

# AOC Series

## 4 W AC/DC Power Module

CoolPower  
Solutions

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Single or Dual Output
- Isolation Class II Low Ripple and Noise
- Maximum No-Load Watts < 0.3W
- CE, UL Approval
- 2-Years Product Warranty



### Electrical specifications

Model No.	AOC-3.3S	AOC-5S	AOC-8S	AOC-9S	AOC-12S	AOC-14S	AOC-15S	AOC-24S										
Max Output Wattage (W)	3.96 W	4 W	4 W	4 W	4 W	4 W	4 W	4 W										
Input	Voltage									90-264 VAC or 120-370 VDC								
	Frequency (Hz)									47-440 Hz								
	Current (Full load)									75 mA max. (115 VAC) / 55 mA max. (230 VAC)								
	Inrush Current (<2ms)									15 A max. (115 VAC) / 25 A max. (230 VAC)								
	Leakage Current									0.3 mA max.								
	External Fuse (recommend)									1 A slow blow type								
Output	Voltage (V.DC.)		3.3V	5.0V	8.0V	9.0V	12V	14V	15V	24V								
	Voltage Accuracy		±2%															
	Current (mA) max		1200	800	500	444	333	286	267	167								
	Line Regulation		±0.2% (LL-HL) (typ.)															
	Load Regulation		±1% (0-100%) (typ.)				±0.5% (0-100%) (typ.)											
	Minimum Load		0%															
	Max Capacitive Load		14000µF	8000µF	2700µF	2400µF	1000µF	750µF	700µF	220µF								
	Ripple max (Vp-p)		<100mV	<100mV	<100mV	<100mV	<100mV	<100mV	<100mV	<150mV								
	Noise max (Vp-p)		<150mV	<150mV	<150mV	<150mV	<150mV	<150mV	<150mV	<200mV								
	Efficiency		70 %	72 %	76 %	76 %	76 %	76 %	76 %	77 %								
	Hold-up Time		15 ms min.															
	Switching Frequency		132 ± 8 kHz															
Protection	Over Power Protection		Hiccup technique, auto-recovery															
	Over Voltage Protectio		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...+125°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)		1.44 x 1.07 x 0.67 Inches ( 36.66 x 27.16 x 17.10 mm ) Tolerance ±0.5 mm															
	Case Material		Plastic resin with Fiberglass (flammability to UL 94V-0)															
	Weight		26 g															
	Cooling Method		Free air convection															
Safety	Agency Approvals		UL, cUL, CE															
EMC	EMI		EN 55022 class B (Conducted & Radiated Emission)															
	EMS (Noise Immunity)		EN 55024															

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

### Electrical specifications

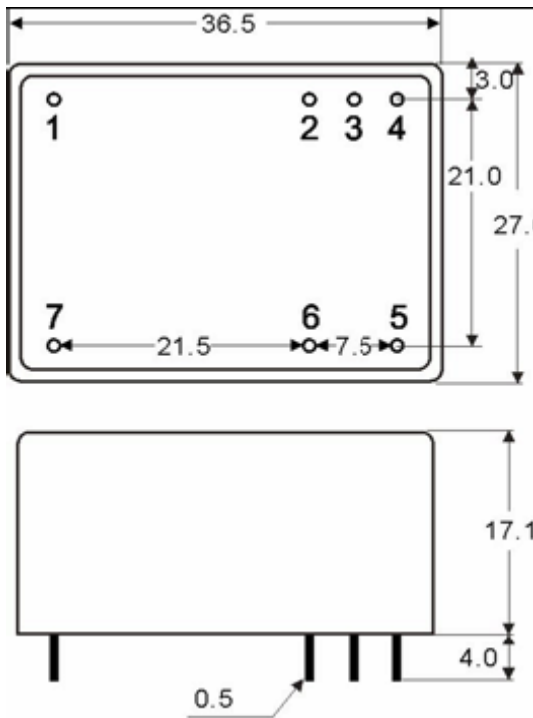
Model No.	AOC-5S3.3S		AOC-8S5S	AOC-12S5S
Max Output Wattage (W)	3.5 W		3.6 W	3.6 W
Input	Voltage	90-264 VAC or 120-370 VDC		
	Frequency (Hz)	47-440 Hz		
	Current (Full load)	85 mA max. (115 VAC) / 65 mA max. (230 VAC)		
	Inrush Current (<2ms)	15 A max. (115 VAC) / 25 A max. (230 VAC)		
	Leakage Current	0.3 mA max.		
	External Fuse (recommend)	1 A slow blow type		
Output	Voltage (V.DC.)	Vo : 5V Vr : 3.3V	Vo : 8V Vr : 5V	Vo : 12V Vr : 5V
	Voltage Accuracy	Vo : $\pm 2\%$ Vr : $\pm 5\%$		
	Current (mA) max	600 / 150	375 / 120	250 / 120
	Line Regulation	Vo : $\pm 0.2\%$ Vr : $\pm 3\%$ (LL-HL) (typ.)		
	Load Regulation	Vo : $\pm 0.5\%$ Vr : $\pm 5\%$ (0-100%) (typ.)		
	Minimum Load	0%	0%	Vo : 0% Vr : 1%
	Max Capacitive Load	Vo : 5600uF Vr : 4700uF	Vo : 1000uF Vr : 4700uF	Vo : 330uF Vr : 4700uF
	Ripple max (Vp-p)	<100mV		
	Noise max (Vp-p)	<150mV		
	Efficiency	73 %	76 %	77 %
	Hold-up Time	15 ms min.		
	Switching Frequency	132 $\pm$ 8 kHz		
Protection	Over Power Protection	Hiccup technique, auto-recovery		
	Over Voltage Protectio	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...+125°C		
	Temperature Coefficient	$\pm 0.02\%/^{\circ}\text{C}$		
	Humidity	95% RH		
	MTBF	>350,000 h @ 25°C (MIL-HDBK-217F)		
Physical	Dimension (L x W x H)	1.44 x 1.07 x 0.67 Inches ( 36.66 x 27.16 x 17.10 mm ) Tolerance $\pm 0.5$ mm		
	Case Material	Plastic resin with Fiberglass (flammability to UL 94V-0)		
	Weight	26 g		
	Cooling Method	Free air convection		
Safety	Agency Approvals	UL, cUL, CE		
EMC	EMI	EN 55022 class B (Conducted & Radiated Emission)		
	EMS (Noise Immunity)	EN 55024		

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

### Output noise

The output noise is measured with 47 $\mu$ F tantalum capacitor and 0.1 $\mu$ F ceramic capacitor across output.

## Mechanical Specifications (top view)

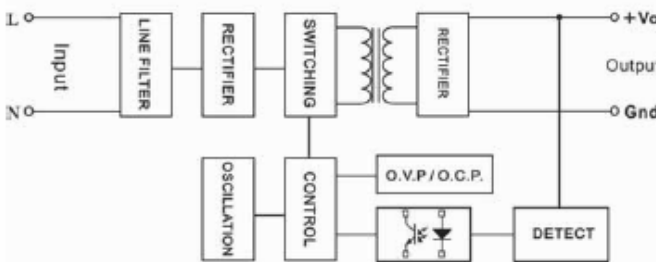


Pin no:	Single	Dual
1	NC	NC
2	+Vo	+Vo
3	GRD	COM
4	NC	+Vr
5	AC IN (L)	AC IN (L)
6	AC IN (N)	AC IN (N)
7	NC	NC

## Derating

## Block Diagram

### Single Output



### Dual Output

