

## AKC SERIES

20 Watts

### KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-264VAC, 47-440 Hz
- Regulated Output
- Low Ripple and Noise
- High Efficiency
- CE, cUL, TUV Approval
- 2-Years Product Warranty



### ELECTRICAL SPECIFICATIONS



Model No. ( Single Output )	AKC-3.3S	AKC-5S	AKC-7.35S	AKC-9S	AKC-12S	AKC-15S	AKC-24S	
Max output wattage ( W )	14.85W	20W	20W	20W	20W	20W	20W	
Output	Voltage (V.DC.)	3.3V	5V	7.35V	9V	12V	15V	24V
	Current (mA) max	4500	4000	2730	2230	1670	1340	840
	Voltage set accuracy	±2%	±2%	±2%	±2%	±2%	±2%	±2%
	Line Regulation (LL-HL) (typ.)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Load Regulation (0-100%) (typ.)	1%	1%	1%	1%	1%	1%	1%
	Minimum load	0%	0%	0%	0%	0%	0%	0%
	Efficiency (typ.)	75%	79%	82%	82%	83%	83%	84%
	Capacitor Load (max.)	6900 uF	6900 uF	2200 uF	1200 uF	560 uF	330 uF	100 uF

Model No. ( Dual Output )	AKC-5D		AKC-12D		AKC-15D		
Max output wattage ( W )	20W		20W		20W		
Output	Output 1	Output 2	Output 1	Output 2	Output 1	Output 2	
	Voltage (V.DC.)	+5V	-5V	+12V	-12V	+15V	-15V
	Current (mA) max	2000	2000	833	833	667	667
	Voltage set accuracy	±2%		±2%		±2%	
	Line Regulation (LL-HL) (typ.)	±0.5%		±0.5%		±0.5%	
	Load Regulation (10-100%) (typ.)	±3%		±3%		±3%	
	Minimum load	0%		0%		0%	
	Efficiency (typ.)	79%		82%		82%	
	Capacitor Load (max.)	±4700 uF		±560 uF		±330 uF	

Model No. ( Triple Output )	AKC-5S12D			AKC-5S15D			
Max output wattage ( W )	20W			20W			
Output	Output 1	Output 2	Output 3	Output 1	Output 2	Output 3	
	Voltage (V.DC.)	5	+12	-12	5	+15	-15
	Current (mA) max	2800	250	250	2800	200	200
	Voltage set accuracy	±2%	±2%		±2%	±2%	
	Line Regulation (LL-HL) (typ.)	1%	5%		1%	5%	
	Load Regulation (20-100%) (typ.)	2%	5%		2%	5%	
	Minimum load	10%			10%		
	Efficiency (typ.)	79%			79%		
	Capacitor Load (max.)	3000 uF / ±220 uF			3000 uF / ±150 uF		

Input	Voltage	90-264 VAC or 100-375 VDC
	Frequency (Hz)	47-440 Hz
	Current (Full load)	380 mA max. (115 VAC) / 240 mA max. (230 VAC)
	Inrush current (<2ms)	30 A max. (115 VAC) / 50 A max. (230 VAC)
	Leakage Current	0.75 mA max.
	External Fuse (recommend)	2 A slow blow type
	Power Saving	230V < 0.5W
Output	Ripple	<0.2% Vout +40mV max (Vp-p)
	Noise	<0.5% Vout +50mV max (Vp-p)
	Hold-up time (typ.)	13 ms min.
	Switching frequency	100 kHz
Protection	Over current protection	Above 105% rated output power
	Over voltage protection	Zener diode clamp
	Short circuit protection	Hiccup mode, indefinite (automatic recovery)
Isolation	Input-Output (V.AC)	3000V
	Input-FG (V.AC)	1500V
	Output-FG (V.AC)	500V
Environment	Operating temperature	-25°C...+70°C (with derating)
	Storage temperature	-40°C...+85°C
	Temperature coefficient	0.02%/°C
	Humidity	95% RH
	MTBF	>200,000 h @ 25°C (MIL-HDBK-217F)
Physical	Dimension (L x W x H)	2.76 x 1.89 x 0.87 Inches ( 70.0 x 48.0 x 22.0 mm ) Tolerance ±0.5 mm
	Case Material	Plastic resin + Fiberglass (flammability to UL 94V-0)
	Weight	110 g
	Cooling method	Free air convection
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class B
	EMS (Noise Immunity)	EN 55024

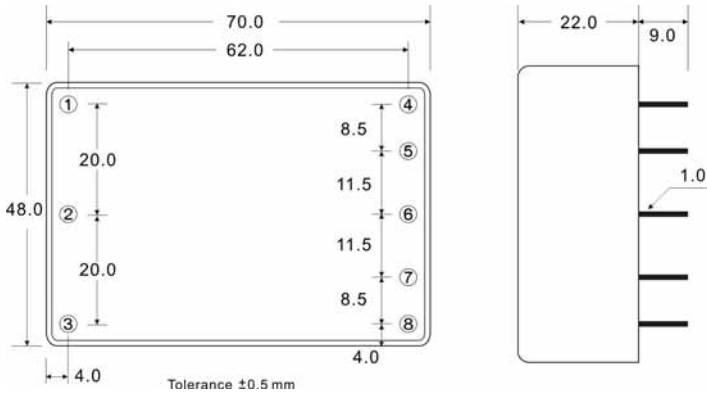
1. All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

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

**Note**

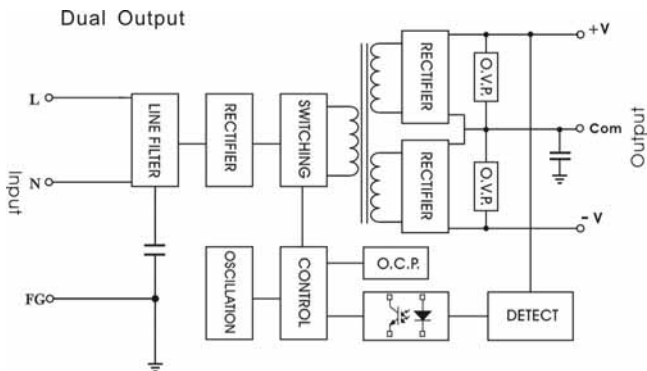
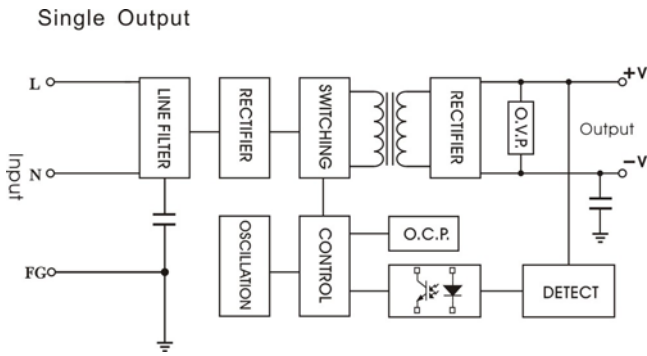
- The triple output required a minimum 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices; however they may not meet all listed specification.
- Load regulation for triple output:  
Main output (V1): 20% to 100% with 20% to 100% balanced on auxiliaries.  
Auxiliary outputs (V2 and V3): 20% to 100% balanced on all outputs.
- Cross regulation for dual output: asymmetrical load 25% / 100% FL  
Cross regulation for triple output:  
Main output 100% load, auxiliary 100%, other auxiliary 25% to 100%.  
Auxiliary outputs (V2 and V3): main output 100% load, auxiliary 100%, other auxiliary 25% to 100% or main output 25%, auxiliary 25%, other auxiliary 25% to 100%.

**MECHANICAL DIMENSION ( Top View )**



PIN#	SINGLE	Dual	Triple
1	FG	FG	FG
2	AC IN (N)	AC IN (N)	AC IN (N)
3	AC IN (L)	AC IN (L)	AC IN (L)
4	NO PIN	NO PIN	-DC OUT
5	-DC OUT	-DC OUT	COMMON
6	NO PIN	COMMON	+DC OUT
7	+DC OUT	+DC OUT	+5V RTN
8	NO PIN	NO PIN	+5V OUT

**BLOCK DIAGRAM**



**DERATING**

