ASB160 Series

XP Power

AC-DC POWER SUPPLIES

160W BASEPLATE COOLED



The ASB160 series is a range of complete low profile, full brick, baseplate cooled AC-DC power supplies which requires no external components.

The series includes a complete built in EMC filter and AC fuse as well as bulk storage capacitor providing a complete AC-DC power solution ready for installation into end applications.

The ASB160 offers high efficiency to minimise waste heat and heat sinking requirements and operates from -40°C to +90°C on the module baseplate.

Features

- Complete AC-DC power supply
- No extra components required
- Baseplate cooled full brick package
- Low profile
- Input range 90 to 264VAC
- Single outputs from 12 to 54VDC
- Output voltage trim ±5%
- High efficiency - up to 93%
- Over current, over voltage and over temperature protection
- Optional heatsink available
- -40 to +90°C baseplate operating temperature
- 3 year warranty

Applications

AC-DC Converters

Industrial Electronics

Instrumentation

Railway

Security

Technology

Dimensions

2.40 x 4.60 x 0.78" (61.0 x 116.8 x 19.7 mm)

Models & Ratings

Model number(1)	Output Power	Output Voltage	Output Current	Ripple & Noise	Efficiency(2)
ASB160PS12	160W	12.0V	13.30A	120mV	92.0%
ASB160PS15		15.0V	10.66A	150mV	93.0%
ASB160PS24		24.0V	6.66A	240mV	92.0%
ASB160PS36		36.0V	4.44A	360mV	93.0%
ASB160PS48		48.0V	3.33A	480mV	93.0%
ASB160PS54		54.0V	2.96A	540mV	91.0%

Notes:

1. Add suffix '-HK' to receive with optional heat-sink fitted.
2. Typical efficiency with 230VAC input and full load.
3. Optional heatsink can be ordered as a separate item using part number IFH HEATSINK

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	90		264	VAC	
Input Frequency	47		63	Hz	
Input Current		1.7/0.82		A	115VAC/230VAC
Inrush Current			100	A	230VAC, cold start at 25°C
Earth Leakage Current			750	µA	264VAC, 60Hz
Power Factor	0.9				Full load
No Load Input Power			0.5/0.7	W	12V-48V/54V
Input Protection	Internal T3.15A/250VAC fitted in line				

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		92		%	See models and ratings table
Isolation: Input to Output			3000	VAC	
Input to Ground			1500	VAC	
Output to Ground			500	VAC	
Switching Frequency	180		250	kHz	Main converter, variable, load dependant
	100		150		PFC
Power Density		18.5		W/in³	
Mean Time Between Failure	160			khrs	MIL-HDBK-217F at 25°C GB and 115VAC
Weight		0.62 (280)		lb(g)	

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	12		54	VDC	See Models and Ratings table
Initial Set Accuracy		1		%	At 60% load
Output Voltage Trim	95		105	%	Of nominal output voltage. See application note
Minimum Load					No minimum load required
Start Up Delay			1.3	s	
Start Up Rise Time			10	ms	
Hold Up Time	8	10		ms	Full load and 115VAC
Line Regulation			±0.5	%	
Load Regulation			±0.5	%	
Transient Response			2	%	Maximum deviation, recovering to less than 1% within 300µs for 25% step load
Ripple and Noise			1	% pk-pk	20MHz bandwidth, measured with 20MHz Bandwidth and 10µF electrolytic in parallel with 0.1µF ceramic capacitor
Overload Protection	110		140	%	
Overvoltage Protection	110		150	%	Auto recovery except 54V version recycle AC to reset
Short Circuit Protection	Trip and restart (hiccup), auto resetting				
Thermal Protection	Measured internally at the baseplate, auto resetting				
Temperature Coefficient		0.02		%/°C	After 20 minute warm up
Remote Sense			5	%	Maximum compensation

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+90	°C	Baseplate Temperature, see derating curve
Cooling	Conduction cooled via baseplate				
Operating Humidity	5		90	%RH	Non-condensing
Storage Temperature	-40		+90	°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	Level B	
ESD			
Harmonic Currents	EN61000-3-2	Class A	
Voltage Flicker	EN61000-3-3		

EMC: Immunity

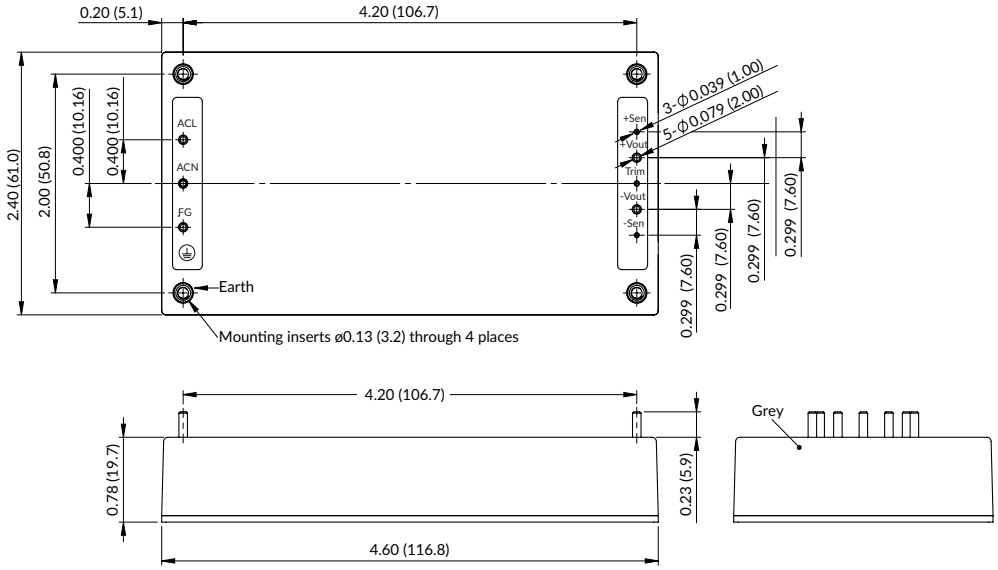
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
Radiated	EN61000-4-2	3/2	A	±8kV air/±4kV contact
Radiated Immunity	EN61000-4-3	3V/m	A	
EFT/Burst	EN61000-4-4	2	A	
Surge	EN61000-4-5	Installation Class 3	A	
Conducted	EN61000-4-6	3V	A	
Dips and Interruptions	EN61000-4-11	Dip: 100% 10ms	A/B	High Line/Low Line
		Dip: 30% 500ms	A/B	High Line/Low Line
		Int: 100% 5000ms	B	

Safety Approvals

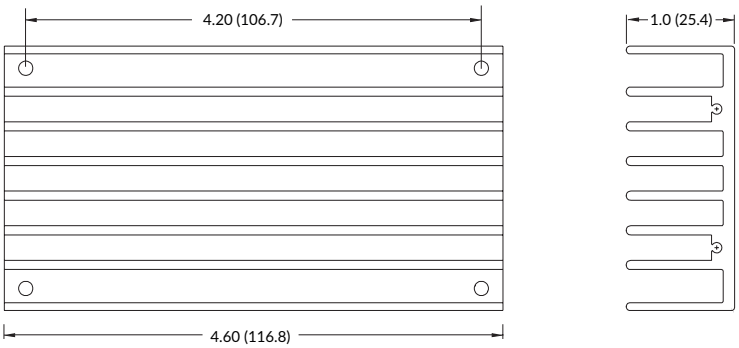
Safety Agency	Standard	Notes & Conditions
UL	UL62368-1	
TUV	EN62368-1	
CB	IEC62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

ASB160 Series

Mechanical Details



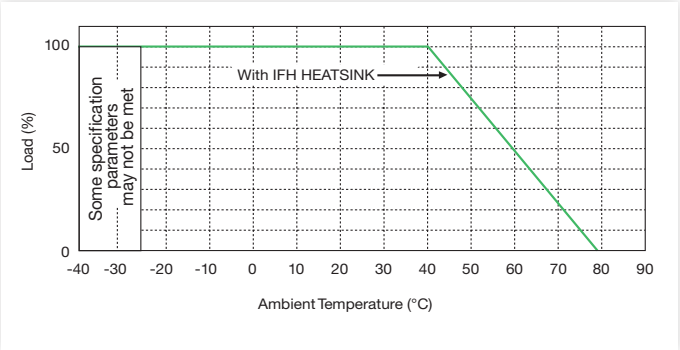
Heatsink Option

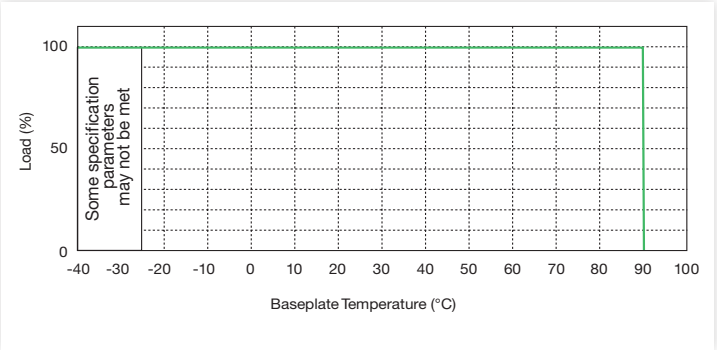


Notes:

1. Dimensions shown in inches (mm).
2. Weight: 0.62lb (280g)
3. Pin diameter: 0.08 ±0.002 (2.0 ±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.5)
6. Baseplate is connected to FG Pin

Derating Curve



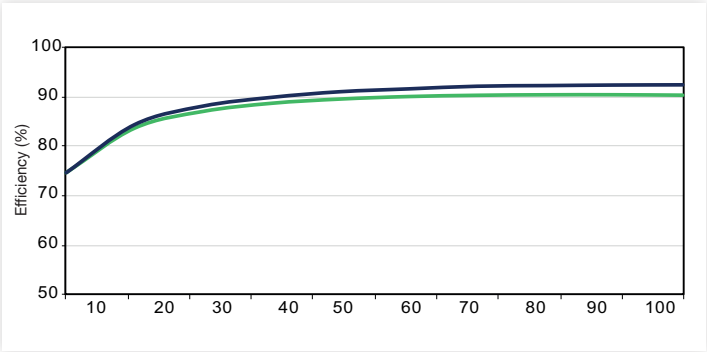


When ASB160 is fitted with IFH HEATSINK and mounted in horizontal position with heatsink upper most, the baseplate temperature will typically be 85°C in an ambient of 40°C.

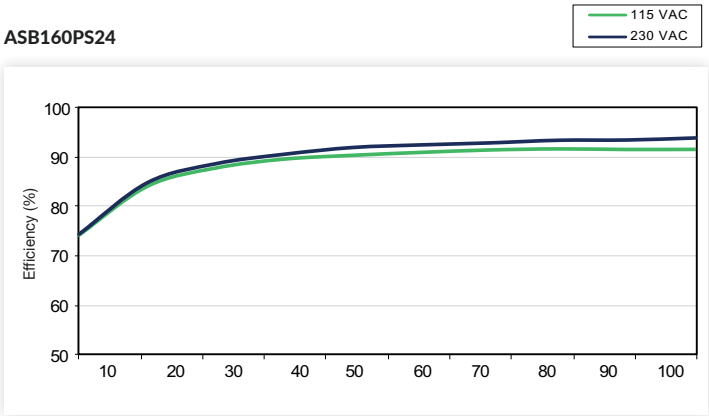
ASB160 Series

Efficiency Curves

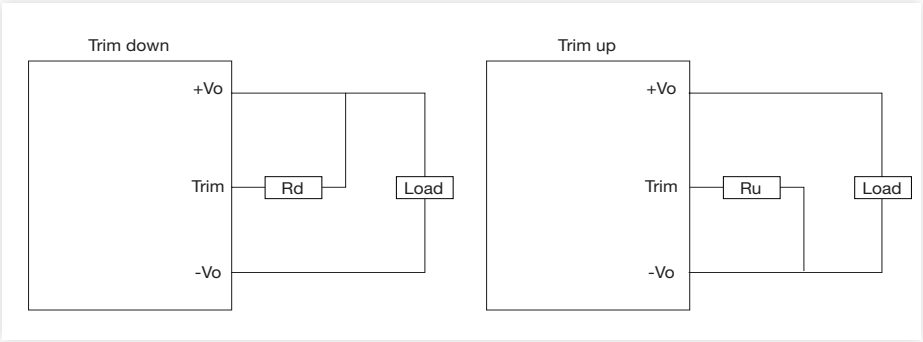
ASB160PS12



ASB160PS24



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 5%.

Trim Down (%)	12V	15V	24V	36V	48V	54V
	Rd (kΩ)					
5	288.7	398.5	738	1215	1776	2005

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 5%.

Trim Up (%)	12V	15V	24V	36V	48V	54V
	Ru (kΩ)					
5	79	84	90.8	92.8	89.4	90.8