



# CBM70S SERIES 70 WATT AC-DC BRICK POWER SUPPLY

## Features

- Universal Input Range 90~264V<sub>ac</sub>
- Efficiency up to 89.5%
- Meets Class I
- No Load Input Power Consumption < 150mW
- Safety IEC/EN/UL 62368-1 Approval Ed 3.0
- Operating Altitude 5000m
- Continuous Short Circuit Protection
- Over Temperature Protection
- Over Voltage Protection
- 17mm Ultra Low Profile Half Brick Package
- Full Load with Baseplate Cooled and No Fan Required
- Built-in EN 55032 Class B Filter
- All in One Without External Components
- Wide Operating Temperature Range



MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE & NOISE NOTE1	VOLTAGE ACCURACY NOTE2	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	%EFF. (Typ.) NOTE5
CBM70S120	12 V	5.83 A	120 mV	±1.0%	±0.5%	±1%	88.0%
CBM70S240	24 V	2.92 A	240 mV	±1.0%	±0.5%	±1%	88.5%
CBM70S360	36 V	1.94 A	360 mV	±1.0%	±0.5%	±1%	89.0%
CBM70S480	48 V	1.46 A	480 mV	±1.0%	±0.5%	±1%	89.5%

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 60% load.
3. Line regulation is measured from 90V<sub>ac</sub> to 264V<sub>ac</sub> with full load.
4. Load regulation is measured from 60%±40% rated load.
5. Typical efficiency at 230V<sub>ac</sub> and full load at 25°C.
6. Power dissipation (Pd): Pd = Pi - Po = Po(1-η)/η.

## PART NUMBER

Series	Number of Outputs	Nominal Output Voltage
CBM70	X	XXX
CBM70	S : Single	120 : 12V 240 : 24V 360 : 36V 480 : 48V

Part Number Example:

**CBM70S120**: 70W, Single 12V<sub>ac</sub> Output



# CBM70S 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	Safety approvals only to the AC input	All	90		264	V <sub>ac</sub>
			127		370	V <sub>dc</sub>
Operating Case Temperature	At the center of base plate	All	-40		85	°C
Storage Temperature		All	-40		85	°C
Input/Output Isolation Voltage	1 minute	All	3000			V <sub>ac</sub>
Operating Altitude		All			5000	m

### INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Operating Voltage Range		All	100		240	V <sub>ac</sub>
Input Frequency Range		All	47		63	Hz
Maximum Input Current	100% Load, V <sub>in</sub> =100V <sub>ac</sub>	All			1.5	A
Leakage Current		All			3.5	mA
Inrush Current	V <sub>in</sub> =240V <sub>ac</sub> , Cold start at 25°C	All			100	A
Under Voltage Protection		All	63	70	77	V <sub>ac</sub>

### OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	V <sub>in</sub> =Nominal V <sub>in</sub> , I <sub>o</sub> =60% I <sub>o</sub> max., T <sub>c</sub> =25°C	CBM70S120	11.88	12	12.12	V <sub>dc</sub>
		CBM70S240	23.76	24	24.24	
		CBM70S360	35.64	36	36.36	
		CBM70S480	47.52	48	48.48	
Operating Output Current Range	V <sub>in</sub> =90V <sub>ac</sub> ~264V <sub>ac</sub> , See Derating Curve	CBM70S120			5.83	A
		CBM70S240			2.92	
		CBM70S360			1.94	
		CBM70S480			1.46	
Holdup Time	V <sub>in</sub> =115V <sub>ac</sub>	All		6		ms
Output Voltage Regulation						
Load Regulation	60% Load to 100% load & 60% load to 20% load	All			±1.0	%
Line Regulation	V <sub>in</sub> =High line to low line	All			±0.5	%
Output Voltage Trim Range	P <sub>o</sub> ≤ max. rated power, I <sub>o</sub> ≤ I <sub>o</sub> max.	All	-10		+10	%
Over Current Protection	Hiccup mode, auto recovery	All	110		150	%
Short Circuit Protection	Auto recovery	All				
Over Voltage Protection	Auto recovery	CBM70S120		14	16	V <sub>dc</sub>
		CBM70S240		28	35	
		CBM70S360		42	50	
		CBM70S480		56	63	
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	CBM70S120			120	mV
		CBM70S240			240	
		CBM70S360			360	
		CBM70S480			480	
Load Capacitance	1. Input voltage is 115V <sub>ac</sub> and 230V <sub>ac</sub> 2. Output is max. Load 3. Ambient temperature=25°C	CBM70S120			5830	uF
		CBM70S240			2920	
		CBM70S360			1940	
		CBM70S480			1460	



# CBM70S Series

## EFFICIENCY

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Efficiency	1. Input voltage is 230V <sub>ac</sub> 2. Output is rated load 3. Ambient temperature=25°C	CBM70S120		88.0		%
		CBM70S240		88.5		
		CBM70S360		89.0		
		CBM70S480		89.5		

## ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input to Output	1 Minute (without dielectric breakdown)	All			3000	V <sub>ac</sub>
Input to Earth (Ground)	1 Minute (without dielectric breakdown)	All			1800	V <sub>ac</sub>
Output to Earth (Ground)	1 Minute (without dielectric breakdown)	All			500	V <sub>ac</sub>
Isolation Resistance	Input to output	All	100			MΩ

## FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency		All		65		kHz

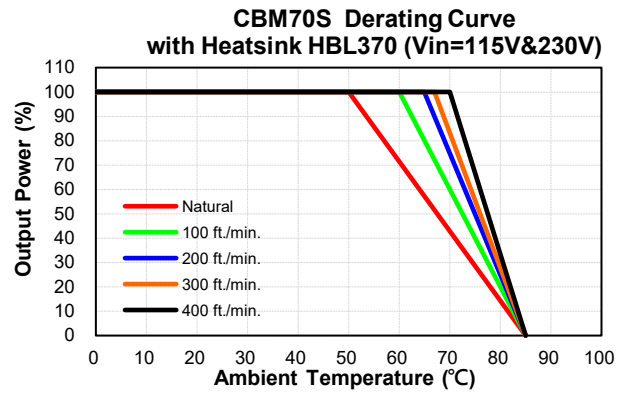
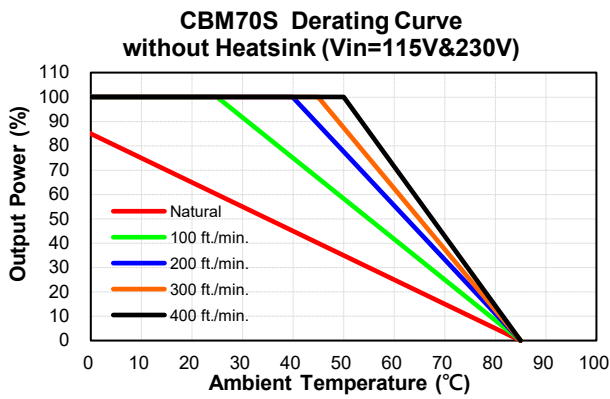
## GENERAL SPECIFICATIONS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I <sub>o</sub> =100%; T <sub>a</sub> =25°C per MIL-HDBK-217F I <sub>o</sub> =100%; T <sub>a</sub> =25°C per Telcordia SR332	All	550 3000			k hours
Humidity	Nom-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		135		grams
Dimensions		All	2.40x2.28x0.67 Inches (61.0x57.9x17.0mm)			
Case Material	Plastic DAP UL 94V-0					
Base Plate Material	Aluminum					
Potting Material	UL 94V-0					
<b>Safety</b>	Class I, IEC/EN/UL 62368-1					Ed 3.0
<b>EMC Emission</b>	EN 55032:2015+AC:2016, EN 61204-3:2000, EN 61000-6-3:2007+A1:2011+AC:2012, EN 61000-6-4:2007+A1:2011, 47 CFR FCC Part 15 Subpart B EN 61000-3-2:2014, EN 61000-3-3:2013					Class B
Conducted Disturbance	EN 55032:2015+AC:2016, EN 61204-3:2000, EN 61000-6-3:2007+A1:2011+AC:2012, EN 61000-6-4:2007+A1:2011, 47 CFR FCC Part 15 Subpart B					Class B
Radiated Disturbance	EN 55032:2015+AC:2016, EN 61204-3:2000, EN 61000-6-3:2007+A1:2011+AC:2012, EN 61000-6-4:2007+A1:2011, 47 CFR FCC Part 15 Subpart B					Class B
Harmonic Current Emissions	EN61000-3-2:2014					
Voltage Fluctuations & Flicker	EN 61000-3-3:2013					
<b>EMC Immunity</b>	EN 55035:2017, EN 61204-3:2000, EN 61000-6-1:2019+CRGD:2019, EN 61000-6-2:2019					
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008, Air Discharge: ±8kV, Contact Discharge: ±4kV					Criterion A
Radio-Frequency Electromagnetic Field	IEC 61000-4-3:2006+A1:2007+A2:2010					Criterion A
Electrical Fast Transient (EFT)	IEC 61000-4-4:2012, ±1kV, ±2kV					Criterion A
Surge	IEC 61000-4-5:2014+A1:2017 L-N: ±0.5kV, ±1kV, L/N-E(Earth): ±0.5kV, ±1kV, ±2kV					Criterion A
Radio-Frequency Continuous Conducted	IEC 61000-4-6:2013+COR1:2015					Criterion A
Power Frequency Magnetic Field	IEC 61000-4-8:2009					Criterion A
Voltage Dips	IEC 61000-4-11:2004+A1:2017, Dip: 30% Reduction, Dip >95% Reduction					Criterion A
Voltage Interruptions	IEC 61000-4-11:2004+A1:2017, >95% Reduction					Criterion B
Application Note Link	<a href="#">CBM70S Series App Notes</a>					



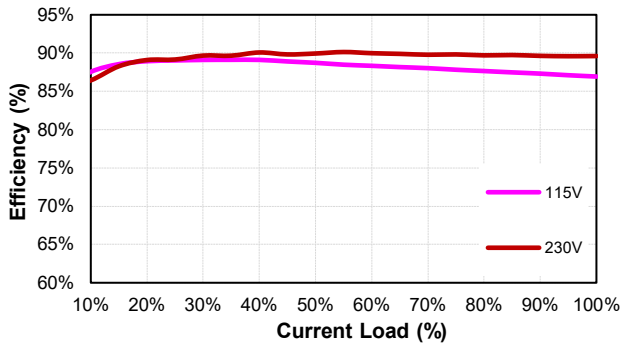
## CHARACTERISTIC CURVE

### Power Derating Curve

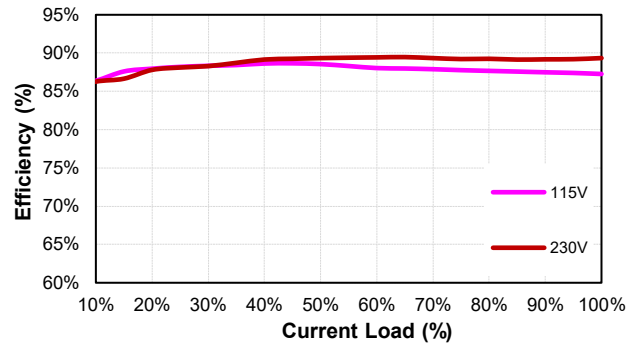


### Performance Data

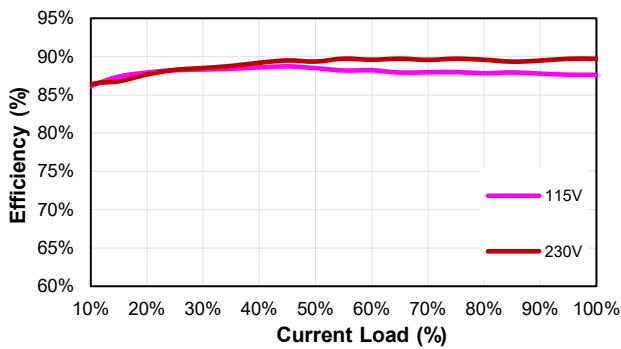
**CBM70S120 (Eff Vs Io)**



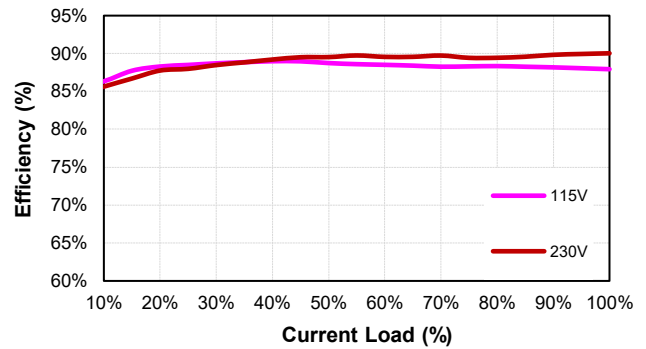
**CBM70S240 (Eff Vs Io)**



**CBM70S360 (Eff Vs Io)**

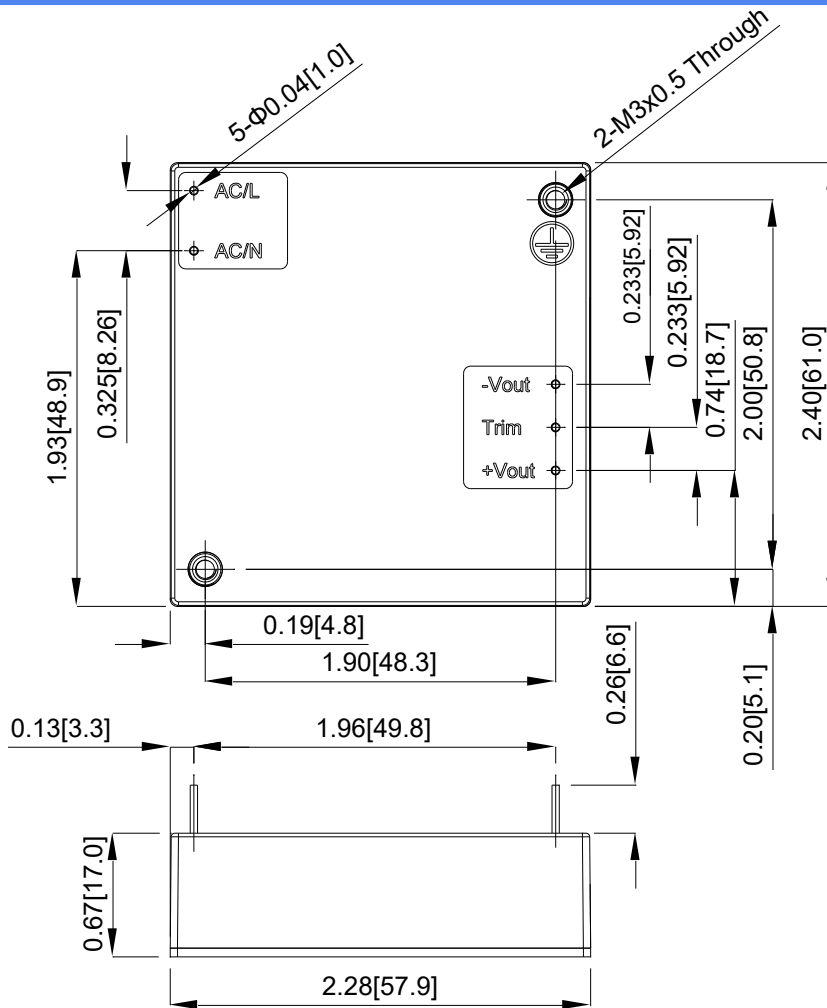


**CBM70S480 (Eff Vs Io)**





## MECHANICAL SPECIFICATION



All Dimensions In Inches[mm]  
Tolerance Inches:x.xx =  $\pm 0.02$ , x.xxx =  $\pm 0.010$   
Millimeters:x.x =  $\pm 0.5$ , x.xx =  $\pm 0.25$

