



CBM150S SERIES 150 WATT AC-DC BRICK POWER SUPPLY WITH PFC

Features

- Universal Input Range 90~264Vac
- High Efficiency up to 93%
- Class I
- No Load Input Power Consumption<0.5W
- 54V No Load Input Power Consumption<0.7W
- Approval IEC/EN/UL 62368-1
- Approval EN55032 and CISPR/FCC Class B
- Operating Altitude 5000m
- Continuous Short Circuit Protection
- Over Voltage Protection
- 19.7mm Ultra Low Profile Package
- Full Load with Baseplate Cooled and No Fan Required
- Built-in EMI Filters Bulk Capacitor and Output Capacitors
- High Power Density 17.4W/Inches³
- Wide Operating Temperature Range



MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE NOTE1	VOLTAGE ACCURACY NOTE2	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	TRIM	%EFF. (Typ) NOTE5
CBM150S120	12 V	12.5 A	1%	±1%	±0.5%	±1%	±5%	91%
CBM150S240	24 V	6.25 A	1%	±1%	±0.5%	±1%	±5%	92%
CBM150S280	28 V	5.35 A	1%	±1%	±0.5%	±1%	±5%	93%
CBM150S360	36 V	4.16 A	1%	±1%	±0.5%	±1%	±5%	93%
CBM150S480	48 V	3.125 A	1%	±1%	±0.5%	±1%	±5%	93%
CBM150S540	54 V	2.77 A	1%	±1%	±0.5%	±1%	±5%	92%

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): $Pd = Pi - Po = Po(1-\eta)/\eta$.

PART NUMBER

Series	Number of Outputs	Nominal Output Voltage
CBM150	O	XXX
CBM150	S: Single	120: 12VDC 240: 24VDC 280: 28VDC 360: 36VDC 480: 48VDC 540: 54VDC

Part Number Example:

CBM150S120: Brick Power, 150W, Single 12Vdc Output



CBM150S 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		264	V_{ac}
			120		370	V_{dc}
Operating 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			3000	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			2	A
Inrush Current	$V_{in}=240V_{ac}$, Cold start @25°C	All			100	A
Leakage Current (Earth)		All			0.75	mA
Under Voltage Protection		All	65	70	75	V_{ac}
Power Factor	230 V_{ac} /50Hz @ Full Load	All	0.92			

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	$V_{in}=90V_{ac}\sim 264V_{ac}$, I_o =Full load Ambient temperature=25°C	CBM150S120	11.88	12	12.12	V_{dc}
		CBM150S240	23.76	24	24.24	
		CBM150S280	27.72	28	28.28	
		CBM150S360	35.64	36	36.36	
		CBM150S480	47.52	48	48.48	
		CBM150S540	53.46	54	54.54	
Output Voltage Trim Range	$P_o \leq$ max rated power, $I_o \leq I_{o_max}$	All		± 5		%
Operating Output Current Range	$V_{in}=90V_{ac}\sim 264V_{ac}$, See Derating Curve	CBM150S120			12.5	A
		CBM150S240			6.25	
		CBM150S280			5.71	
		CBM150S360			4.16	
		CBM150S480			3.125	
		CBM150S540			2.77	
Holdup Time	$V_{in}=115V_{ac}$	All	10			ms
Load Regulation	10% Load to Full Load	All			± 1.0	%
Line Regulation	V_{in} =High line to low line	All			± 0.5	%
Over Voltage Protection	12V-48V Auto recovery 54V Latch Off	CBM150S120			13.8	V_{dc}
		CBM150S240			27	
		CBM150S280			32.3	
		CBM150S360			41.7	
		CBM150S480			53.3	
		CBM150S540			57.6	
Over Current Protection	Auto recovery	All	110	130	150	%
Short Circuit Protection	Auto recovery	All				
Over Temperature Protection	Auto recovery	All				



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PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
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	CBM150S120			120	mV
		CBM150S240			240	
		CBM150S280			280	
		CBM150S360			360	
		CBM150S480			480	
		CBM150S540			540	
Load Capacitance	1. Input Voltage is 115V _{ac} and 230V _{ac} 2. Output is max. Full Load 3. Ambient Temperature=25°C	CBM150S120			13500	uF
		CBM150S240			6600	
		CBM150S280			5600	
		CBM150S360			4400	
		CBM150S480			3380	
		CBM150S540			2880	

EFFICIENCY

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Efficiency	1. Input Voltage is 230V _{ac} 2. Output is 75% Full Load 3. Ambient Temperature=25°C	CBM150S120		91		%
		CBM150S240		92		
		CBM150S280		93		
		CBM150S360		93		
		CBM150S480		93		
		CBM150S540		92		

ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input to Output	1 minute (without dielectric breakdown)	All			3000	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			360	V _{ac}
Isolation Resistance	Input to Output	All	100			MΩ

FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency		All		180		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	350			k hours
Life Time	@75% Load, 40°C	All	72			k hours
Humidity	Non-condensing	All			93	% RH
Shock	Meets MIL-STD-810F Table 516.5, TABLE 516.5-1 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		285		grams
Dimensions		All	4.60x2.40x0.78 Inches (116.8x61.0x19.7 mm)			
Safety	Class I, IEC/EN/UL 62368-1					Ed. 3.0
EMC Emission	EN 55032: 2015+A11: 2020, EN 61000-6-3: 2007+A1: 2011+AC: 2012, EN 61000-6-4: 2019, EN 61204-3: 2018, EN 61000-3-2:2019, EN 61000-3-3: 2013+A1: 2019, 47 CFR FCC Part 15 Subpart B					Class B
Conducted Disturbance	EN 55032: 2015+A11: 2020, 47 CFR FCC Part 15 Subpart B					Class B
Radiated Disturbance	EN 55032: 2015+A11: 2020, 47 CFR FCC Part 15 Subpart B					Class B
Harmonic Current Emissions	EN 61000-3-2:2019					Class A
Voltage Fluctuations & Flicker	EN 61000-3-3: 2013+A1: 2019					Criterion A



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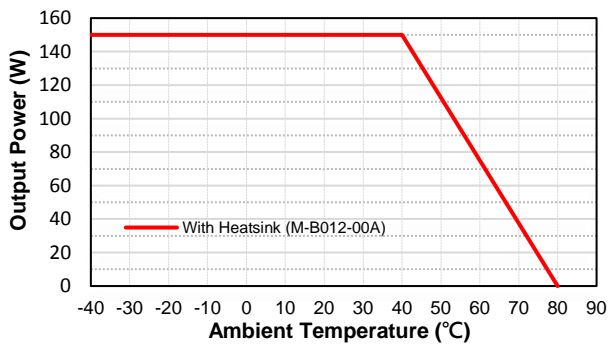
GENERAL SPECIFICATIONS

EMC Immunity	EN 55035: 2017+A1: 2020, EN 61000-6-1: 2019, EN 61000-6-2: 2019, EN 61204-3: 2018	
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, $\pm 2\text{kV}$	Criterion A
Surge	IEC61000-4-5:2014+A1: 2017, L-N: $\pm 1\text{kV}$, L-E(Ground): $\pm 2\text{kV}$	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	CBM150S Series App Notes	

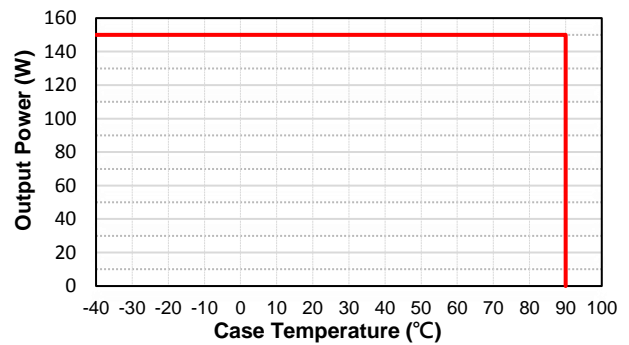
CHARACTERISTIC CURVE

Power Derating Curve

Output power vs Ambient Temperature (Ta)

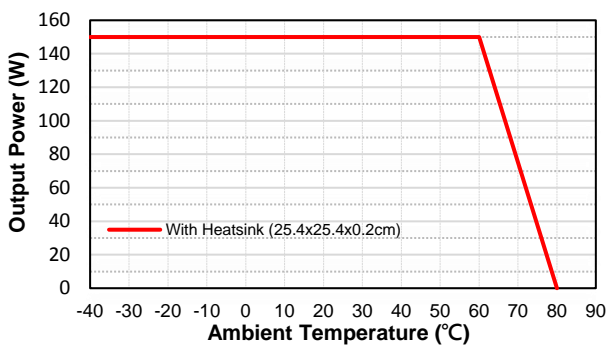


Output power vs Case Temperature (Tc)



Conduction Convection with External Baseplate (25.4x25.4x0.2cm)

Output power vs Ambient Temperature

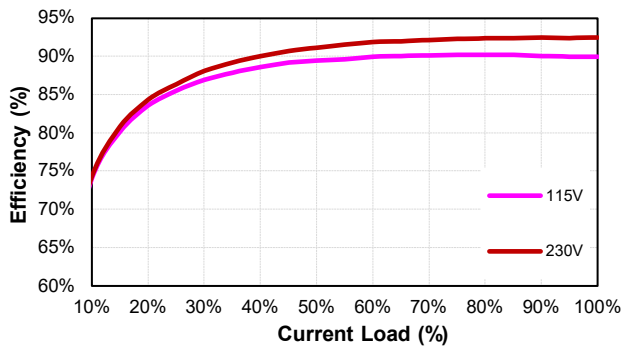




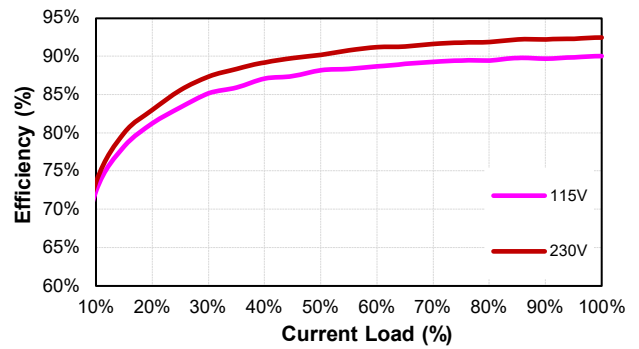
CBM150S Series

Performance Data

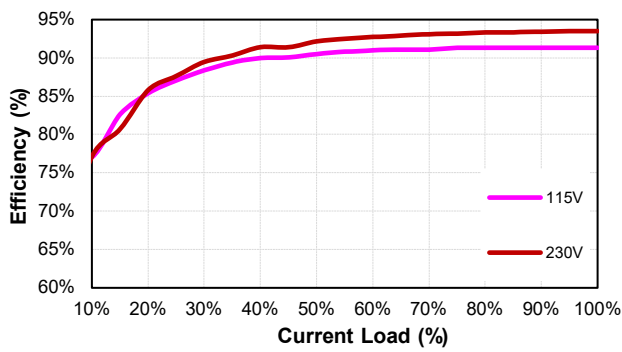
CBM150S120 (Eff Vs Io)



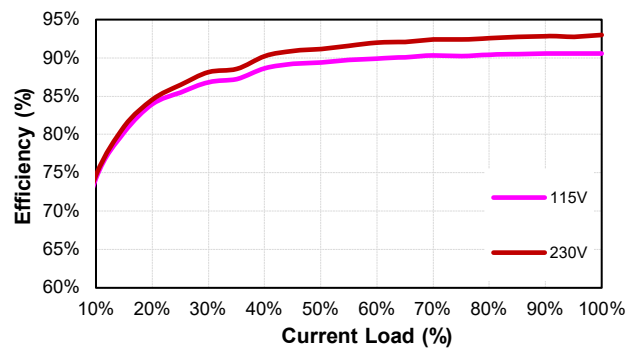
CBM150S240 (Eff Vs Io)



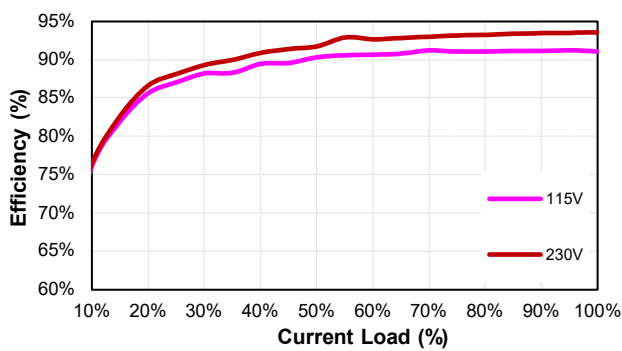
CBM150S280 (Eff Vs Io)



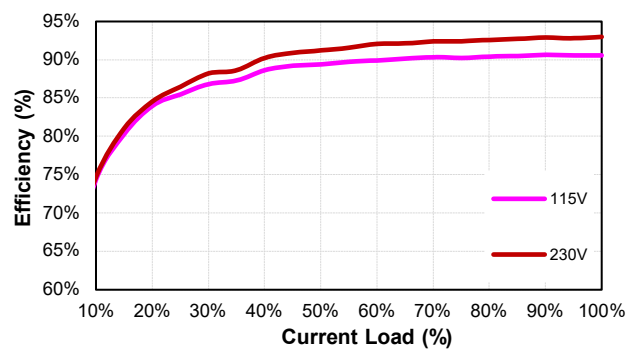
CBM150S360 (Eff Vs Io)



CBM150S480 (Eff Vs Io)



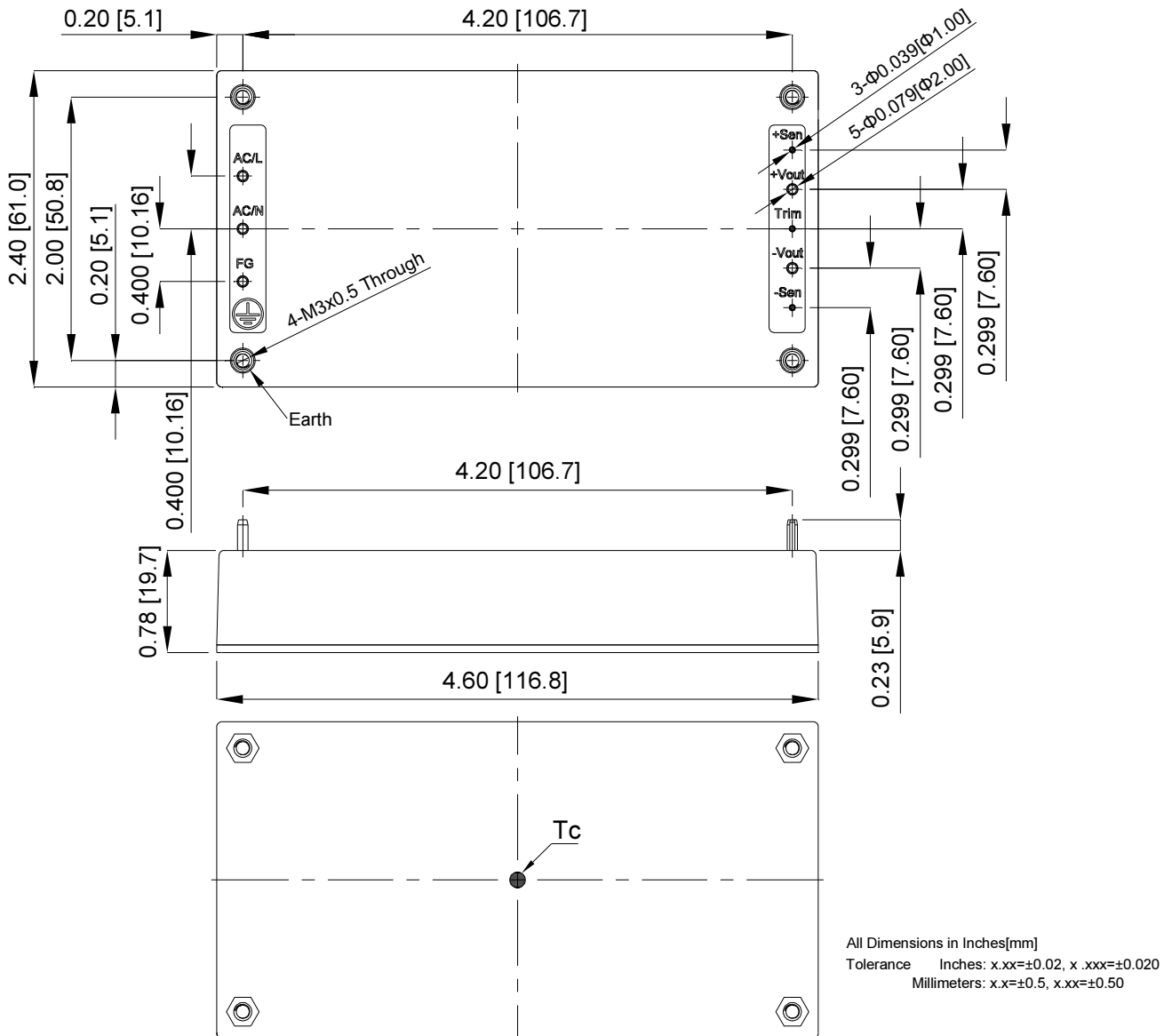
CBM150S540 (Eff Vs Io)





CBM150S Series

MECHANICAL SPECIFICATION



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