

CBM101S SERIES 100 WATT AC-DC BRICK POWER SUPPLY WITH PFC

Features

- Universal Input Range 90~264Vac
- High Efficiency up to 94.5%
- Meets Class I
- No Load Input Power Consumption<0.5W
- Peak Power Operation up to 120Watt for 5s
- Approval IEC/EN/UL 62368-1
- Approval EN55032 and CISPR/FCC Class B
- Operating Altitude 5000m
- Continuous Short Circuit Protection
- Over Voltage Protection
- Over Temperature Protection
- Low Inrush Current < 8.5A
- 17mm Ultra Low Profile Package
- Full Load without Heat Sink
- No Fan Required
- Build in EMI Filters Bulk Capacitor and Output Capacitors
- Wide Operating Temperature Range



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MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE NOTE1	VOLTAGE ACCURACY NOTE2	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	%EFF. (Typ) NOTE5
CBM101S120	12 V	8.4 A	120 mV	±1%	±0.5%	±0.5%	93.5%
CBM101S240	24 V	4.2 A	150 mV	±1%	±0.5%	±0.5%	94.5%
CBM101S280	28 V	3.6 A	240 mV	±1%	±0.5%	±0.5%	94.5%
CBM101S360	36 V	2.8 A	280 mV	±1%	±0.5%	±0.5%	94.5%
CBM101S480	48 V	2.1 A	300 mV	±1%	±0.5%	±0.5%	94.5%

Note:

1. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple & noise measuring @20MHz BW.
2. Voltage accuracy is set at full load.
3. Line regulation is measured from 100Vac to 240Vac with full load.
4. Load regulation is measured from 10% to 100% full load.
5. Typical efficiency at 230 VAC and full load at 25°C.
6. Power Dissipation (Pd): $P_d = P_i - P_o = P_o(1-\eta)/\eta$.

PART NUMBER

Series	Number of Outputs	Nominal Output Voltage
CBM101	O	XXX
CBM101	S: Single	120: 12VDC 240: 24VDC 280: 28VDC 360: 36VDC 480: 48VDC

Part Number Example:

CBM101S120: Brick Power, 100W, Single 12Vdc Output

CBM101S Series

TECHNICAL SPECIFICATIONS

(All specifications are typical at nominal input, full load at 25°C unless otherwise noted.)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input Voltage		All	90 120		264 370	V _{ac} V _{dc}
Operating Temperature	See Derating Curve	All	-40		85	°C
Operating Case Temperature	At the Center of Base Plate (T _c = Case temperature)	All	-40		90	°C
Storage Temperature		All	-40		100	°C
Input/Output Isolation Voltage	1 minute	All			4000	V _{ac}
Operating Altitude		All			5000	m

INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Operating Voltage Range		All	100		240	V _{ac}
Input Frequency Range		All	47		63	Hz
Maximum Input Current	100% Load, V _{in} =100V _{ac}	All			1.5	A
Inrush Current	V _{in} =240V _{ac} , Cold start @25°C	All		8.5		A
Leakage Current (RMS)	AC/L(Line) to GND Vout+ to GND Vout- to GND	All			300 100 100	uA
Under Voltage Protection		All	55	65	75	V _{ac}
Power Factor	230V _{ac} /50Hz @ Full Load	All	0.91			

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	V _{in} =90V _{ac} ~264V _{ac} , I _o =Full load Ambient temperature=25°C	CBM101S120 CBM101S240 CBM101S280 CBM101S360 CBM101S480	11.88 23.76 27.72 35.64 47.52	12 24 28 36 48	12.12 24.24 28.28 36.36 48.48	V _{dc}
Operating Output Current Range	V _{in} =90V _{ac} ~264V _{ac} , See Derating Curve	CBM101S120 CBM101S240 CBM101S280 CBM101S360 CBM101S480			8.4 4.2 3.6 2.8 2.1	A
Holdup Time	V _{in} =115V _{ac} at 25°C	CBM101S120 CBM101S240 CBM101S280 CBM101S360 CBM101S480	30 30 20 30 30	40 40 30 40 40		ms
Startup Delay Time	V _{in} =90V _{ac} ~264V _{ac}	All		1		S
Temperature Coefficient	T _c =-40°C to 50°C	All			±0.02	%/°C
Load Regulation	10% Load to Full Load	All			±0.5	%
Line Regulation	V _{in} =High line to low line	All			±0.5	%
Over Voltage Protection	Latch off (AC recycle to restart)	CBM101S120 CBM101S240 CBM101S280 CBM101S360 CBM101S480			16 35 35 50 63	V _{dc}

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PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Over Current Protection	Hiccup mode, auto recovery	All	120	135	150	%
Short Circuit Protection	Auto recovery	All				
Over Temperature Protection	Auto recovery	All				
Output Ripple and Noise	1. Add a 0.1uF Ceramic Capacitor and a 10uF Aluminum Electrolytic Capacitor to Output 2. Oscilloscope is 20MHz Band Width 3. Ambient Temperature=25°C	CBM101S120			120	mV
		CBM101S240			150	
		CBM101S280			240	
		CBM101S360			280	
		CBM101S480			300	
Load Capacitance	1. Input Voltage is 115V _{ac} and 230V _{ac} 2. Output is max. Full Load 3. Ambient Temperature=25°C	CBM101S120			8400	uF
		CBM101S240			4200	
		CBM101S280			3600	
		CBM101S360			2800	
		CBM101S480			2100	

EFFICIENCY

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Efficiency	1. Input Voltage is 230V _{ac} 2. Output is Full Load 3. Ambient Temperature=25°C	CBM101S120		93.5		%
		CBM101S240		94.5		
		CBM101S280		94.5		
		CBM101S360		94.5		
		CBM101S480		94.5		

ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input to Output	1 minute (without dielectric breakdown)	All			4000	V _{ac}
Input to Earth (Ground)	1 minute (without dielectric breakdown)	All			1800	V _{ac}
Output to Earth (Ground)	1 minute (without dielectric breakdown)	All			1800	V _{ac}
Isolation Resistance	Input to Output	All	100			MΩ

FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency		All		110		kHz

GENERAL SPECIFICATIONS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I _o =100%; T _a =25°C per MIL-HDBK-217F	All		600		k hours
Life Time	Without heat sink@75% Load, T _a =50°C	All		85		k hours
Humidity	Non-condensing	All			93	% RH
Shock	Meets MIL-STD-810F Table 516.5, TABLE 516.5-I 10ms, each axis 3 times(±X、±Y、±Z axis)	All		75		g
Vibration	Meets MIL-STD-810F Table 514.5C-VIII, 15~2000Hz, X、Y、Z axis, 1 hr (each axis), total 3 hrs.	All		4		g
Weight		All		240		grams
Dimensions		All	4.60x2.40x0.67 Inches (116.8x61.0x17.0 mm)			
Safety	Class I IEC 62368-1 EN 62368-1 UL 62368-1					Ed. 3.0
EMC Emission	EN 55032: 2015+A11: 2020, EN 61000-6-3 2007+A1: 2011+AC: 2012, Class B EN 61000-6-4:2019, 47 CFR FCC Part 15 Subpart B, EN 61204-3:2018, EN 61000-3-2: 2019, EN61000-3-3: 2013+A1: 2019					Class B
Conducted Disturbance	EN 55032: 2015+A11: 2020, EN 61000-6-3 2007+A1: 2011+AC: 2012, Class B EN 61000-6-4:2019, 47 CFR FCC Part 15 Subpart B, EN 61204-3:2018,					Class B
Radiated Disturbance	EN 55032: 2015+A11: 2020, EN 61000-6-3 2007+A1: 2011+AC: 2012, Class B EN 61000-6-4:2019, 47 CFR FCC Part 15 Subpart B, EN 61204-3:2018,					Class B

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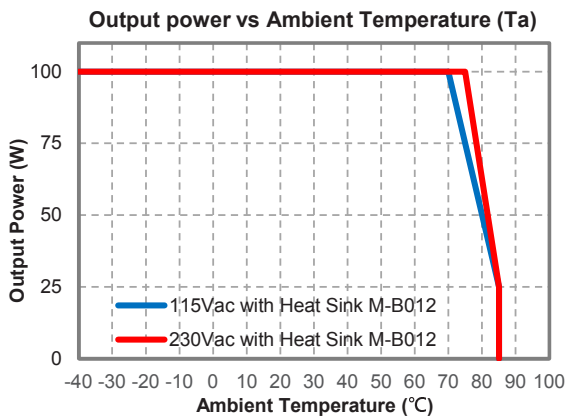
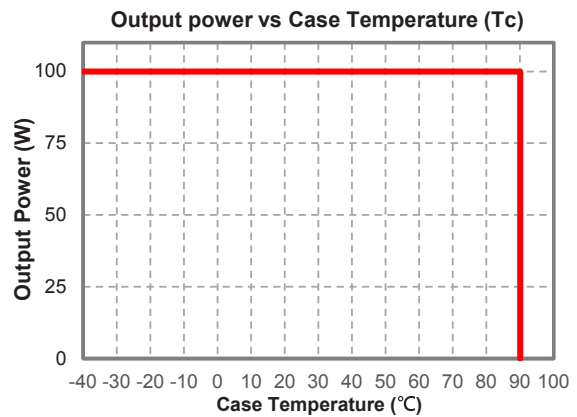
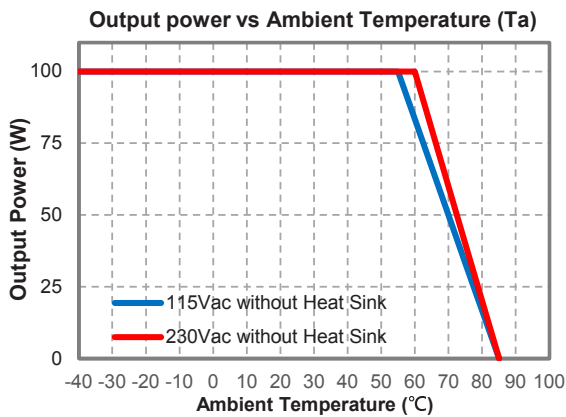
GENERAL SPECIFICATIONS

Harmonic Current Emissions	EN61000-3-2:2019	Class A
Voltage Fluctuations & Flicker	EN61000-3-3:2013+A1:2019	Criterion A
EMC Immunity	EN 55035: 2017+A11: 2020, EN 61204-3: 2018, EN 61000-6-1: 2019, EN 61000-6-2: 2019, EN 61000-6-4-2,3,4,5,6,8,11	
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008, Air Discharge: $\pm 8\text{kV}$, Contact Discharge: $\pm 4\text{kV}$	Criterion A
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3:2020	Criterion A
Electrical Fast Transient (EFT)	IEC61000-4-4:2012, $\pm 1\text{kV}$, $\pm 2\text{kV}$	Criterion A
Surge	IEC61000-4-5:2014+A1:2017, L-N: $\pm 0.5\text{kV}$, $\pm 1\text{kV}$, L-E(ground): $\pm 0.5\text{kV}$, $\pm 1\text{kV}$, $\pm 2\text{kV}$	Criterion A
Conducted Disturbances, Induced by RF Fields	IEC 61000-4-6:2013+COR1:2015	Criterion A
Power Frequency Magnetic Field	IEC 61000-4-8:2009	Criterion A
Voltage Dips	IEC 61000-4-11:2020, Dip: 30% Reduction, Dip >95% Reduction	Criterion A
Voltage Interruptions	IEC 61000-4-11:2020, >95% Reduction	Criterion B
Application Note Link		CBM101S Series App Notes

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CHARACTERISTIC CURVE

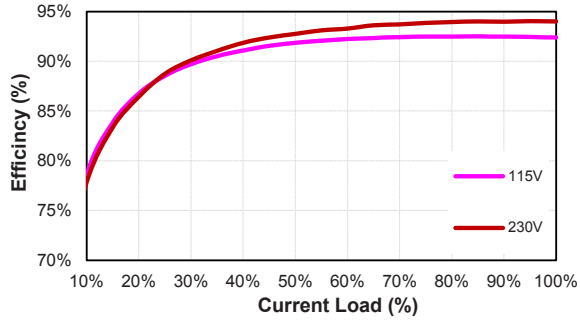
Power Derating Curve



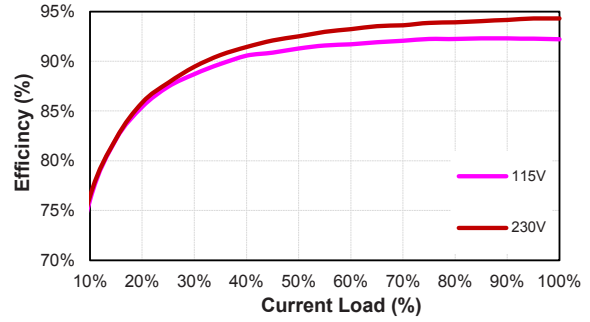
CBM101S Series

Performance Data

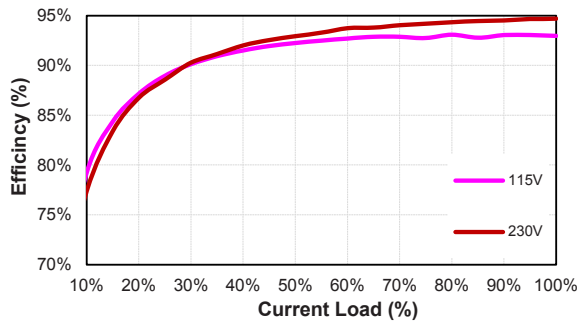
CBM101S120 (Eff Vs Io)



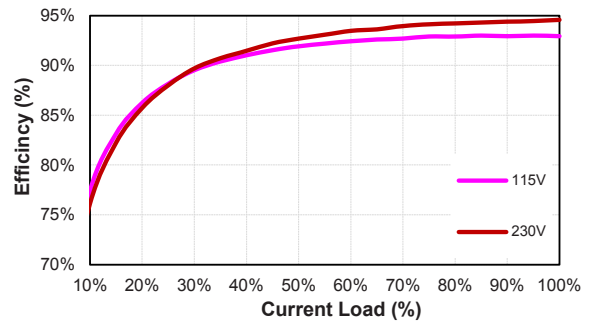
CBM101S240 (Eff Vs Io)



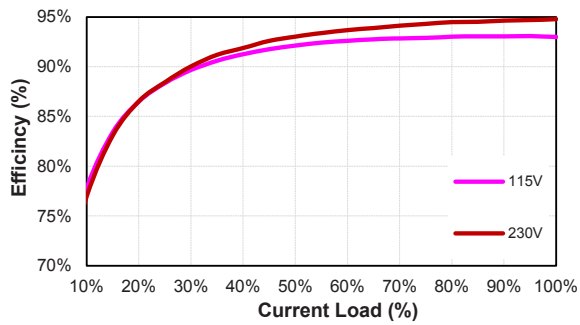
CBM101S280 (Eff Vs Io)



CBM101S360 (Eff Vs Io)



CBM101S480 (Eff Vs Io)

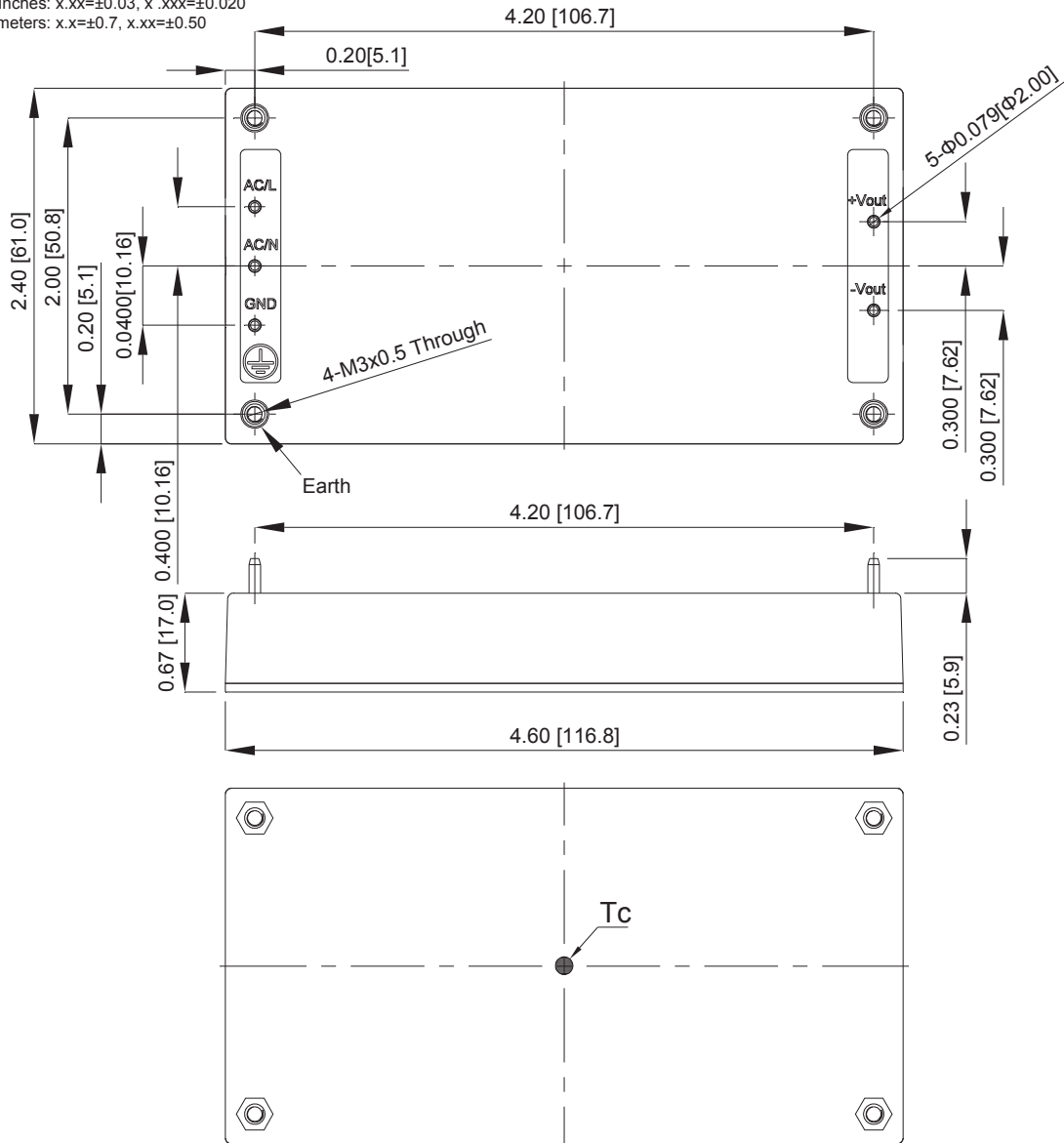


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MECHANICAL SPECIFICATION

All Dimensions in Inches[mm]
 Tolerance Inches: x.xx=±0.03, x.xxx=±0.020
 Millimeters: x.x=±0.7, x.xx=±0.50



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Specification is subject to change without notice. Errors excepted. Status as at: 24.11.2022