AC-DC Power Supplies DIN Rail Type





WDA-series



Feature

For DIN (35mm) Rail Prorducts 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

UKCA marking

Electrical Equipment Safety Regulations RoHS Regulations

5-year warranty (See Instruction Manual)

EMI

Complies with CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, FCC Part 15-B, FCC Part 18-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



	MODEL		WDA30F-5	WDA30F-12	WDA30F-24	WDA30F-48	
	VOLTAGE[V]		AC85 - 264 1¢				
	CURRENT[A] ACIN 115V ACIN 230V		0.6				
			0.3				
	FREQUENCY[Hz]		50/60 (47-63)				
	EEEICIENCVI%1	ACIN 115V	80typ	85typ	86typ	87typ	
INFOI		ACIN 230V	82typ	86typ	87typ	88typ	
		ACIN 115V	20typ Ta=25°C (at cold start))			
		ACIN 230V	40typ Ta=25℃ (at cold start)				
	LEAKAGE	ACIN115V	0.25max				
	CURRENT[mA]	ACIN240V	0.5max				
	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[n	וV] <mark>*1</mark>	50max	120max	240max	480max	
	LOAD REGULATION	mV] *1	50max	120max	240max	480max	
	RIPPLE NOISE [mVp-p] *2	lo=100%	150(Bandwidth 20MHz)				
OUTPUT	TEMPERATURE REGULATION[mV]	0~+50 ℃	100max	180max	360max	720max	
	START-UP TIME[ms]	ACIN 115V	100tvp				
		ACIN 230V	100030				
	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 SETT	ING[V]	4.90 to 5.30	11.75 to 12.25	23.5 to 24.5	47.0 to 49.0	
PROTECTION	OVERCURRENT PROTECTION [A]		Works over 105% of rating and recovers automatically				
CIRCUIT AND	OVERVOLTAGE PROTECTION[V]		5.75 to 7.00	13.8 to 16.8	27.6 to 33.6	54.0 to 67.2	
OTHERS	OPERATING INDICATION		LED (Green)				
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)				
ISOLATION	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)				
	OPERATING TEMP.,H	UMID. *3	-20 to +70°C, 20 - 90%RH (Non condensing)				
ENVIRONMENT	STORAGE TEMP.,HUI	/ID.	-30 to +85°C, 20 - 90%RH (Non condensing)				
Littinoitin	VIBRATION		10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along Z axis (Non operating.mounted on DIN Rail)				
	IMPACT		196.1m/s ² (20G), 11ms, once each X, Y and Z axis (Packing state)				
	AGENCY APPROVAL	S	UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1) , EN62368-1				
SAFETY AND	EMC EMISSION		Complies with CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, FCC Part 15-B, FCC Part 18-B				
EMC	EMC IMMUNITY	-	Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11				
	HARMONIC ATTENU	ATOR*4	Complies with IEC61000-3-2	2 (Class A) No built-in active	PFC		
OTHERS	CASE SIZE/WEIGHT		32×90×90mm (W×H×D) [1	1.26×3.54×3.54 inches] / 200)g max		
	COOLING METHOD		Convection				
WARRANTY	WARRANTY	*5	5 years (subject to the opera	ting conditions)			
*1 Consult us	about dynamic load and in	put respon	se. Measure the output voltage by	using comply with the IEC	C61000-3-2. Please contact us for d	letails.	
the average	e mode of the tester to deal	with the bu	rst operation at low (Io=0~20%typ)) load. *5 Consult us about d	etails.		
I I I I I I I I I I I I I I I I I I I	esuit of measurement of th	e testing DO	are with capacitors of 4/µF and 0.	ιμε 🔹 🕫 ine listed options i	nav anect the published standard s	specifications. Please contact us to	

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

meter equivalent to Kelsoku-GikenRMi104. When the load factor is low (lo=0~20%typ), the switching power loss is reduced by burst operation, which will cause ripple poise to go beyond the specifications

operation, which will cause ripple noise to go beyond the specifications. *3 Output power derating is required. Refer to "Derating"

*4 Please contact us about another class. When two or more units are operating it may not

WDA-2

Acoustic noise may be heard from the power supply when used for pulse load. April 25, 2025

*

of ambient temperature.

Parallel operation is not possible with this model.

detailed product specifications and safety approvals. All parameters not specially mentioned are measured at ACIN 230V, rated load and 25°C

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

WDA30F | COSEL

Block diagram



External view





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

	MODEL		WDA60F-12	WDA60F-24	WDA60F-48		
	VOLTAGE[V]		AC85 - 264 1 ¢				
	ACIN 115V		12				
	CURRENT[A]	ACIN 230V	0.6				
	FREQUENCY[Hz]		50/60 (47-63)				
		ACIN 115V	84typ	86typ	87typ		
INFUT		ACIN 230V	86typ	88typ	89typ		
		ACIN 115V	20typ Ta=25°C (at cold start)	·			
		ACIN 230V	0typ Ta=25℃ (at cold start)				
	LEAKAGE	ACIN 115V	0.25max				
	CURRENT[mA]	ACIN240V	0.5max				
	VOLTAGE[V]		12	24	48		
	CURRENT[A]		5	2.5	1.3		
	WATTAGE[W]		60	60	62.4		
	LINE REGULATION[n	1V] <u>*1</u>	120max	240max	480max		
	LOAD REGULATION[mV] *1		120max	240max	480max		
	RIPPLE NOISE [mVp-p] *2	lo=100%	150max (Bandwidth 20MHz)				
OUTPUT	TEMPERATURE REGULATION[mV]	0~+50 ℃	180max	360max	720max		
	START-UP TIME[ms]		100typ				
		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 SETT	ING[V]	11.75 to 12.25	23.5 to 24.5	47.0 to 49.0		
PROTECTION	OVERCURRENT PROTECTION [A]		Works over 105% of rating and recovers automatically				
CIRCUIT AND	OVERVOLTAGE PROTECTION[V]		13.8 to 16.8	27.6 to 33.6	54.0 to 67.2		
OTHERS	OPERATING INDICATION		LED (Green)				
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)				
ISOLATION	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)				
	OPERATING TEMP.,H	UMID. *3	-20 to +70°C, 20-90%RH (Non condensing)				
ENVIRONMENT	STORAGE TEMP., HUI	MID.	-30 to +85°C, 20-90%RH (Non condensing)				
	VIBRATION		10-55Hz, 19.6m/s ² (2G) , 3minutes period, 60minutes each along Z axis (Non operating.mounted on DIN Rail)				
	IMPACT		196.1m/s ² (20G), 11ms, once each X, Y and Z axis (Packing state)				
	AGENCY APPROVAL	S	UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1) , EN62368-1				
SAFETY AND	EMC EMISSION		Complies with CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, FCC Part 15-B, FCC Part 18-B				
EMC	EMC IMMUNITY		Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11				
	HARMONIC ATTENU	ATOR*4	Complies with IEC61000-3-2 (Class A) No built-in active PFC				
OTHERS	CASE SIZE/WEIGHT		32×90×90mm (W×H×D) [1.26×3.54	×3.54 inches] / 250g max			
	COOLING METHOD		Convection				
WARRANTY	WARRANTY	*5	5 years (subject to the operating condi	tions)			
 *1 Consult us the average *2 This is the r 	about dynamic load and in mode of the tester to deal esult of measurement of th	put respon with the bui e testing bo	se. Measure the output voltage by using rst operation at low (lo=0~20%typ) load. ward with capacitors of 47µF and 0.1µF *	comply with the IEC61000-3-2. Please cont 5 Consult us about details. 6 The listed options may affect the published	tact us for details. standard specifications. Please contact us for		

*2 This is the result of measurement of the testing board with capacitors of $47\mu\,F$ and $0.1\mu\,F$ 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 (lo=0~20%typ), the switching power loss is reduced by burst operation, which will cause ripple noise to go beyond the specifications. Output power derating is required. Refer to "Derating"

*3

*4 Please contact us about another class. When two or more units are operating it may not

April 25, 2025

of ambient temperature.

detailed product specifications and safety approvals. All parameters not specially mentioned are measured at ACIN 230V, rated load and 25°C

on on use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.

WDA60F | COSEL

Block diagram



External view



% 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



MODEL	WDA301-12	WDA301-24	WDA301 - 40
MAX OUTPUT WATTAGE[W]	90	91.2	91.2
DC OUTPUT	12V 7.5A	24V 3.8A	48V 1.9A

	MODEL		WDA90F-12	WDA90F-24	WDA90F-48		
	VOLTAGE[V]		AC85 - 264 1¢				
	CURRENT[A] ACIN 115V ACIN 230V		1.8				
			0.9				
	FREQUENCY[Hz]		50/60 (47-63)				
		ACIN 115V	84	87	88		
INFOI		ACIN 230V	86	89	90		
		ACIN 115V	20typ Ta=25℃ (at cold start)				
		ACIN 230V	40typ Ta=25℃ (at cold start)				
	LEAKAGE	ACIN 115V	0.4max				
	CURRENT[mA]	ACIN 240V	0.75max				
	VOLTAGE[V]		12	24	48		
	CURRENT[A]		7.5	3.8	1.9		
	WATTAGE[W]		90	91.2	91.2		
	LINE REGULATION[n	nV] *1	120max	240max	480max		
	LOAD REGULATION	mV] *1	120max	240max	480max		
	RIPPLE NOISE [mVp-p] *2	lo=100%	150max (Bandwidth 20MHz)				
OUTPUT	TEMPERATURE REGULATION[mV]	0~+50 ℃	180max	360max	720max		
	START-UP TIME[ms]	ACIN 115V ACIN 230V	100typ				
		ACIN 115V	/ 10typ				
		ACIN 230V	20typ				
	OUTPUT VOLTAGE ADJUSTMEN	T 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	OVERCURRENT PROTECTION [A]		Works over 105% of rating and recovers automatically				
CIRCUIT AND	OVERVOLTAGE PROTECTION[V]		13.8 to 16.8	27.6 to 33.6	54.0 to 67.2		
OTHERS	OPERATING INDICAT	ION	LED (Green)				
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)				
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (At Room Temperature)				
	OUTPUT-FG		AC500V 1minute, Cutoff current = 100mA, DC500V 50M Ω min (At Room Temperature)				
	OPERATING TEMP.,H	UMID. *3	-20 to +70°C, 20-90%RH (Non condensing)				
	STORAGE TEMP.,HUI	MID.	-30 to +85°C, 20-90%RH (Non condensing)				
	VIBRATION		10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along Z axis (Non operating mounted on DIN Rail)				
	IMPACT		196.1m/s ² (20G), 11ms, once each X, Y and Z axis (Packing state)				
	AGENCY APPROVAL	S	UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), EN62368-1				
SAFETY AND	EMC EMISSION		Complies with CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, FCC Part 15-B, FCC Part 18-B				
EMC	EMC IMMUNITY		Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11				
	HARMONIC ATTENUATOR*4		Complies with IEC61000-3-2 (Class A) No built-in active PFC				
OTHERS	CASE SIZE/WEIGHT		50×90×90mm (W×H×D) [1.97×3.54	×3.54 inches] / 350g max			
UTHENS	COOLING METHOD		Convection				
WARRANTY	WARRANTY	*5	5 years (subject to the operating condi	itions)			
*1 Consult us	about dynamic load and in	put respon	se. Measure the output voltage by using	comply with the IEC61000-3-2. Please cont	tact us for details.		
the average	e mode of the tester to deal	with the bu	rst operation at low (lo=0~20%typ) load.	Consult us about details. The listed options may affect the publiched	standard specifications. Plages contact us for		
placed at 15	50 mm from the output term	inals by a 2	20MHz oscilloscope or a ripple-noise	detailed product specifications and safety a	stanuaru specifications. Fiease contact us for		

placed at 150 mm from the output terminals by a 20MHz oscilloscope or a ripple-noise

when the load factor is low (lo= $0^{-20\%}$ typ), 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 Please contact us about another class. When two or more units are operating it may not

April 25, 2025

*

of ambient temperature.

All parameters not specially mentioned are measured at ACIN 230V, rated load and 25°C

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.

WDA90F | CO\$EL

Block diagram



External view



% 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



	MODEL		WDA120F-24	WDA120F-48	
	VOLTAGE[V]		AC85 - 264 1 ¢		
	CURRENT[A]		2.4		
			1.2		
	FREQUENCY[Hz]		50/60 (47-63)		
		ACIN 115V	88	89	
INPUT	EFFICIENCY[%]	ACIN 230V	90	91	
		ACIN 115V	30typ Ta=25℃ (at cold start)		
	INRUSH CURRENT[A]	ACIN 230V	60typ Ta=25℃ (at cold start)		
	LEAKAGE	ACIN 115V	0.4max		
	CURRENT[mA]	ACIN 240V	0.75max		
	VOLTAGE[V]		24	48	
	CURRENT[A]		5	2.5	
	WATTAGE[W]		120	120	
	LINE REGULATION[n	nV] *1	240max	480max	
	LOAD REGULATION[mV] *1	240max	480max	
	RIPPLE NOISE [mVp-p] *2	lo=100%	150max (Bandwidth 20MHz)		
OUTPUT	TEMPERATURE REGULATION[mV]	0~+50 ℃	360max	720max	
	START-UP TIME[ms]	ACIN 115V ACIN 230V	100typ		
	HOLD-UP TIME[ms]	ACIN 115V	10typ		
		ACIN 230V	20typ		
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		21.6 to 26.4	43.2 to 52.8	
	OUTPUT VOLTAGE SETTING[V]		23.5 to 24.5	47.0 to 49.0	
PROTECTION	OVERCURRENT PROTEC	CTION [A]	Works over 105% of rating and recovers automatically		
CIRCUIT AND	OVERVOLTAGE PROTECTION[V]		27.6 to 33.6	54.0 to 67.2	
OTHERS	OPERATING INDICAT	ION	LED (Green)		
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
ISOLATION	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)		
	OPERATING TEMP.,H	UMID. *3	-20 to +70°C, 20-90%RH (Non condensing)		
	STORAGE TEMP., HUI	MID.	-30 to +85°C, 20-90%RH (Non condensing)		
Envirionment	VIBRATION		10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along Z axis (Non operating.mounted on DIN Rail)		
	IMPACT		196.1m/s ² (20G), 11ms, once each X, Y and Z axis (Packing state)		
	AGENCY APPROVAL	s	UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1) , EN62368-1		
SAFETY AND	EMC EMISSION		Complies with CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, FCC Part 15-B, FCC Part 18-B		
EMC	EMC IMMUNITY		Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11		
	HARMONIC ATTENU	ATOR	-		
OTHERS	CASE SIZE/WEIGHT		50×90×90mm (W×H×D) [1.97×3.54×3.54 inches] / 400	g max	
	COOLING METHOD		Convection		
WARRANTY	WARRANTY	*4	5 years (subject to the operating conditions)		
*1 Consult us	about dynamic load and in	put respon	se. Measure the output voltage by using *4 Consult us about de	tails.	

the average mode of the tester to deal with the burst operation at low (lo=0~20%typ) load. This is the result of measurement of the testing board with capacitors of 47μ F and 0.1μ F *2 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 (lo=0~20%typ), 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"

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.



^{*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

WDA120F | COSEL

Block diagram



External view



** Tolerance : ±1 [±0.04]
**Weight : 400g max
**Chassis · Case material : PBT
**Dimensions in mm, [] = inches
**Screw tightening torque : 1N · m max

COŞEL | WDA-series

Terminal Blocks

•WDA30F/60F



•WDA90F/120F



Terminal Number	Terminal Name	Function		
1	PE	Protective earth Terminal		
2	AC (N)	Innut Terminele		
3	AC (L)	input ierminais		
4	+VOUT	+Output Terminals		
5	-VOUT	-Output Terminals		
B DC_OK		LED for output voltage confirmation		
1	TRM	Adjustment of output voltage		

WDA-series



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.

 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	Madal	Adjacent device of the unit		
INO.	woder	Non-heat source	Heat source(*)	
1	WDA30F/60F/90F/120F	5mm or more	15mm or more	

*Reference value when same power units are adjacent.

Derating

Derating curve for input voltage



COŞEL | WDA-series

Derating Curve

100

80

60

50

40

20

0

-20

-10

0

10

Load factor (%)

WDA30F Ambient temperature derating curve at rated input





WDA90F Ambient temperature derating curve at rated input

20

30

Ambient temperature (℃)

40

50

60

ature derating curve at Ambient temperature derating curve at rated input ① ② 100 100



WDA120F

The ambient temperature should be measured 5 to 10 cm away from the power supply so that it won't be influenced by the heat from the power supply. Please consult us for more details.

The shaded area is the derating required at start-up.

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Instruction Manual

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

Instruction Manual Before using our product https://www.cosel.co.jp/redirect/catalog/en/WDA/ https://en.cosel.co.jp/technical/caution/index.html





Basic Characteristics Data

Model	Circuit method	Switching frequency [kHz]	Input current [A]	Rated input fuse	Inrush current protection circuit	Parallel operation
WDA30F	Flyback converter	50 to 120	0.6	250V 2.5A	Thermistor	No
WDA60F	Flyback converter	50 to 120	1.2	250V 2.5A	Thermistor	No
WDA90F	Flyback converter	50 to 120	1.8	250V 3.15A	Thermistor	No
WDA120F	Flyback converter	30 to 120	2.4	250V 3.15A	Thermistor	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.