

75W BASEPLATE COOLED

AC-DC POWER SUPPLIES

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.

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) | |

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

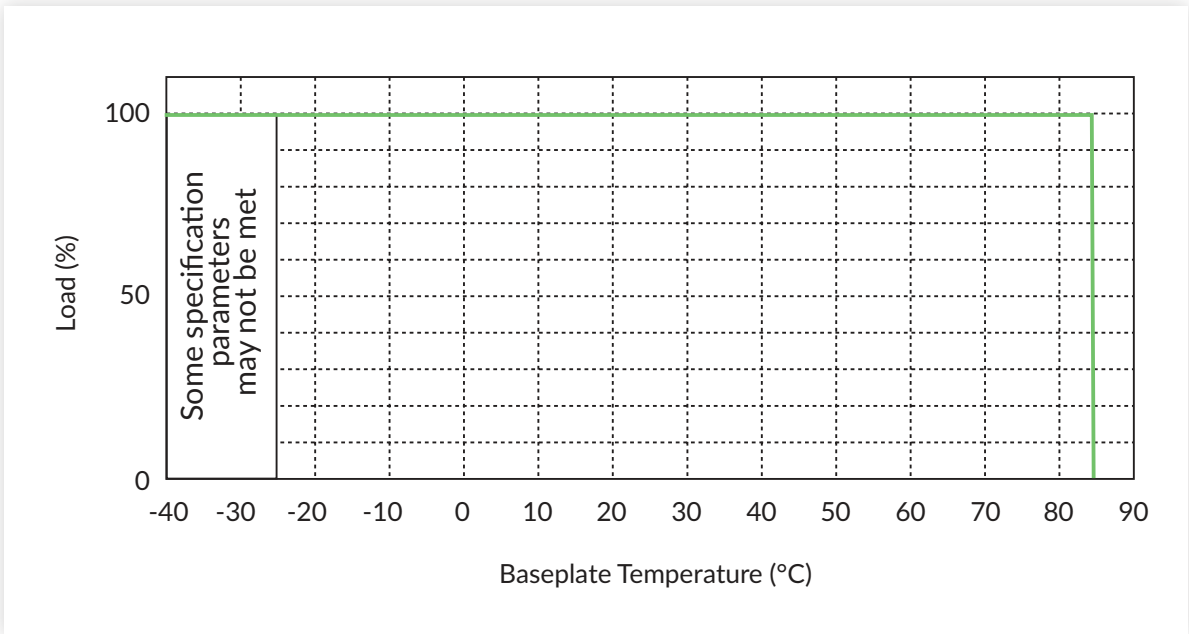
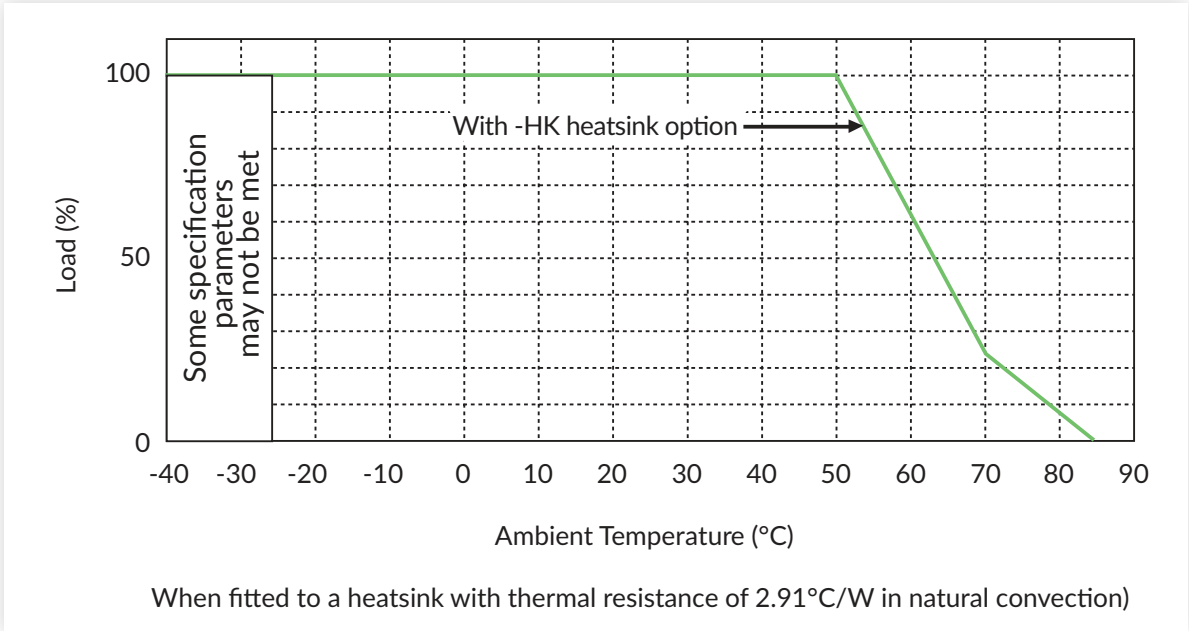
| Phenomenon | Standard | Test Level | Criteria | Notes & Conditions |
|------------------------|--------------|----------------------|----------|-----------------------|
| ESD | EN61000-4-2 | 3/2 | A | ±8kV air/±4kV contact |
| Radiated | EN61000-4-3 | 3V/m | A | |
| EFT/Burst | EN61000-4-4 | 3 | A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

Applications Notes

Derating Curves



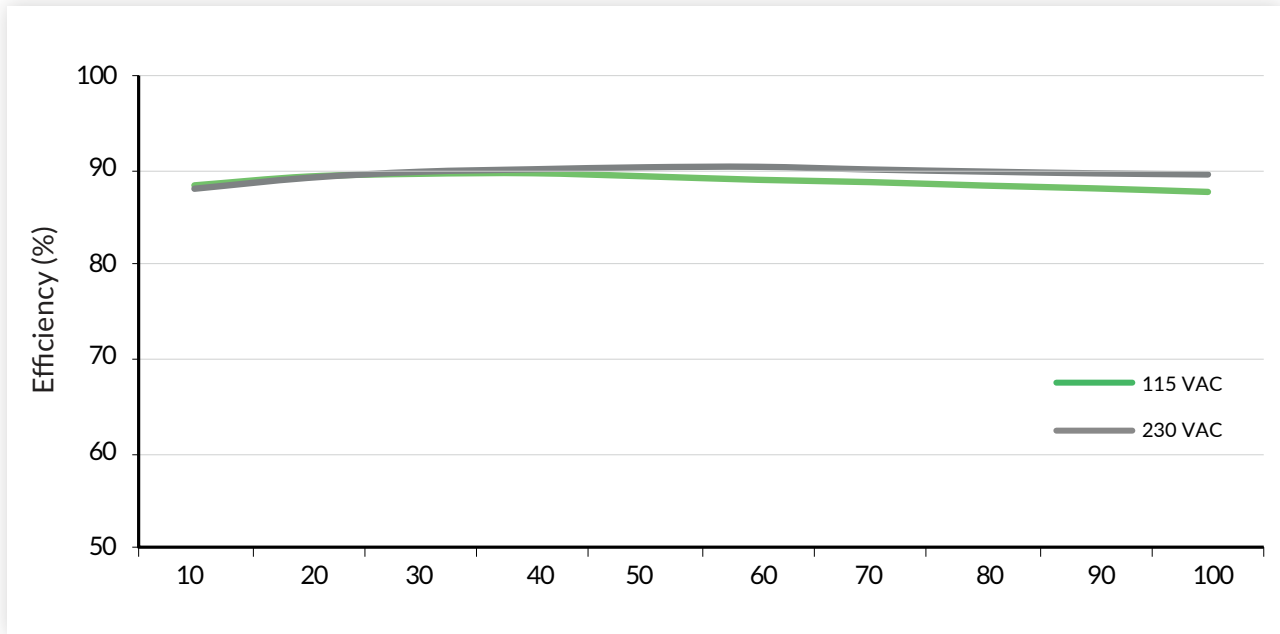
Notes:

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.

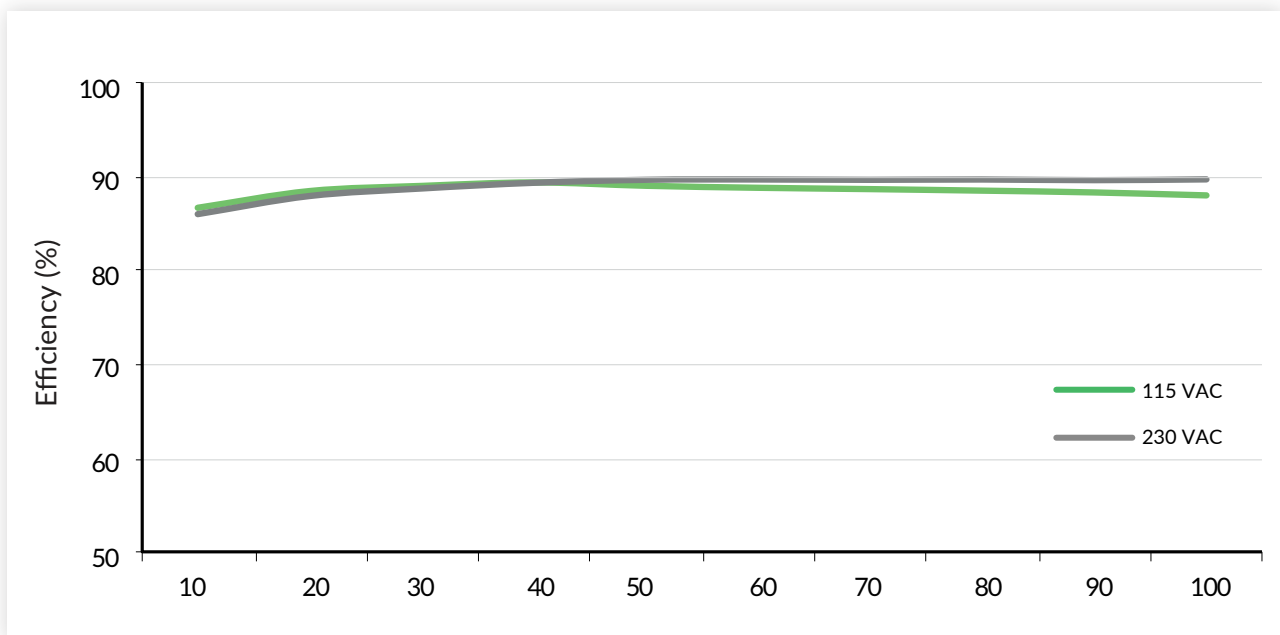
Applications Notes

Efficiency Curves

ASB75US12



ASB75US24

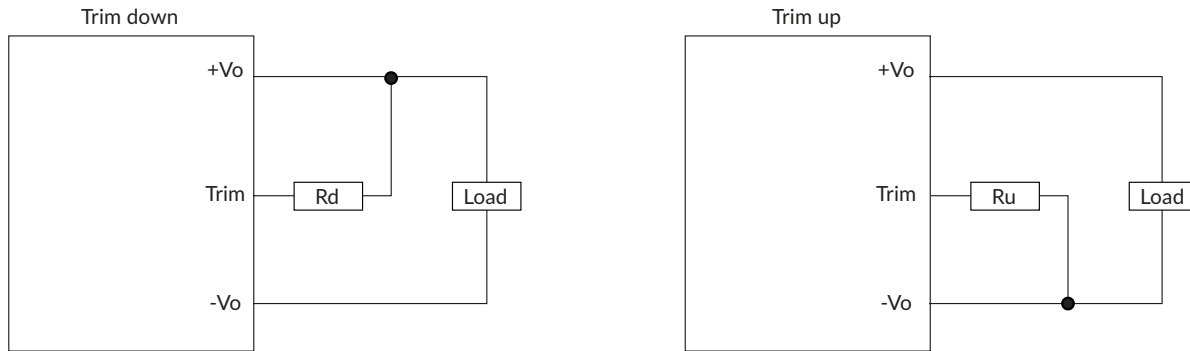


Applications Notes

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 (R_d) 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 $\Delta\%$.

| Trim Down (%) | 12V | 15V | 24V | 36V | 48V |
|---------------|------------------------------|-----|-----|-----|-----|
| | R _d (k Ω) | | | | |
| 5 | 82 | 130 | 180 | 330 | 390 |
| 10 | 9.1 | 30 | 20 | 30 | 39 |

To Trim Up

Connecting an external resistor (R_u) 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 $\Delta\%$.

| Trim Up (%) | 12V | 15V | 24V | 36V | 48V |
|-------------|------------------------------|-----|-----|-----|-----|
| | R _u (k Ω) | | | | |
| 5 | 130 | 150 | 249 | 280 | 412 |
| 10 | 33 | 50 | 47 | 39 | 91 |

