ARCH ELECTRONICS CORP.

AC-DC Switching Power Supply

AQF100C SERIES 100 Watts

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)
- 3-Year Product Warranty

E199779 LEVEL3 (Pending)

Standard	A Type
	
	

ELECTRICAL SPECIFICATIONS

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

Model No.		AQF100C-12S	AQF100C-15S	AQF100C-24S	AQF100C-48S
Max Output Wattage (W)		100 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
	Constant Current Range (.VDC)	8 ~ 12V	7.5 ~ 15V	15 ~ 24V	24 ~ 48V
	Voltage Adj Range (V.DC.)	±5% Output Voltage			
	Voltage Accuracy	±2%			
	Current Adj. Range (A) max	4.2 ~ 8.4	3.35 ~ 6.7	2.1 ~ 4.2	1.05 ~ 2.1
	Line Regulation	±1%			
	Load Regulation	±1%			
	Minimum Load	3%			
	Maximum Capacitive Load (at 230 VAC)	50,000μF	40,000μF	6,000μF	560μF
	Ripple & Noise max.	120mV	150mV	200mV	240mV
	Efficiency (typ.)	89%	89%	92%	93%
	Hold-up Time	10 ms (110 VAC) min.			
Protection	Over Power Protection	Auto recovery, Hiccup mode			
	Over Voltage Protection	Zener diode clamp			
	Short Circuit Protection	Auto recovery, Hiccup mode			
Isolation	Input-Output (Note.5)	3000VAC or 4242VDC			
	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.			
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 (Pending)			
EMC	EMI (Conducted & Radiated Emission)	EN61000-6-3、EN 55022 class B (Conductive plane to be connected to safety earth) (Pending)			
	EMS (Noise Immunity)	EN 55024、EN61000-4-2,3,4,5,6,8,11 (Pending)			

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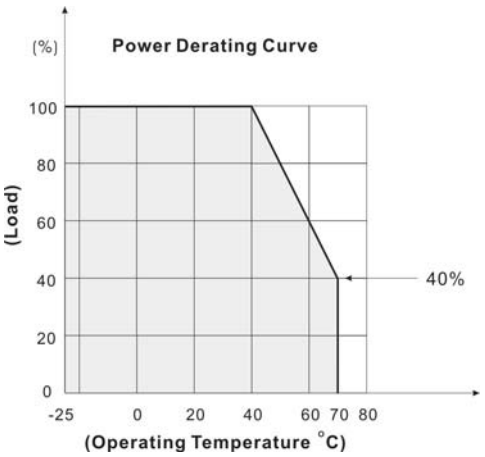
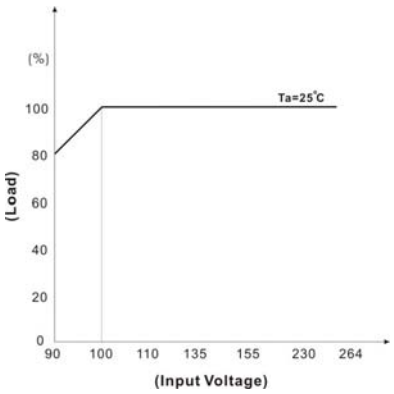
NOTE

1. Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
2. Hold-up Time measured at 90% Vout.
3. It's necessary 10R / 15φ thermistor at L input side in series connection.
4. The minimum load increases by 0.16% for every drop of one degree of temperature(at input=90~219Vac)
5. Strongly recommend to conduct this test with DC Voltage. If customer wishes to test with AC Voltage, please disconnect all Y-Capacitors within Arch power supply.

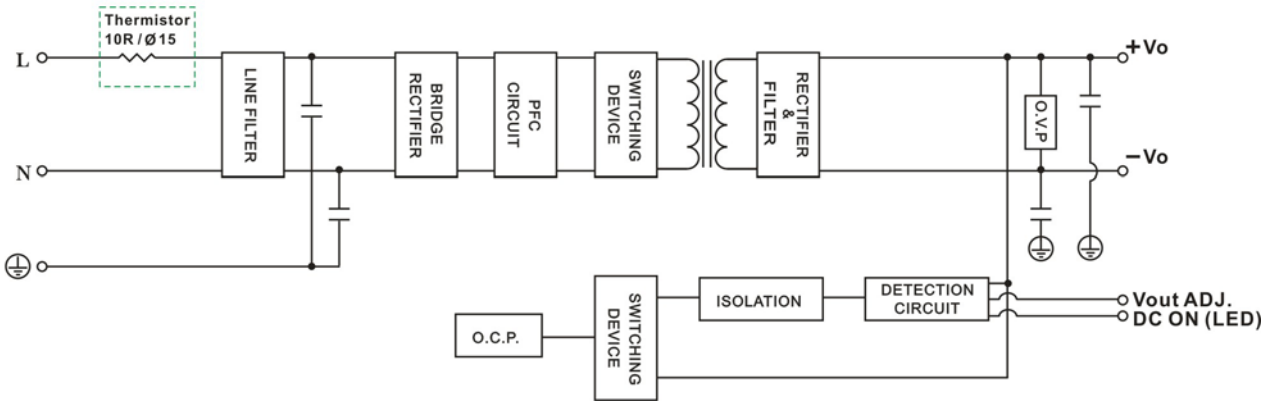
DERATING





BLOCK DIAGRAM

Single Output



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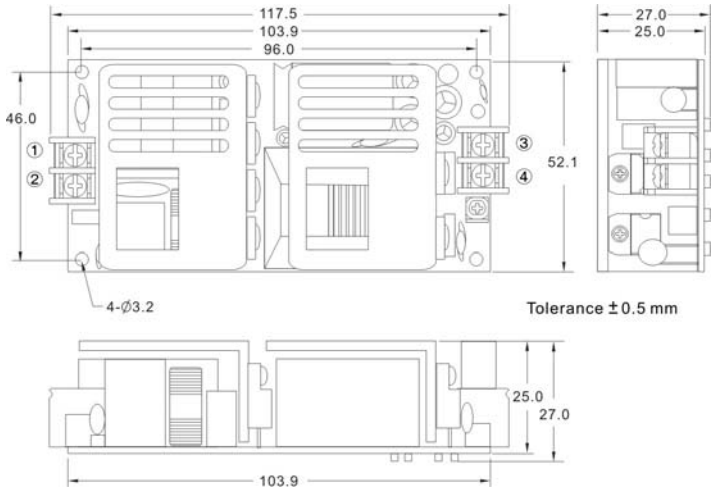
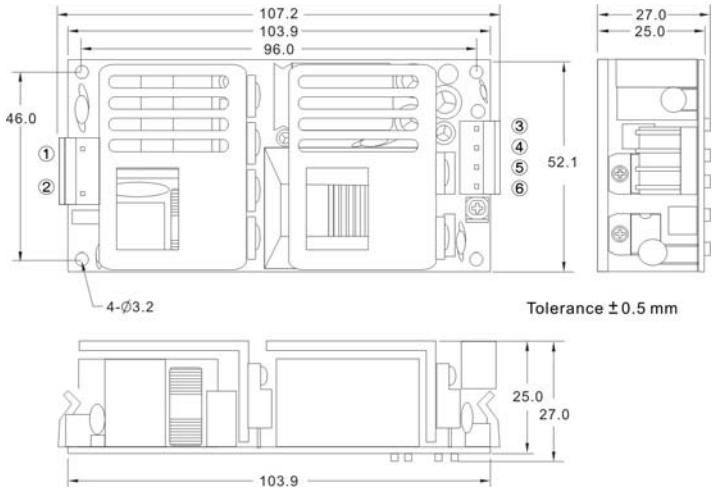
MECHANICAL DIMENSION (Top View)

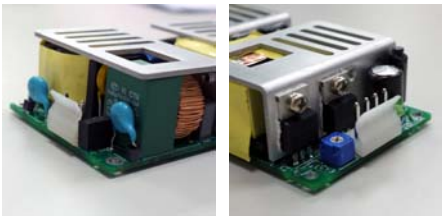
Standard : Terminal Block



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

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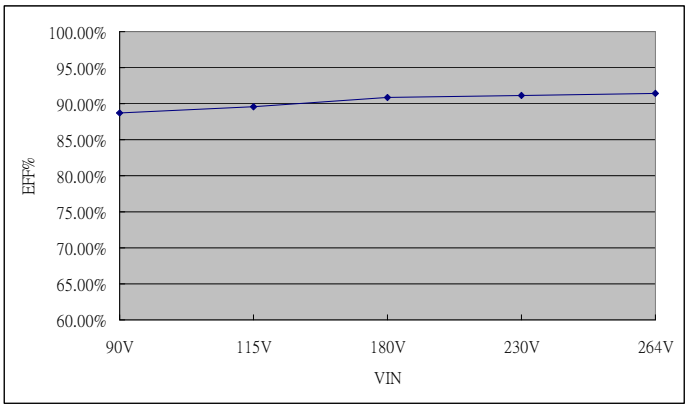
EFFICIENCY VERSUS LOAD

AQF100C-12S

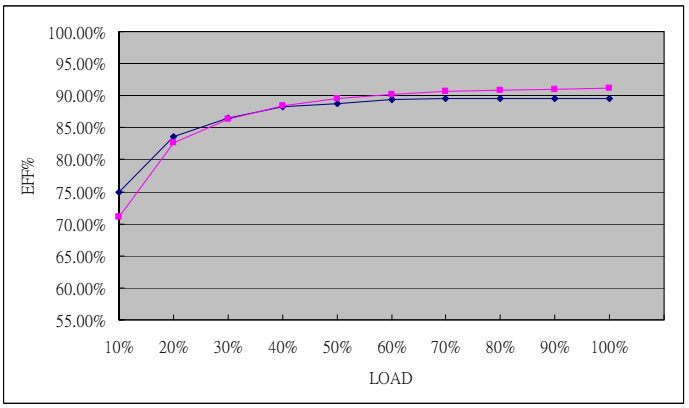
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	88.78	89.54	90.82	91.19	91.44



LOAD VS Efficiency

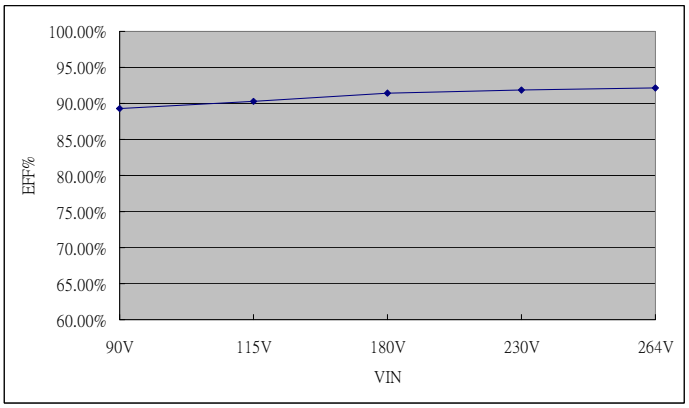
Load (%)	10	20	30	40	50
115V (%)	74.98	83.65	86.53	88.22	88.78
230V (%)	71.13	82.64	86.34	88.35	89.54
Load (%)	60	70	80	90	100
115V (%)	89.32	89.53	89.63	89.50	89.54
230V (%)	90.21	90.71	90.91	91.01	91.19



AQF100C-15S

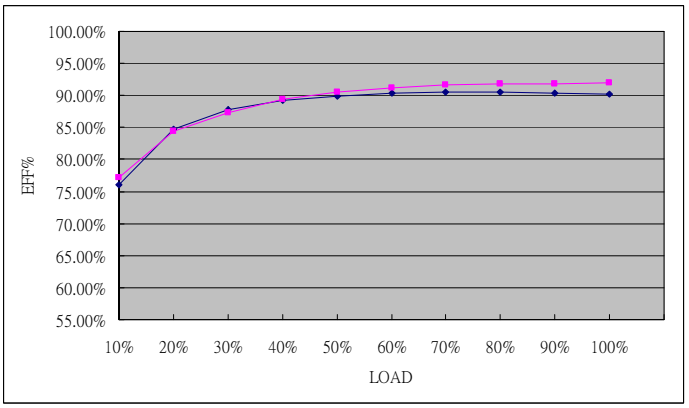
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	89.32	90.23	91.40	91.91	92.17



LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	76.03	84.81	87.75	89.31	89.91
230V (%)	77.20	84.49	87.29	89.34	90.47
Load (%)	60	70	80	90	100
115V (%)	90.33	90.56	90.52	90.37	90.23
230V (%)	91.11	91.61	91.79	91.85	91.91



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EFFICIENCY VERSUS LOAD

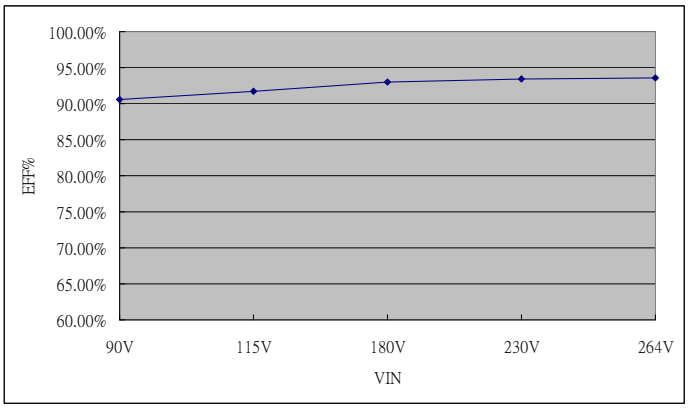
AQF100C-24S

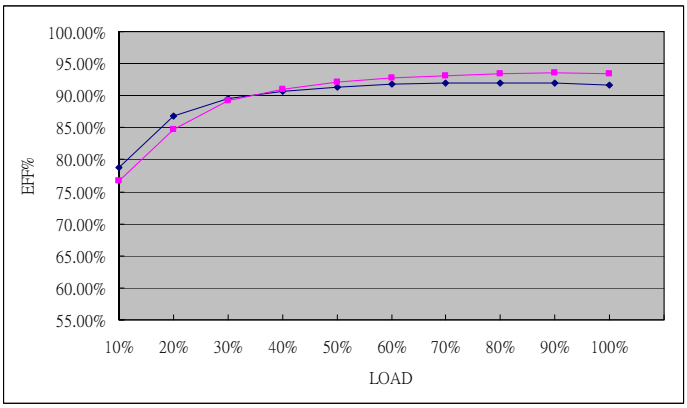
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	90.55	91.71	93.01	93.44	93.64

LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	78.86	86.85	89.52	90.70	91.36
230V (%)	76.68	84.74	89.22	90.92	92.07
Load (%)	60	70	80	90	100
115V (%)	91.86	91.95	91.97	91.99	91.71
230V (%)	92.80	93.04	93.34	93.50	93.44





AQF100C-48S

VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	91.18	92.33	93.69	94.01	94.26

LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	76.53	84.96	88.90	90.22	91.13
230V (%)	70.02	82.57	88.49	90.34	91.69
Load (%)	60	70	80	90	100
115V (%)	91.61	91.98	92.28	92.39	92.33
230V (%)	92.63	93.07	93.57	93.93	94.01