

ARCH AQF1000 AC-DC Switching Power Supply Datasheet

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KEY FEATURES

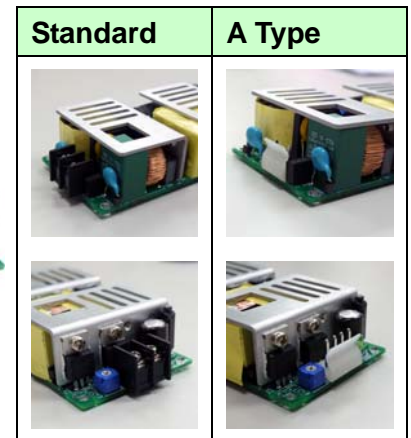
- Open Frame 100W Power Supply in 4.0" x 2.0" Size
- High Efficiency up to 93% Typical
- Active PFC Function, >0.95 (230Vac), >0.99 (115Vac)
- Universal Input: 90-264 VAC
- 100W Full Load at 50°C Under Free Air Convection
- Continuous Short Circuit Protection with Hiccup Mode and Auto Recover
- Low Leakage Current, <250uA
- EN55022 Class B Meets (pending)
- Class I and Class II Construction
- 3-Years Product Warranty

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- Open Frame 100W Power Supply in 4.0" x 2.0" Size
- High Efficiency up to 93% Typical
- Active PFC Function, >0.95 (230Vac), >0.99 (115Vac)
- Universal Input: 90-264 VAC
- 100W Full Load at 50°C Under Free Air Convection
- 120W with FAN (20CFM / 300LFM)
- Low Leakage Current, <250uA
- EN55022 Class B Meets
- Class I and Class II Construction
- Continuous Short Circuit Protection with Hiccup Mode and Auto Recover
- 3-Years Product Warranty


ELECTRICAL SPECIFICATIONS

Model No.	AQF1000-12S	AQF1000-15S	AQF1000-24S	AQF1000-48S
Max Output Wattage (Free air Convection) (W)	100 W			
Max Output Wattage (with 20CFM / 300LFM FAN) (W)	120 W			
Input	Voltage			
	90-264 VAC or 120-370 VDC			
	Frequency (Hz)			
	47-63 Hz			
	Current (Full load)			
	<2.0 A max. (115 VAC) / <1.0 A max. (230 VAC)			
Inrush Current (<2ms)				
< 30 A max. (115 VAC) / < 60 A max. (230 VAC)				
Leakage Current				
< 0.5 mA max.				
Power Factor				
PF>0.99 (115 VAC) / PF>0.95 (230 VAC) at Full Load				
Output	Voltage (V.DC.)			
	12V	15V	24V	48V
	Voltage Adj Range (V.DC.)			
	±5% Output Voltage			
	Voltage Accuracy			
	±2%			
	Current (Free air Convection) (A) max			
	8.4	6.7	4.2	2.1
	Current (with 20CFM / 300LFM FAN) (A) max			
	10	8	5	2.5
	Line Regulation			
	±1%			
	Load Regulation			
	±1%			
Minimum Load				
3%				
Maximum Capacitive Load				
50,000µF	40,000µF	6,000µF	1,000µF	
Ripple & Noise max.				
120mV	150mV	200mV	240mV	
Efficiency (typ.)				
89%	89%	92%	93%	
Hold-up Time				
10 ms (110 VAC) min.				
Switching Frequency				
100~133 kHz				
Protection	Over Power Protection			
	Auto recovery, Hiccup mode			
	Over Voltage Protection			
Zener diode clamp				
Short Circuit Protection				
Auto recovery, Hiccup mode				
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			
	-25°C...+85°C			
	Temperature Coefficient			
	±0.03%/°C (0~50°C)			
Humidity				
95% RH				
MTBF				
>250,000 h @ 25°C (MIL-HDBK-217F, Notice 1)				
Vibration				
10~500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes.				

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

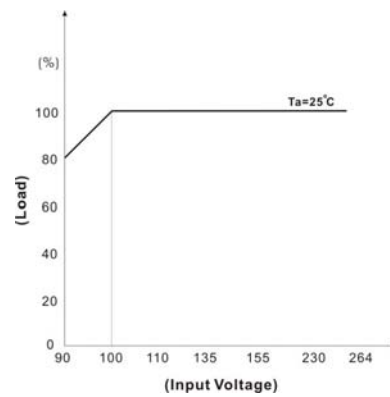
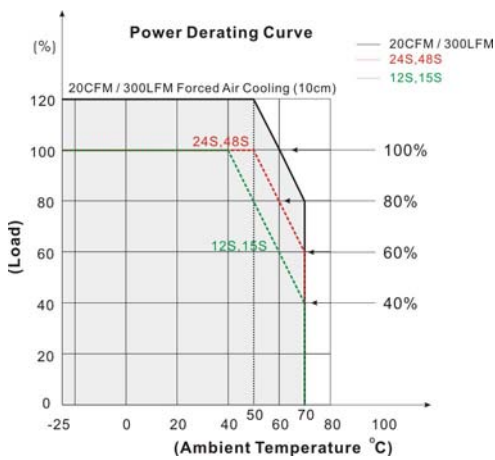
2.Ripple & Noise are measured at 20MHz of bandwidth with 0.1UF & 47UF parallel capacitor.

3.Hold-up Time measured at 90% Vout.

Model No.		AQF1000-12S	AQF1000-15S	AQF1000-24S	AQF1000-48S
Physical	Dimension (L x W x H)	4.1 x 2.05 x 0.98 Inches (103.9 x 52.1 x 25.0 mm) Tolerance ± 0.5 mm			
	Weight	200 g			
	Cooling Method	Free convection			
Safety	Agency Approvals	CE, UL60950-1, CB			
EMC	EMI (Conducted & Radiated Emission)	EN61000-6-3 · EN 55022 class B (Conductive plane to be connected to safety earth)			
	EMS (Noise Immunity)	EN 55024 · EN61000-4-2,3,4,5,6,8,11			

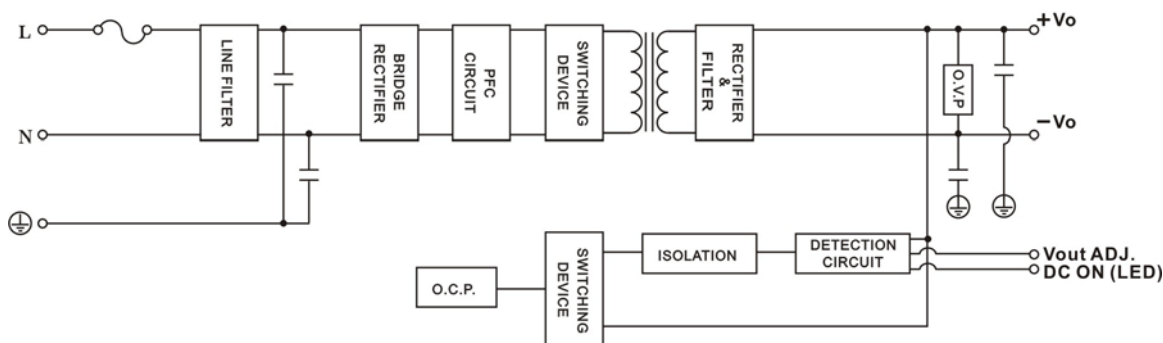
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DERATING



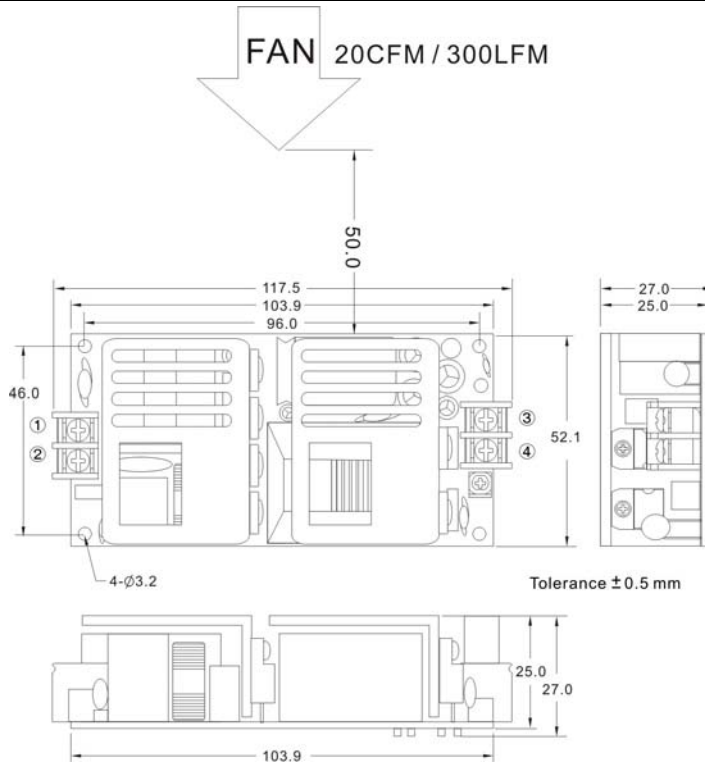
BLOCK DIAGRAM

Single Output



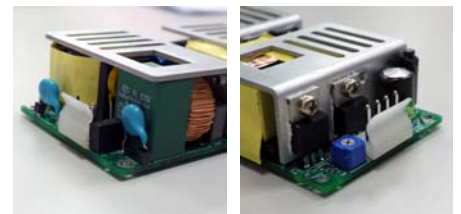
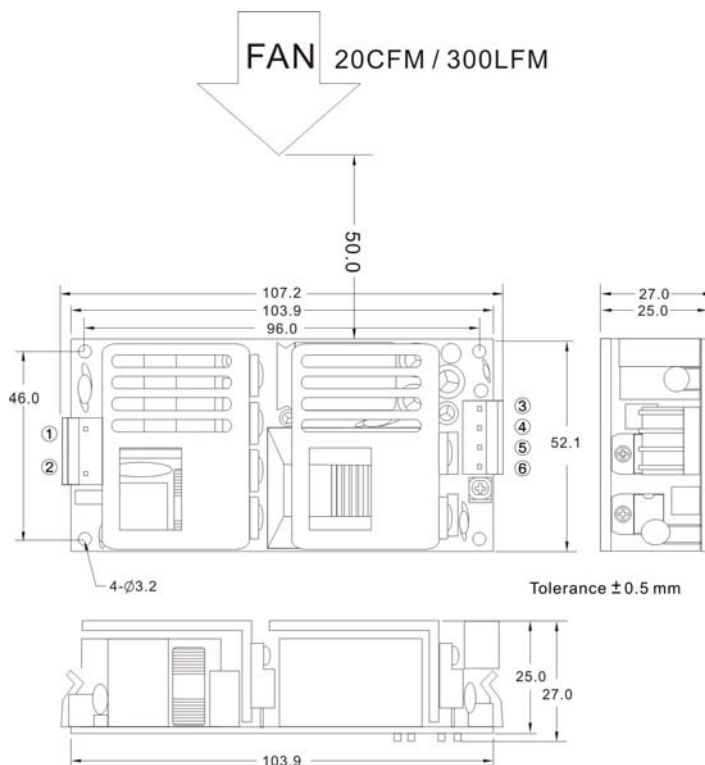
MECHANICAL DIMENSION (Top View)

Standard : Terminal Block



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

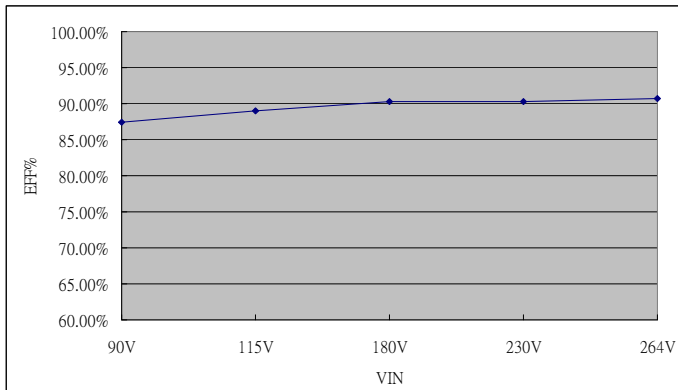
A Type : Molex Series 8673 (Alex Connector Co., ltd)



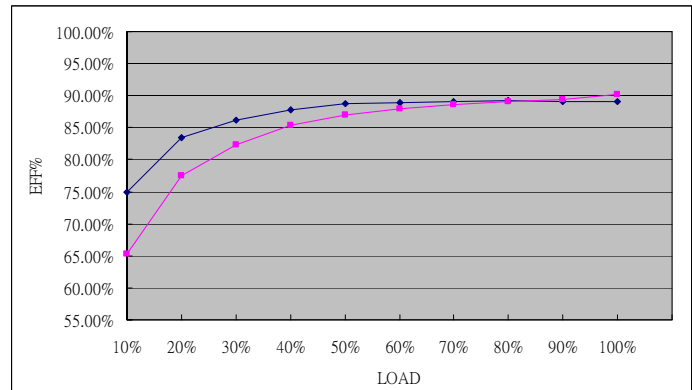
PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	+DC OUT
4	+DC OUT
5	-DC OUT
6	-DC OUT

EFFICIENCY VERSUS LOAD
AQF1000-12S
VIN VS Efficiency

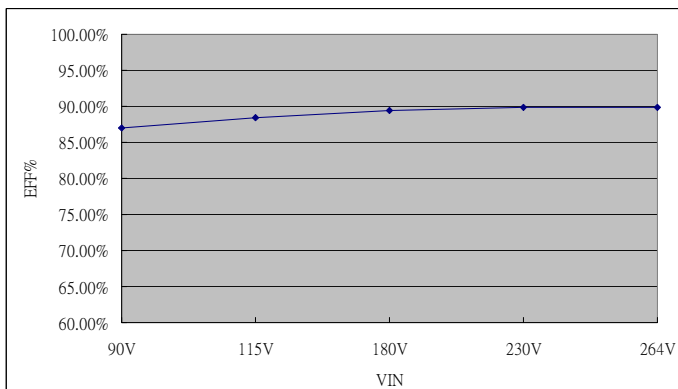
Input Voltage (V)	90	115	180	230	264
Efficiency (%)	87.38	89.03	90.31	90.22	90.66


LOAD VS Efficiency

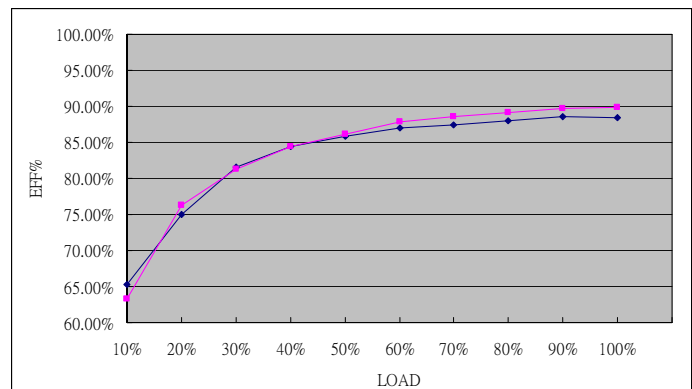
Load (%)	10	20	30	40	50
115V (%)	74.98	83.50	86.13	87.83	88.70
230V (%)	65.30	77.58	82.39	85.30	87.01
Load (%)	60	70	80	90	100
115V (%)	88.87	89.11	89.20	89.13	89.03
230V (%)	87.95	88.63	89.14	89.46	90.22


AQF1000-15S
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	87.03	88.49	89.45	89.81	89.89


LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	65.23	75.04	81.54	84.42	85.92
230V (%)	63.23	76.35	81.29	84.36	86.12
Load (%)	60	70	80	90	100
115V (%)	87.07	87.47	87.96	88.51	88.49
230V (%)	87.88%	88.51%	89.17%	89.77%	89.81%

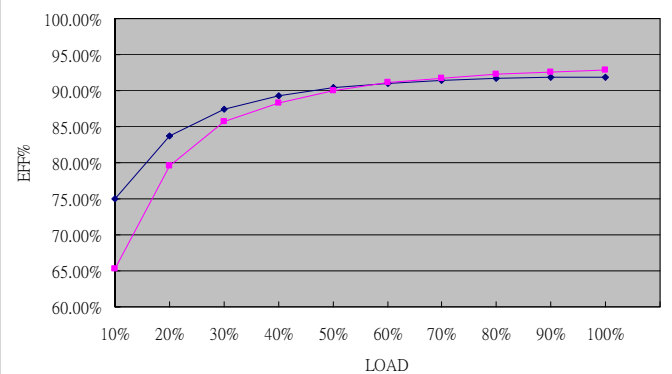
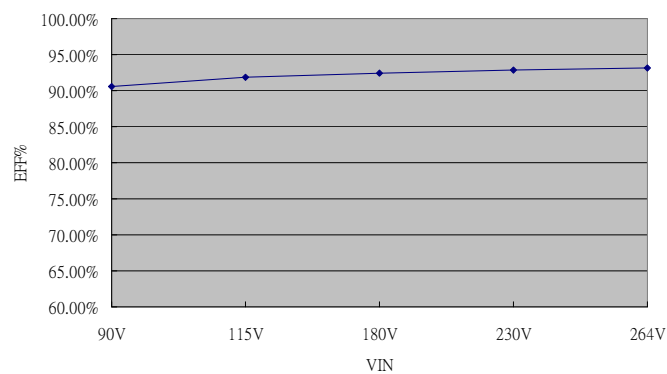


EFFICIENCY VERSUS LOAD
AQF1000-24S
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	90.53	91.90	92.44	92.85	93.13

LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	74.99	83.78	87.43	89.22	90.44
230V (%)	65.32	79.51	85.76	88.32	90.04
Load (%)	60	70	80	90	100
115V (%)	90.99	91.43	91.72	91.89	91.90
230V (%)	91.08	91.76	92.23	92.64	92.85


AQF1000-48S
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	90.27	91.64	92.81	93.03	93.35

LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	73.93	83.86	87.18	89.22	90.34
230V (%)	66.76	79.70	84.80	87.75	89.62
Load (%)	60	70	80	90	100
115V (%)	90.82	91.28	91.53	91.64	91.64
230V (%)	90.77	91.47	92.09	92.49	93.03

