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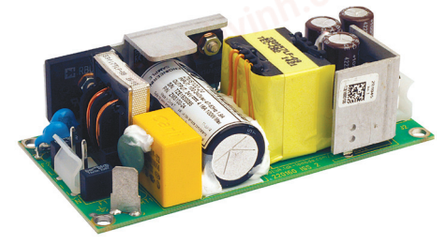
ZMS100 Series

www.emea.tdk-lambda.com/zms

LED Industrial Test Comm Broadcast Medical

80W Convection, 100W Forced-Air Cooled Single Output Power Supplies

Features	Benefits
• Long e-cap lifetime	• Better field reliability and service life
• Compact 2 x 4 inch footprint	• Space saving in end equipment
• Medical approval with 2 x MoPP isolation	• Suitable for B and BF type medical equipment
• Suitable for Class I and Class II installations	• Flexible utilisation
• Ceramic start-up cap	• Eradicates start-up cap dry out problems



Specification (1)

Model		ZMS100
AC Input Voltage range (2) (4)	-	85 - 264VAC (47-63Hz)
Input Fusing		Line and neutral
Input Current (230V/115Vac)	A	1.0 / 2.0
Inrush Current - cold start	A	<40 (max at 264Vac input)
Harmonic Compliance	-	Compliant to EN/IEC61000-3-2 class A
Temperature Coefficient	-	<0.02% / °C
Hold Up Time at 80W load,115/230Vac	ms	22 / 108 (see graphs for more detail)
Hold Up Time at 100W load,115/230Vac	ms	16 / 84 (see graphs for more detail)
Leakage Current	μA	<100μA at 100V 60Hz input, <250μA at 230V 50Hz
Touch Current (enclosure leakage)	μA	<100 μA
Cooling	-	80W with convection cooling, 100W max. with forced air cooling (see airflow rate graphs)
Efficiency	-	Up to 90% (see efficiency curves)
Operating Temperature	°C	-20°C to +70°C, derate linearly to 50% load from 50°C to 70°C
Storage Temperature	°C	-40°C to +85°C
Operational Altitude	-	5000m
Overcurrent Protection		hiccup (auto recovery)
Overvoltage Protection		Latching (unit shutdown, recycle mains to restart)
No Load Input Power at 230Vac	W	<0.5
Average Active Efficiency	%	>87
Humidity (non condensing)	RH	Operating and storage : 5 - 95% (non-condensing)
Withstand Voltage	-	Input to output 4kVac 2x MoPP, 1.5kVac input to ground 1x MoPP, 1.5kVac output to ground 1 x MoPP
Isolation Resistance	Ω	>100MΩ at 25°C & 70%RH
Isolation Class (3)		Construction suitable for Class II installations
Vibration	-	10 to 500Hz at 2G, EN60068-2-6 19,6m/s² Constant, X, Y, Z 1 hour each.
Shock	-	30G EN60068-2-27, -47, MIL-STD-810E
Approvals	-	IEC/EN/UL/CSA 62368-1, 60950-1 and 60601-1, ANSI/AAMI ES 60601-1, CE and UKCA Marks. Designed to meet IEC/EN/UL/CSA 61010-1:2010. ZMS100-12, 15 and 24 are type tested to EN 60335-1.
Conducted & Radiated EMI (5)		EN 55011 / EN 55032 level B conducted, level A radiated
Weight (max)	g	155
Size (W x L x H)	mm	50.8 x 101.6 x 31.9
Warranty	yrs	3
Connectivity		Molex as standard with separate ground faston Input Molex 10-63-4027, output Molex 09-65-2048

Notes: **1.** Specification parameters apply at 25°C ambient temperature unless stated otherwise.

2. For 12V & 15V unit derate from 100% at 100V to 90% at 90V and to 80% at 85V, for 24V, 36V, & 48V unit derate from 100% at 90V to 90% at 85V. (convection and forced air ratings) .

3. ZMS100 uses Y1 capacitors to earth.

4. Consult Sales Office for use under DC Input conditions.

5. Additional measures will be needed if used in environments where Class B radiated is required.

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Model Selector

Model	Nominal Output Voltage (V)	Output Adjust Range (V)	Maximum Current Convection (A)	Maximum Current Forced Air (A)	Maximum Output Power Convection (W)	Maximum Output power Forced Air (W)	Ripple [6] and noise (mv pk-pk)	Load Reg from 0 - full load (mv)	Line Reg from 85-264Vac (mv)
ZMS100-12	12	11.4 to 13.2	6.7	8.4	80.4	100.8	120	120	60
ZMS100-15	15	14.25 to 16.5	5.4	6.7	81.0	100.5	150	150	75
ZMS100-24	24	22.8 to 26.4	3.4	4.2	81.6	100.8	240	240	120
ZMS100-36	36	34.2 to 39.6	2.25	2.8	81.0	100.8	360	360	180
ZMS100-48	48	45.6 to 52.8	1.67	2.1	80.2	100.8	480	480	240

Note: **6.** At 115Vac input, 25°C.

Immunity Levels

Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	4	A	
Radiated Susceptibility	EN61000-4-3	3	A	inc proximity field requirements of EN60601-1-2:2015
Electrical Fast Transient Burst	EN61000-4-4	4	A	(AC Port, 5kHz and 100KHz)
Surge	EN61000-4-5	3	A	-
Conducted Susceptibility	EN61000-4-6	3	A	-
Magnetic fields	EN61000-4-8	4	A	-
Voltage Dips & Interruptions	EN61000-4-11 Class 3 Industrial inc EN55024 (100VAC)	0% for 1/2 cycle	A/B	A up to 94W, B above 94W
		0% for 1 cycle	A/B	A up to 54W, B above 54W
		40% for 10/12 cycles	B	-
		70% for 25/30 cycles	A/B	A up to 54W, B above 54W
		80% for 250/300 cycles	A/B	A up to 94W, B above 94W
		0% for 250/300 cycles	B	-
	EN61000-4-11 Class 3 Industrial inc EN55024 (240VAC)	0% for 1/2 cycle	A	100W
		0% for 1 cycle	A	100W
		40% for 10/12 cycles	A	-
		70% for 25/30 cycles	A	-
		80% for 250/300 cycles	A	-
		0% for 250/300 cycles	B	-
	EN60601-1-1:2015 (100VAC)	0% for 1/2 cycle	A/B	A up to 94W, B above 94W
		0% for 1 cycle	A/B	A up to 54W, B above 54W
		70% for 25/30 cycles	A/B	A up to 54W, B above 54W
		0% for 250/300 cycles	B	-
	EN60601-1-1:2015 (240VAC)	0% for 1/2 cycle	A	100W
		0% for 1 cycle	A	100W
		70% for 25/30 cycles	A	-
		0% for 250/300 cycles	B	-
Ringwave Test	EN61000-4-12	3	A	-
Voltage Fluctuations	EN61000-4-14	Class 3	A	-

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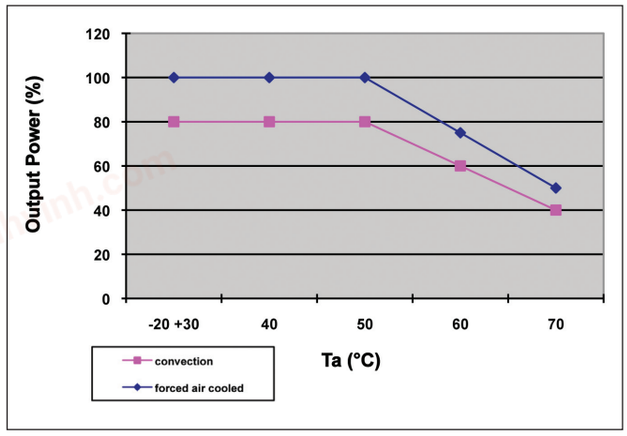
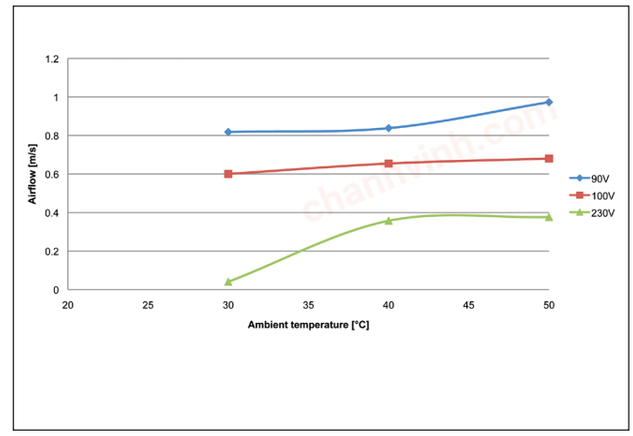
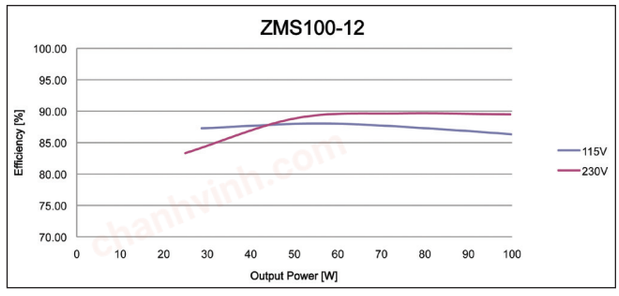
Output Derating ZMS100 SeriesOutput

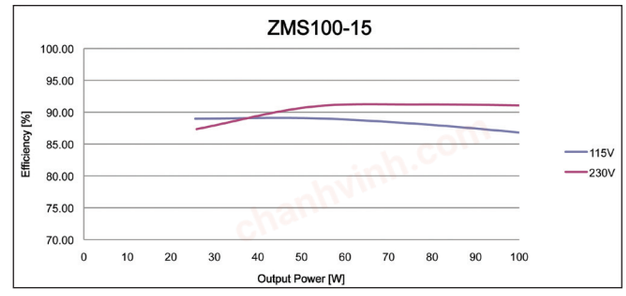


Minimum Required Airflow for ZMS100-24 at 100W



ZMS100 Series Efficiency Curves





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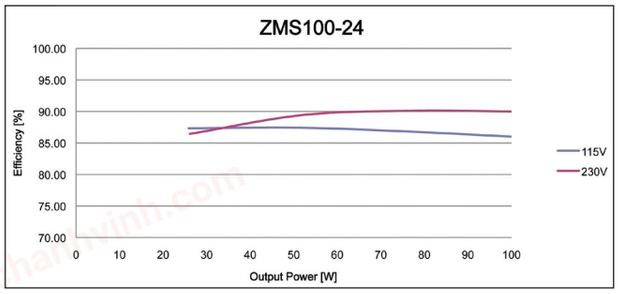
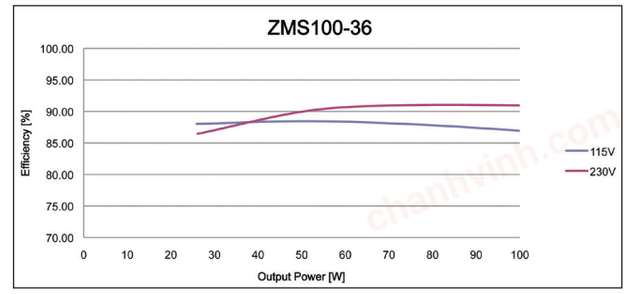
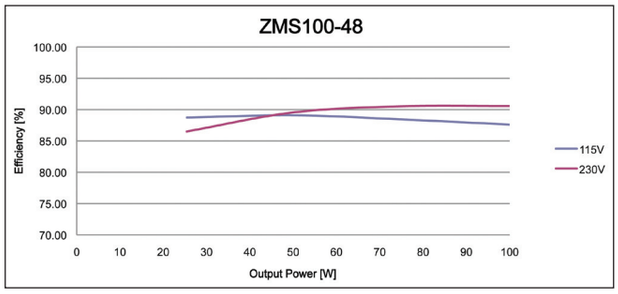
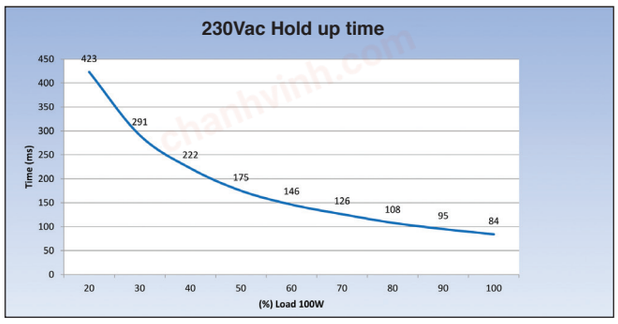
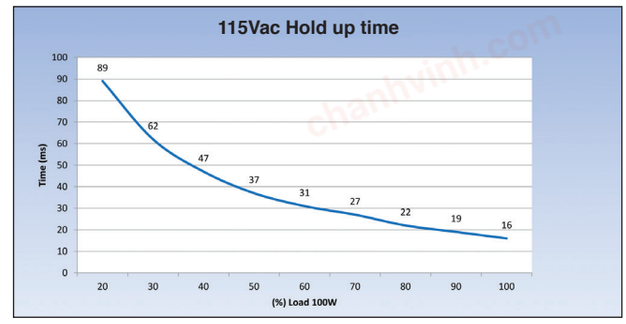




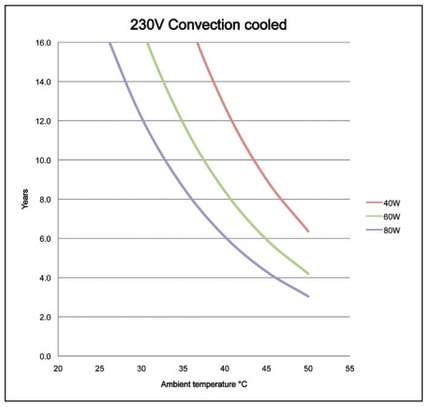


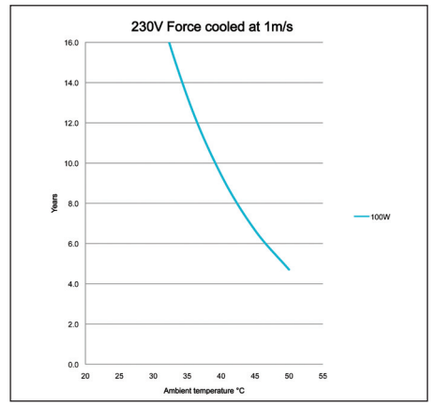
Hold Up Time Characteristics for ZMS100 (12V)





Electrolytic Capacitor: Example Life Curve





Notes: Based on ZMS100-12 bulk cap life estimates. Consult TDK-Lambda for other operating condition examples.

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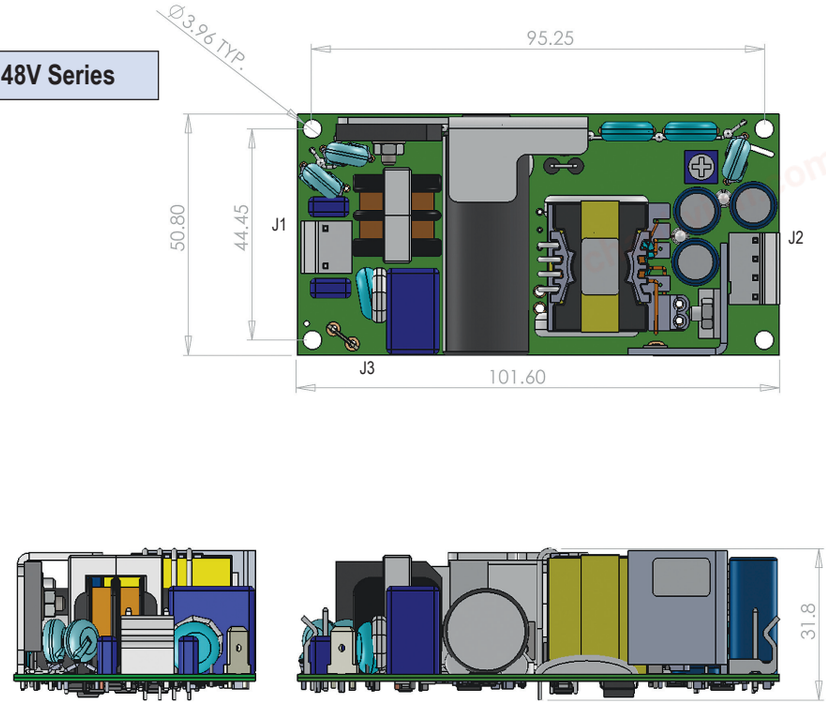
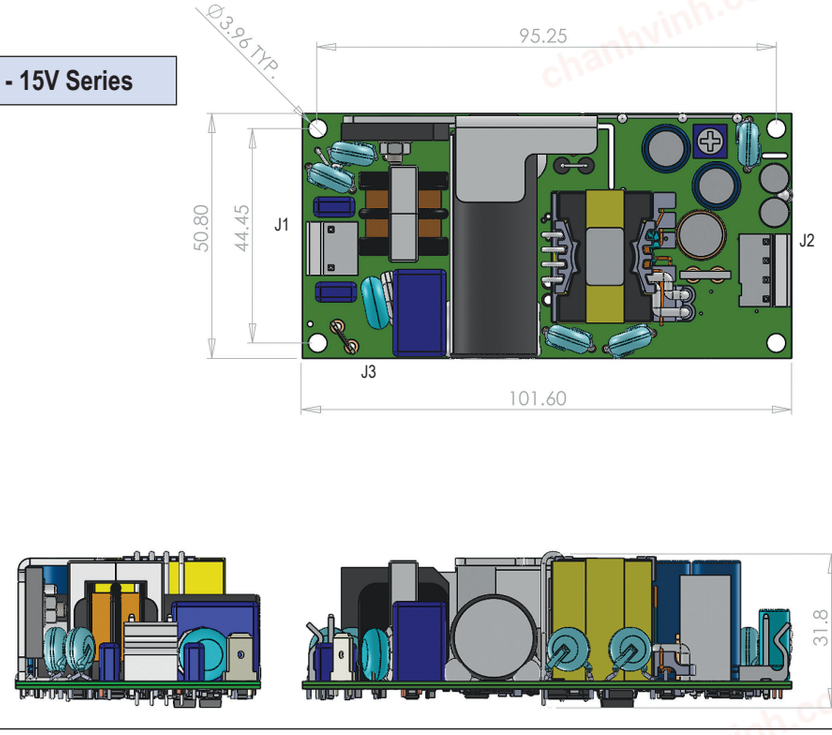
Outline Drawing ZMS100 24 - 48V Series



Outline Drawing ZMS100 12 - 15V Series



ZMS100 Series Pinout

JI		J2		J3	
PIN	Connection	PIN	Connection	PIN	Connection
1	Live	1	+VE	1	Earth
2	Not Connected	2	+VE		
3	Neutral	3	0V		
		4	0V		

ZMS100 Mating Parts

Connector	Housing	Crimp Pin	Manufacturer
J1	09-50-1031	08-70-1030	Molex
J2	09-50-1041	08-70-1030	Molex
J3 (Faston)	22-18AWG - 2-520407-2 16-14AWG - 3-520408-2	-	Tyco

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