

ARCH AQF160 AC-DC Switching Power Supply Datasheet

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KEY FEATURES

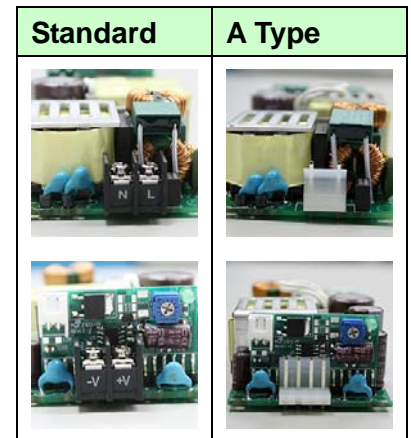
Open Frame 100W Power Supply in 4.0" x 2.0" Size
Active PFC Function, >0.95 (230Vac), >0.98 (115Vac)
Universal Input: 90-264 VAC
100W Full Load at 40°C Under Free Air Convection
160W with 25CFM FAN
<0.5W No Load Input Power
12V (Aux) / 0.3A
EN55022 Class B Meets
Isolation Class I
Continuous Short Circuit Protection with Hiccup Mode
and Auto Recover
3-Years Product Warranty

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ELECTRICAL SPECIFICATIONS

Model No.	AQF160-12S	AQF160-15S	AQF160-24S	AQF160-48S		
Max Output Wattage (Free air Convection) (W)	100 W					
Max Output Wattage (with 25CFM FAN) (W)	160 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)					
Input	Inrush Current (<2ms)					
	< 35 A max. (115 VAC) / < 70 A max. (230 VAC)					
	Leakage Current					
	< 0.5 mA max.					
	Power Factor					
	PF>0.98 (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 25CFM FAN) (A) max		13.3	10.6	6.66	3.33
	Line Regulation					
	±1%					
	Load Regulation					
±1%						
Maximum Capacitive Load		3,000µF	2,000µF	360µF	180µF	
Ripple & Noise max.		130mV	1% Vout			
Efficiency (typ.)		90%	90%	90.5%	91.5%	
Hold-up Time (at 115 VAC)		10 ms min.				
Protection	Over Power Protection					
	Auto recovery, Hiccup mode					
	Over Temperature Protection					
	Auto recovery					
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.

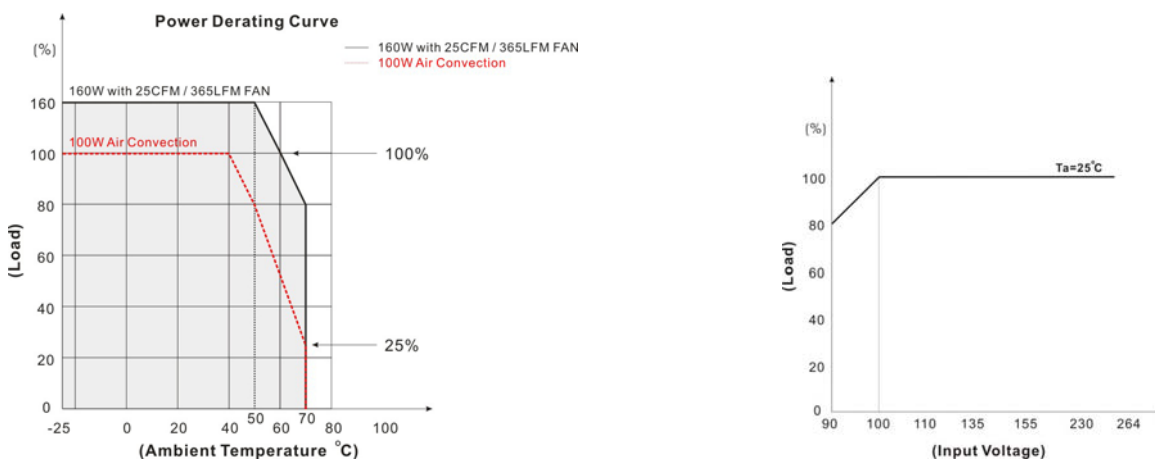
3.Hold-up Time measured at 90% Vout.

4.Main Vout >50% Load, 12V (Aux) / 0.3A.

Model No.		AQF160-12S	AQF160-15S	AQF160-24S	AQF160-48S
Physical	Dimension (L x W x H)	4.1 x 2.05 x 1.42 Inches (103.9 x 52.1 x 29.0 mm) Tolerance ± 0.5 mm			
	Weight	220 g			
	Cooling Method	Free convection			
Safety	Agency Approvals	CE, UL60950-1 (Pending)			
EMC	EMI (Conducted & Radiated Emission)	EN 55022 class B (Conductive plane to be connected to safety earth) (Pending)			
	EMS (Noise Immunity)	EN 55024 (Pending)			

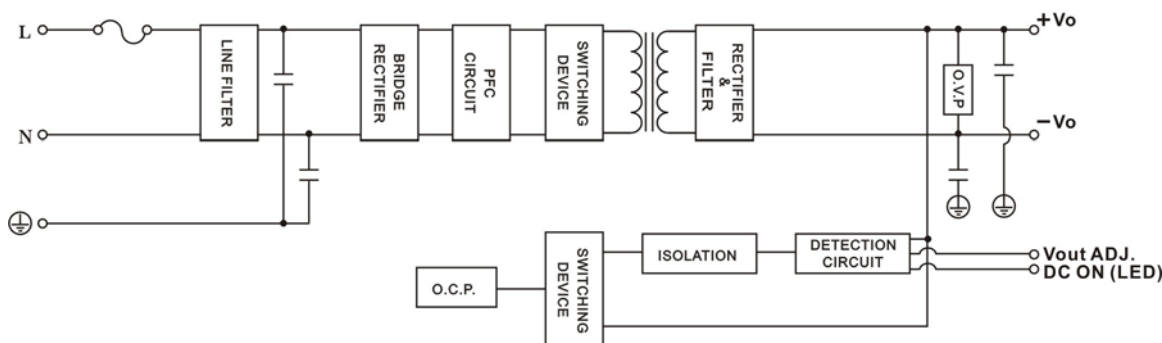
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- 2.Ripple & Noise are measured at 20MHz of bandwidth with 0.1UF & 47UF parallel capacitor.
- 3.Hold-up Time measured at 90% Vout.
- 4.Main Vout >50% Load, 12V (Aux) / 0.3A.

DERATING



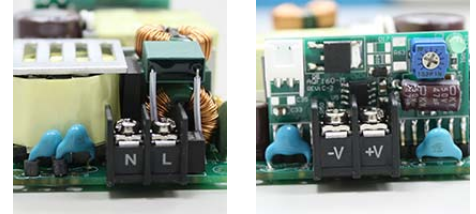
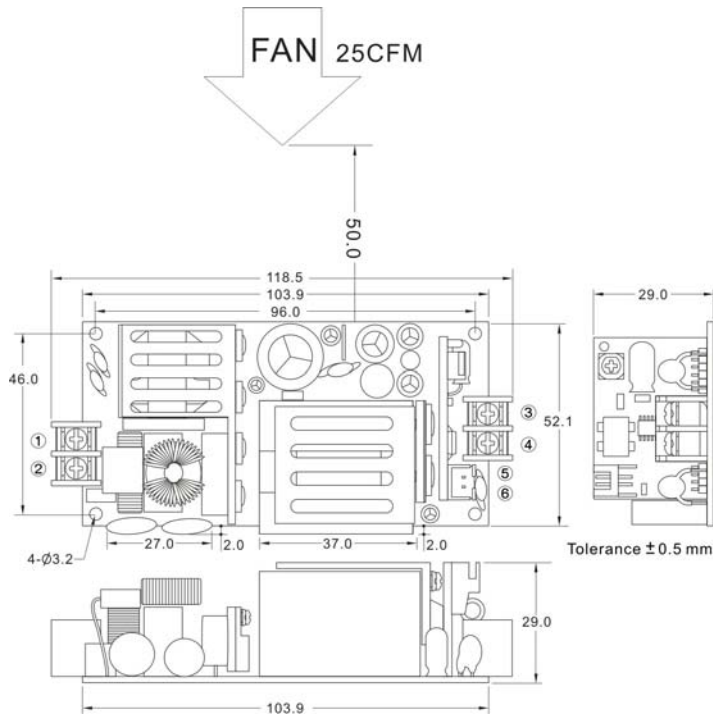
BLOCK DIAGRAM

Single Output



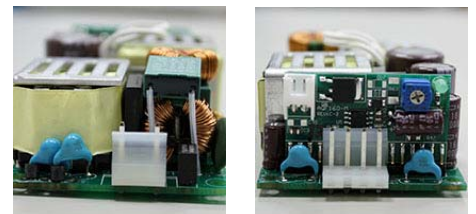
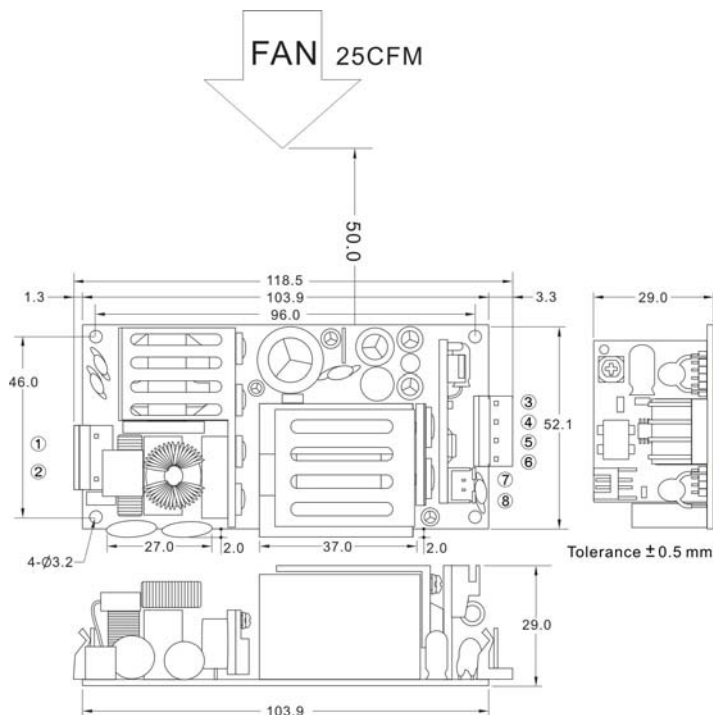
MECHANICAL DIMENSION (Top View)

Standard : Terminal Block



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

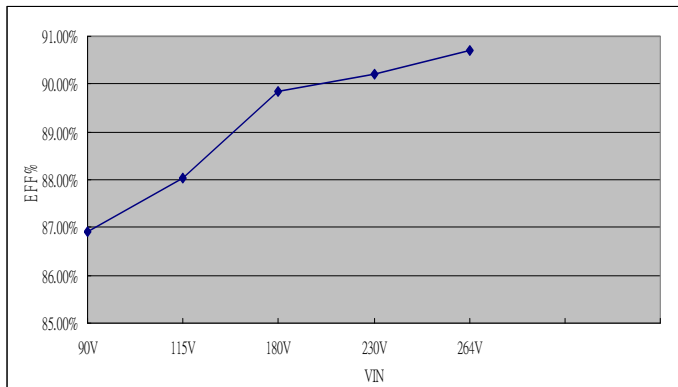
A Type : Molex Series 8673 (Alex Connector Co., ltd)



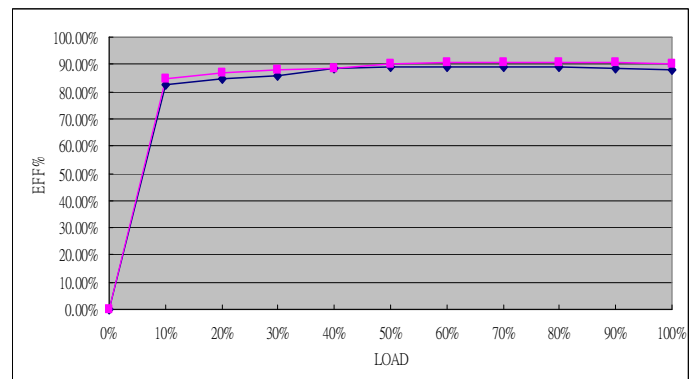
PIN#	SINGLE
1	AC IN (N)
2	AC IN (L)
3	+DC OUT
4	+DC OUT
5	-DC OUT
6	-DC OUT
7	-Aux OUT
8	+Aux OUT

EFFICIENCY VERSUS LOAD
AQF160-12S
VIN VS Efficiency

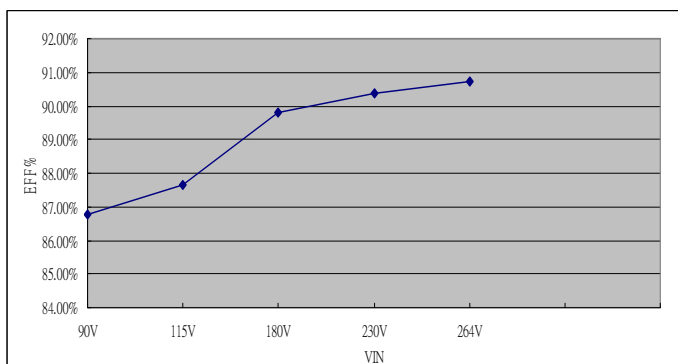
Input Voltage (V)	90	115	180	230	264
Efficiency (%)	86.90	88.03	89.85	90.22	90.69


LOAD VS Efficiency

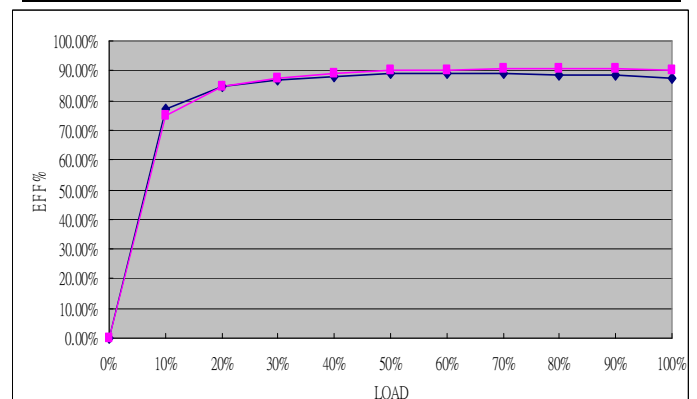
Load (%)	10	20	30	40	50
115V (%)	82.29	84.55	85.71	88.58	89.03
230V (%)	84.68	86.75	88.05	88.64	90.05
Load (%)	60	70	80	90	100
115V (%)	89.08	88.90	88.87	88.61	88.11
230V (%)	90.61	90.79	90.79	90.70	90.40


AQF160-15S
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	86.75	87.64	89.81	90.38	90.74

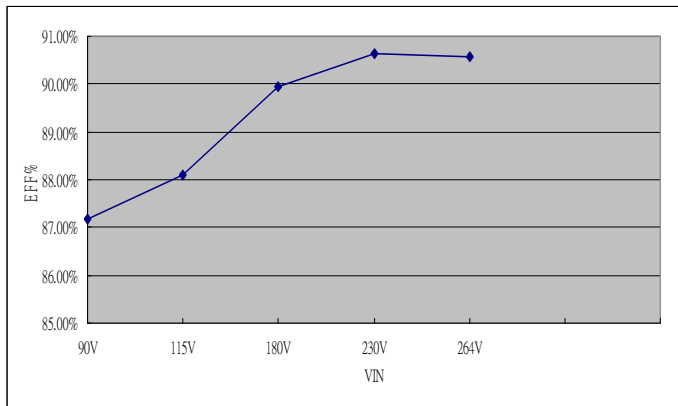

LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	76.92	84.73	87.06	88.11	88.82
230V (%)	75.13	84.50	87.60	89.04	90.00
Load (%)	60	70	80	90	100
115V (%)	88.91	89.04	88.77	88.31	87.64
230V (%)	90.39	90.66	90.70	90.54	90.38

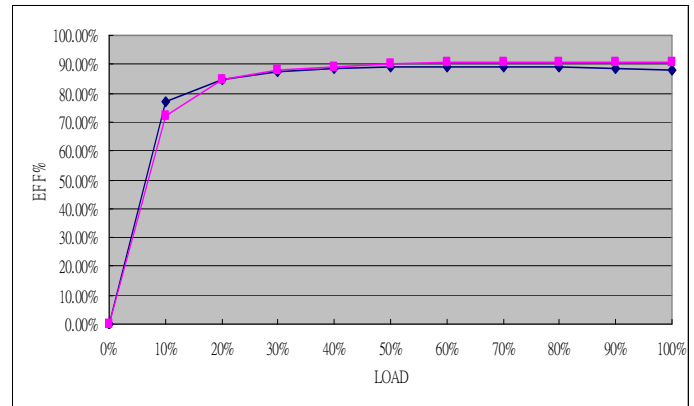


EFFICIENCY VERSUS LOAD
AQF160-24S
VIN VS Efficiency

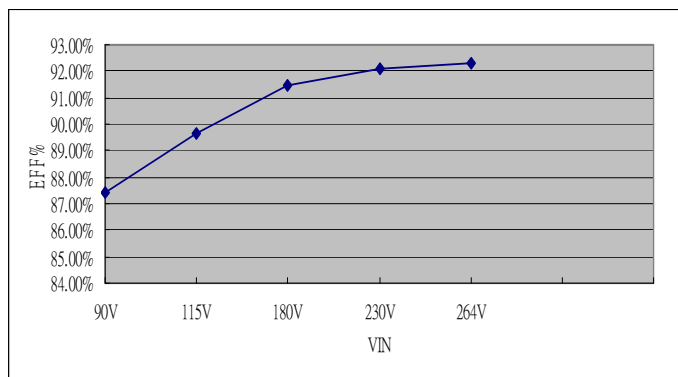
Input Voltage (V)	90	115	180	230	264
Efficiency (%)	87.19	88.09	89.93	90.63	90.57


LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	76.80	84.68	87.18	88.48	88.87
230V (%)	72.26	84.67	87.96	89.34	90.05
Load (%)	60	70	80	90	100
115V (%)	88.85	89.02	88.82	88.57	88.09
230V (%)	90.51	90.75	90.80	90.73	90.63


AQF160-48S
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	87.44	89.65	91.47	92.10	92.33


LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	79.42	85.97	88.41	89.42	90.04
230V (%)	78.22	84.82	88.72	90.30	91.29
Load (%)	60	70	80	90	100
115V (%)	90.29	90.33	90.15	90.04	89.65
230V (%)	91.77	92.08	92.22	92.16	92.10

