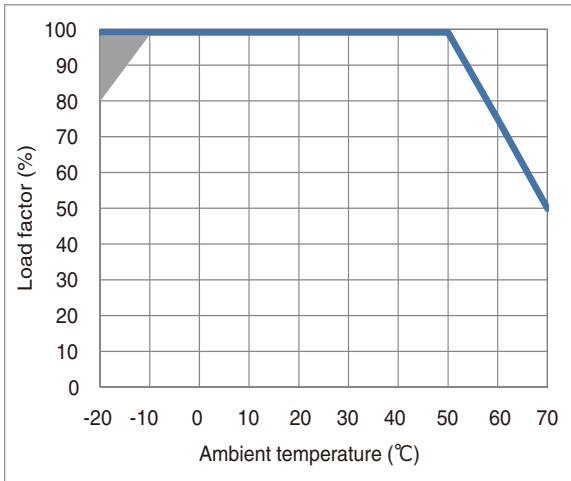
External view

<WDA30F>



- ※ Tolerance :  $\pm 1$  [ $\pm 0.04$ ]
- ※ Weight : 200g max
- ※ Chassis · Case material : PBT
- ※ Din rail attachment material : PC/ABS
- ※ Dimensions in mm, [ ] = inches
- ※ Screw tightening torque : 1N · m max

Derating Curve



\*In the shaded area, it may take several seconds to determine the output voltage during cold start, but it can be used without any problems.

Fig.1 Derating curve depending on ambient temperature

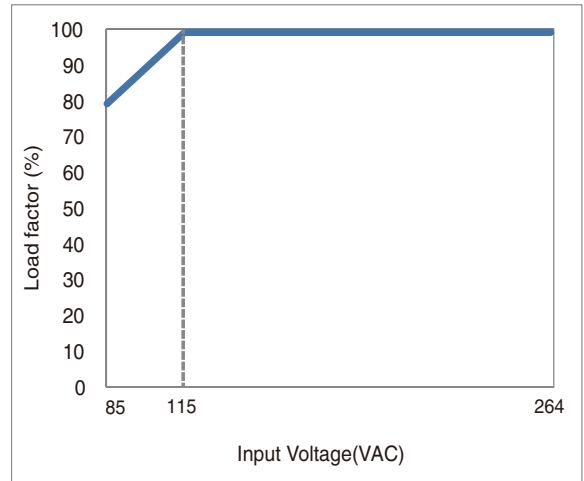


Fig.2 Derating curve depending on input voltage

# WDA60F

WD A 60 F -□ -□  
 ① ② ③ ④ ⑤ ⑥



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Option : \*5  
C : With Coating

\*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

| MODEL                 | WDA60F-12 | WDA60F-24 | WDA60F-48 |
|-----------------------|-----------|-----------|-----------|
| MAX OUTPUT WATTAGE[W] | 60        | 60        | 62.4      |
| DC OUTPUT             | 12V 5A    | 24V 2.5A  | 48V 1.3A  |

## SPECIFICATIONS

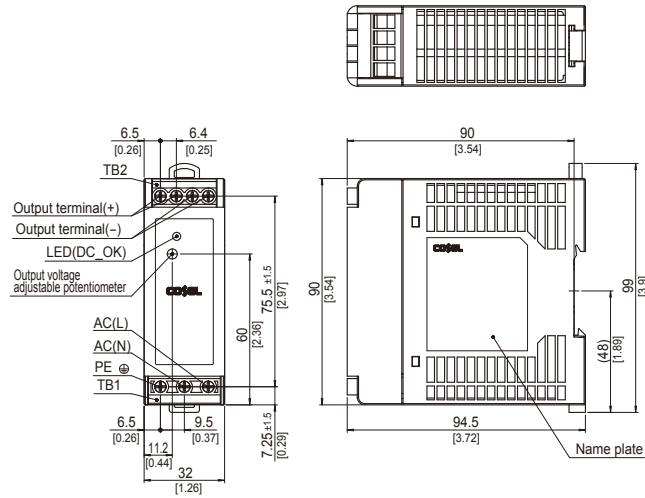
|                                    | MODEL                           | WDA60F-12   | WDA60F-24                                     | WDA60F-48    |       |
|------------------------------------|---------------------------------|---|---|--------------|-------|
| INPUT                              | VOLTAGE[V]                      | AC85 - 264 1φ   |   |              |       |
|                                    | CURRENT[A]                      | ACIN 115V   | 1.2   |              |       |
|                                    |                                 | ACIN 230V   | 0.6   |              |       |
|                                    | FREQUENCY[Hz]                   | 50/60 (47-63)   |   |              |       |
|                                    | EFFICIENCY[%]                   | ACIN 115V   | 84typ   | 86typ        | 87typ |
|                                    |                                 | ACIN 230V   | 86typ   | 88typ        | 89typ |
|                                    | INRUSH CURRENT[A]               | ACIN 115V   | 20typ Ta=25°C (at cold start)                 |              |       |
| ACIN 230V                          |                                 | 40typ Ta=25°C (at cold start)   |   |              |       |
| LEAKAGE CURRENT[mA]                | ACIN 115V                       | 0.25max   |   |              |       |
|                                    | ACIN240V                        | 0.5max  |   |              |       |
| OUTPUT                             | VOLTAGE[V]                      | 12  | 24  | 48           |       |
|                                    | CURRENT[A]                      | 5   | 2.5   | 1.3          |       |
|                                    | WATTAGE[W]                      | 60  | 60  | 62.4         |       |
|                                    | LINE REGULATION[mV] *1          | 120max  | 240max  | 480max       |       |
|                                    | LOAD REGULATION[mV] *1          | 120max  | 240max  | 480max       |       |
|                                    | RIPPLE NOISE [mVp-p] *2 Io=100% | 150max (Bandwidth 20MHz)  |   |              |       |
|                                    | TEMPERATURE REGULATION[mV]      | 0~+50°C   | 180max  | 360max       |       |
|                                    | START-UP TIME[ms]               | ACIN 115V   | 100typ  |              |       |
|                                    |                                 | ACIN 230V   | 100typ  |              |       |
|                                    | HOLD-UP TIME[ms]                | ACIN 115V   | 10typ   |              |       |
| ACIN 230V                          |                                 | 20typ   |   |              |       |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | 10.8 to 13.2                    | 21.6 to 26.4  | 43.2 to 52.8                                  |              |       |
| OUTPUT VOLTAGE SETTING[V]          | 11.75 to 12.25                  | 23.5 to 24.5  | 47.0 to 49.0                                  |              |       |
| PROTECTION CIRCUIT AND OTHERS      | OVERCURRENT PROTECTION [A]      | Works over 105% of rating and recovers automatically  |   |              |       |
|                                    | OVERVOLTAGE PROTECTION[V]       | 13.8 to 16.8  | 27.6 to 33.6                                  | 54.0 to 67.2 |       |
|                                    | OPERATING INDICATION            | LED (Green)   |   |              |       |
| ISOLATION                          | INPUT-OUTPUT                    | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)  |   |              |       |
|                                    | INPUT-FG                        | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)  |   |              |       |
|                                    | OUTPUT-FG                       | AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)   |   |              |       |
| ENVIRONMENT                        | OPERATING TEMP., HUMID. *3      | -20 to +70°C, 20-90%RH (Non condensing)   |   |              |       |
|                                    | STORAGE TEMP., HUMID.           | -30 to +85°C, 20-90%RH (Non condensing)   |   |              |       |
|                                    | VIBRATION                       | 10-55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 60minutes each along Z axis (Non operating, mounted on DIN Rail) |   |              |       |
|                                    | IMPACT                          | 196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis (Packing state)  |   |              |       |
| SAFETY AND EMC                     | AGENCY APPROVALS                | UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), EN62368-1   |   |              |       |
|                                    | EMC EMISSION                    | Complies with CISPR32-B, EN55032-B, EN55011-B   |   |              |       |
|                                    | EMC IMMUNITY                    | Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11  |   |              |       |
| OTHERS                             | HARMONIC ATTENUATOR             | Complies with IEC61000-3-2 (Class A) No built-in active PFC   |   |              |       |
|                                    | CASE SIZE/WEIGHT                | 32X90X90mm (WXHXD) [1.26X3.54X3.54 inches] / 250g max   |   |              |       |
|                                    | COOLING METHOD                  | Convection  |   |              |       |
| WARRANTY                           | WARRANTY                        | *4  | 5 years (subject to the operating conditions) |              |       |

\*1 Consult us about dynamic load and input response. Measure the output voltage by using the average mode of the tester to deal with the burst operation at low (Io=0~20%typ) load.  
 \*2 This is the result of measurement of the testing board with capacitors of 47μF and 0.1μF placed at 150 mm from the output terminals by a 20MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-GikenRM104.  
 When the load factor is low (Io=0~20%Atyp), the switching power loss is reduced by burst operation, which will cause ripple noise to go beyond the specifications.  
 \*3 Output power derating is required. Refer to "Derating"  
 \*4 Consult us about details.

\*5 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.  
 \* All parameters not specially mentioned are measured at ACIN 230V, rated load and 25°C of ambient temperature.  
 \* Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.  
 \* Parallel operation is not possible with this model.  
 \* Acoustic noise may be heard from the power supply when used for pulse load.

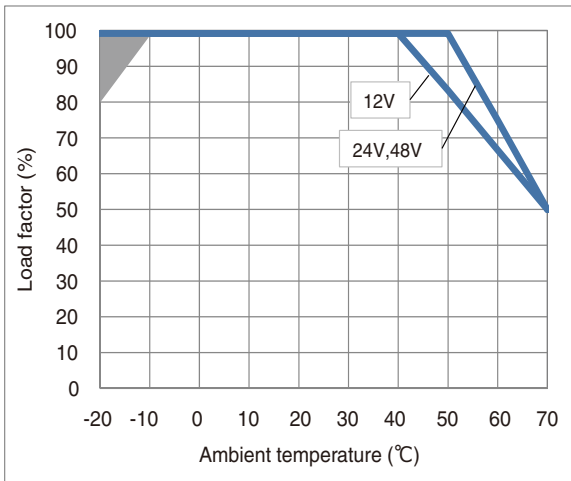
External view

<WDA60F>



- ※ Tolerance : ±1 [±0.04]
- ※ Weight : 250g max
- ※ Chassis - Case material : PBT
- ※ Din rail attachment material : PC/ABS
- ※ Dimensions in mm, [ ] = inches
- ※ Screw tightening torque : 1N · m max

Derating Curve



\*In the shaded area, it may take several seconds to determine the output voltage during cold start, but it can be used without any problems.

Fig.1 Derating curve depending on ambient temperature

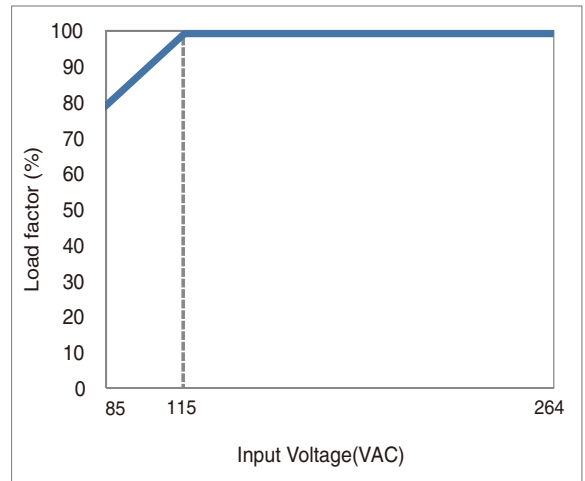


Fig.2 Derating curve depending on input voltage

# WDA90F

① **WD**    ② **A**    ③ **90**    ④ **F**    ⑤ **-** □    ⑥ **-** □

WDA



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Input voltage selectable by switch
- ⑤ Output voltage
- ⑥ Option : \*5  
C : With Coating

\*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

| MODEL                 | WDA90F-12 | WDA90F-24 | WDA90F-48 |
|-----------------------|-----------|-----------|-----------|
| MAX OUTPUT WATTAGE[W] | 90        | 91.2      | 91.2      |
| DC OUTPUT             | 12V 7.5A  | 24V 3.8A  | 48V 1.9A  |

## SPECIFICATIONS

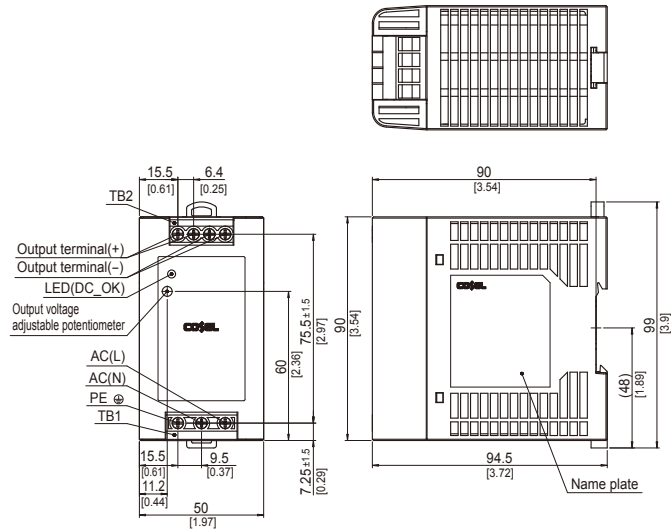
|                                    | MODEL                           | WDA90F-12  | WDA90F-24                                     | WDA90F-48    |        |
|------------------------------------|---------------------------------|--|---|--------------|--------|
| INPUT                              | VOLTAGE[V]                      | AC85 - 264 1φ  |   |              |        |
|                                    | CURRENT[A]                      | ACIN 115V  | 1.8   |              |        |
|                                    |                                 | ACIN 230V  | 0.9   |              |        |
|                                    | FREQUENCY[Hz]                   | 50/60 (47-63)  |   |              |        |
|                                    | EFFICIENCY[%]                   | ACIN 115V  | 84  | 87           | 88     |
|                                    |                                 | ACIN 230V  | 86  | 89           | 90     |
|                                    | INRUSH CURRENT[A]               | ACIN 115V  | 20typ Ta=25°C (at cold start)                 |              |        |
| ACIN 230V                          |                                 | 40typ Ta=25°C (at cold start)  |   |              |        |
| LEAKAGE CURRENT[mA]                | ACIN 115V                       | 0.4max   |   |              |        |
|                                    | ACIN 240V                       | 0.75max  |   |              |        |
| OUTPUT                             | VOLTAGE[V]                      | 12   | 24  | 48           |        |
|                                    | CURRENT[A]                      | 7.5  | 3.8   | 1.9          |        |
|                                    | WATTAGE[W]                      | 90   | 91.2  | 91.2         |        |
|                                    | LINE REGULATION[mV] *1          | 120max   | 240max  | 480max       |        |
|                                    | LOAD REGULATION[mV] *1          | 120max   | 240max  | 480max       |        |
|                                    | RIPPLE NOISE [mVp-p] *2 Io=100% | 150max (Bandwidth 20MHz)   |   |              |        |
|                                    | TEMPERATURE REGULATION[mV]      | 0~+50°C  | 180max  | 360max       | 720max |
|                                    | START-UP TIME[ms]               | ACIN 115V  | 100typ  |              |        |
|                                    |                                 | ACIN 230V  | 10typ   |              |        |
|                                    | HOLD-UP TIME[ms]                | ACIN 115V  | 10typ   |              |        |
| ACIN 230V                          |                                 | 20typ  |   |              |        |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | 10.8 to 13.2                    |  | 21.6 to 26.4                                  | 43.2 to 52.8 |        |
| OUTPUT VOLTAGE SETTING[V]          | 11.75 to 12.25                  |  | 23.5 to 24.5                                  | 47.0 to 49.0 |        |
| PROTECTION CIRCUIT AND OTHERS      | OVERCURRENT PROTECTION [A]      | Works over 105% of rating and recovers automatically   |   |              |        |
|                                    | OVERVOLTAGE PROTECTION[V]       | 13.8 to 16.8   | 27.6 to 33.6                                  | 54.0 to 67.2 |        |
|                                    | OPERATING INDICATION            | LED (Green)  |   |              |        |
| ISOLATION                          | INPUT-OUTPUT                    | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)   |   |              |        |
|                                    | INPUT-FG                        | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)   |   |              |        |
|                                    | OUTPUT-FG                       | AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)  |   |              |        |
| ENVIRONMENT                        | OPERATING TEMP., HUMID. *3      | -20 to +70°C, 20-90%RH (Non condensing)  |   |              |        |
|                                    | STORAGE TEMP., HUMID.           | -30 to +85°C, 20-90%RH (Non condensing)  |   |              |        |
|                                    | VIBRATION                       | 10 - 55Hz, 19.6m/s <sup>2</sup> (2G) , 3minutes period, 60minutes each along Z axis (Non operating, mounted on DIN Rail) |   |              |        |
|                                    | IMPACT                          | 196.1m/s <sup>2</sup> (20G) , 11ms, once each X, Y and Z axis (Packing state)  |   |              |        |
| SAFETY AND EMC                     | AGENCY APPROVALS                | UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1) , EN62368-1   |   |              |        |
|                                    | EMC EMISSION                    | Complies with CISPR32-B, EN55032-B, EN55011-B  |   |              |        |
|                                    | EMC IMMUNITY                    | Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11   |   |              |        |
| OTHERS                             | HARMONIC ATTENUATOR             | Complies with IEC61000-3-2 (Class A) No built-in active PFC  |   |              |        |
|                                    | CASE SIZE/WEIGHT                | 50X90X90mm (W X H X D) [1.97X3.54X3.54 inches] / 350g max  |   |              |        |
|                                    | COOLING METHOD                  | Convection   |   |              |        |
| WARRANTY                           | WARRANTY                        | *4   | 5 years (subject to the operating conditions) |              |        |

\*1 Consult us about dynamic load and input response. Measure the output voltage by using the average mode of the tester to deal with the burst operation at low (Io=0~20%typ) load.  
 \*2 This is the result of measurement of the testing board with capacitors of 47μF and 0.1μF placed at 150 mm from the output terminals by a 20MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-GikenRM104.  
 When the load factor is low (Io=0~20%Atyp), the switching power loss is reduced by burst operation, which will cause ripple noise to go beyond the specifications.  
 \*3 Output power derating is required. Refer to "Derating"  
 \*4 Consult us about details.

\*5 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.  
 \* All parameters not specially mentioned are measured at ACIN 230V, rated load and 25°C of ambient temperature.  
 \* Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.  
 \* Parallel operation is not possible with this model.  
 \* Acoustic noise may be heard from the power supply when used for pulse load.

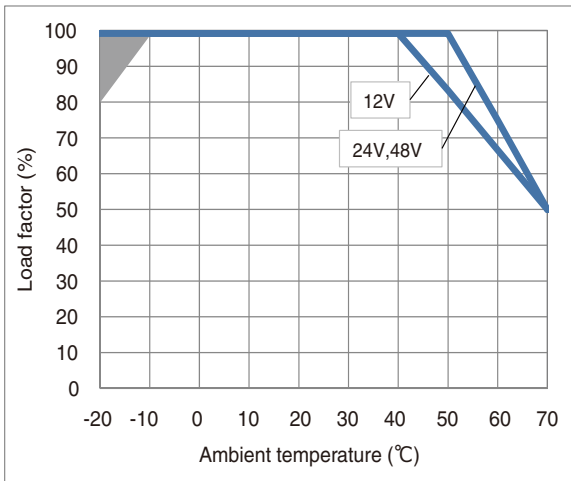
External view

<WDA90F>



- ※ Tolerance : ±1 [±0.04]
- ※ Weight : 350g max
- ※ Chassis · Case material : PBT
- ※ Din rail attachment material : PC/ABS
- ※ Dimensions in mm, [ ] = inches
- ※ Screw tightening torque : 1N · m max

Derating Curve



\*In the shaded area, it may take several seconds to determine the output voltage during cold start, but it can be used without any problems.

Fig.1 Derating curve depending on ambient temperature

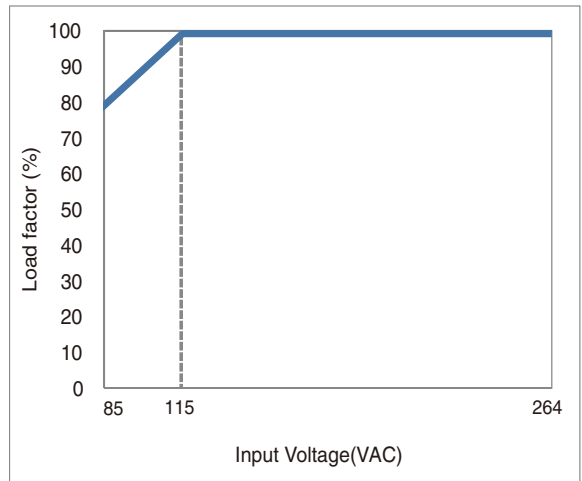
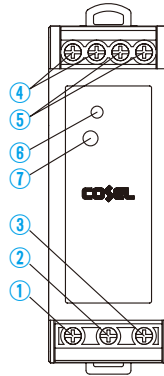
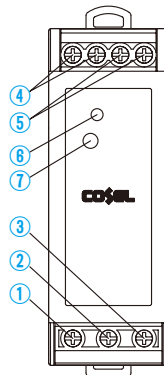


Fig.2 Derating curve depending on input voltage

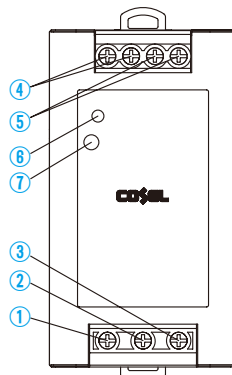
●WDA30F



●WDA60F



●WDA90F



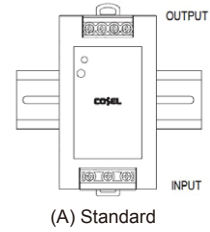
| Terminal Number | Terminal Name | Function                            |
|-----------------|---------------|-------------------------------------|
| ①               | PE            | Protective earth Terminal           |
| ②               | AC (N)        | Input Terminals                     |
| ③               | AC (L)        |                                     |
| ④               | +VOUT         | +Output Terminals                   |
| ⑤               | -VOUT         | -Output Terminals                   |
| ⑥               | DC_OK         | LED for output voltage confirmation |
| ⑦               | TRM           | Adjustment of output voltage        |



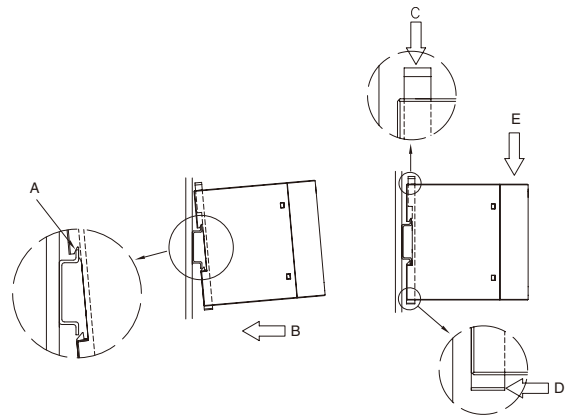
Assembling and Installation Method

Installation method

- About DIN-Rail Attachment available with DIN EN60715 TH 35 (35×7.5mm or 35×15mm) (Top hat shaped DIN rail)
- Below shows mounting orientation.  
If install other than standard mounting orientation (A), please fix the power supply for withstand the impact and vibration.

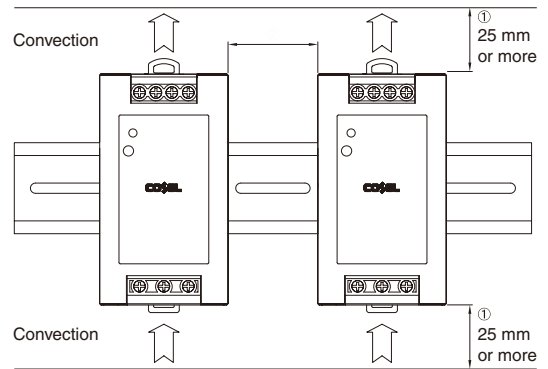


- When you mount a power supply on a DIN rail, have the area marked A catch one side of the rail and push the unit to the direction of B. To remove the power supply from the rail, either push down the area marked C or insert a tool such as driver to the area marked D and pull the unit apart from the rail. When you couldn't remove the unit easily, push down the area marked C while lightly pushing the unit to the direction of E.



- Shown below the notes about installation clearance of a unit.

- ① Installation clearance at above and below the unit.  
Please have clearance of at least 25mm above and below the unit to avoid heat accumulation.
- ② Installation clearance at the side of the unit.  
Please have clearance of at least 5mm side the unit to insulating the internal components. However, refer to right figure, if adjacent device of the unit (including power supply) is a heat source.



| No. | Model          | Adjacent device of the unit |                |
|-----|----------------|-----------------------------|----------------|
|     |                | Non-heat source             | Heat source(*) |
| 1   | WDA30F/60F/90F | 5mm or more                 | 15mm or more   |

\* Reference value when same power units are adjacent.

◆ It is necessary to read the "Instruction Manual" and "Before using our product" before you use our product.

Instruction Manual            <https://en.cosel.co.jp/product/powersupply/WDA/>  
 Before using our product    <https://en.cosel.co.jp/technical/caution/index.html>

**WDA**

**NOTICE**


## Basic Characteristics Data

| Model  | Circuit method    | Switching frequency [kHz] | Input current [A] | Rated input fuse | Inrush current protection circuit | PCB/Pattern |              |              | Parallel operation |
|--------|-------------------|---------------------------|-------------------|------------------|-----------------------------------|-------------|--------------|--------------|--------------------|
|        |                   |                           |                   |                  |                                   | Material    | Single sided | Double sided |                    |
| WDA30F | Flyback converter | 50 to 120                 | 0.6               | 250V 2.5A        | Thermistor                        | CEM-3/FR4   | Yes          | Yes          | No                 |
| WDA60F | Flyback converter | 50 to 120                 | 1.2               | 250V 2.5A        | Thermistor                        | CEM-3/FR4   | Yes          | Yes          | No                 |
| WDA90F | Flyback converter | 50 to 120                 | 1.8               | 250V 3.15A       | Thermistor                        | CEM-3/FR4   | Yes          | Yes          | No                 |

- \* The value of input current is at ACIN 115V and 100%.
- \* Burst operation at light loading, frequency is change by use condition. Please contact us about detail.

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