

Wall Industries, Inc.

PSAQF360 SERIES

90~264VAC (120~370VDC) Input
360W with 18CFM Fan, 240W Convection Cooling
PFC Function, Single Output
AC/DC Switching Power Supplies



Type U



Type E



Type F

FEATURES

- Single Output
- RoHS Compliant
- Ultra Compact Size
- High Power Density
- PFC Function > 0.95
- 3000VAC I/O Isolation
- Leakage Current < 300 μ A
- High Efficiency up to 93%
- 12VDC Built-in Cooling Fan
- 3 Mechanical Options Available: U, E, and F Types
- Optional I/O Connectors Available (Standard or A Type)
- 360W with 18CFM Fan, 240W with Free Air Convection
- Universal Input Voltage Range: 90~264VAC (120~370VDC)
- Short Circuit, Over Load, Over Voltage, and Over Temp. Protection



STANDARD	A TYPE

DESCRIPTION

The PSAQF360 series of AC/DC switching power supplies offers 360W of output power with 18CFM fan and 240W with free air convection. All models have a single output and a universal input. Some features include 3000VAC I/O isolation and PFC function. These supplies also have UL/cUL and CE safety approvals and are RoHS compliant. All models are protected against short circuit, over power, over voltage, and over temperature conditions. Models are available in U-Chassis (Type U), enclosed with rear-side built-in fan (Type E), and enclosed with top-side built-in fan (Type F) designs.

SPECIFICATIONS: PSAQF360 Series

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

INPUT SPECIFICATIONS

Input Voltage Range	90 ~ 264VAC or 120 ~ 370VDC
Input Frequency	47 ~ 63Hz
Input Current (Full Load)	< 4.0A max @ 115VAC, < 2.0A max @ 230VAC
Inrush Current (< 2ms)	< 30A max @ 115VAC, < 60A max @ 230VAC
Power Factor	PF > 0.99 @ 115VAC and full load; PF > 0.93 @ 230VAC and full load

OUTPUT SPECIFICATIONS

Output Voltage	See Table
Output Power	See Table
Voltage Accuracy	±2%
Output Trim	See Table
Line Regulation (LL – HL)	±1% typical
Load Regulation (5 – 100%)	±1% typical
Output Current	See Table
Ripple & Noise (See Note 3)	PSAQF360U-12S: 120mVp-p max PSAQF360E-12S & PSAQF360F-12S: 150mVp-p max. Others: 200mVp-p max
Minimum Load	0%
Maximum Capacitive Load	See Table
Hold-up Time	12ms min.
Temperature Coefficient	±0.03%/°C (0 ~ 50°C)

PROTECTION

Over Power Protection	Auto-recovery
Over Voltage Protection	Auto-recovery
Short Circuit Protection	Auto-recovery
Over Temperature Protection	Auto-recovery

GENERAL SPECIFICATIONS

Switching Frequency	75KHz
Efficiency	See Table
Isolation Voltage	3000VAC (input to output); 1500VAC (input to FG); 500VAC (output to FG)
Leakage Current	< 3.0mA max (240VAC, 63Hz)

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-10°C to +70°C (with derating)
Storage Temperature	-25°C to +85°C
Humidity	95% RH
Vibration	10~500Hz, 2G 10 min./1 cycle, 60 min. each along X, Y, and Z axes.
Cooling Method	U Type: free air convection E & F Types: 12VDC / 0.5A max. built-in fan
MTBF	> 120,000 hours @ 25°C (MIL-HDBK-217F)

PHYSICAL SPECIFICATIONS

Weight	U Type: 23.56oz (668g) E Type: 26.31oz (746g) F Type: 25.71oz (729g)
Dimensions (L x W x H)	U Type: 6.8 x 3.2 x 1.5 inches (172.7 x 81.3 x 38.0 mm) E Type: 7.8 x 3.2 x 1.6 inches (197.7 x 81.3 x 41.0 mm) F Type: 6.8 x 3.2 x 2.1 inches (172.7 x 81.3 x 53.3 mm) Tolerance: ±0.5mm

SAFETY & EMC

Agency Approvals	CE, UL60950 ⁽⁴⁾
EMI (Conducted & Radiated Emission)	EN 55022 class B
EMS (Noise Immunity)	EN 55024

MODEL SELECTION TABLES

U-Chassis Models (Type U)									
Model Number	Input Voltage	Output Voltage	Output Voltage Trim	Max. Output Current		Max. Output Power		Maximum Capacitive Load	Efficiency
				Convection	18 CFM Fan	Convection	18 CFM Fan		
PSAQF360U-12S	90 ~ 264VAC (120 ~ 370VDC)	12 VDC	10.8 ~ 13.2 VDC	20A	30A	240W	360W	85,000μF	90%
PSAQF360U-24S		24 VDC	21.6 ~ 26.4 VDC	10A	15A	240W	360W	48,000μF	92%
PSAQF360U-36S		36 VDC	32.7 ~ 39.6 VDC	6.66A	10A	240W	360W	21,000μF	93%
PSAQF360U-48S		48 VDC	44 ~ 51 VDC	5A	7.5A	240W	360W	13,000μF	93%

Enclosed with Rear Side Built-in Fan (Type E)							
Model Number	Input Voltage	Output Voltage	Output Voltage Trim	Maximum Output Current	Maximum Output Power	Maximum Capacitive Load	Efficiency
PSAQF360E-12S	90 ~ 264VAC (120 ~ 370VDC)	12 VDC	10.8 ~ 13.2 VDC	30A	360W	85,000μF	89%
PSAQF360E-24S		24 VDC	21.6 ~ 26.4 VDC	15A	360W	48,000μF	91%
PSAQF360E-36S		36 VDC	32.7 ~ 39.6 VDC	10A	360W	21,000μF	92%
PSAQF360E-48S		48 VDC	44 ~ 51 VDC	7.5A	360W	13,000μF	93%

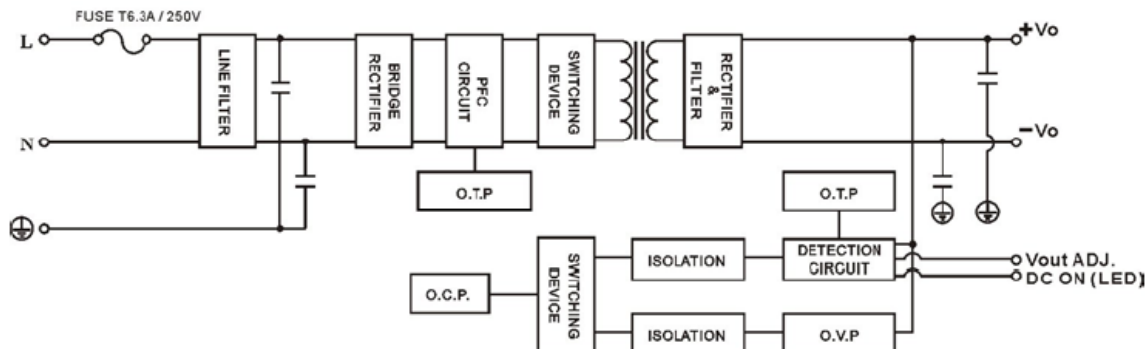
Enclosed with Top Side Built-in Fan (Type F)							
Model Number	Input Voltage	Output Voltage	Output Voltage Trim	Maximum Output Current	Maximum Output Power	Maximum Capacitive Load	Efficiency
PSAQF360F-12S	90 ~ 264VAC (120 ~ 370VDC)	12 VDC	10.8 ~ 13.2 VDC	30A	360W	85,000μF	89%
PSAQF360F-24S		24 VDC	21.6 ~ 26.4 VDC	15A	360W	48,000μF	91%
PSAQF360F-36S		36 VDC	32.7 ~ 39.6 VDC	10A	360W	21,000μF	92%
PSAQF360F-48S		48 VDC	44 ~ 51 VDC	7.5A	360W	13,000μF	93%

NOTES

- Optional I/O Connectors: For **standard type** do not add a suffix to the model number and for **A type** add the suffix "-A" to the model number. Ex: PSAQF360E-12S-A (*See pages 7~9*).
- 3 mechanical options available: U-Chassis (Type U), enclosed with rear-side built-in fan (Type E), and enclosed with top-side built-in fan (Type F).
- Ripple & Noise is measured at 20MHz bandwidth with a 0.1μF and 47μF capacitors in parallel.
- This product is Listed to applicable standards and requirements by UL.

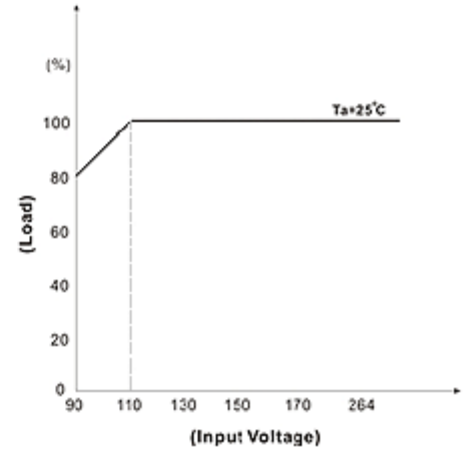
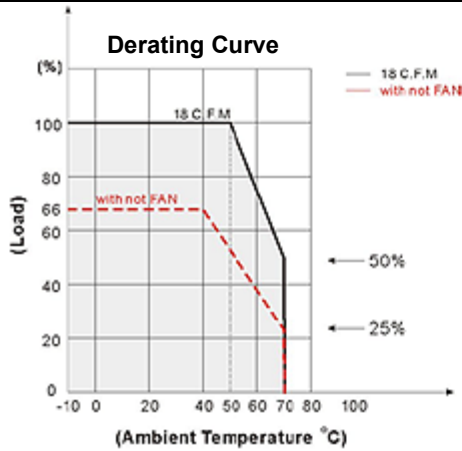
**Due to advances in technology, specifications subject to change without notice.*

BLOCK DIAGRAM

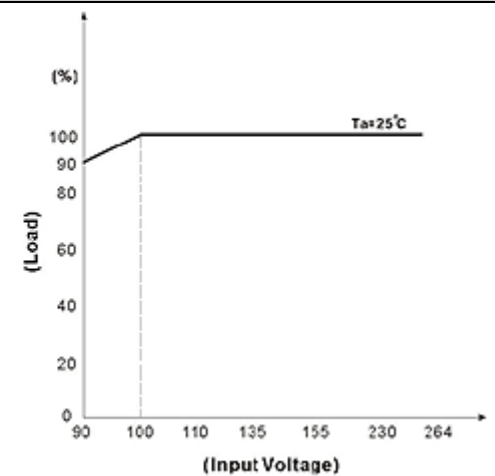
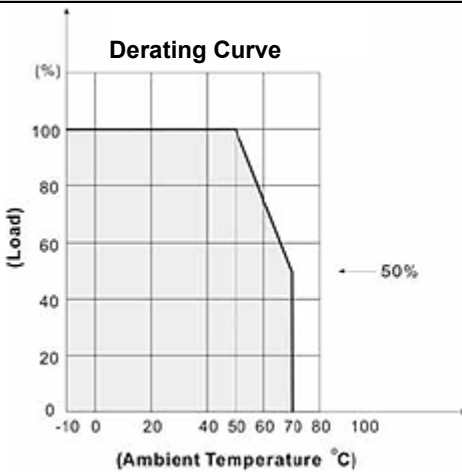


CHARACTERISTICS

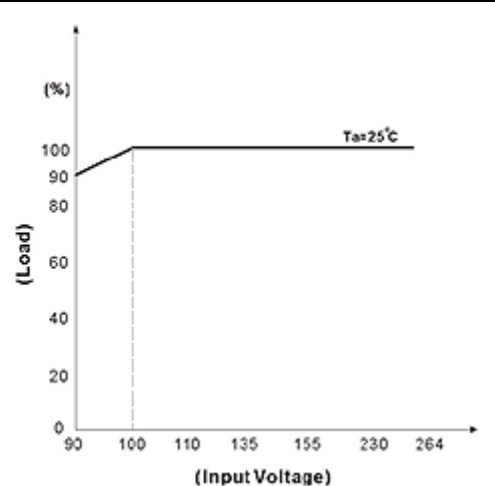
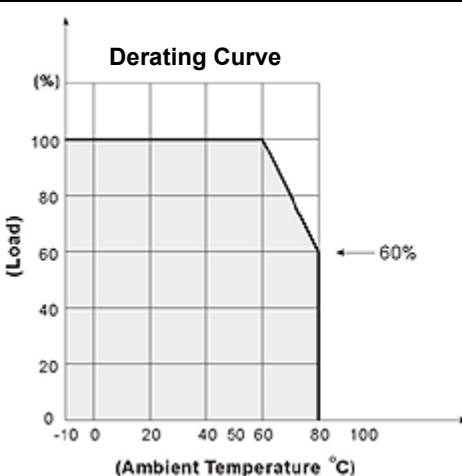
U Type Models



E Type Models

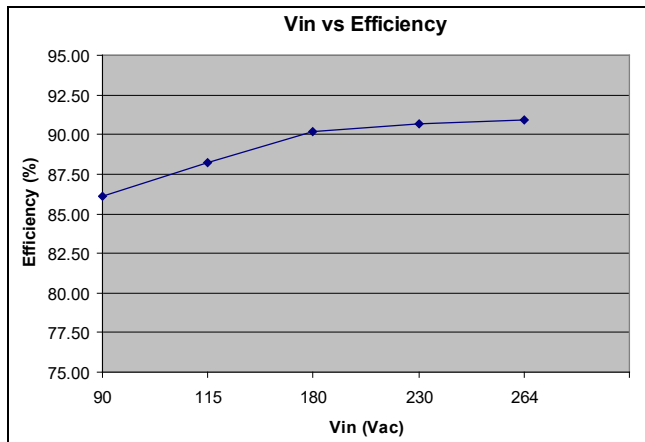


F Type Models

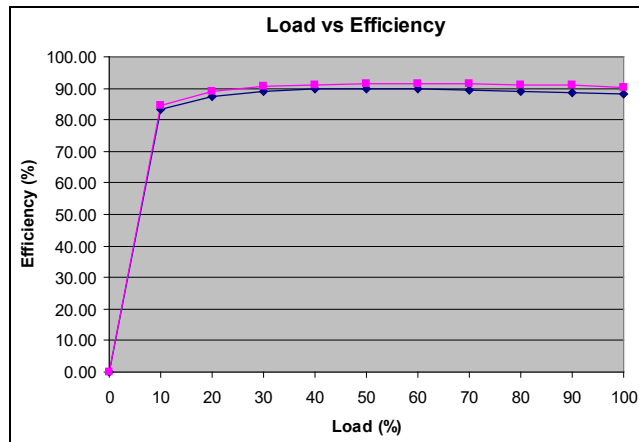


EFFICIENCY VS LOAD

12 VDC Models

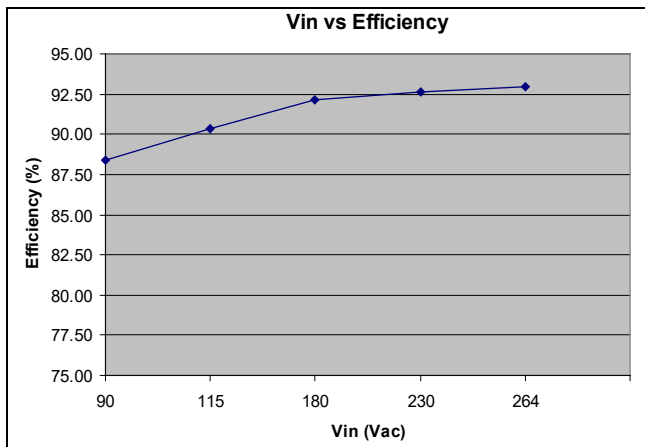


Input Voltage (V)	90	115	180	230	264
Efficiency (%)	86.12	88.20	90.15	90.69	90.95

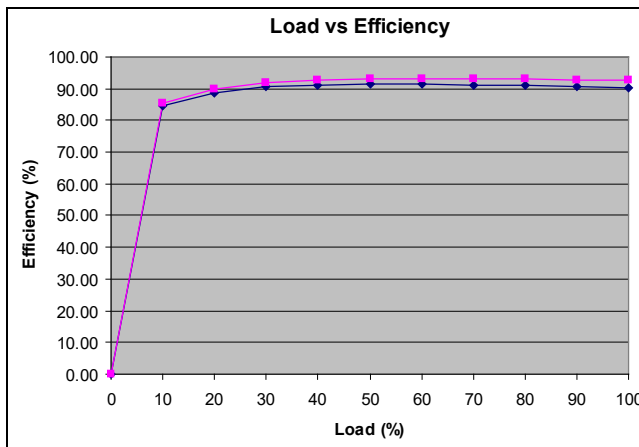


Load (%)	0	10	20	30	40	50
115V (%)	0	83.25	87.43	89.02	89.67	89.90
230V (%)	0	84.38	88.94	90.75	91.24	91.49
Load (%)	60	70	80	90	100	
115V (%)	89.64	89.39	89.00	88.65	88.20	
230V (%)	91.46	91.38	91.22	91.02	90.09	

24 VDC Models



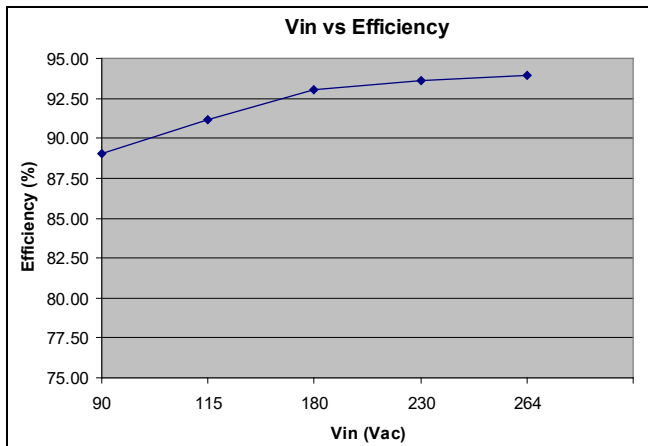
Input Voltage (V)	90	115	180	230	264
Efficiency (%)	88.36	90.35	92.13	92.67	92.96



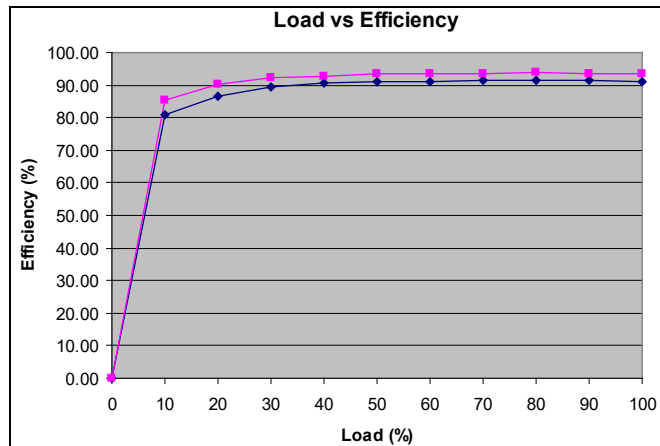
Load (%)	0	10	20	30	40	50
115V (%)	0	84.77	88.62	90.54	91.14	91.33
230V (%)	0	85.54	90.08	92.06	92.62	92.99
Load (%)	60	70	80	90	100	
115V (%)	91.32	91.18	90.98	90.70	90.35	
230V (%)	93.08	93.08	93.02	92.91	92.67	

EFFICIENCY VS LOAD

36 VDC Models

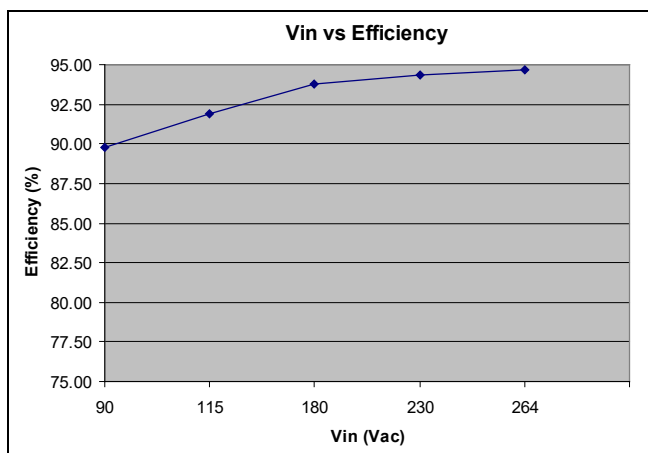


Input Voltage (V)	90	115	180	230	264
Efficiency (%)	89.04	91.17	93.06	93.64	93.93

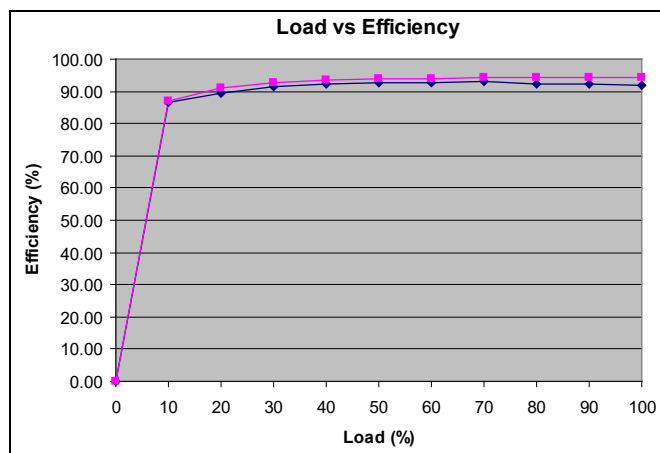


Load (%)	0	10	20	30	40	50
115V (%)	0	80.96	86.76	89.39	90.51	91.01
230V (%)	0	85.51	90.25	92.24	92.82	93.39
Load (%)	60	70	80	90	100	
115V (%)	91.21	91.36	91.37	91.31	91.17	
230V (%)	93.46	93.68	93.76	93.68	93.64	

48 VDC Models



Input Voltage (V)	90	115	180	230	264
Efficiency (%)	89.75	91.89	93.79	94.36	94.67

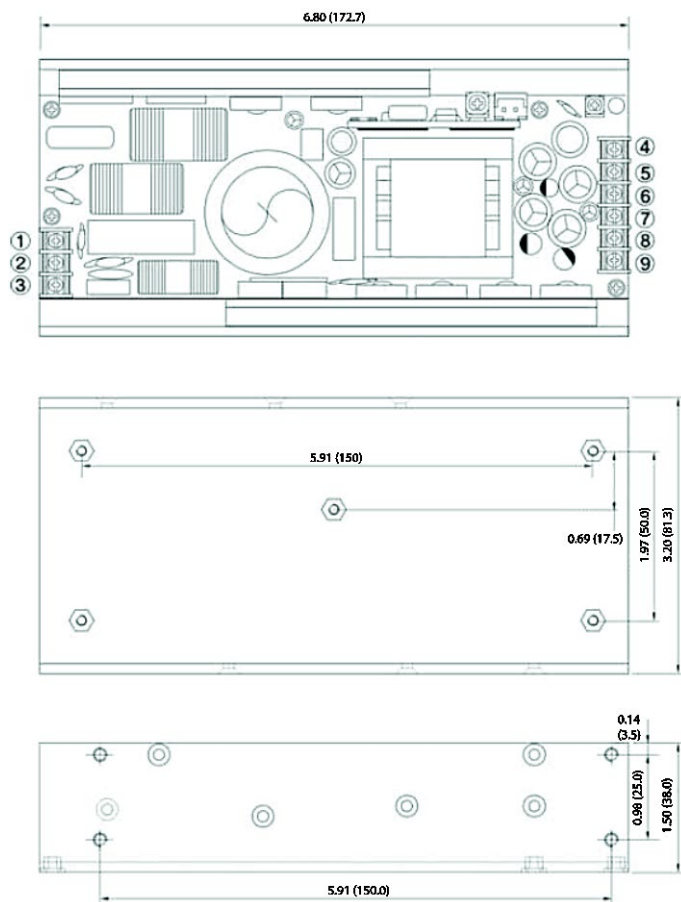


Load (%)	0	10	20	30	40	50
115V (%)	0	86.43	89.33	91.43	92.17	92.58
230V (%)	0	86.80	90.87	92.74	93.47	94.02
Load (%)	60	70	80	90	100	
115V (%)	92.58	93.00	92.38	92.18	91.89	
230V (%)	94.02	94.23	94.24	94.40	94.36	

U-Chassis (U Type) Mechanical Drawing

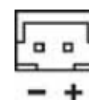
Standard

Unit: inches (mm)

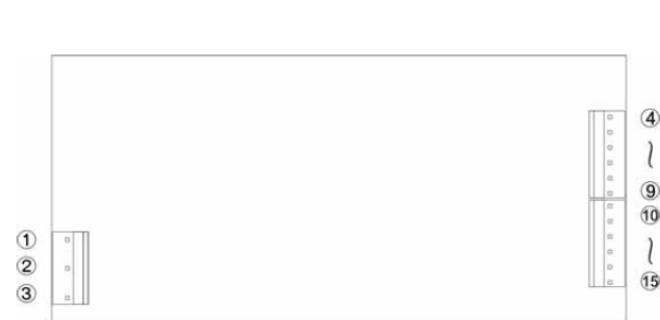


Tolerance: $\pm 0.5\text{mm}$

PIN CONNECTIONS	
PIN	SINGLE OUTPUT
1	FG
2	AC IN (N)
3	AC IN (L)
4~6	+DC OUT
7~9	-DC OUT
FAN	WAFER (2.5)



A Type (Add the suffix "-A" to the model number)



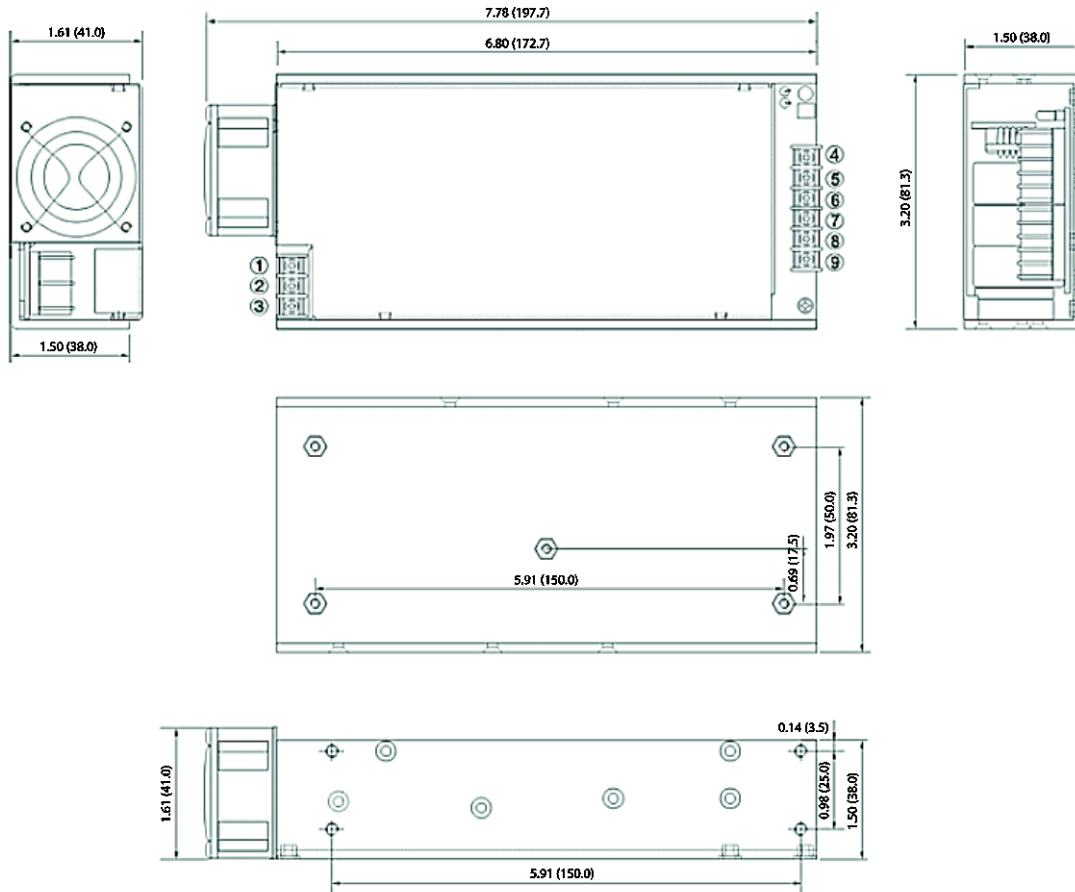
PIN CONNECTIONS	
PIN	SINGLE OUTPUT
1	FG
2	AC IN (N)
3	AC IN (L)
4~9	+DC OUT
10~15	-DC OUT
FAN	WAFER (2.5)



Enclosed with Rear-side Built-in Fan (E Type) Mechanical Drawing

Standard

Unit: inches (mm)

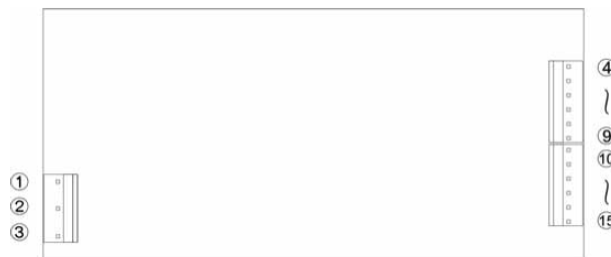


Tolerance: $\pm 0.5\text{mm}$

PIN CONNECTIONS	
PIN	SINGLE OUTPUT
1	FG
2	AC IN (N)
3	AC IN (L)
4~6	+DC OUT
7~9	-DC OUT



A Type (Add the suffix “-A” to the model number)

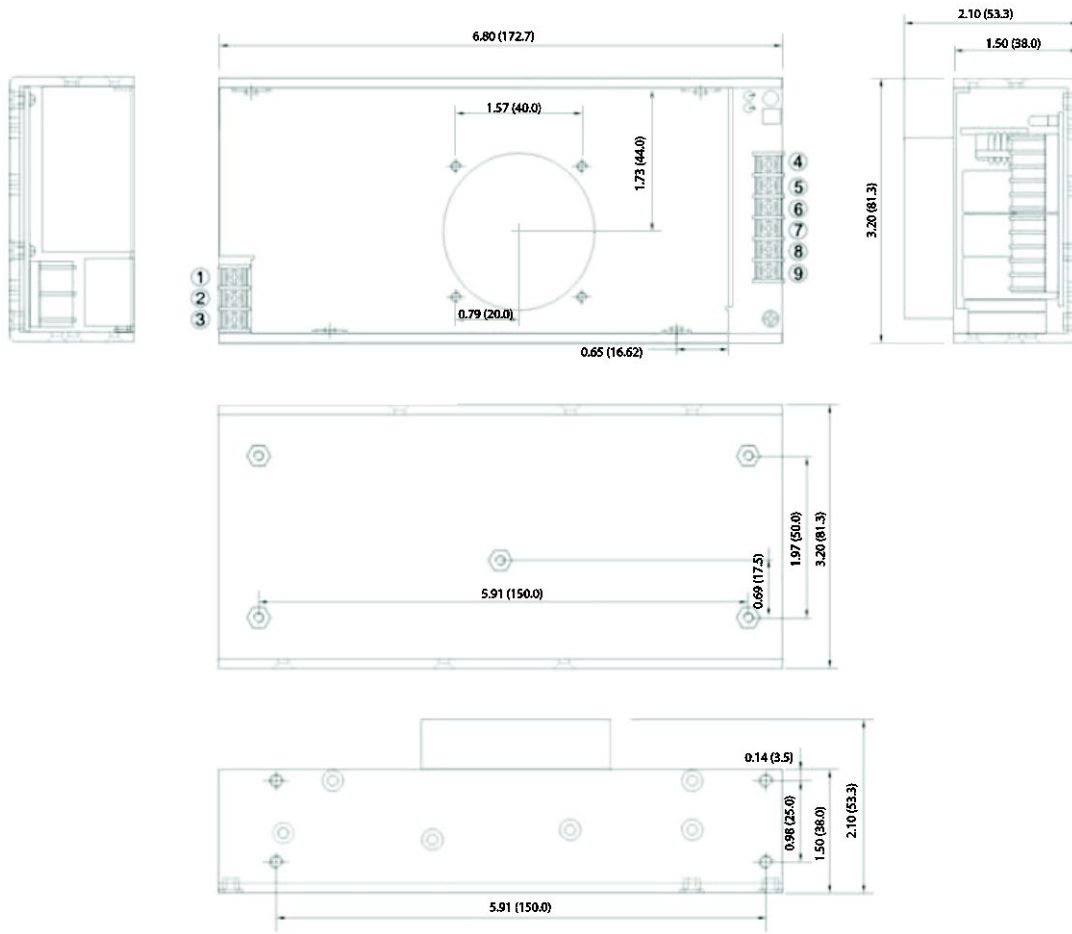


PIN CONNECTIONS	
PIN	SINGLE OUTPUT
1	FG
2	AC IN (N)
3	AC IN (L)
4~9	+DC OUT
10~15	-DC OUT

Enclosed with Top-side Built-in Fan (F Type) Mechanical Drawing

Standard

Unit: inches (mm)

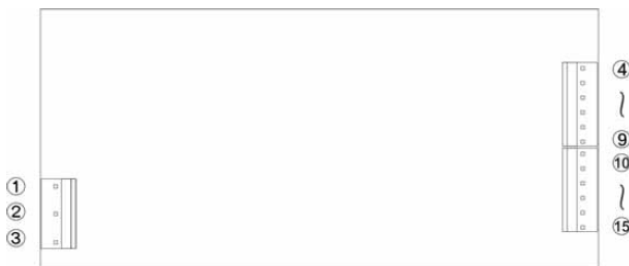


Tolerance: $\pm 0.5\text{mm}$

PIN CONNECTIONS	
PIN	SINGLE OUTPUT
1	FG
2	AC IN (N)
3	AC IN (L)
4~6	+DC OUT
7~9	-DC OUT



A Type (Add the suffix “-A” to the model number)



PIN CONNECTIONS	
PIN	SINGLE OUTPUT
1	FG
2	AC IN (N)
3	AC IN (L)
4~9	+DC OUT
10~15	-DC OUT



Wall Industries, Inc.

Rev. C

PSAQF360 Series
Single Output, PFC Function
240W, 360W with 18CFM Fan
AC/DC Switching Power Supply

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

Contact **Wall Industries** for further information:

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