

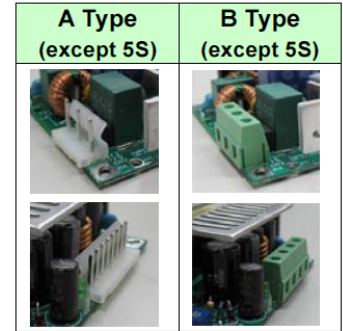
AQF120E-180W Series

180 W AC/DC Switching Power Supply

CoolPower
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KEY FEATURES

- Din Rail Switching Power Supply
- 180 Watt with 18CFM FAN for 12V to 48V Output Voltage
- 180 Watt with 30CFM FAN for 5V Output Voltage
- High Efficiency up to 93%
- Universal Input: 90-264 VAC
- Low Ripple and Noise
- With P.F.C. Function >0.95
- 120 Watt with Free Air Convection
- Ultra Compact Size: 5.0 x 3.24 x 1.5 Inches
- 3-Years Product Warranty



ELECTRICAL SPECIFICATIONS

Model No.	AQF120E-5S	AQF120E-12S	AQF120E-15S	AQF120E-24S	AQF120E-48S
Max Output Wattage (W)	150 W (30CFM FAN)	180 W (18CFM FAN)			
Max Output Wattage (W)	120 W				
Input	Voltage				
	90-264 VAC or 120-370 VDC (80-274 VAC or 110-390 VDC with Derating)				
	Frequency (Hz)				
	47-63 Hz				
	Current (Full load)				
	<2.0 A max. (115 VAC) / <1.0 A max. (230 VAC)				
Output	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				
	Voltage (V.DC.)				
	5V 12V 15V 24V 48V				
	Voltage Accuracy				
	±2%				
Voltage Adj. Range (V.DC)					
4.7~5.3V 11.4~13.2V 13.5~16V 22.8~26.4V 45.6~52V					
Current (18/30 CFM FAN)(A) max					
0~30 0~15 0~12 0~7.5 0~3.75					
(30CFM FAN) (18CFM FAN) (18CFM FAN) (18CFM FAN) (18CFM FAN)					
Current (Convection) (A) max					
0~24 0~10 0~8 0~5 0~2.5					
Line Regulation					
±1%					
Load Regulation					
±1%					
Minimum Load					
5% 1%					
Maximum Capacitive Load					
100,000µF 40,000µF 35,000µF 20,000µF 1,200µF					
Ripple & Noise (max.)					
100mV 50mV 50mV 100mV 200mV					
Efficiency (typ.)					
87% 90% 90% 93% 93%					
Hold-up Time					
15 ms min.					
Protection	Over Power Protection				
	Auto recovery				
	Over Voltage Protection				
Auto recovery (> 125% Vout)					
Isolation	Short Circuit Protection				
	Auto recovery				
	Input-Output (V.AC)				
4000V					
Input-FG (V.AC)					
2000V					
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					
>120,000 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)				
	5.0 x 3.24 x 1.5 Inches (127.0 x 82.2 x 38.1 mm) Tolerance ±0.5 mm				
	Weight				
400 g					
Cooling Method					
Free convection / 18 CFM FAN					
Safety	Agency Approvals				
CE, UL60950-1(except 5S / 15S), CB(except 5S / 15S)					
EMC	EMI (Conducted & Radiated Emission)				
	EN61000-6-3 · EN 55022 class B				
EMS (Noise Immunity)					
EN 55024					

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.

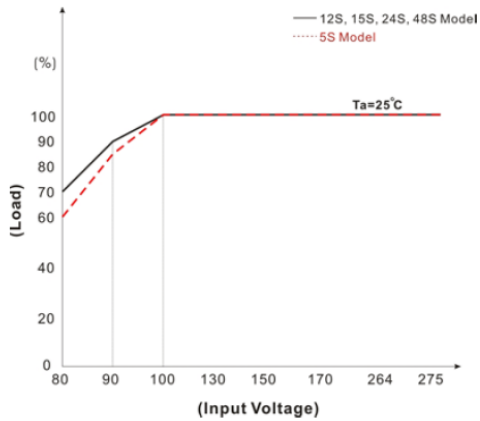
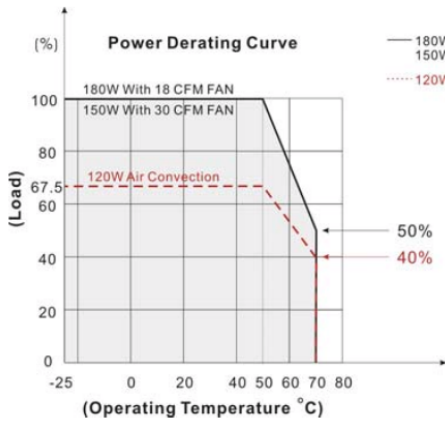
3.Hold-up Time measured at 90% Vout.

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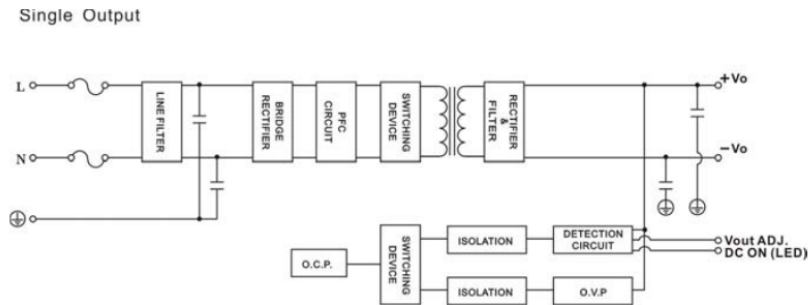
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DERATING

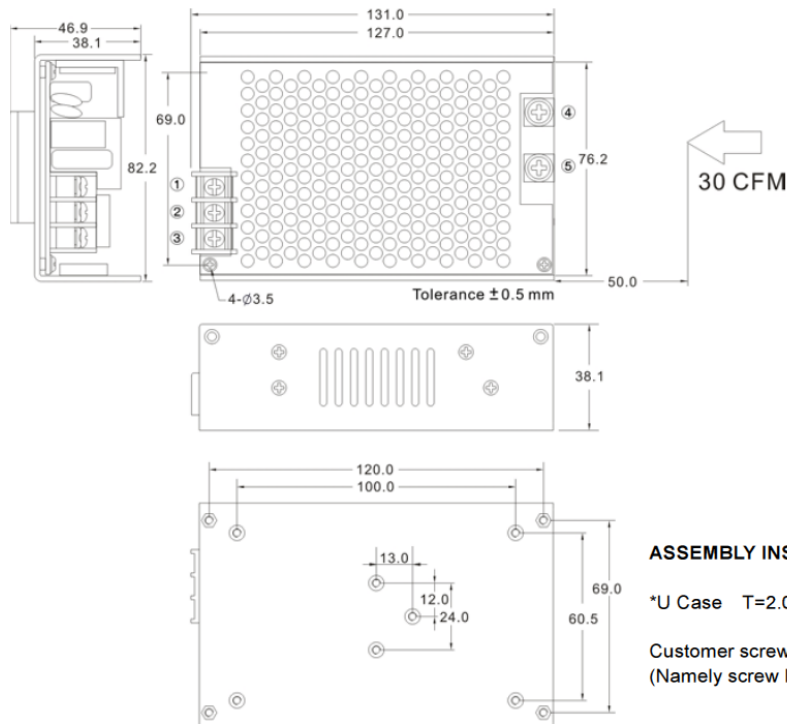


BLOCK DIAGRAM



MECHANICAL DIMENSION (Top View)

Standard (5S)



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

ASSEMBLY INSTRUCTIONS

*U Case T=2.0mm

Customer screws into the length of the case no higher than 0.5mm (Namely screw length for load plate thickness plus 2.5mm)

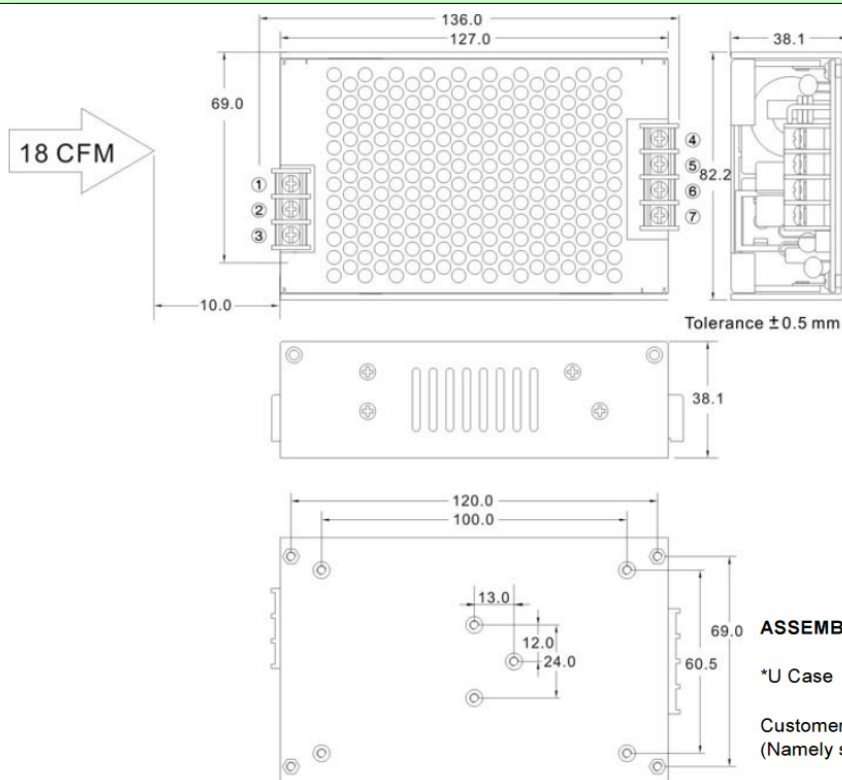
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MECHANICAL DIMENSION (Top View)

Standard (12S · 15S · 24S · 48S)



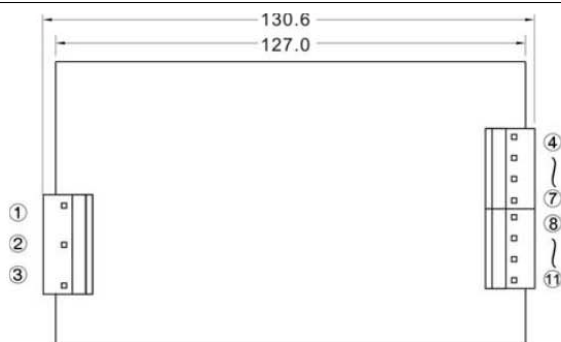
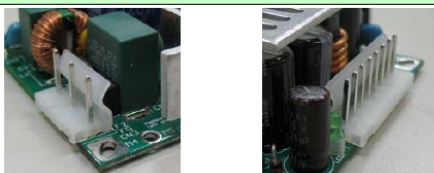
PIN#	Single
1	AC IN (L)
2	AC IN (N)
3	FG
4	+DC OUT
5	+DC OUT
6	-DC OUT
7	-DC OUT

ASSEMBLY INSTRUCTIONS

*U Case T=2.0mm

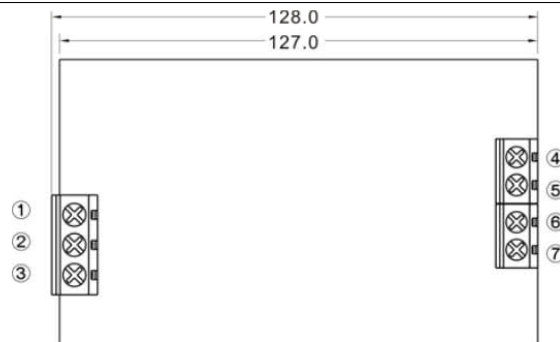
Customer screws into the length of the case no higher than 0.5mm (Namely screw length for load plate thickness plus 2.5mm)

A Type (except 5S)



PIN#	Single
1	AC IN (L)
2	AC IN (N)
3	FG
4 ~ 7	+DC OUT
8 ~ 11	-DC OUT

B Type (except 5S)



PIN#	Single
1	AC IN (L)
2	AC IN (N)
3	FG
4 ~ 5	+DC OUT
6 ~ 7	-DC OUT

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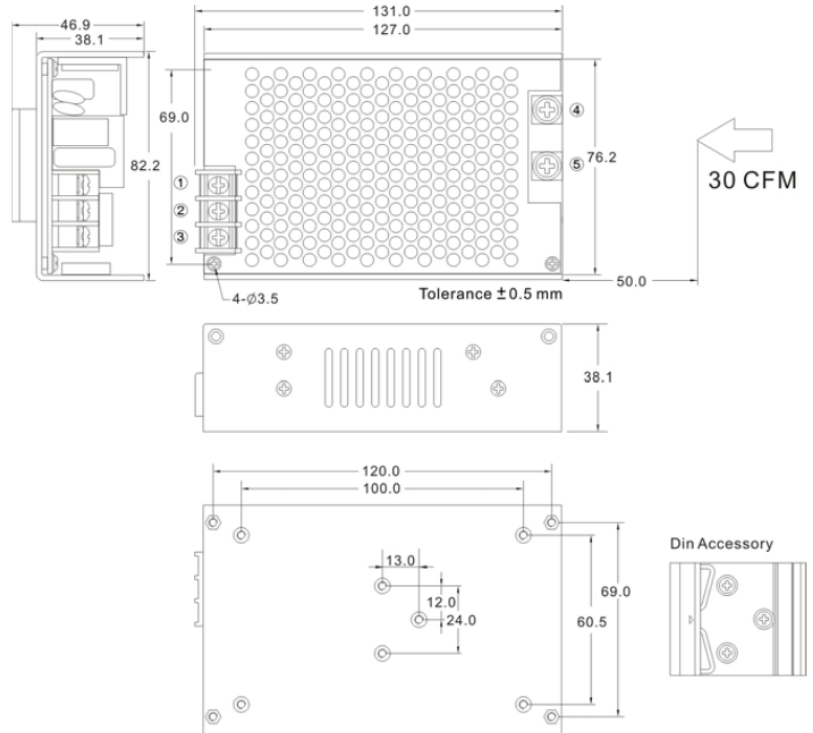
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Din Rail Kit

AQF120E-180W-DRK

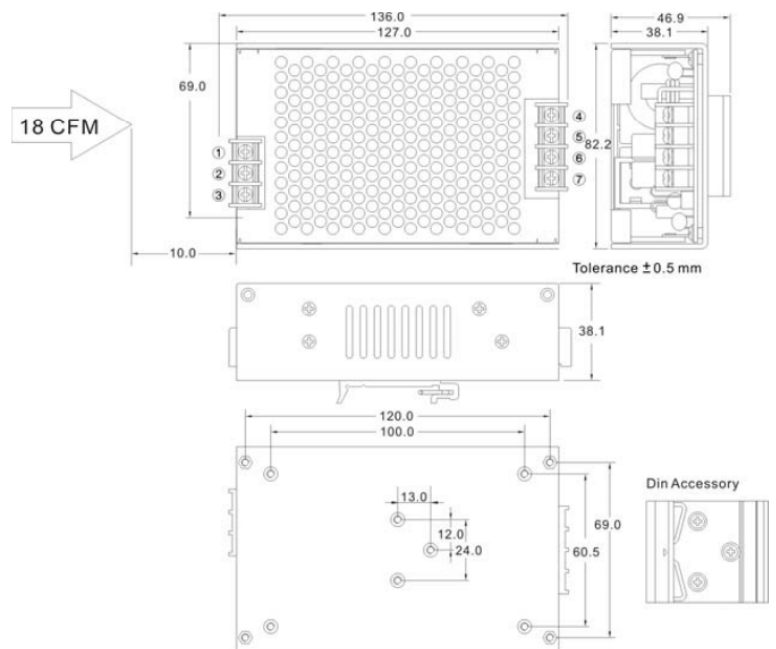


AQF120E-5S-DRK



PIN#	5S	12S,15S,24S,48S
1	AC IN (L)	AC IN (L)
2	AC IN (N)	AC IN (N)
3	FG	FG
4	+DC OUT	+DC OUT
5	-DC OUT	+DC OUT
6	—	-DC OUT
7	—	-DC OUT

AQF120E-12S 、 15S 、 24S 、 48S-DRK



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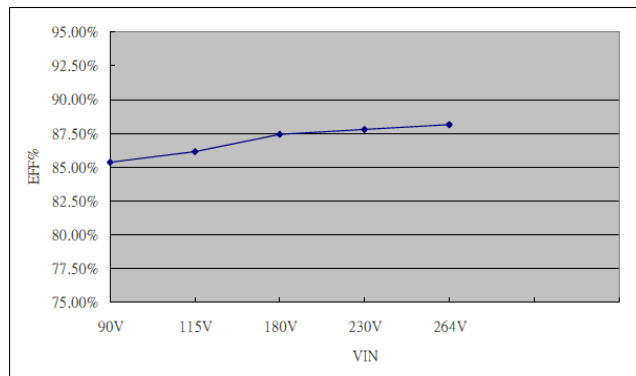
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EFFICIENCY VERSUS LOAD

AQF120E-5S

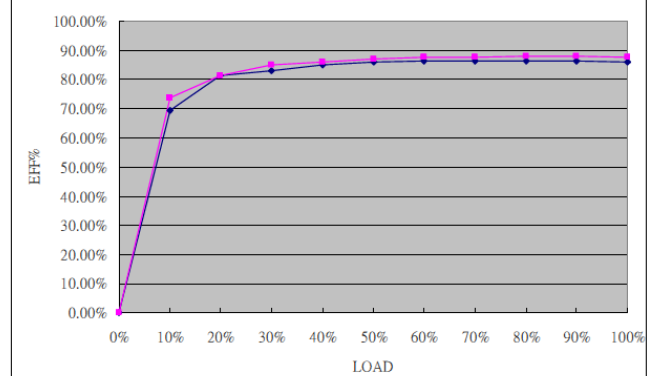
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	85.37	86.17	87.46	87.76	88.14



LOAD VS Efficiency

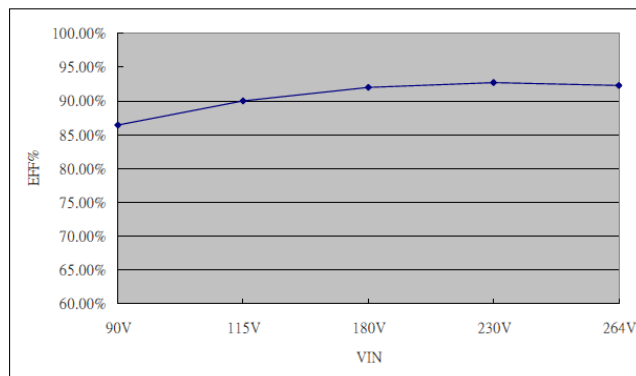
Load (%)	10	20	30	40	50
115V (%)	69.59	81.53	83.15	84.92	85.96
230V (%)	73.66	81.49	85.04	86.21	87.16
Load (%)	60	70	80	90	100
115V (%)	86.44	86.45	86.37	86.48	86.20
230V (%)	87.57	87.75	87.98	87.94	87.80



AQF120E-12S

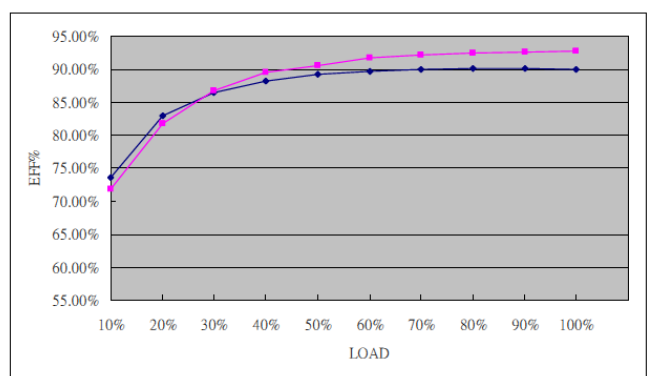
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	86.45	89.96	92	92.77	92.3



LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	73.62	82.98	86.43	88.26	89.27
230V (%)	71.83	81.82	86.81	89.54	90.58
Load (%)	60	70	80	90	100
115V (%)	89.72	89.95	90.11	90.1	89.96
230V (%)	91.74	92.18	92.53	92.62	92.77



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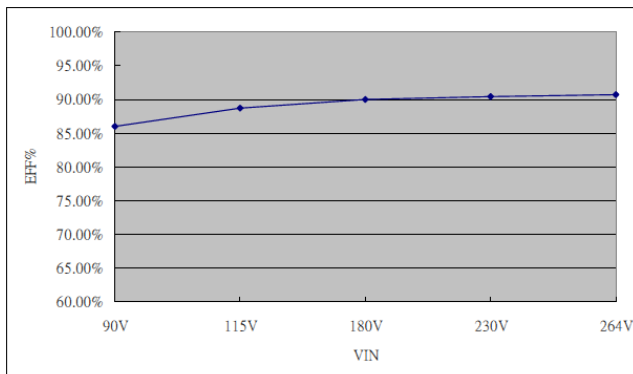
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EFFICIENCY VERSUS LOAD

AQF120E-15S

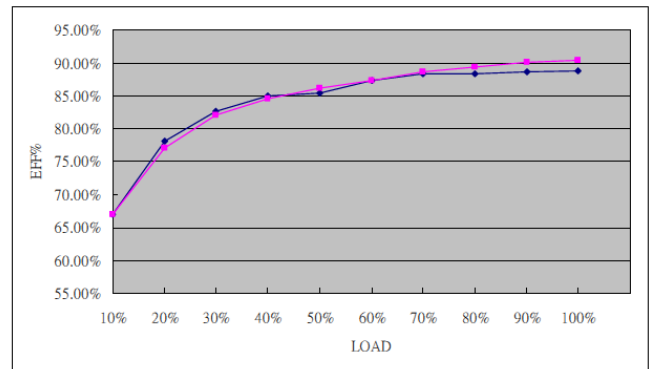
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	86.03	88.78	90.06	90.45	90.75



LOAD VS Efficiency

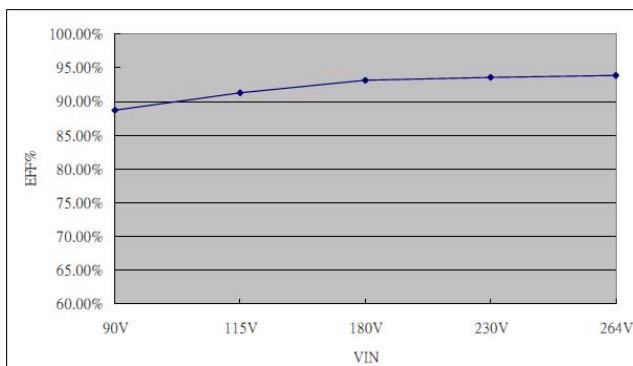
Load (%)	10	20	30	40	50
115V (%)	67.05	78.17	82.74	85.07	85.52
230V (%)	67.05	77.17	82.17	84.61	86.14
Load (%)	60	70	80	90	100
115V (%)	87.40	88.34	88.44	88.67	88.78
230V (%)	87.39	88.68	89.5	90.14	90.45



AQF120E-24S

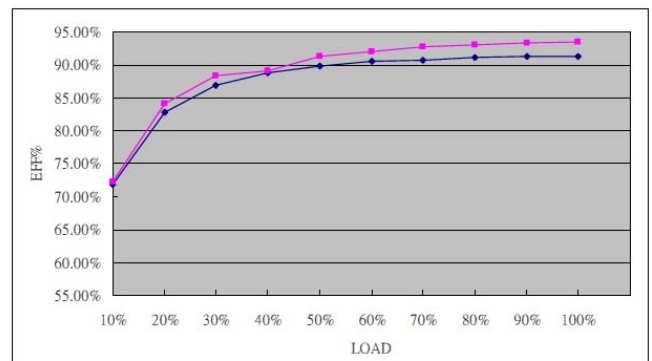
VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	88.78	91.27	93.11	93.52	93.81



LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	71.89	82.79	86.97	88.9	89.82
230V (%)	72.3	84.22	88.46	89.21	92.29
Load (%)	60	70	80	90	100
115V (%)	90.54	90.78	91.13	91.4	91.27
230V (%)	92.14	92.86	93.14	93.44	93.52



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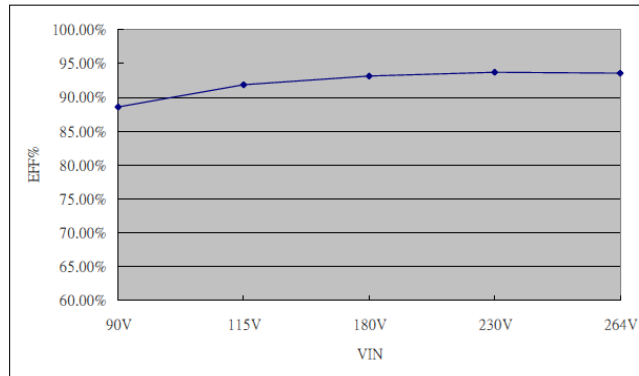
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EFFICIENCY VERSUS LOAD

AQF120E-48S

VIN VS Efficiency

Input Voltage (V)	90	115	180	230	264
Efficiency (%)	88.56	91.86	93.20	93.76	93.61



LOAD VS Efficiency

Load (%)	10	20	30	40	50
115V (%)	74.99	83.9	87.25	89.17	90.01
230V (%)	67.31	79.29	84.97	88.18	89.99
Load (%)	60	70	80	90	100
115V (%)	90.69	91.18	91.46	91.84	91.86
230V (%)	91.24	92.15	92.84	93.36	93.76

