

ARCH AHC08 AC-DC Power Datasheet

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KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output and Low Ripple and Low Noise
- Isolation Class II
- Low Standby <0.5W
- Small Size as AFC 10Watt with 20Watt Higher Power
- Screw Terminal For Optional
- CE, CB and UL Approval
- 3-Years Product Warranty

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KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-305VAC, 47-440 Hz
- Single and Dual Output
- Regulated Output and Low Ripple and Low Noise
- Isolation Class II
- Maximum No-Load Watts < 0.3W
- Small Size as AHC 5Watt with 8Watt Higher Power
- Screw Terminal For Optional
- CE, UL Approval
- 3-Years Product Warranty


ELECTRICAL SPECIFICATIONS

| Model No. (Single Output) | AHC08 -3.3S | AHC08 -3.8S | AHC08 -5S | AHC08 -8S | AHC08 -9S | AHC08 -12S | AHC08 -14S | AHC08 -15S | AHC08 -24S | | | | | | | | | | | |
|-----------------------------|-------------------------------------|----------------|---|--------------|--------------|---------------|---------------|-------------------------|---------------|-------|---|--|--|--|--|--|--|--|--|--|
| Max Output Wattage (W) | 6.6W | 8W | 8W | 8W | 8W | 8W | 8W | 8W | 8W | | | | | | | | | | | |
| Input | Voltage | | | | | | | | | | 90-305 VAC or 120-430 VDC | | | | | | | | | |
| | Frequency (Hz) | | | | | | | | | | 47-440 Hz | | | | | | | | | |
| | Current (Full load) | | | | | | | | | | 180 mA max. (115 VAC) / 110 mA max. (230 VAC) | | | | | | | | | |
| | Inrush Current (<500us) | | | | | | | | | | 25 A max. (115 VAC) / 45 A max. (230 VAC) | | | | | | | | | |
| | Leakage Current | | | | | | | | | | 0.25 mA max. | | | | | | | | | |
| | External Fuse (recommend) | | | | | | | | | | 2 A slow blow type | | | | | | | | | |
| Output | Voltage (V.DC.) | | 3.3V | 3.8V | 5V | 8V | 9V | 12V | 14V | 15V | 24V | | | | | | | | | |
| | Voltage Accuracy | | ±2% | | | | | | | | | | | | | | | | | |
| | Current (mA) max | | 2000 | 2100 | 1600 | 1000 | 888 | 666 | 571 | 533 | 335 | | | | | | | | | |
| | Line Regulation (LL-HL) (typ.) | | ±0.2% | | | | | | | | | | | | | | | | | |
| | Load Regulation (10-100%) (typ.) | | ±1% | | | | | ±0.5% | | | | | | | | | | | | |
| | Minimum Load | | 0% | | | | | | | | | | | | | | | | | |
| | Maximum Capacitive Load | | 26000uF | 25000uF | 6000uF | 2500uF | 2300uF | 1050uF | 500uF | 440uF | 180uF | | | | | | | | | |
| | Ripple | | 3.3S~15S : <100mV max (Vp-p) | | | | | 24S : <150mV max (Vp-p) | | | | | | | | | | | | |
| | Noise | | 3.3S~15S : <150mV max (Vp-p) | | | | | 24S : <200mV max (Vp-p) | | | | | | | | | | | | |
| | Efficiency | | 69% | 71% | 72% | 79% | 79% | 79% | 80% | 80% | 81% | | | | | | | | | |
| | Hold-up Time | | 10 ms min. | | | | | | | | | | | | | | | | | |
| Switching Frequency | | 132±8 KHz | | | | | | | | | | | | | | | | | | |
| Protection | Over Power Protection | | Hiccup technique, auto-recovery | | | | | | | | | | | | | | | | | |
| | Over Voltage Protection | | Zener diode clamp | | | | | | | | | | | | | | | | | |
| | Short Circuit Protection | | Hiccup mode, indefinite (automatic recovery) | | | | | | | | | | | | | | | | | |
| Isolation | Input-Output (V.AC) | | 3000V | | | | | | | | | | | | | | | | | |
| Environment | Operating Temperature | | -40°C...+70°C (with derating) | | | | | | | | | | | | | | | | | |
| | Storage Temperature | | -40°C...+85°C | | | | | | | | | | | | | | | | | |
| | Temperature Coefficient | | ±0.02%/°C | | | | | | | | | | | | | | | | | |
| | Humidity | | 95% RH | | | | | | | | | | | | | | | | | |
| | MTBF | | >350,000 h @ 25°C (MIL-HDBK-217F) | | | | | | | | | | | | | | | | | |
| Physical | Dimension (L x W x H) | | 2.055 x 1.055 x 0.75 Inches (52.2 x 26.8 x 19.0 mm) Tolerance ±0.5 mm | | | | | | | | | | | | | | | | | |
| | Case Material | | Plastic resin with Fiberglass (flammability to UL 94V-0) | | | | | | | | | | | | | | | | | |
| | Weight | | 35 g | | | | | | | | | | | | | | | | | |
| | Cooling Method | | Free air convection | | | | | | | | | | | | | | | | | |
| Safety | Agency Approvals | | CE, UL, cUL | | | | | | | | | | | | | | | | | |
| EMC | EMI (Conducted & Radiated Emission) | | EN 55022 class B | | | | | | | | | | | | | | | | | |
| | EMS (Noise Immunity) | | EN 55024 | | | | | | | | | | | | | | | | | |

1. All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.

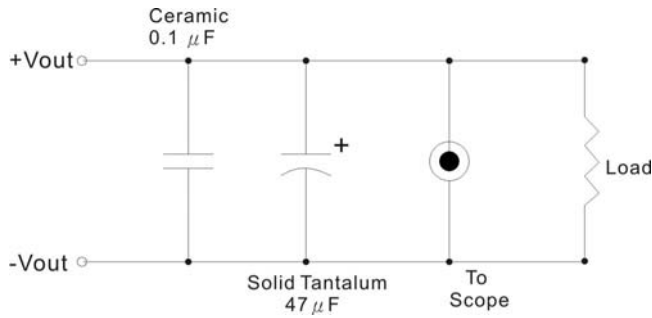
ELECTRICAL SPECIFICATIONS

| | | | | | |
|---------------------------|-------------------------------------|---|---------------------------------|----------------------------|----------------------------|
| Model No. (Dual Output) | AHC08-5S3.3S | AHC08-8S5S | AHC08-12S5S | AHC08-12S7.5S | |
| Max Output Wattage (W) | 9W | 8.75W | 9W | 8.6W | |
| Input | Voltage | 90-305 VAC or 120-430 VDC | | | |
| | Frequency (Hz) | 47-440 Hz | | | |
| | Current (Full load) | 200 mA max. (115 VAC) / 125 mA max. (230 VAC) | | | |
| | Inrush Current (<500us) | 25 A max. (115 VAC) / 45 A max. (230 VAC) | | | |
| | Leakage Current | 0.25 mA max. | | | |
| | External Fuse (recommend) | 2 A slow blow type | | | |
| Output | Voltage (V.DC.) | Vo : 5V Vr : 3.3V | Vo : 8V Vr : 5V | Vo : 12V Vr : 5V | Vo : 12V Vr : 7.5V |
| | Voltage Accuracy | Vo : ±2% Vr : ±15% | Vo : ±2% Vr : ±5% | | |
| | Current (mA) max | 1600 / 310 | 1000 / 150 | 666 / 200 | 560 / 250 |
| | Line Regulation (LL-HL) (typ.) | Vo : ±0.2% Vr : ±3% | | | |
| | Load Regulation (10-100%) (typ.) | Vo : ±0.5% Vr : ±5% | | | |
| | Minimum Load | 25% | | | |
| | Maximum Capacitive Load | Vo : 1200uF Vr : 1000uF | Vo : 800uF Vr : 3800uF | Vo : 260 uF Vr : 3800uF | Vo : 260 uF Vr : 4000uF |
| | Ripple | <100mV max (Vp-p) | | | |
| | Noise | <150mV max (Vp-p) | | | |
| | Efficiency | 71% | 77% | 78% | 78% |
| | Hold-up Time | 10 ms min. | | | |
| | Switching Frequency | 132±8 KHz | | | |
| | Protection | Over Power Protection | Hiccup technique, auto-recovery | | |
| Over Voltage Protection | | Zener diode clamp | | | |
| Short Circuit Protection | | Hiccup mode, indefinite (automatic recovery) | | | |
| Isolation | Input-Output (V.AC) | 3000V | | | |
| Environment | Operating Temperature | -40°C...+70°C (with derating) | | | |
| | Storage Temperature | -40°C...+85°C | | | |
| | Temperature Coefficient | ±0.02%/°C | | | |
| | Humidity | 95% RH | | | |
| | MTBF | >350,000 h @ 25°C (MIL-HDBK-217F) | | | |
| Physical | Dimension (L x W x H) | 2.055 x 1.055 x 0.75 Inches (52.2 x 26.8 x 19.0 mm) Tolerance ±0.5 mm | | | |
| | Case Material | Plastic resin with Fiberglass (flammability to UL 94V-0) | | | |
| | Weight | 35 g | | | |
| | Cooling Method | Free air convection | | | |
| Safety | Agency Approvals | CE, UL, cUL | | | |
| EMC | EMI (Conducted & Radiated Emission) | EN 55022 class B | | | |
| | EMS (Noise Immunity) | EN 55024 | | | |

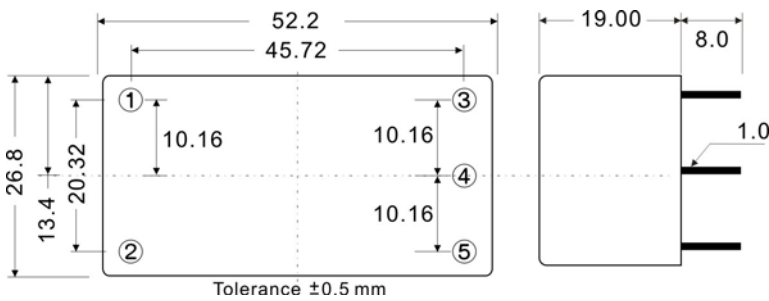
1. All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.
2. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.

OUTPUT NOISE

The output noise is measured with 47 μ F tantalum capacitor and 0.1 μ F ceramic capacitor across output.

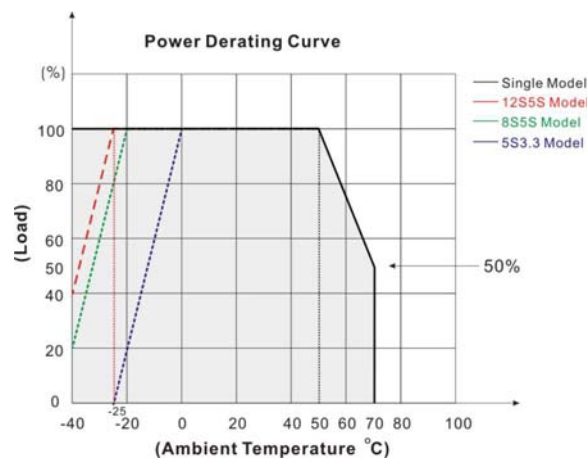


MECHANICAL DIMENSION (Top View)



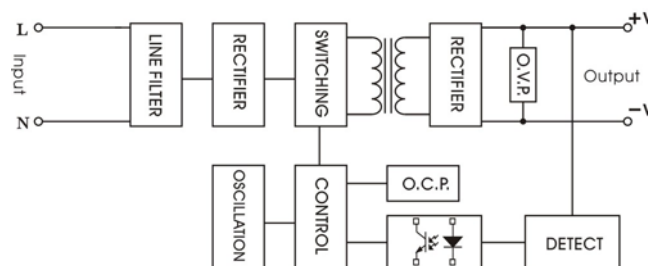
| PIN# | SINGLE | Dual |
|------|-----------|-----------|
| 1 | AC IN (N) | AC IN (N) |
| 2 | AC IN (L) | AC IN (L) |
| 3 | +DC OUT | +DC OUT |
| 4 | -DC OUT | -DC OUT |
| 5 | NO PIN | VR |

DERATING



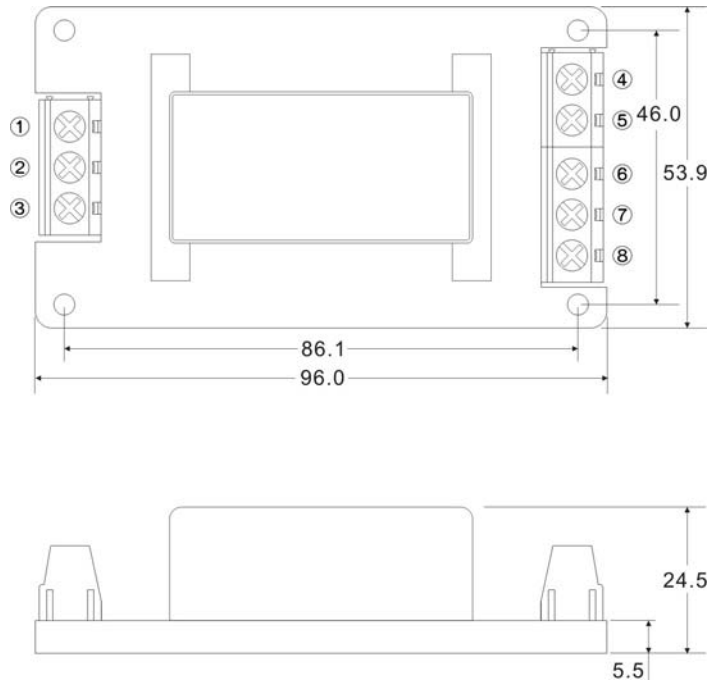
BLOCK DIAGRAM

Single Output



SCREW TERMINAL
AHC08-A2


| PIN# | Single | Dual |
|------|------------|------------|
| 1 | NO CONNECT | NO CONNECT |
| 2 | AC IN (N) | AC IN (N) |
| 3 | AC IN (L) | AC IN (L) |
| 4 | NO CONNECT | NO CONNECT |
| 5 | +DC OUT | +DC OUT |
| 6 | -DC OUT | -DC OUT |
| 7 | NO CONNECT | VR |
| 8 | NO CONNECT | NO CONNECT |


AHC08-A5


| PIN# | Single | Dual |
|------|------------|------------|
| 1 | NO CONNECT | NO CONNECT |
| 2 | AC IN (N) | AC IN (N) |
| 3 | AC IN (L) | AC IN (L) |
| 4 | NO CONNECT | NO CONNECT |
| 5 | +DC OUT | +DC OUT |
| 6 | -DC OUT | -DC OUT |
| 7 | NO CONNECT | VR |
| 8 | NO CONNECT | NO CONNECT |

