



WMA

WMA-series



Feature

For medical electric equipment (ANSI/AAMI ES60601-1, EN60601-1 3rd) Medical Isolation Grade 2MOPP 4kV isolation Low-profile Economical design Complies with SEMI F47(See Instruction Manual)

Safety agency approvals

ANSI/AAMI ES60601-1, EN60601-1 3rd, C-UL (CAN/CSA-C22.2 No.60601-1), UL62368-1, EN62368-1, C-UL (CAN/CSA-C22.2 No.62368-1), EN61558-2-16 (OVC III)

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 IEC60601-1-2 (2014), EN60601-1-2 (2015)

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



MODEL	WMA35F-5	WMA35F-12	WMA35F-24	WMA35F-48
MAX OUTPUT WATTAGE[W]	35	36	36	38.4
DC OUTPUT	5V 7A	12V 3A	24 1.5A	48V 0.8A

SPECIFICATIONS

	MODEL		WMA35F-5	WMA35F-12	WMA35F-24	WMA35F-48			
INPUT	VOLTAGE[V]		AC85 - 264 1¢						
	CURRENT[A]		0.7						
			0.4						
	FREQUENCY[Hz]		50/60 (47-63)						
		ACIN 115V	79typ	84typ	86typ	87typ			
	EFFICIENCY[%]	ACIN 230V	82typ	86typ	88typ	89typ			
	INRUSH CURRENT[A]	ACIN 115V	20typ Ta=25°C (at cold start)						
		ACIN 230V	40typ Ta=25℃ (at cold start)						
	LEAKAGE	ACIN 115V	0.3max						
	CURRENT[mA]	ACIN 240V	0.5max						
	VOLTAGE[V]		5	12	24	48			
	CURRENT[A]		7	3	1.5	0.8			
	WATTAGE[W]		35	36	36	38.4			
	LINE REGULATION[n	nV] <u>*1</u>	50max	120max	240max	480max			
	LOAD REGULATION	mV] *1	50max	120max	240max	480max			
	RIPPLE NOISE [mVp-p] *2	lo=100%	150max (Bandwidth 20MHz)						
OUTPUT	TEMPERATURE REGULATION[mV]	0~+50 ℃	100max	180max	360max	720max			
	START-UP TIME[ms]	ACIN 115V	100tup						
		ACIN 230V	тоохур 						
	HOLD-UP TIME[ms]	ACIN 115V	20typ						
		ACIN 230V	/ 60typ						
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		4.5 to 5.5	10.8 to 13.2	21.6 to 26.4	43.2 to 52.8			
	OUTPUT VOLTAGE SETTING[V]		4.9 to 5.3	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		AC4,000V 1minute, Cutott current = 10mA, DC500V 50MΩ min (At Room Temperature) 2MOPP						
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 1MOPP						
	OUTPUT-FG		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)						
	OPERATING TEMP.,HUMID.*3		-20 to +/0 C, 20 - 90% KH (Non condensing)						
ENVIRONMENT	STORAGE TEMP.,HUMID.		-20 to +75°C, 20 - 90%RH (Non condensing)						
	VIBRATION		10 - 5572, 19.011/5* (200), Similares period, bominutes each along X, Y and Z axis						
	IMPACT		196.1m/s ² (20G), 11ms, once each X, Y and Z axis						
	AGENCY APPROVALS		UL62368-1, U-UL (equivalent to CAN/CSA-C22.2 No.62368-1), EN62368-1, ANSI/AAMI ES60601-1, C-UL (equivalent to CAN/CSA-C22.2 No.60601-1, EN60601-1 3rd, EN61558-2-16 (OVC III), Complies with EC60601-1-2 4th Ed						
SAFETY AND	EMC EMISSON		Complies with CISPR11-B. CISPR32-B. EN55011-B. EN55032-B. FCC Part 15-B. FCC Part 18-B						
EMC			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						
	CASE SIZE/WEIGHT		30×82×99mm (W×H×D) / 200g max						
OTHERS	COOLING METHOD		Convection						
WARRANTY	WARRANTY	*5	5 years (subject to the opera	ting conditions)					
*1 Consult us a	about dynamic load and inp	ut response	Measure the output voltage by usin	ng the *5 Consult us about de	etails.				

average mode of the tester to deal with the burst operation at low (Io=0~20%Atyp) load. *6 The listed options may affect the published standard specifications. Please contact us for *2 This is the result of measurement of the testing board with capacitors of $47\mu\,F$ and $0.1\mu\,F$ detailed product specifications and safety approvals. All parameters not specially mentioned are measured at ACIN 230V, rated load and 25°C 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 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.

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

Parallel operation is not possible with this model. * Acoustic noise may be heard from the power supply when used for pulse load.

*4 Please contact us about another class. When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details.

WMA35F | CO\$EL

2-M3 (Depth : 5mm max) Mounting holes

External view

WMA



10

74 ±0.5

Derating Curve



Fig.1 Derating curve depending on ambient temperature

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.



*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. When the load factor is low (lo=0~20%Atyp), 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"

Please contact us about another class. When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details.

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.

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

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

of ambient temperature.

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November 10, 2023

WMA75F | CO\$EL

2-M3 (Depth : 5mm max) Mounting holes

External view





Derating Curve



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.



average mode of the tester to deal with the burst operation at low (lo=0~20%Atyp) load.

*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.

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"

49 Output power derating is required. Here to Derating *4 Please contact us about another class. When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details. 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.

The listed options may affect the published standard specifications. Please contact us for

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

Parallel operation is not possible with this model.
 Acoustic noise may be heard from the power supply when used for pulse load

detailed product specifications and safety approvals

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November 10, 2023

WMA100F | COSEL

Mounting holes

External view





Derating Curve



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.



*1 Consult us about dynamic load and input response. Measure the output voltage by using the *4

average mode of the tester to deal with the burst operation at low (Io=0~20%Atyp) load.

*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.

When the load factor is low (lo=0-20%Atyp), the switching power loss is reduced by burst variable. At the power loss is reduced by burst variable. The powe

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

*4 Consult us about details.*5 The listed options may aff

 *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

 An parameters not specially mentioned are measured at ACIN 230V, rated load ar of ambient temperature.

st * 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.

November 10, 2023

WMA150H | COŞEL

External view

WMA



Case material : Hot-dip galvanized steel board (SGCC)
 Mounting torque : 0.49N • m max
 TB1 screw tightening torque : 1N • m max

% Please connect safety ground to the unit in 2-M3 holes.

Derating Curve



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.



*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	WMA350H-12 WMA350H-24		WMA350H-36	WMA350H-48	
MAX OUTPUT WATTAGE[W]	348	350.4	349.2	350.4	
DC OUTPUT	12V 29A	24V 14.6A	36V 9.7A	48V 7.3A	

SPECIFICATIONS

	MODEL		WMA350H-12	WMA350H-24	WMA350H-36	WMA350H-48			
	VOLTAGE[V]		AC85 - 132 1 \$\phi/AC170 - 264 1 \$\phi (Selectable by switch) \$\phi = 122 \phi = 122 \ph						
	CURRENT[A] ACIN 115V ACIN 230V		6.0						
			3.3						
	FREQUENCY[Hz]		50/60 (47-63)						
INPUT		ACIN 115V	85typ	87typ	88typ	88typ			
	EFFICIENCY[%]	ACIN 230V	86typ	88typ	89typ	89typ			
	INRUSH CURRENT[A]	ACIN 115V	60typ Ta=25°C (at cold start)						
		ACIN 230V	60typ Ta=25°C (at cold start)						
	LEAKAGE ACIN 115V CURRENT[mA] ACIN 240V		0.3max						
			0.5max						
	VOLTAGE[V]	<u></u>	12	24	36	48			
	CURRENT[A]		29	14.6	9.7	7.3			
-	WATTAGE[W]		348	350.4	349.2	350.4			
	LINE REGULATION[n	nV] *1	120max	240max	360max	480max			
	LOAD REGULATION	[mV] *1	120max	240max	360max	480max			
	RIPPLE NOISE [mVp-p] *2	lo=100%	150max (Bandwidth 20MHz)						
OUTPUT	TEMPERATURE REGULATION[mV]	0~+50 ℃	180max	360max	540max	720max			
	START-UP TIME[ms]		1300typ						
	HOLD-UP TIME[ms]	ACIN 115V	12typ						
		ACIN 230V	/ 16typ						
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		10.8 to 13.2	21.6 to 26.4	32.4 to 39.6	43.2 to 52.8			
	OUTPUT VOLTAGE SETTING[V]		11.75 to 12.25	23.5 to 24.5	35.0 to 37.0	47.0 to 49.0			
PROTECTION	OVERCURRENT PROTEC	CTION [A]	Works over 105% of rating and recovers automatically						
CIRCUIT AND	OVERVOLTAGE PROTECTION[V]		13.8 to 16.8	27.6 to 33.6	41.4 to 50.4	55.2 to 67.2			
OTHERS	OPERATING INDICATION		LED (Green)						
	INPUT-OUTPUT		AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 2MOPP						
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (At Room Temperature) 1MOPP						
	OUTPUT-FG		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)						
	OPERATING TEMP.,HUMID.*3		-20 to +70°C, 20-90%RH (Non condensing)						
ENVIBONMENT	STORAGE TEMP.,HU	MID.	-20 to +75°C, 20-90%RH (Non condensing)						
Littinoitin	VIBRATION		10 - 55Hz, 19.6m/s ² (2G) , 3minutes period, 60minutes each along X, Y and Z axis						
	IMPACT		196.1m/s ² (20G), 11ms, once each X, Y and Z axis						
SAFETY AND	AGENCY APPROVALS		UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), EN62368-1, ANSI/AAMI ES60601-1, C-UL (equivalent to CAN/CSA-C22.2 No.60601-1), EN60601-1 3rd, EN61558-2-16 (OVC III), Complies with IEC60601-1-2 4th Ed.						
EMC	EMC EMISSON		Complies with CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, FCC Part 15-B, FCC Part 18-B						
	EMC EMMUNITY		Complies with EN61000-4-2, 3, 4, 5, 6, 8, 11						
OTHERS	CASE SIZE/WEIGHT		115×30×215mm (W×H×D) / 800g max						
	COOLING METHOD		Forced cooling (internal fan)						
WARRANTY	WARRANTY	*4	5 years (subject to the operation	ating conditions)					
*1 Consultus	about dynamic load and	l innut resi	oonse	* All parameters not	specially mentioned are measured	at ACIN 230V, rated load and 25°C			

*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.

*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.

*

of ambient temperature.

WMA350H | COŞEL

External view

WMA



Derating Curve



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.

COŞEL | WMA-series

Assembling and Installation Method

To keep enough isolation between screws and internal components, the length of the mounting screw should not exceed recommendation as shown in the figure.



In order to withstand vibrations and impact, support which is shown in the figure is necessary.



If you use two or more power supplies side by side, please keep a sufficient distance between them to allow enough air ventilation.

Ambient temperature around each power supply should not exceed the temperature range shown in the derating curve.

The unit has cooling fan. (WMA350H)

Ensure that the inlet and outlet vents are not blocked.

Instruction Manual

Please read the "Instruction Manual" and "Before using our product" before you use our product.

Instruction Manual Before using our product https://www.coselasia.com/product/index01#post-10-1337 https://en.cosel.co.jp/technical/caution/index.html



Basic Characteristics Data

Model Circuit method		Switching	Input	Datad	Inrush	PCB/Pattern			
	frequency [kHz]	current [A]	input fuse	protection circuit	Material	Single sided	Double sided	operation	
WMA35F	Flyback converter	50 to 120	0.7	250V 2.5A	Thermistor	CEM-3	Yes		No
WMA75F	Flyback converter	50 to 120	1.4	250V 3.15A	Thermistor	CEM-3	Yes		No
WMA100F	Flyback converter	50 to 120	2.0	250V 3.15A	Thermistor	CEM-3	Yes		No
WMA150H	Flyback converter	50 to 120	1.7/3.0	250V 6.3A	Thermistor	CEM-3	Yes		No
WMA350H	Forwrad converter	65	3.3/6.0	250V 10A	Thermistor	CEM-3	Yes		No

Mouser Electronics

Authorized Distributor

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Cosel:

 WMA150H-24
 WMA35F-5
 WMA100F-36
 WMA35F-24
 WMA75F-48-J1
 WMA100F-48
 WMA35F-24-J1
 WMA100F

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 WMA350H-12-C
 WMA35F-5-J1
 WMA100F-12
 WMA350H-24-C
 WMA150H-12
 WMA350H-36-G
 WMA350H-48

 G
 WMA35F-12-J1
 WMA100F-24
 WMA75F-12-J1
 WMA150H-24-G
 WMA350H-12-G
 WMA75F-12
 WMA150H-24-C

 WMA35F-12
 WMA35F-48
 WMA75F-24-J1
 WMA150H-24-G
 WMA350H-48-C
 WMA350H-48

 WMA150H-12-G
 WMA350H-48-C
 WMA350H-24
 WMA150H-12-C
 WMA350H-48-C
 WMA350H-36

 WMA35F-48-J1
 WMA350H-24
 WMA150H-12-C
 WMA75F-48
 WMA350H-36

 WMA35F-48-J1
 WMA350H-32
 WMA350H-24-G
 WMA350H-36-G
 WMA350H-36-G