

## 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
- Small Size: 2.0 x 1.0 x 0.597 Inches
- Screw Terminal For Optional
- CE, UL Approval
- 2-Years Product Warranty



## ELECTRICAL SPECIFICATIONS

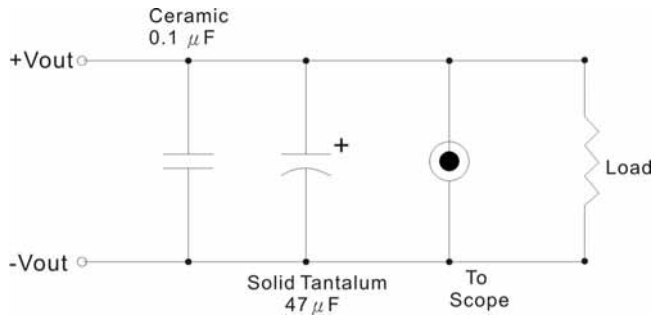
| Model No.                                    | AHC-3.3S-E1   | AHC-5S-E1 | AHC-12S-E1 | AHC-15S-E1 | AHC-24S-E1 |
|--|---|-----------|------------|------------|------------|
| Max Output Wattage (W)                       | 4W  | 5W        | 5W         | 5W         | 5.5W       |
| Input  | Voltage   |           |            |            |            |
|  | 90-264 VAC or 120-370 VDC   |           |            |            |            |
|  | Frequency (Hz)  |           |            |            |            |
|  | 47-440 Hz   |           |            |            |            |
|  | Current (Full load)   |           |            |            |            |
|  | 110 mA max. (115 VAC) / 70 mA max. (230 VAC)                          |           |            |            |            |
| Inrush Current (<2ms)                        |   |           |            |            |            |
| 23 A max. (115 VAC) / 46 A max. (230 VAC)    |   |           |            |            |            |
| Leakage Current                              |   |           |            |            |            |
| 0.75 mA max.                                 |   |           |            |            |            |
| External Fuse (recommend)                    |   |           |            |            |            |
| 1.5 A slow blow type                         |   |           |            |            |            |
| Output                                       | Voltage (V.DC.)   |           |            |            |            |
|  | 3.3V  |           |            |            |            |
|  | 5V  |           |            |            |            |
|  | 12V   |           |            |            |            |
|  | 15V   |           |            |            |            |
|  | 24V   |           |            |            |            |
|  | Voltage Accuracy  |           |            |            |            |
|  | ±2%   |           |            |            |            |
|  | Current (mA) max  |           |            |            |            |
|  | 1250  |           |            |            |            |
|  | 1000  |           |            |            |            |
|  | 420   |           |            |            |            |
| 333  |   |           |            |            |            |
| 230  |   |           |            |            |            |
| Line Regulation (LL-HL) (typ.)               |   |           |            |            |            |
| ±0.3%.                                       |   |           |            |            |            |
| Load Regulation (5-100%) (typ.)              |   |           |            |            |            |
| ±0.5%.                                       |   |           |            |            |            |
| Minimum Load                                 |   |           |            |            |            |
| 0%   |   |           |            |            |            |
| Maximum Capacitive Load                      |   |           |            |            |            |
| 13800 uF                                     |   |           |            |            |            |
| 6000 uF                                      |   |           |            |            |            |
| 1400 uF                                      |   |           |            |            |            |
| 1000 uF                                      |   |           |            |            |            |
| 170 uF                                       |   |           |            |            |            |
| Ripple                                       |   |           |            |            |            |
| <0.2% Vout +40mV max (Vp-p)                  |   |           |            |            |            |
| Noise  |   |           |            |            |            |
| <0.5% Vout +50mV max (Vp-p)                  |   |           |            |            |            |
| Efficiency                                   |   |           |            |            |            |
| 68%  |   |           |            |            |            |
| 71%  |   |           |            |            |            |
| 75%  |   |           |            |            |            |
| 75%  |   |           |            |            |            |
| 77%  |   |           |            |            |            |
| Hold-up Time                                 |   |           |            |            |            |
| 15 ms min.                                   |   |           |            |            |            |
| Switching Frequency                          |   |           |            |            |            |
| 132 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   |   |           |            |            |            |
| >360,000 h @ 25°C (MIL-HDBK-217F)            |   |           |            |            |            |
| Physical                                     | Dimension (L x W x H)   |           |            |            |            |
|  | 2.0 x 1.0 x 0.597 Inches ( 50.8 x 25.4 x 15.16 mm ) Tolerance ±0.5 mm |           |            |            |            |
|  | Case Material   |           |            |            |            |
|  | Plastic resin with Fiberglass (flammability to UL 94V-0)              |           |            |            |            |
| Weight                                       |   |           |            |            |            |
| 30 g   |   |           |            |            |            |
| Cooling Method                               |   |           |            |            |            |
| Free air convection                          |   |           |            |            |            |
| Safety                                       | Agency Approvals  |           |            |            |            |
| UL/cUL, CE                                   |   |           |            |            |            |
| EMC  | EMI (Conducted & Radiated Emission)                                   |           |            |            |            |
|  | EN 55022 class B  |           |            |            |            |
| EMS (Noise Immunity)                         |   |           |            |            |            |
| EN 55024                                     |   |           |            |            |            |

1. All specifications valid at nominal 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 $\mu$ F tantalum capacitor and 0.1 $\mu$ F ceramic capacitor across output.

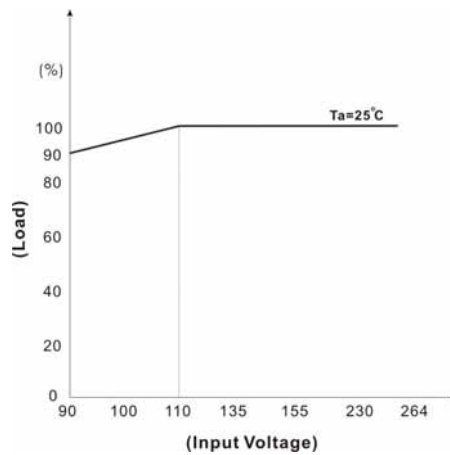
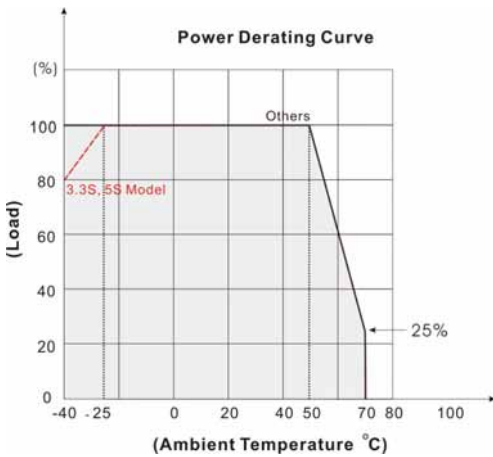


**MECHANICAL DIMENSION ( Top View )**



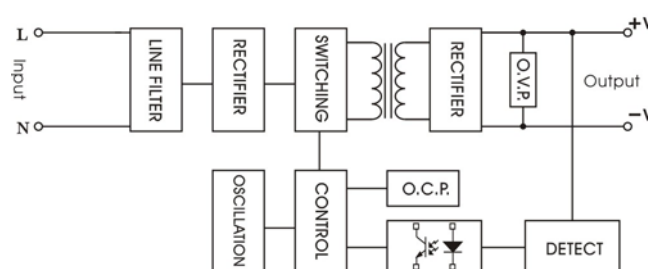
| PIN# | SINGLE    |
|------|-----------|
| 1    | AC IN (N) |
| 2    | AC IN (L) |
| 3    | +DC OUT   |
| 4    | -DC OUT   |

**DERATING**



**BLOCK DIAGRAM**

Single Output



**AHC-E1 SERIES**

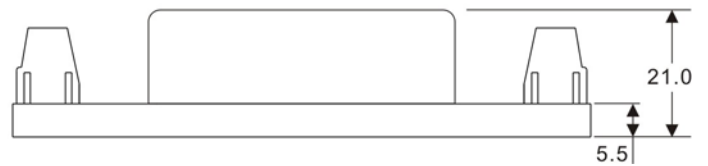
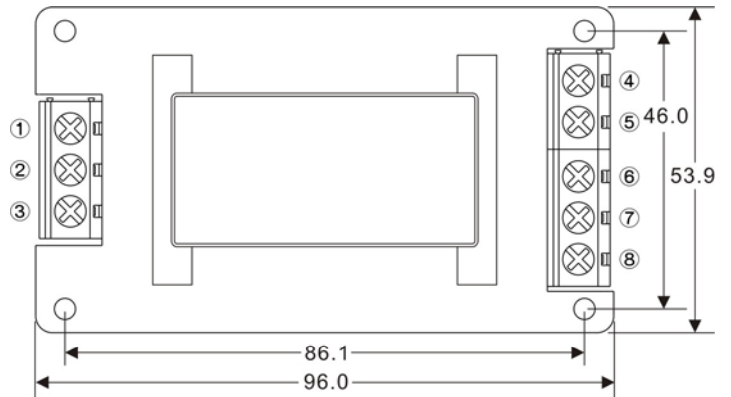
**5 Watts**

**SCREW TERMINAL**

**AHC-E1-A2**



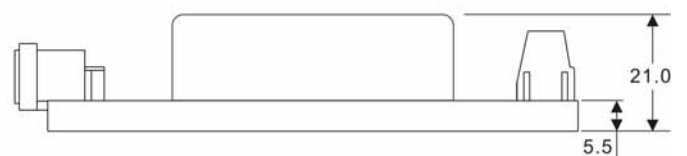
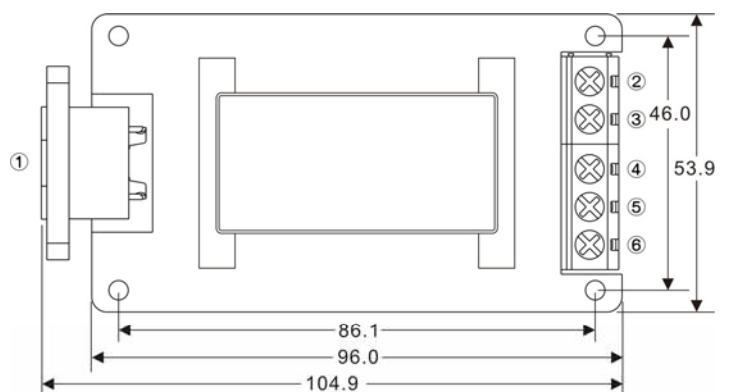
| PIN# | Single     |
|------|------------|
| 1    | NO CONNECT |
| 2    | AC IN (N)  |
| 3    | AC IN (L)  |
| 4    | NO CONNECT |
| 5    | +DC OUT    |
| 6    | -DC OUT    |
| 7    | NO CONNECT |
| 8    | NO CONNECT |



**AHC- E1-A3**

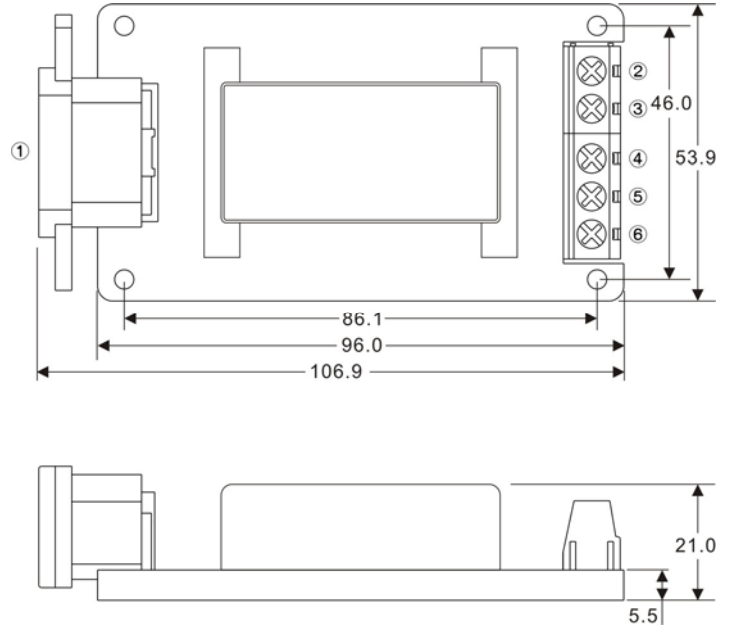


| PIN# | Single     |
|------|------------|
| 1    | AC IN      |
| 2    | NO CONNECT |
| 3    | +DC OUT    |
| 4    | -DC OUT    |
| 5    | NO CONNECT |
| 6    | NO CONNECT |

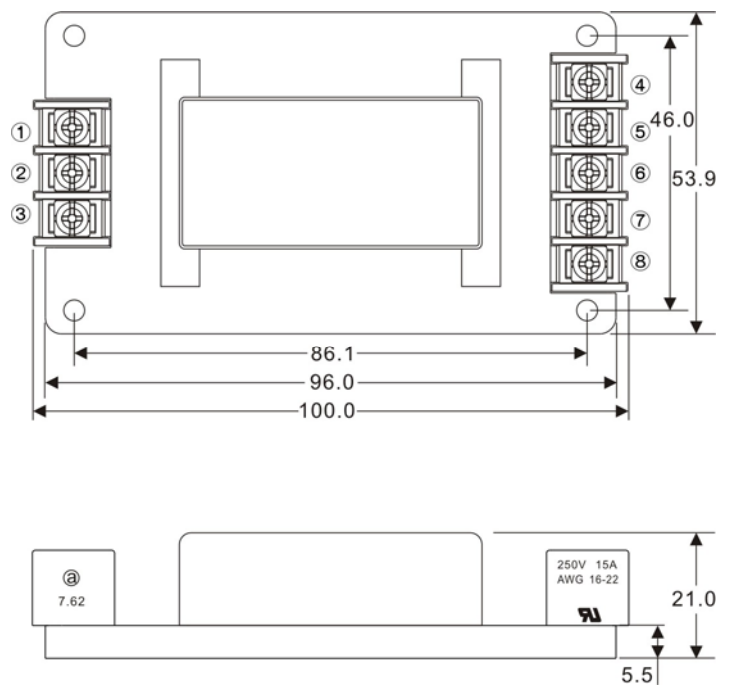


**AHC-E1 SERIES**
**5 Watts**
**AHC- E1-A4**


| PIN# | Single     |
|------|------------|
| 1    | AC IN      |
| 2    | NO CONNECT |
| 3    | +DC OUT    |
| 4    | -DC OUT    |
| 5    | NO CONNECT |
| 6    | NO CONNECT |


**AHC- E1-A5**


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



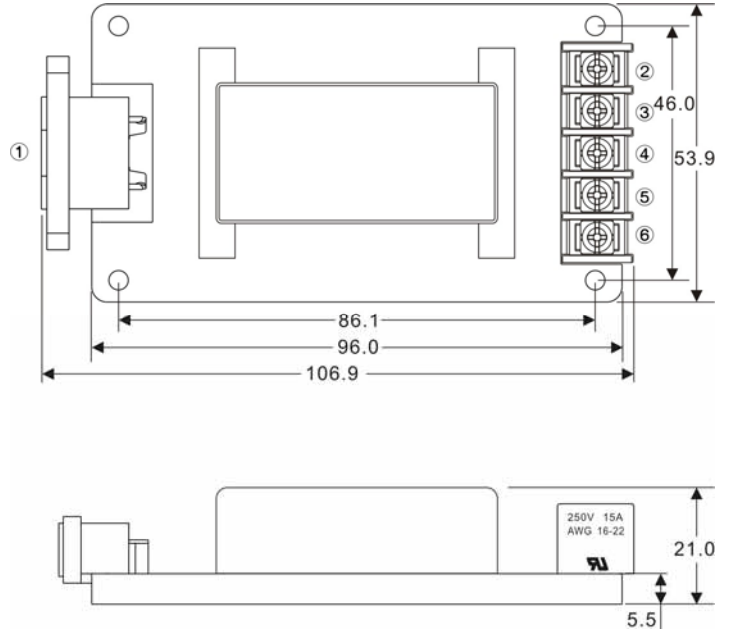
**AHC-E1 SERIES**

**5 Watts**

**AHC- E1-A6**



| PIN# | Single     |
|------|------------|
| 1    | AC IN      |
| 2    | NO CONNECT |
| 3    | +DC OUT    |
| 4    | -DC OUT    |
| 5    | NO CONNECT |
| 6    | NO CONNECT |



**AHC- E1-A7**



| PIN# | Single     |
|------|------------|
| 1    | AC IN      |
| 2    | NO CONNECT |
| 3    | +DC OUT    |
| 4    | -DC OUT    |
| 5    | NO CONNECT |
| 6    | NO CONNECT |

