ASB75 Series

AC-DC POWER SUPPLIES

75W BASEPLATE COOLED

The ASB75 series is a range of low profile, half brick, baseplate cooled AC-DC power supplies which require no external components. The series includes a 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 ASB75 offers high efficiency to minimise waste heat and heat sinking requirements and operates from -40°C to +85°C on the module baseplate.

Features

- 75W baseplate cooled
- Complete AC-DC power supply
- No external components required
- Low profile ½ brick package
- Universal input 90 to 264VAC
- High efficiency - up to 90%
- <0.15W no load input power
- Overcurrent, overvoltage and overtemperature protection
- Optional heatsink available
- -40 to +85°C baseplate temperature
- 3 year warranty

Applications

COTS | Industrial Electronics | IoT | Technology

Dimensions

2.40” x 2.28” x 0.67” (61.0 x 57.9 x 17.0 mm)

Models & Ratings

Model Number[2][3]	Output Power	Output Voltage	Output Current	Noise and Ripple	Efficiency[1]
ASB75US12	75W	12.0V	6.25A	120mV	88%
ASB75US15		15.0V	5.00A	150mV	88%
ASB75US24		24.0V	3.12A	240mV	89%
ASB75US36		36.0V	2.05A	360mV	89%
ASB75US48		48.0V	1.56A	480mV	90%

Notes:

1. Typical efficiency with 230VAC input and full load.
2. Add suffix ‘-HK’ to receive with optional heat-sink fitted, e.g. ASB75US24-HK.
3. Heat-sink is available separately, order part number ASB75 HEATSINK.

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Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	90		264	VAC	Derate linearly from 75W load at 100VAC to 70W load at 90VAC
Input Frequency	47		63	Hz	
Input Current		1.27/0.8		A	Measured at 115/230VAC
Inrush Current			100	A	230VAC, cold start at 25°C
Earth Leakage Current			500	μA	264VAC, 60Hz
No Load Input Power			0.15	W	
Input Protection	Internal T2.0A/250VAC fitted in line				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	12		48	VDC	See Models and Ratings table
Initial Set Accuracy		1		%	At 60% load
Output Voltage Trim	90		110	%	Of nominal output voltage. See application note
Minimum Load					No minimum load required
Start Up Delay			1.3	s	
Start Up Rise Time			40	ms	
Hold Up Time	6			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		140	%	Auto recovery
Short Circuit Protection	Trip and restart (hiccup), auto resetting				
Thermal Protection	Measured internally, auto resetting				
Temperature Coefficient		0.02		%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		90		%	See Models and Ratings table
Isolation: Input to Output			3000	VAC	
Input to Ground			1500	VAC	
Output to Ground			500	VDC	
Switching Frequency		65		kHz	
Power Density		20		W/in^3	
Mean Time Between Failure	160			khrs	MIL-HDBK-217F at 25°C GB
Weight		0.26 (125)		lb (g)	

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Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+85	°C	Baseplate temperature, see derating curve
Storage Temperature	-40		+85	°C	
Cooling	Conduction cooled via baseplate				
Operating Humidity	5		90	%RH	Non-condensing
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
Emissions	EN55032	Level B	Conducted and radiated
Harmonic Current	EN61000-3-2	Class A	
Voltage Flicker	EN61000-3-3		

EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD	EN61000-4-2	3/2	A	±8kV air/±4kV contact
Radiated	EN61000-4-3	3V/m	A	
EFT/Burst	EN61000-4-4	3	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	

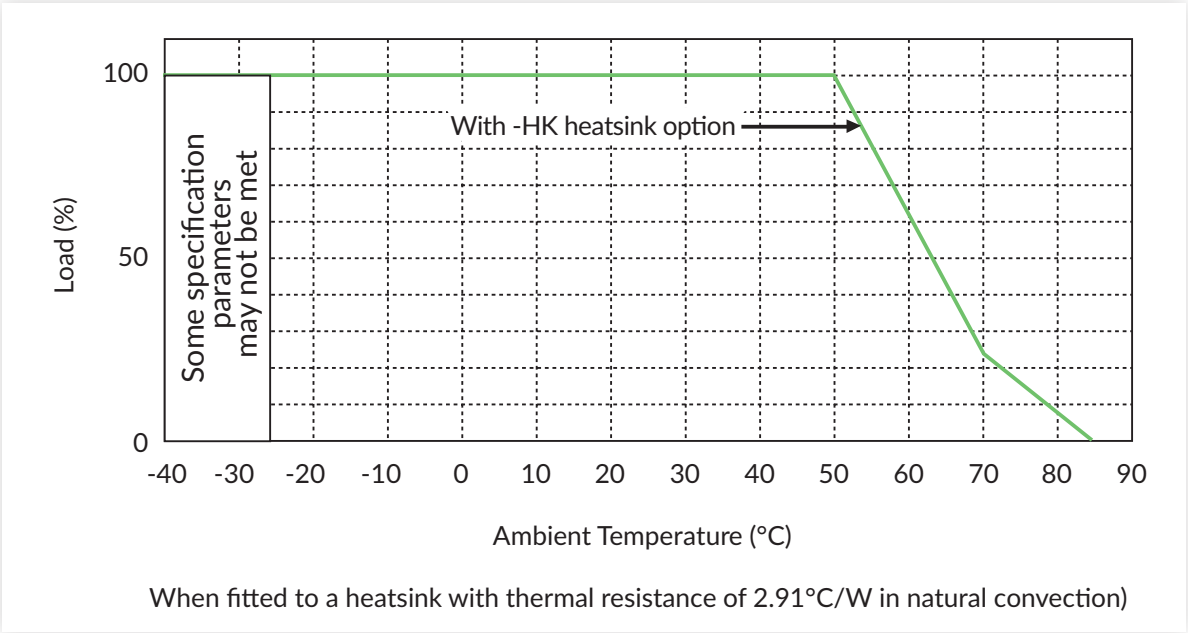
Safety Approvals

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

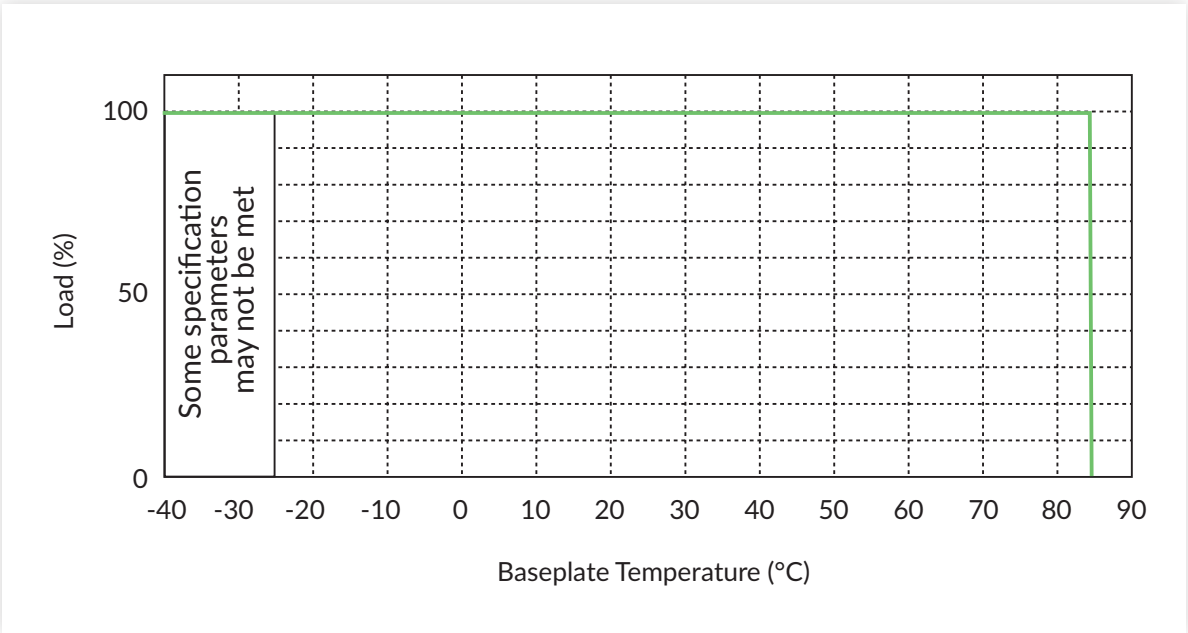
ASB75 Series

Applications Notes

Derating Curves



When fitted to a heatsink with thermal resistance of 2.91°C/W in natural convection)



Notes:

When ASB75 is fitted with -HK heatsink option and mounted in horizontal position with heatsink upper most, the baseplate temperature will typically be 85°C in an ambient of 50°C.

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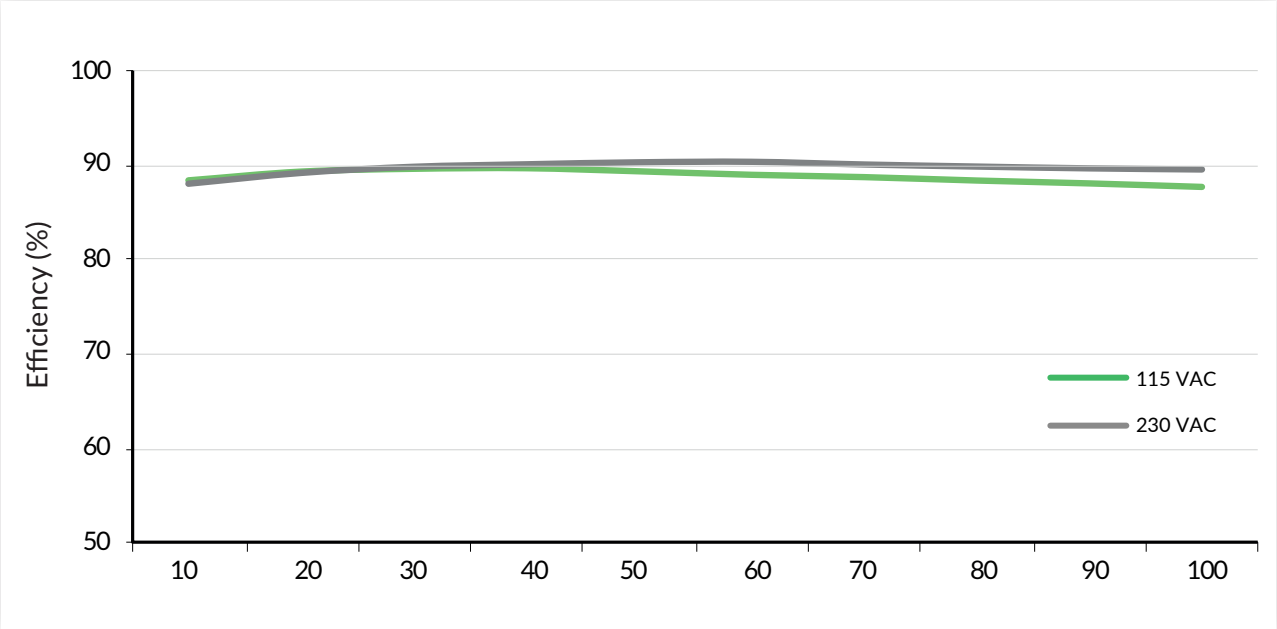
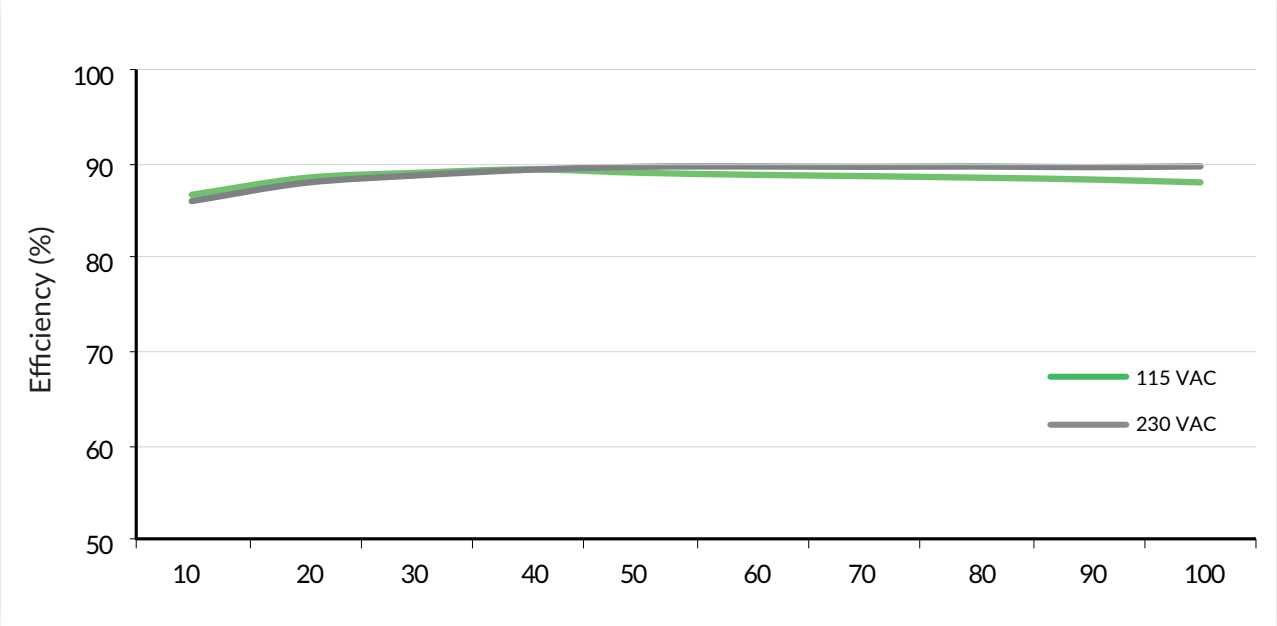
Applications Notes

Efficiency Curves

ASB75US12



ASB75US24



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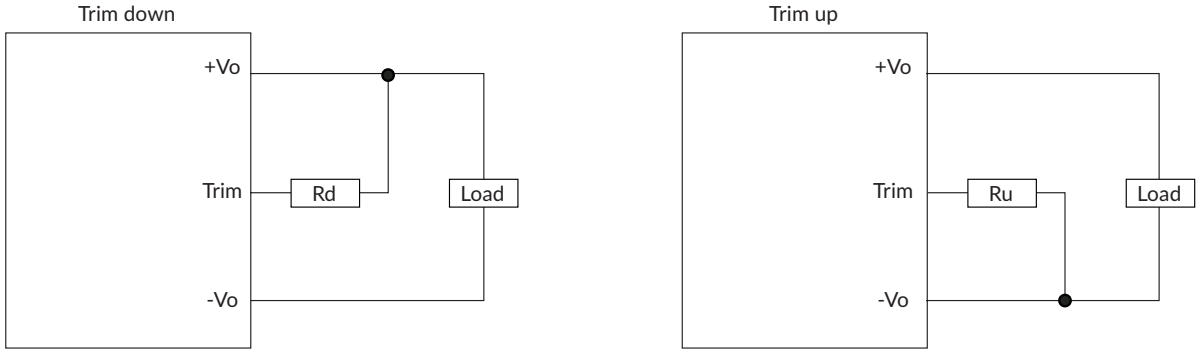
Applications Notes

Output Voltage Adjustment

The Trim input permits the user to adjust the output voltage up or down by 10%.
This is accomplished by connecting an external resistor between the Trim pin and either the +Vo pin or the -Vo pin.



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%.

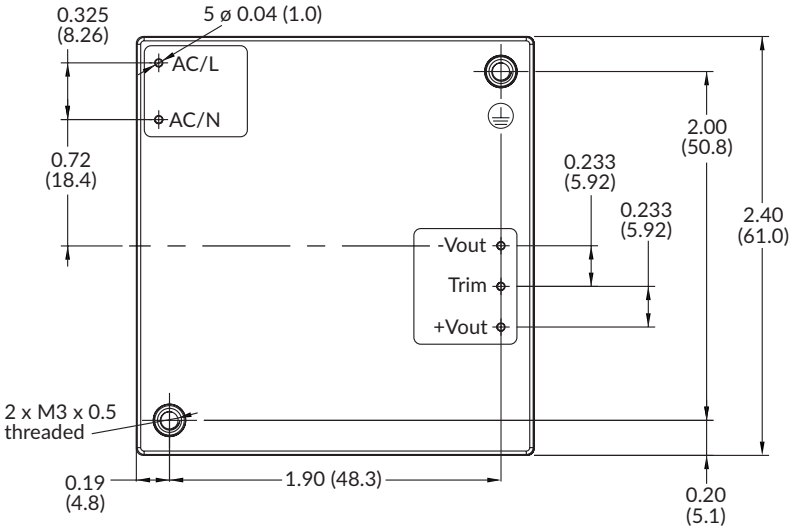
Trim Down (%)	12V	15V	24V	36V	48V
	Rd (kΩ)				
5	82	130	180	330	390
10	9.1	30	20	30	39

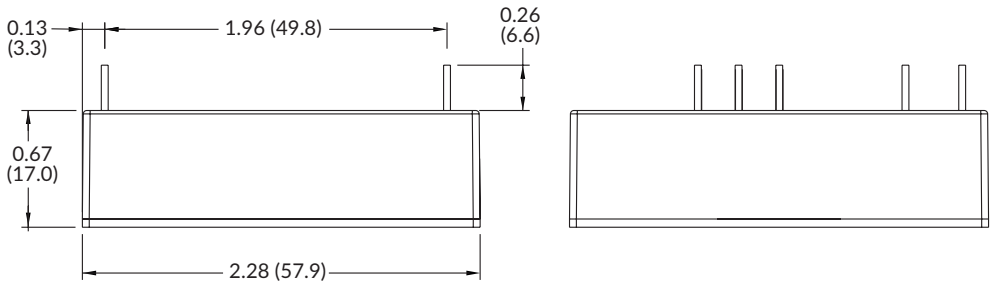
To Trim Up

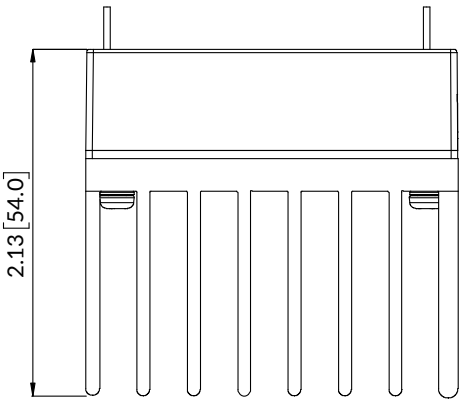
Connecting an external resistor (Ru) between the Trim pin and the -Vo pin increases the output voltage. The following table can be used to determine the required external resistor value to obtain a percentage output voltage change of Δ%.

Trim Up (%)	12V	15V	24V	36V	48V
	Ru (kΩ)				
5	130	150	249	280	412
10	33	50	47	39	91

Mechanical Details







Optional version with heat-sink fitted.

Specification subject to change without notice

Notes:

1. All dimensions shown in inches (mm)
2. Weight 0.26lb (125g) without heat-sink, 0.57lb (260g) with heat-sink fitted
3. Pin diameter: 0.04 ±0.002 (1.0 ±0.05)
4. Pin pitch tolerance: ±0.014 (±0.35)
5. Case tolerance: ±0.02 (±0.5)
6. Baseplate is connected to FG