创联电源
CHUANGLIAN POWER SUPPLY

Industrial Power Supply

Datasheet

A-150FGD Series

A-150FGD-X

- Product Category: 150Watts Industrial Power Supply
- Version No.: R1.0
- Date Issued: July 12th, 2024

CHUANGLIAN

Product Features

- Input Voltage:
  90-132VAC/176-264VAC (Selectable by switch)
  127-186VDC/248-373VDC (Selectable by switch)
- Standard ultra-thin product, height 30mm
- Natural cooling without fan
- Multiple Protection: SCP, OVP, OCP
- Output voltage adjustment by potentiometer
- Operating Temperature: -30℃~+70℃
- 3 Years warranty

E255042 RoHS

Product Description

A-150FGD-x series is a 150 watts natural cooling metal enclosed industrial power supply. Adopting wide AC&DC input voltage, the entire series provides an output voltage line of 5V, 12V, 15V, 24V, 27V, 36V and 48V. 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.

Applications

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

Model Encoding

A-150 FGD-X YY

- Internal code (Blank or alphanumeric combination)
- Output Voltage(5V/12V/15V/24V/27V/36V/48V)
- Series name
- Output power
- Single channel output

◎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-150FGD-5	150	5	4.5-5.5	0-30	150	85%	8000
A-150FGD-12	150	12	10.8-13.2	0-12.5	150	86%	6000
A-150FGD-15※	150	15	13.5-16.5	0-10	150	86%	3600
A-150FGD-24	150	24	21.6-26.4	0-6.25	150	86%	1500
A-150FGD-27※	148.5	27	24.3-29.7	0-5.5	150	86%	900
A-150FGD-36	147.6	36	32.4-39.6	0-4.1	250	87%	720
A-150FGD-48	148.8	48	43.2-52.8	0-3.1	300	87%	360

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

◎Input Specification:

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	$90V_{ac}$		132 V_{ac}	Selectable by switch
	$176V_{ac}$		$264V_{ac}$	
Rated Input AC Voltage	$100V_{ac}$		120 V_{ac}	
	$200V_{ac}$		$240V_{ac}$	
Input DC Voltage	$127V_{dc}$		186 V_{dc}	
	$248V_{dc}$		373 V_{dc}	
Input Frequency	47Hz		63 Hz	
Maximum Input Current			3.6 A	115Vac, full load
			1.8A	230Vac, full load
Leakage Current			3.5mA	240Vac/50Hz
Surge Current		30 A		115Vac, cold start
		60A		230Vac, cold start

◎Output Specifications:

Parameter	Min.	Typ.	Max.	Notes
Output Voltage Tolerance	-2%		± 2%	A-150FGD-5 A-150FGD-12
	-1.5%		± 1.5%	Other models
Line Regulation	-0.5%		+0.5%	All models
Load Regulation	-0.5%		+0.5%	All models
Setup Time			2500ms	115Vac/230Vac, full load
Rise Time			200ms	115Vac/230Vac, full load
Hold up Time	20ms			115Vac/230Vac, full load

◎ Efficiency:

Parameter	Min.	Typ.	Max.	Notes
Efficiency@115 V_{ac}				
A-150FGD-5	83%	84%		Ambient temp. 25±5°C, full load
A-150FGD-12	84%	85%		
A-150FGD-15	84%	85%		
A-150FGD-24	84%	85%		
A-150FGD-27	84%	85%		
A-150FGD-36	85%	86%		
A-150FGD-48	85%	86%		
Efficiency@230 V_{ac}				
A-150FGD-5	84%	85%		Ambient temp. 25±5°C, full load
A-150FGD-12	85%	86%		
A-150FGD-15	85%	86%		
A-150FGD-24	85%	86%		
A-150FGD-27	85%	86%		
A-150FGD-36	86%	87%		
A-150FGD-48	86%	87%		

◎ Protection:

Parameter	Min.	Typ.	Max.	Notes
Over Load	110%		160%	Hiccup mode, recovers automatically after fault condition is removed.
Over Voltage	110%		140%	Double loop constant voltage output, recovers automatically after fault condition is removed.
Short Circuit	Hiccup mode when output side has short circuit fault, recovers automatically after fault condition is removed.			

◎ 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 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
		Radiated Emission	GB/T 9254.1	Class B
		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 A
		Voltage Dips, Drops and Interruptions Immunity	EN 61000-4-11	Drop 100%, 0.5 cycle	Criteria B
				Drop 100%,250 cycles	Criteria B
				Drop 30%,25 cycles	Criteria B
				Interrupt 100%, 250 cycles	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.

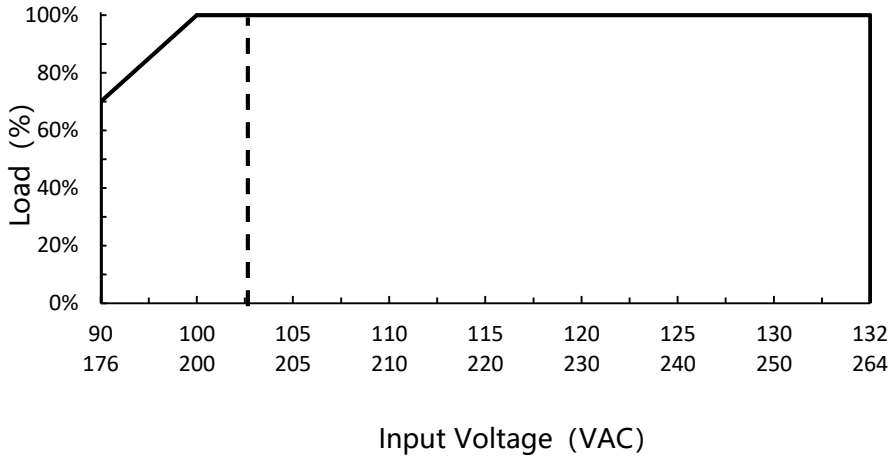
◎ General Specifications:

Parameter		Min.	Typ.	Max.	Notes
Dielectric Strength [4]	Input-Output	3000 V_{ac}			Last for 60s, leakage current < 5mA
	Input-PE	1800 V_{ac}			
	Output-PE	500 V_{ac}			
Insulation Resistance	Insulation Resistance	100MΩ			Test Voltage: 500V_{dc}
	Insulation Resistance	100MΩ			
	Insulation Resistance	100MΩ			
Working Temp.		-30°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%/℃		0.03%/℃	0~50℃
Mean Time Between Failure (MTBF)		250000 hours			25℃, MIL-HDBK-217F
Dimension		159*97*30mm			L*W*H
Net Weight			380g		
Packing		40PCS/17.5Kg/Carton，Carton Dimension: 390(L)*352(W)*228(H)mm			

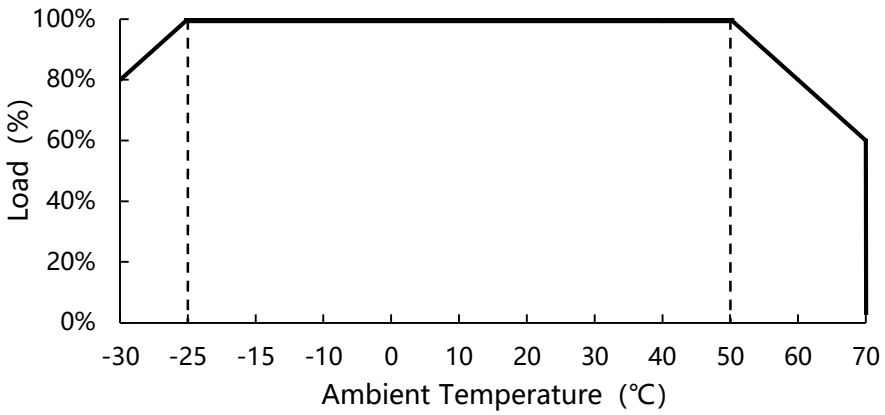
Note: [4] The minium withstand voltage is 3000Vac， if a higher test standard is needed, please contact our sales representative or FAE.

◎ Performance Curve:

Static Characteristics

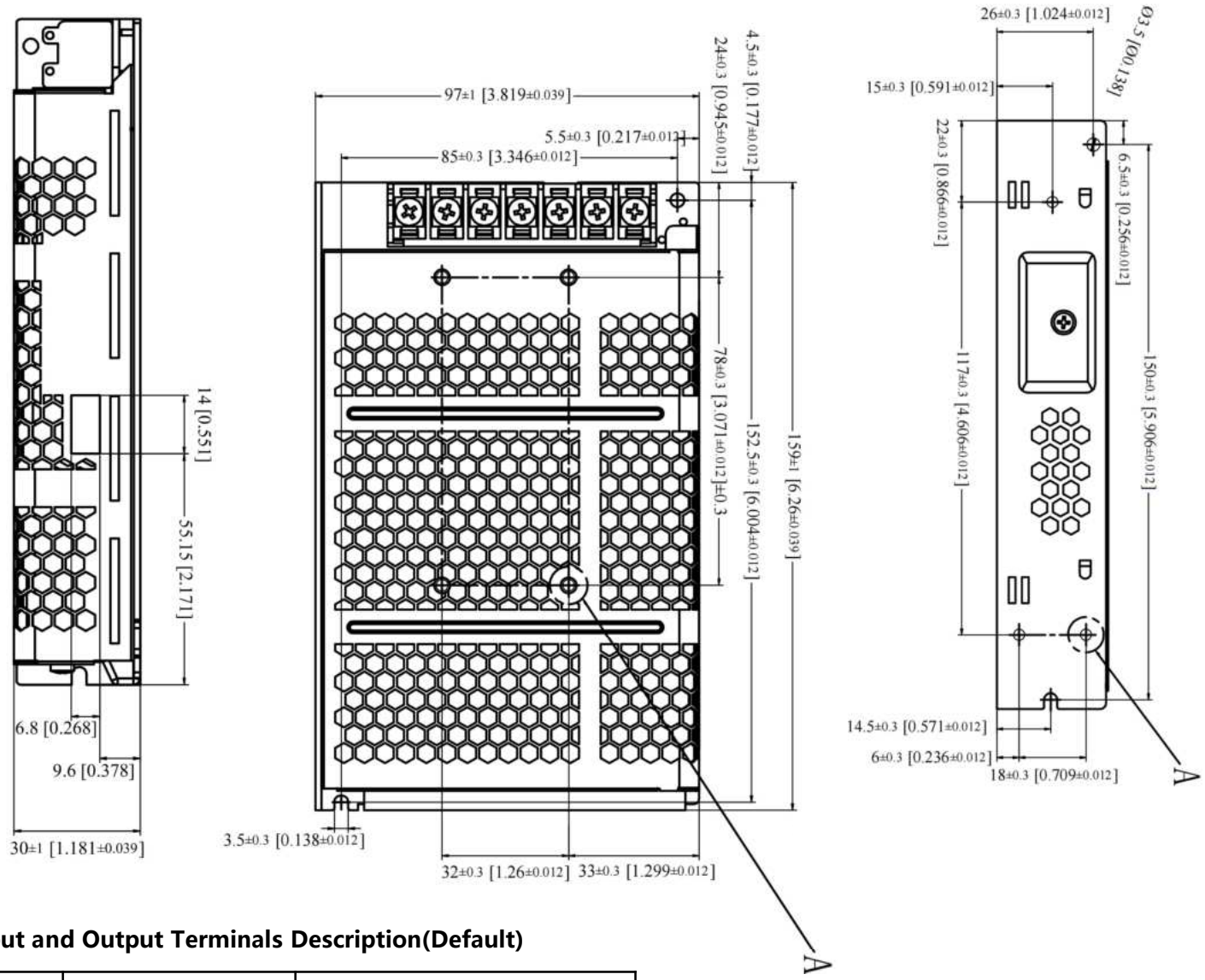


Derating Curve



Note:
1. If more detailed test data during application is needed, please contact our technical team to obtain application notes of related products.
2. This product is suitable for use in natural air convection environment, if used in a closed environment, please consult our technical support personnel.

◎ Mechanical Specification:



Input and Output Terminals Description(Default)

Pin	Function	Screw spec. & Torque(max)
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 -	
V+	DC output +	
V+	DC output +	

7-M3 mounting hole

Screw: M3
Torque(max): 4Kgf.cn(0.4N.m)
Penetration Depth L (max): 3mm

Note:
Unit: mm[inch],
General tolerances: ±0.5[±0.020]