ASB320 series

XP Power

320W Baseplate cooled

AC-DC power supplies

The ASB320 Series is a range of 320W complete, baseplate-cooled AC-DC power supplies offering single outputs from 12V to 54VDC in a compact, encapsulated brick format. Featuring built-in EMC filter, AC fuse and bulk storage capacitor, the ASB320 simplifies system design by providing a complete AC-DC power solution ready for installation into end applications. High efficiency and baseplate cooling enable efficient thermal management, supporting reliable operation in compact and sealed enclosures.

Global ITE safety approvals, Class B emissions and a low profile rugged mechanical design make the ASB320 series an ideal solution to a wide range of applications including industrial automation, analytical instrumentation, test and measurement and communications equipment.

Features

- Baseplate cooled encapsulated brick package
- Single outputs from 12V to 54VDC
- Output voltage trim ±5%
- Input range: 90 to 264VAC
- High efficiency, up to 94%
- Peak power up to 360W for 5s
- Class B conducted & radiated emissions
- Over current, over voltage & over temperature protection
- -40°C to +90°C baseplate operating temperature
- 3 year warranty

Applications

Industrial electronics

Analytical instrumentation

Test and measurement

Communications

Dimensions

116.8 x 85.0 x 19.7 mm (4.60” x 3.35” x 0.78”)
Fully encapsulated brick package

Documentation

For further information click the link or scan the code

→ xppower.com

Models & ratings

Model number	Output voltage	Output current	Efficiency[1]	Output power	Maximum capacitive load[2]
ASB320PS12	12.0V	26.6A	92.0%	320W	25000µF
ASB320PS15	15.0V	21.3A	92.0%		20000µF
ASB320PS24	24.0V	13.33A	93.0%		12500µF
ASB320PS28	28.0V	11.42A	93.0%		10700µF
ASB320PS36	36.0V	8.88A	94.0%		8300µF
ASB320PS48	48.0V	6.66A	94.0%		6250µF
ASB320PS54	54.0V	5.92A	94.0%		5550µF

Notes:

1. Typical efficiency with 230VAC input and full load.
2. 115VAC & 230VAC, full load +25°C.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage	90		264	VAC	See derating curve
Input frequency	47		63	Hz	
Input current			4	A	100VAC full load
Inrush current			40	A	240 VAC cold start, +25°C
Earth leakage current			750	µA	264 VAC, 60Hz
Power factor	0.95	0.98			230VAC, 50Hz full load
No load input power			0.5	W	
Input protection	Internal fuse T6.3A/250VAC fitted in line				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	12		54	VDC	See models and ratings table
Initial set accuracy		1		%	At full load
Output voltage trim	95		105	%	Of nominal output voltage. See application note
Minimum load	No minimum load required				
Start up delay			2.0	s	
Start up rise time			100	ms	
Hold up time	20	25		ms	Full load and 115VAC
Line regulation			±0.5	%	
Load regulation			±1.0	%	
Transient response			2	%	Maximum deviation, recovering to less than 1% within 300µs for 25% step load
Ripple & noise			1	% pk-pk	Measured with 20MHz bandwidth and 10µF electrolytic in parallel with 0.1µF ceramic capacitor
Overload protection	115		175	%	
Overvoltage protection	110		140	%	Vnom, recycle input to reset, 48V & 54V models OVP <60V
Short circuit protection	Trip & restart (hiccup), auto resetting				
Thermal protection	Measured at the baseplate, auto resetting				
Temperature coefficient		0.02		%/°C	After 20 minute warm up

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		94		%	See models and ratings table
Isolation: input to output			3000	VAC	
input to ground			1800	VAC	
output to ground			1800	VAC	
Switching frequency		75		kHz	Main converter
	30		100		PFC, variable, load dependent
Power density		26.62		W/in³	
Mean time between failure	200			khrs	MIL-HDBK-217F at +25°C GB and 115VAC.
Weight		423 (0.933)		g (lb)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+90	°C	Baseplate temperature, see derating curve. Safety approved at +40°C only
Cooling	Conduction cooled via baseplate				
Operating humidity	5		90	%RH	Non-condensing
Storage temperature	-40		+100	°C	
Operating altitude			5000	m	
Shock	IEC68-2-27, 30g, 11ms half sine, 3 times in each of 6 axes				
Vibration	IEC68-2-6, 10-500Hz, 2g 10 mins/sweep, 60 mins for each of 3 axes				

EMC: emissions

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class B	
Radiated			
Harmonic currents	EN61000-3-2	Class A	
Voltage flicker	EN61000-3-3		

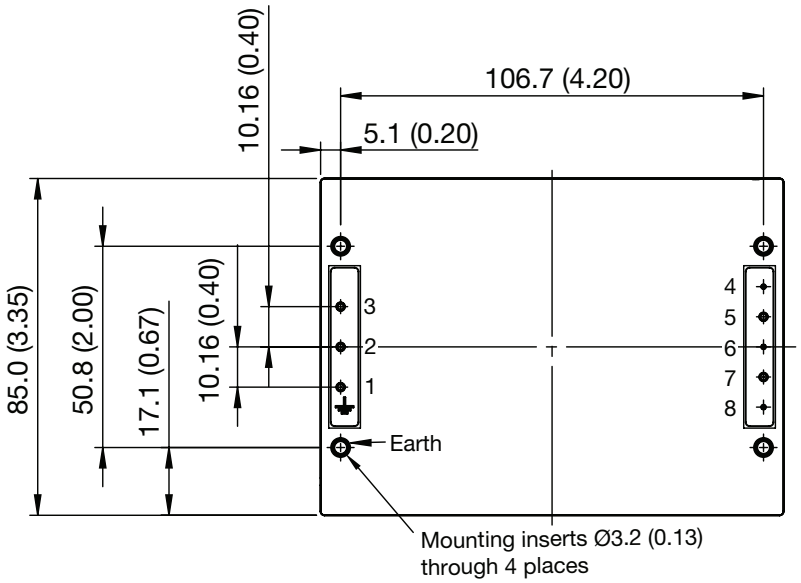
EMC: immunity

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD	EN61000-4-2	8kV air / ±4kV contact	A	
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/burst	EN61000-4-4	±2kV	A	
Surge	EN61000-4-5	Installation class 3	A	±2kV line to line, ±4kV line to earth
Conducted	EN61000-4-6	10V	A	
Magnetic field	EN61000-4-8	30A/m	A	
Dips and interruptions	EN61000-4-11	Dip: 100% 20ms	A	
		Dip: 30% 500ms	A	
		Int: 100% 5000ms	B	

Safety approvals

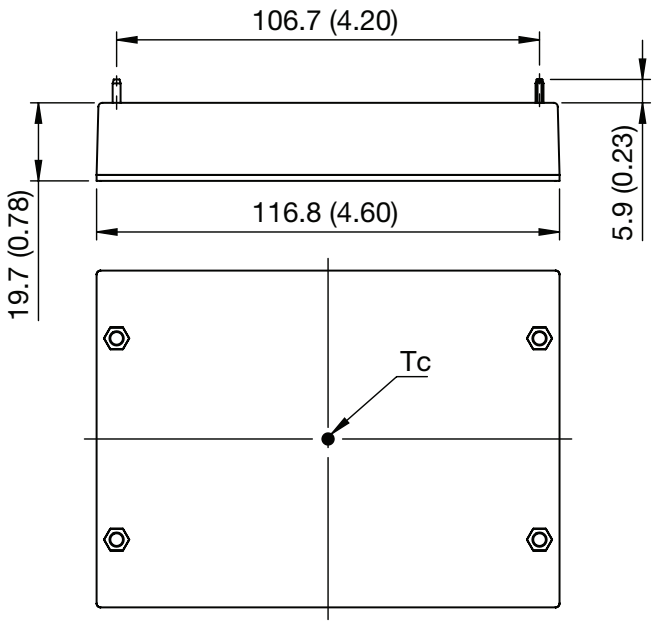
Safety agency	Standard	Notes & conditions
UL	UL62368-1	
TUV	EN62368-1	
CB	IEC62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Mechanical details



Pin	Function
1	FG
2	ACN
3	ACL
4	+Sense
5	+Vout
6	Trim
7	-Vout
8	-Sense

Pin diameter (Ø)
Pins 1, 2, 3, 5 & 7: 2.0 ±0.05 (0.08 ±0.002)
Pins 4, 6 & 8: 1.0 ±0.05 (0.04 ±0.002)

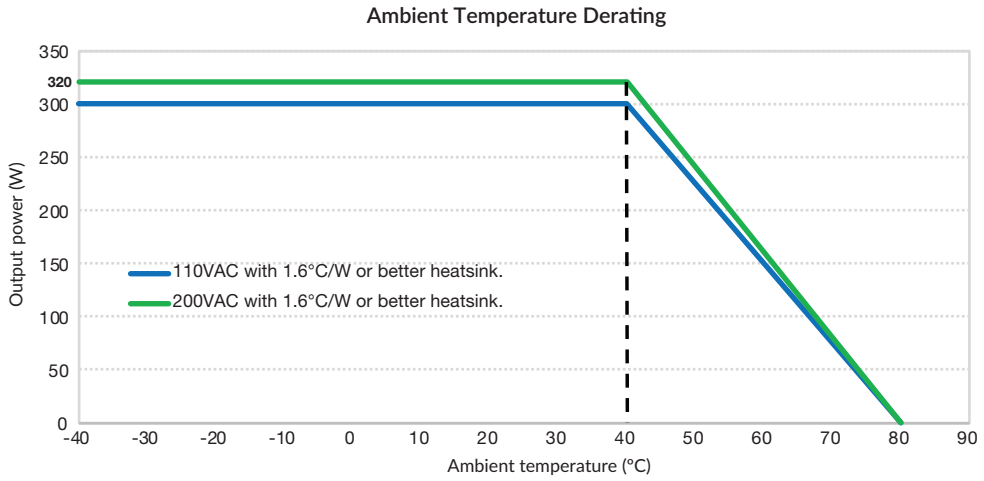


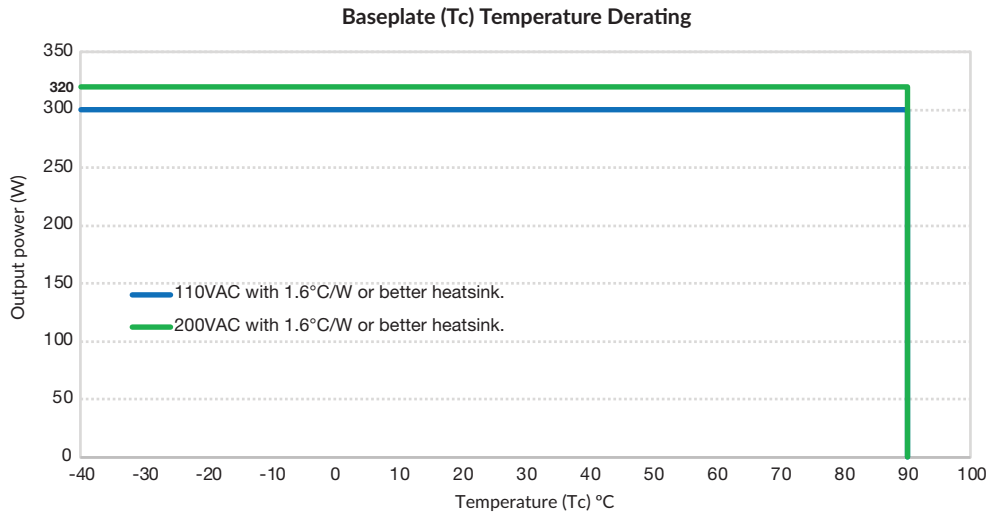
Tc: Baseplate temperature

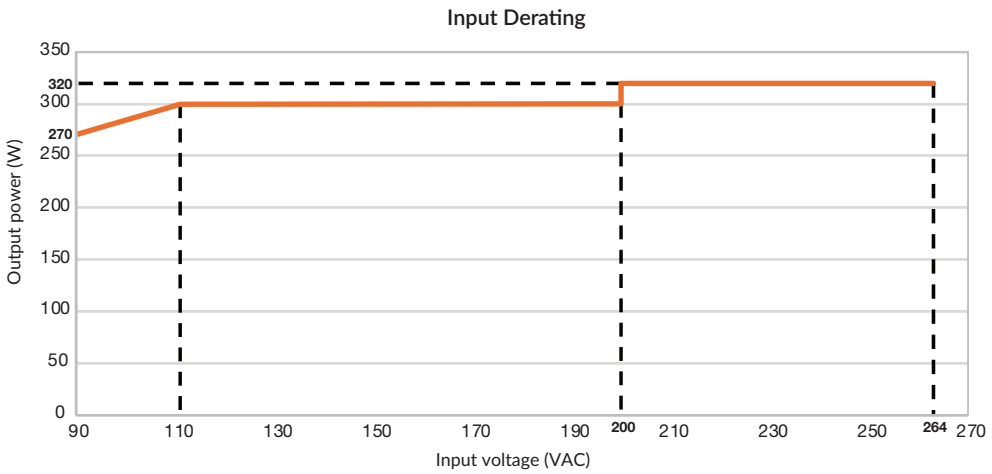
Notes:

1. Dimensions are in mm (inches).
2. Weight: 423g (0.933lbs)
3. Output pin pitch: 7.6 (0.30)
4. Pin pitch tolerance: ±0.35 (±0.014)
5. Case tolerance: ±0.5 (±0.02)
6. Baseplate is connected to FG Pin

Derating curve

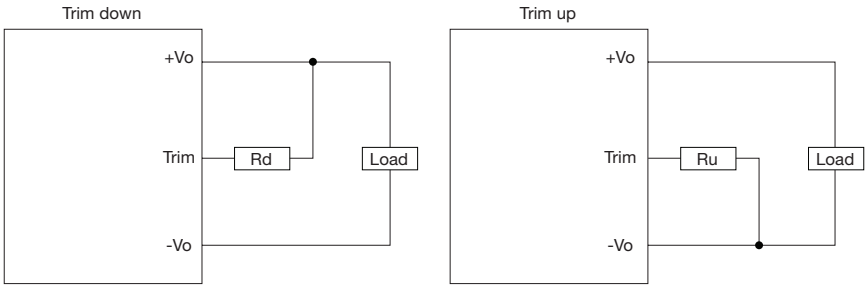






When ASB320 is fitted with 1.6°C/W or better heatsink and mounted in horizontal position with heatsink upper most, the baseplate temperature will typically be +85°C in an ambient of +40°C

Output voltage adjustment



To Trim Down

Connecting an external resistor (Rd) between the Trim pin and the +Vo pin decreases the output voltage. The following table can be used to determine the required external resistor value to obtain a percentage output voltage change of Δ%.

Trim down	12V	15V	24V	28V	36V	48V	54V
%	Rd (kΩ)						
1	2297.4	2798.3	5027.1	5938.0	8061.4	12159.9	13042.7
2	1059.4	1381.7	2522.2	3010.7	4066.2	5873.1	6495.4
3	681.9	909.4	1670.3	2001.3	2698.7	3842.8	4293.2
4	499.2	673.3	1241.1	1490.1	2008.1	2839.4	3188.4
5	391.3	531.7	982.6	1181.3	1591.4	2241.1	2524.3

To Trim Up

Connecting an external resistor (Ru) between the Trim pin and the -Vo pin increases the output voltage. The following table can be used to determine the required external resistor value to obtain a percentage output voltage change of Δ%.

Trim up	12V	15V	24V	28V	36V	48V	54V
%	Ru (kΩ)						
1	477.8	565.7	627.6	653.0	659.0	615.0	656.6
2	252.2	282.3	308.4	317.2	322.1	313.9	325.5
3	171.1	187.9	204.2	209.2	212.9	210.5	216.2
4	129.4	140.7	152.5	156.0	158.9	158.2	161.7
5	103.9	112.3	121.6	124.2	126.7	126.7	129.1