

Industrial Power Supply

A-450FGF Series

Product Features

- AC input range selectable by switch
- High efficiency, long life and high reliability
- Output protections: SCP/OVP/OLP/OTP
- Operating temperature: -25°C~+70°C
- LED indicator for power on
- 100% full load burn-in test
- Low profile, 30mm
- Forced air cooling by built-in DC fan
- 3 years warranty



Product Description

The A-450FGF-X series is a 450 watts air-cooled metal enclosed industrial power supply. Adopting wide AC&DC input voltage, the entire series provides an output voltage line of 12V, 15V, 24V, 27V, 36V and 48V for option. It can be adapted to different load application and meet various industrial application requirements. Besides, the EMC and safety regulations comply with the IEC/EN/UL62368 standards. High conversion efficiency, compact housing design, good heat dissipation, and all-round protection guarantee the high reliability and stability of this power supply.

CONTACT US

KAGA FEI America, Inc.
2349 Bering Drive
San Jose, CA 95131

Phone: (408) 570-0955
Fax: (408) 570-0186
Toll Free: (888) 2 - VOLGEN

www.volgen.com
Email: information@volgen.com

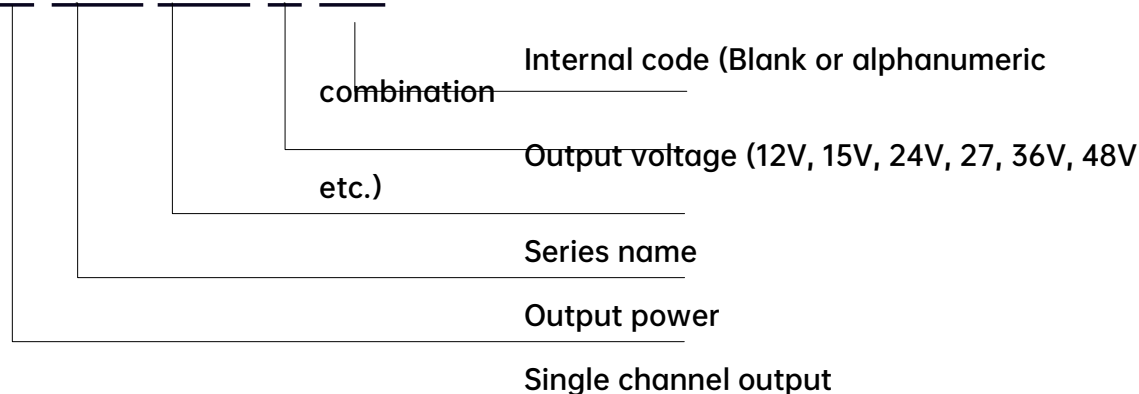


Applications

Industrial control system, Mechanical and electrical equipment, Electronic instruments and equipment, Industrial automation machinery, Semiconductor device, etc.

Model Encoding

A-450 FGF-X-YY



© Model List:

Model	Output Power (W)	Output Voltage (V _{dc})	Adjustable output voltage ^[3] (V _{dc})	Output Current (A)	Ripple and noise (mV) ^[2]	Efficiency@ 230VAC (Typ.) ^[1]	Maximum capacitive load(uF)
A-450FGF-12	450	12	10.8-13.2	0-37.5	150	84%	4000
A-450FGF-15*	450	15	13.5-16.5	0-30	150	84%	3200
A-450FGF-24	451.2	24	21.6-26.4	0-18.8	250	86.5%	1500
A-450FGF-27*	450.9	27	24.3-29.7	0-16.7	250	86.5%	1500
A-450FGF-36	450	36	32.4-39.6	0-12.5	250	87%	1500
A-450FGF-48	451.2	48	43.2-52.8	0-9.4	250	87%	470

Note: [1] All parameters not specially mentioned are measured at rated input voltage, full load and 25°C ambient temperature.

[2] Ripple & noise are measured at 20MHz of oscilloscope bandwidth(oscilloscope probe cap and ground clamp are removed)by using a 20±2cm twisted pair-wire terminated with a 47uF electrolytic capacitor and a 0.1uF high frequency capacitor that are connected in parallel at the output end.

[3] Under any steady operating condition, the total output power shall not exceed the rated output power. When the output voltage is raised, the total output power cannot exceed the rated output power. When the output voltage is turned down, the output current cannot exceed the rated output current.

※ For the product models under development, please contact our sales team or distributor for more information.

CONTACT US

KAGA FEI America, Inc.
2349 Bering Drive
San Jose, CA 95131

Phone: (408) 570-0955
Fax: (408) 570-0186
Toll Free: (888) 2 - VOLGEN

www.volgen.com
Email: information@volgen.com

© Input Specification:

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	90 V _{ac}		132 V _{ac}	Selectable by switch
	180 V _{ac}		264 V _{ac}	
Rated Input AC Voltage	100 V _{ac}		120 V _{ac}	
	200 V _{ac}		240 V _{ac}	
Input DC Voltage	127 V _{dc}		186 V _{dc}	
	254 V _{dc}		373 V _{dc}	
Input Frequency	47 Hz		63 Hz	
Max. Input Current			8 A	115Vac, full load
			5 A	230Vac, full load
Leakage Current			3.5 mA	240Vac/50Hz

© Output Specifications:

Parameter	Min.	Typ.	Max.	Notes
Output Voltage Tolerance	-1.5%		+1.5%	All models
Line Regulation	-0.5%		+0.5%	All models
Load Regulation	-1.5%		+1.5%	All models
Setup Time			3000ms	115Vac/230Vac, full load
Rise Time			50ms	115Vac/230Vac, full load
Hold up Time	10ms			115Vac/230Vac, full load

CONTACT US

KAGA FEI America, Inc.
2349 Bering Drive
San Jose, CA 95131

Phone: (408) 570-0955
Fax: (408) 570-0186
Toll Free: (888) 2 - VOLGEN

www.volgen.com
Email: information@volgen.com

© Efficiency:

Parameter	Min.	Typ.	Max.	Notes
Efficiency@115 V _{ac}				
A-450FGF-12	82%	83%		Ambient temp. 25±5°C, full load
A-450FGF-15	82%	83%		
A-450FGF-24	84.5%	85.5%		
A-450FGF-27	84.5%	85.5%		
A-450FGF-36	85%	86%		
A-450FGF-48	85%	86%		
Efficiency@230 V _{ac}				
A-450FGF-12	83%	84%		Ambient temp. 25±5°C, full load
A-450FGF-15	83%	84%		
A-450FGF-24	85.5%	86.5%		
A-450FGF-27	85.5%	86.5%		
A-450FGF-36	86%	87%		
A-450FGF-48	86%	87%		

© Protection:

Parameter	Min.	Typ.	Max.	Notes
Over Load	110%		160%	Hiccup mode, auto recovery after fault condition is removed.
Over Voltage	110%V _o		140%V _o	Constant voltage, auto recovery after fault condition is removed.
Over Temperature (Ambient Temp.)		60°C		OTP, recovers automatically after fault condition is removed.
Short Circuit	When there is a short circuit fault at the output end, power supply goes into hiccup mode, auto recovery after fault condition is removed.			

CONTACT US

KAGA FEI America, Inc.
2349 Bering Drive
San Jose, CA 95131

Phone: (408) 570-0955
Fax: (408) 570-0186
Toll Free: (888) 2 - VOLGEN

www.volgen.com
Email: information@volgen.com

© Safety & EMC:

Safety Category	Country/ Territory	Item	Standards
UL/CUL	USA/ Canada	Safety Standard	UL 62368-1
			CAN/CSA C22.2 No. 62368-1:19
CE	Europe		EN 62368-1
CB	CB Countries		IEC 62368-1
CCC	China		GB 4943.1

EMI Category	Country/ Territory	Item	Standards/Criteria	
FCC	USA/ Canada	Conducted Emission	FCC part 15(ANSI C63.4)	Class A
		Radiated Emission	FCC part 15(ANSI C63.4)	Class A
CE	Europe	Conducted Emission	EN 55032	Class A
		Radiated Emission	EN 55032	Class A
		Harmonic Current	EN 61000-3-2	Class A
		Voltage Flicker	EN 61000-3-3	
CCC	China	Conducted Emission	GB/T 9254.1	Class A
		Radiated Emission	GB/T 9254.1	Class A
		Harmonic Current	GB/T 17625.1	Class A

EMS Category	Country/ Territory	Item	Standards/Criteria		
CE	Europe	Electro-static Discharge	EN 61000-4-2	Air 8 kV / Contact 4 kV	Criteria B
		Radiated Susceptibility	EN 61000-4-3	80MHz-1GHz 10V/m	Criteria B
		Electrical Fast Transient	EN 61000-4-4	±2KV	Criteria B
		Surge Immunity	EN 61000-4-5	CM±2KV/DM ±1KV	Criteria B
		Conducted Emission Immunity	EN 61000-4-6	10Vr.m.s	Criteria B
		Power Frequency Magnetic Field Immunity	EN 61000-4-8	30A/m, continuous	Criteria B
		Voltage Dips, Drops and Interruptions Immunity	EN 61000-4-11	Drop 100%, 0.5 cycle	Criteria B
				Drop 20%,250 cycles	Criteria B
				Drop 30%,25 cycles	Criteria B
				Interrupt 100%, 250 cycles	Criteria C

CONTACT US

KAGA FEI America, Inc.
2349 Bering Drive
San Jose, CA 95131

Phone: (408) 570-0955
Fax: (408) 570-0186
Toll Free: (888) 2 - VOLGEN

www.volgen.com
Email: information@volgen.com

Note:

1. The power supply is considered as a component which will be installed into a final equipment. All the EMC tests are be executed by mounting the unit on a metal plate with size 400mm*400mm*3mm. The final equipment must be re-confirmed that it still meets EMC directives.

2. This power supply does not meet the harmonic current requirements specified in EN61000-3-2.

Please do not use this power supply under the following conditions:

- a) The terminal equipment is used in the European countries.
- b) The terminal equipment is connected to a public main power supply with a rated voltage of 220Vac or higher.
- c) The power supply:
 - Installed in terminal equipment with an average or continuous input power greater than 75W.
 - Is a part of lighting system.

Exception:

The power supply used in the following terminal equipment does not need to meet EN61000-3-2.

- a) Professional equipment with total rated input power greater than 1000W.
- b) Symmetrical controlled heating elements with a power rating of 200W or less.

© General Specifications:

Parameter		Min.	Typ.	Max.	Notes
Isolation and voltage resistance ^[4]	Input-Output	3000 V _{ac}			Test time 1 minute leakage current < 7mA
	Input-PE	1800 V _{ac}			
	Output-PE	500 V _{ac}			
Isolation resistance	Input-Output	100MΩ			Test Voltage: 500V _{dc}
	Input-PE	100MΩ			
	Output-PE	100MΩ			
Working Temp.		-25°C		+70°C	Refer to "Derating Curve"
Working Humidity		20%RH		95%RH	Non-condensing
Storage Temp.		-40°C		+85°C	
Storage Humidity		10%RH		95%RH	Non-condensing
Temp. Coefficient		-0.03%/°C		0.03%/°C	0~50°C
Mean Time Between Failure (MTBF)		300000 hours			25°C, MIL-HDBK-217F
Dimension		215*115*30mm			L*W*H
Net Weight			650g		
Packing		20PCS/14Kg/CTN, Carton Dimension: 375(L)*235(W)*260(H)mm			

Note: [4] The minium withstand voltage is 3000Vac, if a higher test standard is needed, please contact our sales representative or FAE.

CONTACT US

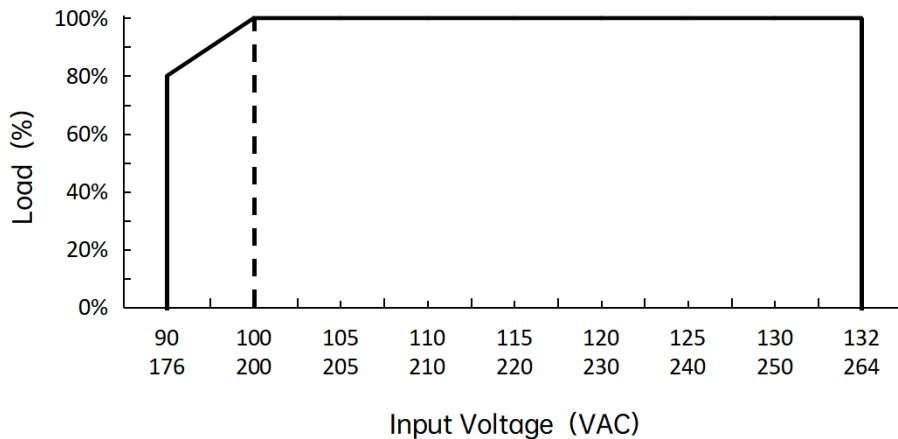
KAGA FEI America, Inc.
2349 Bering Drive
San Jose, CA 95131

Phone: (408) 570-0955
Fax: (408) 570-0186
Toll Free: (888) 2 - VOLGEN

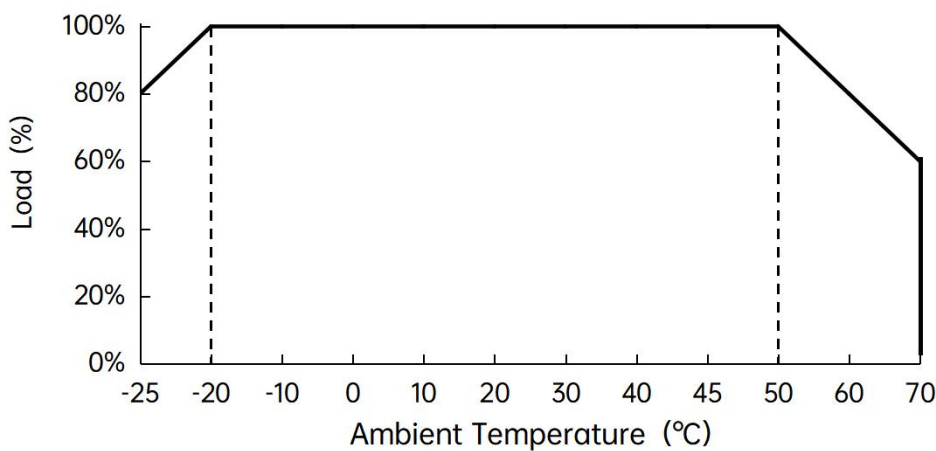
www.volgen.com
Email: information@volgen.com

© Performance Curve:

Static Characteristics



Derating Curve



Note:

1. If you need to know more detailed test data, please contact our technical support.
2. This product is suitable for use in natural air convection environments. If used in a closed environment, please contact our technical support.

CONTACT US

KAGA FEI America, Inc.
2349 Bering Drive
San Jose, CA 95131

Phone: (408) 570-0955
Fax: (408) 570-0186
Toll Free: (888) 2 - VOLGEN

www.volgen.com
Email: information@volgen.com

[illegible]

Pin	Function	Screw spec. & Torque(max)
L	AC/L	Screw: M4*7 Torque: 12Kgf.cm(1.2N.m)
N	AC/N	
	EARTH	
V-	DC output -	Screw: M4*7 Torque: 12Kgf.cm(1.2N.m)
V-	DC output -	
V-	DC output -	
V+	DC output +	
V+	DC output +	
V+	DC output +	

Screw: M4
Torque(max): 8Kgf.cm(0.8N.m)
Penetration Depth L (max): 4mm

Note:
Unit: mm[inch],
General tolerances: $\pm 0.5[\pm 0.020]$