创联电源
CHUANGLIAN POWER SUPPLY

Industrial Power Supply

Datasheet

A-50FGB Series

A-50FGB-X

- **Product Category**: 50W Industrial Power Supply
- Version No.: V1.0
- Issue Date: July 16th,2024

CHUANGLIAN

Features

- Input Voltage: 90-264VAC/120-370VDC
- Slim model, height 30mm
- Free air cooling
- All-around Protection: SCP\OVP\OCP
- Output voltage can be adjusted by potentiometer
- Operation temperature: -30℃~+70℃
- 3 years warranty

CE CB cULus E255042 RoHS

Product Description

A-50FGB-X series is a 50 watts natural-cooled metal enclosed industrial power supply The entire series of products have AC and DC Inputs. It provides an output voltage line of 5V,12V, 15V, 24V, 36V and 48V. It can be adapted to different load application to meet various industrial application requirements. Besides, the EMC and safety regulations comply with IEC/EN/UL62368, GB4943 standards. High conversion efficiency, compact housing design, good heat dissipation, and all-round protection ensure the high reliability and stability of this power supply.

Application

Industrial control system,machinery and electrical equipment, electronic instruments, industrial automation, Semiconductor Equipment, Aging equipment etc

Model Encoding

A-50 FGB-X YY

- Internal code（Blank or alphanumeric combination）
- Output Voltage（5V/12V/15V/24V/36V/48V etc）
- Name of Series
- Output Power
- Product series name

◎Model List:

Model	Output Power (W)	Output Voltage (V_{dc})	Output voltage adjustable range[3] (V_{dc})	Output Current (A)	Ripple and noise (mV)[2]	Efficiency @230VAC (Typ.)[1]	Maximum capacitive (uF)
A-50FGB-5	50	5	4.5-5.5	0-10	100	83%	6000
A-50FGB-12	50.4	12	10.8-13.2	0-4.2	120	85%	1800
A-50FGB-15	51	15	13.5-16.5	0-3.4	120	85%	1200
A-50FGB-24	50.4	24	21.6-26.4	0-2.1	150	85%	600
A-50FGB-36	50.4	36	33-19	0-1.4	200	86%	360
A-50FGB-48	52.8	48	44-52	0-1.1	200	86%	120

Note:

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

[2] Ripple & noise is 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.

◎Input Specification:

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	90 V_{ac}		264 V_{ac}	
Rated Input AC Voltage	100V_{ac}		240 V_{ac}	
Input DC Voltage	120V_{dc}		370 V_{dc}	
Input Frequency	47Hz		63 Hz	
Maximum Input Current			1.0A	115Vac, full load
Leakage Current			0.55A	230Vac, full load
Inrush Current			0.75mA	240Vac/50Hz
Input AC Voltage		30 A		115Vac, cold start
Rated Input AC Voltage		60A		230Vac, cold start

◎Output Specifiction:

Parameter	Min.	Typ.	Max.	Notes
Output Voltage Tolerance	-2%		﹢2%	A-50FGB-5
Line Regulation	-1%		﹢1%	Other
Load Regulation	-0.5%		+0.5%	All models
Turn On Delay Time	-2%		+2%	A-50FGB-5
Rise Time	-1%		+1%	Other
Stand-by power consumption			2500ms	115Vac/230Vac，full load
Output Voltage Tolerance			50ms	115Vac/230Vac，full load
Line Regulation	20ms			115Vac/230Vac，full load

◎ Efficiency:

Parameter	Min.	Typ.	Max.	Notes
Efficiency@**115 V_{ac}**				
A-50FGB-5	81%	82%		Ambient temp. 25±5°C，full load
A-50FGB-12	83%	84%		
A-50FGB-15	83%	84%		
A-50FGB-24	83%	84%		
A-50FGB-36	84%	85%		
A-50FGB-48	84%	85%		
Efficiency@**230 V_{ac}**				
A-50FGB-5	82%	83%		Ambient temp. 25±5°C，full load
A-50FGB-12	84%	85%		
A-50FGB-15	84%	85%		
A-50FGB-24	84%	85%		
A-50FGB-36	85%	86%		
A-50FGB-48	85%	86%		

◎Protection:

Parameter	Min.	Typ.	Max.	Notes
Over load	110%		160%	Hiccup mode, recovers automatically after fault condition is removed.
Output over voltage	110%		140%	Dual voltage loop voltage limiting. When the main voltage loop fails and causes the output voltage to rise, the secondary voltage loop (overvoltage protection loop) works in real time to limit the output voltage to a safe range
Over temperature		/		
Short circuit	Hiccup mode when output side has short circuit fault, recovers automatically after fault condition is removed.			

◎Safety & EMC:

Safety Category	Country/ Region	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 Scheme		IEC 62368-1
CCC	China		GB 4943.1

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

EMS Category	Country/ Region	Item	Standards/Criteria		
CE	Europe	Electro-static Discharage	EN 61000-4-2	Air 8 kV / Contact 4 kV	Criteria B
		Radiatied 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, 1 s	Criteria B
		Voltage Dips, Drops and Interruptions Immunity	EN 61000-4-11	Fall to 70%UT last for 500mS	Criteria C
				Fall to 0%UT last for 10mS	Criteria B
				Fall to 0%UT last for 20mS	Criteria B
				Fall to 0%UT last for 5000mS	Criteria C

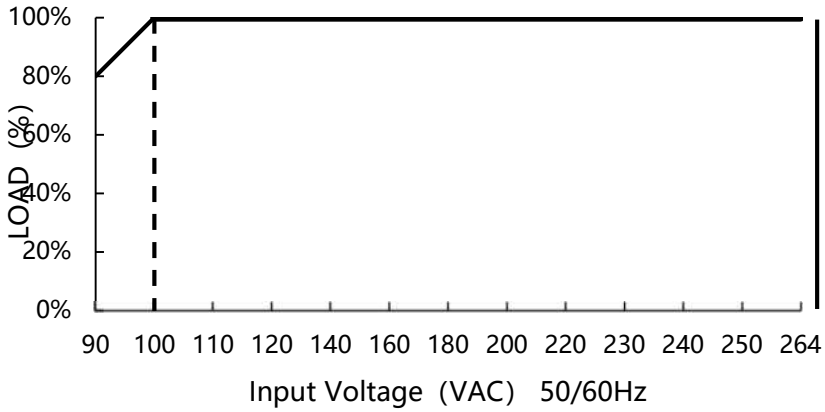
Note:
The power supply is considered as a component which will be installed into a final equipment. All the EMC tests are be executed by mounting the unit on a metal plate with size 400mm*400mm*3mm. The final equipment must be re-confirmed that it still meets EMC directives.

◎General Specification:

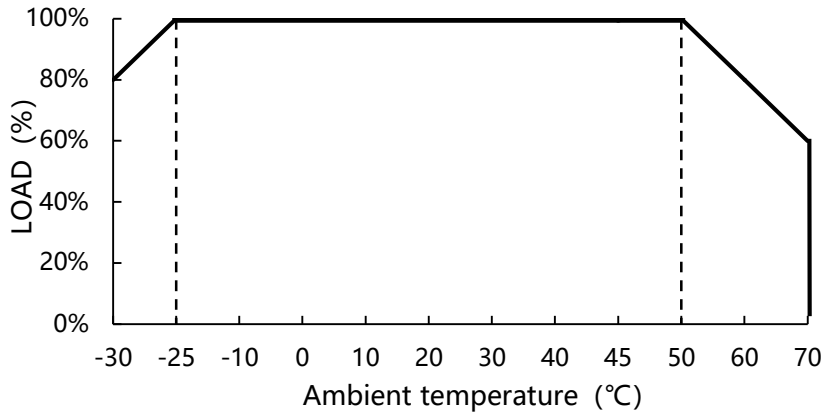
Parameter		Min.	Typ.	Max.	Notes
Solation and voltage resistance[4]	Input-Output	3000 V_{ac}			Test time 1 minute, leakage current less than 7mA
	Input-PE	1800 V_{ac}			
	Output-PE	500 V_{ac}			
Insulation impedance	Input-Output	100MΩ			Test Voltage：500V_{dc}
	Input-PE	100MΩ			
	Output-PE	100MΩ			
Working Temp.		-30°C		+70°C	Refer to “Derating Curve”
Working Humidity		20%RH		95%RH	Non-condensing
Storage Temp.		-30°C		+80°C	
Storage Humidity		10%RH		95%RH	Non-condensing
Temp. Coefficient		-0.03%/℃		0.03%/℃	0~50℃
Mean Time Between Failure (MTBF)		600000Hour			25℃, MIL-HDBK-217F
Dimension		99*82*30mm			L*W*H
Net Weight			200g		
Package		60PCS/14Kg/ctn，carton size：395(L)*235(W)*290(H)mm			

◎ Performance Curve:

Static Characteristics

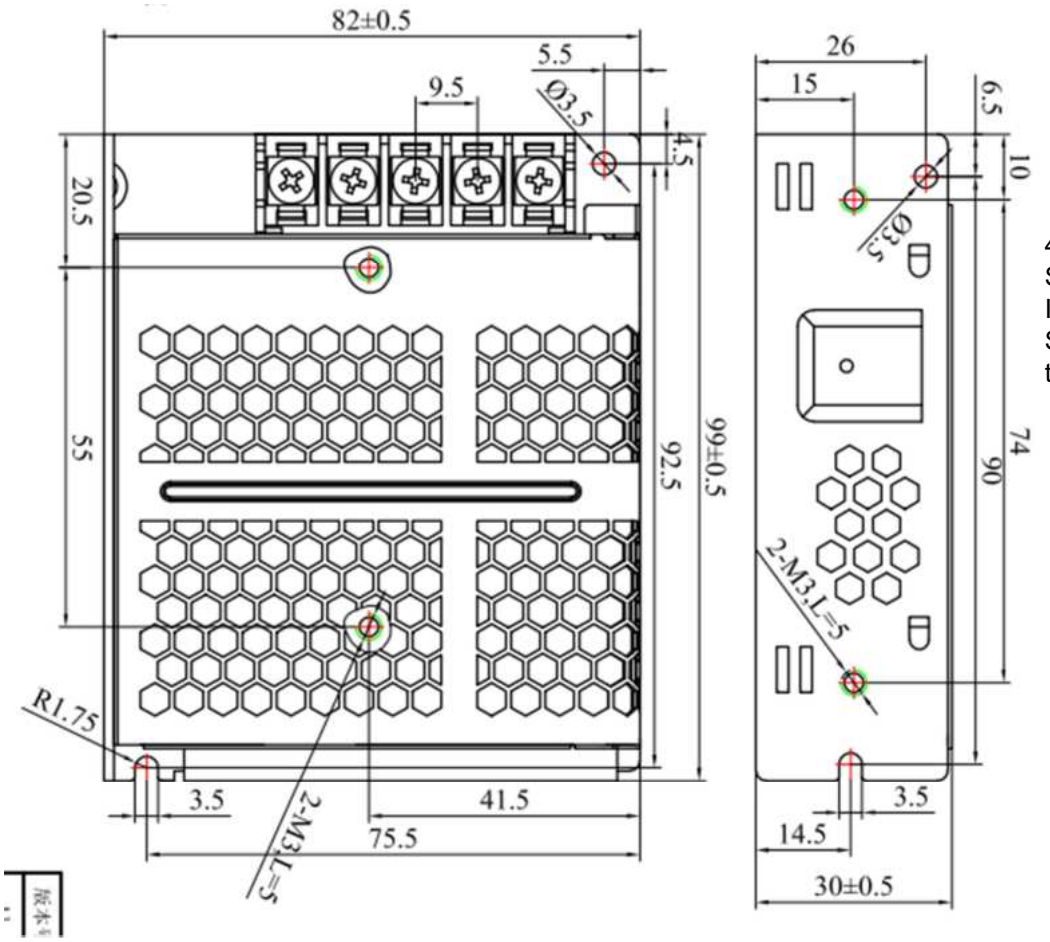


Derating Curve



Notes:
1. If you need to know more detailed test data when applying, please contact our technical support to obtain application notes for the corresponding product.

◎Mechanical Drawing:



4-M3 Customer system mounting hole
Screw: M3
Installation torque:4Kgf.cn(0.4N.m)
Screw inside the housing is not more than 3mm

Pin	Function	Screw torque requirements
L	AC LINE	Screw: M4*7 Torque: 12Kgf.cn(1.2N.m)
N	AC NETURAL	
⏚	EARTH	
V-	DC output -	Screw: M4*7 Torque: 12Kgf.cn(1.2N.m)
V+	DC output +	

Note:
Unit: mm[inch]; The unmarked tolerance is±0.5[±0.020]