



## Switching power supply



## Brief Introduction

Shanghai UPUN Electric (Group) is a high-tech enterprise integrating R & D, manufacturing, sales and technical services, National-level specialized and special new "little giant" enterprise, Shanghai science and technology giant enterprise, Shanghai patent pilot enterprise, Shanghai civilized unit, Songjiang District Enterprise Technology Center, China Integrity Management demonstration Unit, China Electrical Appliance Industry Association technological Innovation Leader. Won the Songjiang District quality Innovation Award, Shanghai Bureau of Industry and Commerce contract-abiding AAA enterprises, Shanghai Taxation Bureau tax credit An enterprises, Shanghai harmonious labor relations enterprises and State Administration of Industry and Commerce contract-abiding enterprises.

The company has passed ISO9001 quality management system certification, ISO14001 environmental management system certification and ISO45001 occupational health and safety management system certification. Products have passed China CCC certification, China Quality Certification Center CQC certification, China Classification Society CCS certification, international explosion-proof IECEx certification, and EU CE certification , U.S. UL/CUL certification, German VDE certification, TUV Rheinland certification, Brazil INMETRO certification and EU ROHS, etc.

The company contains industrial electrical appliances, new energy auto parts, charging equipment and system solutions, and machine substitution industries, with industrial wiring technology, PCB terminal blocks and device connectors, push buttons, signal lights, relays, control cabinet, transfer switches, analog signals isolators, transmitters, photoelectric relay modules, switching power supplies, signal lighting protection, heavy duty connector, electrical accessories and high-voltage wiring harnesses, AC/DC charging piles, mode 2 and hundreds of series and tens of thousands of specifications. At present, it has hundreds of product patents and participated in the drafting of dozens of standards.

UPUN Electric (Group) always takes innovation as the source of motivation, constantly adheres to technological innovation, increases R&D investment, and establishes strategic cooperation with overseas scientific research institutions, builds a technological innovation platform, and has established the product R&D center, the mould center, and the testing center. Adopt advanced automated production and processing equipment, testing equipment, etc., and cultivate a group of professional technical teams. Products are widely used in nuclear power industry, electric power, metallurgy, machinery, chemical industry, railways, new energy and other fields, and in the State Grid, Southern Power Grid, Olympic venues, Qinshan Nuclear Power Station, Beijing-Guangzhou Railway, Beijing-Zhengzhou Railway, Guangzhou Baiyun Airport, Beijing Metro, Oriental Pearl Tower, Three Gorges Project, Shengli Oilfield, Sinopec and other key projects

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# Switching power supply



With the continuous development of power electronic technology, the relationship between power electronic equipment and people's work and life is becoming increasingly close. Electronic equipment is inseparable from a reliable power supply, such as electrical equipment, program-controlled switches, communications, electronic testing equipment, and control equipment, etc. According to a feasible research on market demand, technological development, production capacity, and economic benefits, UPUN invests and develops actively switching power supplies.

The switching power supply refers to control the switch tube to conduct high-speed on and off through the circuit, converting the direct current into high-frequency alternating current to make the transformer transform, so that one or more sets of voltage required is generated.

Eswitching power supply includes the following parts according to the working principle:

1. MI filter filters out the electromagnetic interference generated by the switching power supply and enhances the anti-interference ability;
2. Rectifier filter circuit(PFC): converts AC power to smooth DC power (Sometimes the output current tends to be sinusoidal by adding a power factor correction circuit to meet the requirements of harmonic regulations and reduce reactive power loss);
3. Convert circuit: converts the DC power into a high-frequency signal, and then step up/down through a high-frequency transformer;
4. Output rectifier circuit filter: converts the high-frequency signal transformed by the converter into a relatively smooth DC for equipment use
5. Feedback control circuit: used to control the converter to keep the output voltage (current) stable under different loads,
6. Protect circuit: turning on the protection mode when the power supply or external factors make it abnormal, usually include: over-voltage protection, over-temperature protection, over-current protection, short circuit protection, etc,
7. Auxiliary control signal: provides customers with some auxiliary control signals to meet the monitoring, control and other functions required by customers.

Switching power supplies are mainly AC/DC and DC/DC. We mainly produce the two types of power supplies. The input and output voltages meet the general range of countries all over the world. The output power ranges from several watts to several kilowatts. It has the following characteristics:

1.Great stability, small output ripple, and reliability;2.With protection functions of over-current, over-voltage, under-voltage, over-temperature, short circuit and other;3.Low power consumption, high efficiency, small size, and light weight;4. It's customizable to meet different customer needs

With the continuous development of power electronics technology, switching power supply industry has a bright future. We are constantly innovating with technology to provide safe and reliable power supply for the power electronics industry, and make our own contribution to a harmonious society.

## ◎ Type

U	SP	-	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	-	<input type="text"/>	<input type="text"/>	<input type="text"/>
Company code	Switching power supply		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	

No.	Content	Specification code					
<b>1</b>	Output power	15W~1500W					
<b>2</b>	Structure code	M:Low voltage	P:Plastic shell	U:U-shaped bracket(shell)	O:Open frame	N:Mini metal shell	
<b>3</b>	Input voltage range	L:Voltage range(85~127VAC) F:Universal(85~264VAC)		H:Switch(175~264VAC) S:Universal(115V/230V)	T:Three phase(380VAC)	D:DC	
<b>4</b>	PFC function	A:Active	P:Passive	N:Without			
<b>5</b>	Output feature	D:Common ground 5V, 12V, 24V, 48V					
<b>6</b>	Installation	G:Universal installation		D:Rails installation			
<b>7</b>	Addictional	L:L type	N:N type	XN:With DCOK			

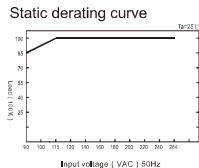
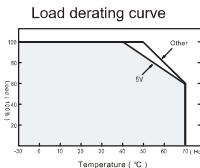
# GL Universal switching power supply

USP-35MFN-05G L



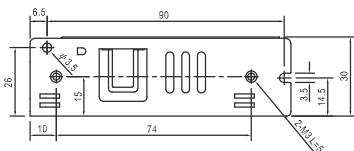
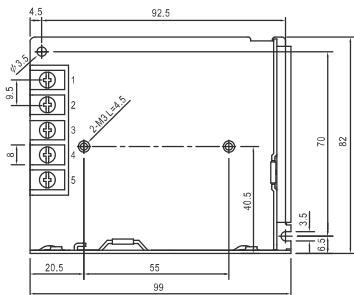
## Feature:

1. Input voltage range:
2. Protections: short circuit/over-current/over-voltage
3. Cooling by air
4. 100% full load aging test
5. Operable at an altitude of 5000 meters
6. Small size, light weight, and high efficiency
7. Power-on indication(LED)
8. Low ripple and noise
9. Two-year warranty



## Dimensions

Unit : mm



## Terminal Pin distribution

Pin No.	Distribution	Pin No.	Distribution
1	AC/N	4	DC OUTPUT-V
2	AC/L	5	DC OUTPUT+V
3	FG		

## Notes :

1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 12"twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance is a sum of set up tolerance, voltage regulation and current regulation.
4. Line regulation is measured from low line to high line at rated load.
5. Load regulation is measured from 0% to 100% rated load.
6. Power supply, a part of the components in the system, is confirmed in conjunction with the terminal equipment for electromagnetic compatibility.

## Electrical schematic

Ordering data	Type	Order no.
	USP-35MFN-05G L	462147
<b>Input data</b>		
Output voltage,DC	5V	
Output voltage accuracy	±2%	
Rated output current	7A	
Output current range	0~7A	
Output power	35W	
Ripple and noise	80mVp-p	
Setting range of voltage,DC	±10%	
Hold up time	30ms/230V(Full load)	
<b>Input data</b>		
Input voltage range	85~264VAC,47~63Hz,120~370VDC	
Input voltage ,AC	0.8A/115V 0.6A/230VAC	
Efficiency	86%	
Shock current	Turn on current,cooling 50A/230VAC	
Leakage current	< 0.75mA/240VAC	
<b>Protections</b>		
Over-current protection	Rated output power 110%~200%	
	Protection: hiccup mode. The normal output can be restored automatically after removal of fault.	
Short circuit protection	Hiccup protection, short-circuit protection in long-term self-recovery	
	The recovery time is less than 5s after removal of short circuit	
Over-voltage protection	115%~135% of rated output voltage turns on over-voltage protection	
	Protection: Turn off the output. And the normal output need reboot to restore after removal of fault.	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	
<b>Safety</b>		
Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:1.0KVAC	
Insulation Impedance	I/P-O/P I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC60335-1,IEC61558-1,GB4943.1	
EMC standards	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2,3	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	99 / 82 / 30	
Quality	0.17Kg	

# UPUN ELECTRIC

## USP-35W Switching power supply,single output

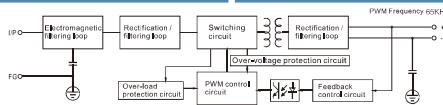
USP-35MFN-12G L



USP-35MFN-24G L



### Electrical schematic



### Ordering data

Type	Order no.
USP-35MFN-12G L	462148
USP-35MFN-24G L	462149

### Input data

Output voltage,DC	12V	24V
Output voltage accuracy	±1%	±1%
Rated output current	3A	1.5A
Output current range	0~3A	0~1.5A
Output power	36W	36W
Ripple and noise	120mVp-p	150mVp-p
Setting range of voltage,DC	±10%	±10%
Hold up time	30ms/230V(Full load)	30ms/230V(Full load)

### Input data

Input voltage range	85~264VAC,47~63Hz,120~370VDC	85~264VAC,47~63Hz,120~370VDC
Input voltage ,AC	0.8A/115V 0.6A/230VAC	0.8A/115V 0.6A/230VAC
Efficiency	88%	88%
Shock current	Turn on current,cooling 50A/230VAC	Turn on current,cooling 50A/230VAC
Leakage current	< 0.75mA/240VAC	< 0.75mA/240VAC

### Protections

Over-current protection	Rated output power 110%~200%	Rated output power 110%~200%
	Protection:hiccup mode. The normal output can be restored automatically after removal of fault.	Protection:hiccup mode. The normal output can be restored automatically after removal of fault.
Short circuit protection	Hiccup protection, short-circuit protection in long-term, self-recovery	Hiccup protection, short-circuit protection in long-term, self-recovery
	The recovery time is less than 5s after removal of short circuit	The recovery time is less than 5s after removal of short circuit
Over-voltage protection	115%~135% of rated output voltage turns on over-voltage protection	115%~135% of rated output voltage turns on over-voltage protection
	Protection:Turn off the output. And the normal output need reboot to restore after removal of fault.	Protection:Turn off the output. And the normal output need reboot to restore after removal of fault.

### Ambient conditions

Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH	-30°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH	-40°C~+85°C;10%~95%RH

### Safety

Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:1.0KVAC	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:1.0KVAC
Insulation Impedance	I/P-O/P I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH	I/P-O/P I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH

### Standards

Safety standards	Meet IEC60335-1,IEC61558-1,GB4943.1	Meet IEC60335-1,IEC61558-1,GB4943.1
EMC standards	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2,3	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2,3

### Others

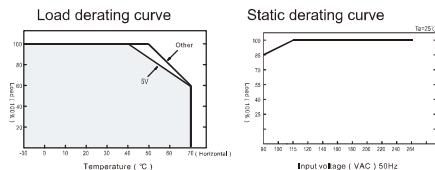
Dimensions(L/W/H mm)(see installation dimensions)	99 / 82 / 30	99 / 82 / 30
Quality	0.17Kg	0.17Kg

# GL Universal switching power supply

## Feature:

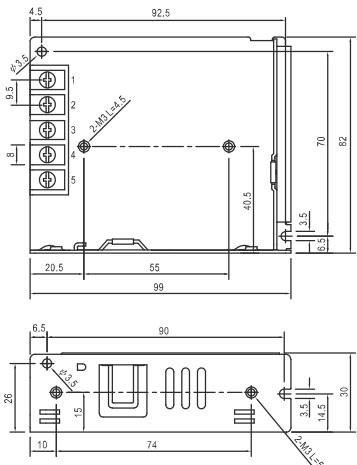
1. Input voltage range : 85~264VAC/120~370VDC
2. Protections: short circuit/over-current/over-voltage
3. Cooling by air
4. 100% full load aging test
5. Operable at an altitude of 5000 meters
6. Small size, light weight, and high efficiency
7. Power-on indication(LED)
8. Low ripple and noise
9. Two-year warranty

**USP-50MFN-05G L**



## Dimensions

Unit : mm



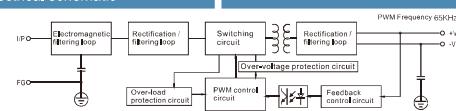
### Terminal Pin distribution

Pin No.	Distribution	Pin No.	Distribution
1	ACN	4	DC OUTPUT-V
2	ACL	5	DC OUTPUT+V
3	FG		

## Notes :

1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 127twisted pair-wire terminated with a 0.1μf & 47uf parallel capacitor.
3. Tolerance is a sum of set up tolerance, voltage regulation and current regulation.
4. Line regulation is measured from low line to high line at rated load.
5. Load regulation is measured from 0% to 100% rated load.
6. Power supply, a part of the components in the system, is confirmed in conjunction with the terminal equipment for electromagnetic compatibility.

## Electrical schematic



## Ordering data

Type	Order no.
USP-50MFN-05G L	462150
<b>Input data</b>	
Output voltage,DC	5V
Output voltage accuracy	±2%
Rated output current	10A
Output current range	0~10A
Output power	50W
Ripple and noise	80mVp-p
Setting range of voltage,DC	±10%
Hold up time	30ms/230V(Full load)
<b>Input data</b>	
Input voltage range	85~264VAC,47~63Hz,120~370VDC
Input voltage ,AC	1.2A/115V 0.8A/230VAC
Efficiency	86%
Shock current	Turn on current,cooling 50A/230VAC
Leakage current	< 0.75mA/240VAC
<b>Protections</b>	
Over-current protection	Rated output power 110%~150%
	Protection: hiccup mode. The normal output can be restored automatically after removal of fault.
Short circuit protection	Hiccup protection, short-circuit protection in long-term . self-recovery
	The recovery time is less than 5s after removal of short circuit
Over-voltage protection	115%~135% of rated output voltage turns on over-voltage protection
	Protection: Turn off the output. And the normal output need reboot to restore after removal of fault.
<b>Ambient conditions</b>	
Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH
<b>Safety</b>	
Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC
Insulation Impedance	I/P-O/P I/P-FG O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH
<b>Standards</b>	
Safety standards	Meet IEC60335-1,IEC61558-1,GB4943.1
EMC standards	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3
<b>Others</b>	
Dimensions(L/W/H mm)(see installation dimensions)	99 / 82 / 30
Quality	0.18Kg

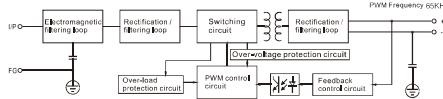
USP-50MFN-12G L



USP-50MFN-24G L



## Electrical schematic



## Ordering data

Type	Order no.	Order no.	
USP-50MFN-12G L	462151	USP-50MFN-24G L	462152

## Input data

Output voltage,DC	12V	24V
Output voltage accuracy	±1%	±1%
Rated output current	4.2A	2.2A
Output current range	0~4.2A	0~2.2A
Output power	50.4W	52.8W
Ripple and noise	120mVp-p	150mVp-p
Setting range of voltage,DC	± 10%	± 10%
Hold up time	30ms/230V(Full load)	30ms/230V(Full load)

## Input data

Input voltage range	85~264VAC,47~63Hz,120~370VDC	85~264VAC,47~63Hz,120~370VDC
Input voltage ,AC	1.2A/115V 0.8A/230VAC	1.2A/115V 0.8A/230VAC
Efficiency	87%	89%
Shock current	Turn on current,cooling 50A/230VAC	Turn on current,cooling 50A/230VAC
Leakage current	< 0.75mA/240VAC	< 0.75mA/240VAC

## Protections

Over-current protection	Rated output power 110%~150%	Rated output power 110%~150%
Short circuit protection	Protection:hiccup mode. The normal output can be restored automatically after removal of fault. Hiccup protection, short-circuit protection in long-term, self-recovery The recovery time is less than 5s after removal of short circuit	Protection:hiccup mode. The normal output can be restored automatically after removal of fault. Hiccup protection, short-circuit protection in long-term, self-recovery The recovery time is less than 5s after removal of short circuit
Over-voltage protection	115%~135% of rated output voltage turns on over-voltage protection Protection:Turn off the output. And the normal output need reboot to restore after removal of fault.	115%~135% of rated output voltage turns on over-voltage protection Protection:Turn off the output. And the normal output need reboot to restore after removal of fault.

## Ambient conditions

Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH	-30°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH	-40°C~+85°C;10%~95%RH

## Safety

Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC
Insulation Impedance	I/P-O/P/I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH	I/P-O/P/I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH

## Standards

Safety standards	Meet IEC60335-1,IEC61558-1,GB4943.1	Meet IEC60335-1,IEC61558-1,GB4943.1
EMC standards	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3

## Others

Dimensions(L/W/H mm)(see installation dimensions)	99 / 82 / 30	99 / 82 / 30
Quality	0.18Kg	0.18Kg

# GL Universal switching power supply

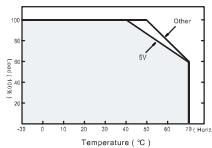
## USP-75MFN-05G L



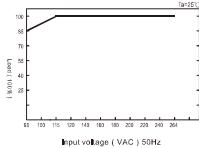
### Feature:

1. Input voltage range : 85~264VAC/120~370VDC
2. Protections: short circuit/over-current/over-voltage
3. Cooling by air
4. 100% full load aging test
5. Operable at an altitude of 5000 meters
6. Small size, light weight, and high efficiency
7. Power-on indication(LED)
8. Low ripple and noise
9. Two-year warranty

Load derating curve

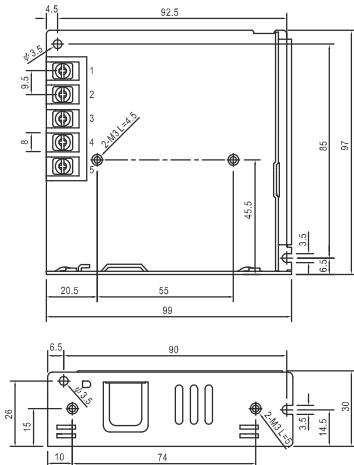


Static derating curve



Dimensions

Unit : mm



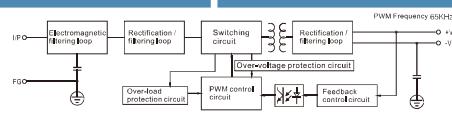
Terminal|Pin distribution

Pin No.	Distribution	Pin No.	Distribution
1	ACN	4	DC OUTPUT-
2	AC/L	5	DC OUTPUT+
3	FG		

### Notes :

1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 127twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance is a sum of set up tolerance, voltage regulation and current regulation.
4. Line regulation is measured from low line to high line at rated load.
5. Load regulation is measured from 0% to 100% rated load.
6. Power supply, a part of the components in the system, is confirmed in conjunction with the terminal equipment for electromagnetic compatibility.

### Electrical schematic



### Ordering data

Type	Order no.
USP-75MFN-05G L	462156

### Input data

Output voltage,DC	5V
Output voltage accuracy	±2%
Rated output current	14A
Output current range	0~14A
Output power	70W
Ripple and noise	100mVp-p
Setting range of voltage,DC	±10%
Hold up time	30ms/230V(Full load)

### Input data

Input voltage range	85~264VAC,47~63Hz,120~370VDC
Input voltage ,AC	2A/115V 1A/230VAC
Efficiency	88%
Shock current	Turn on current,cooling 60A/230VAC
Leakage current	< 0.75mA/240VAC

### Protections

Over-current protection	Rated output power 110%~150%
Short circuit protection	Protection:hiccup mode. The normal output can be restored automatically after removal of fault. Recovery time is less than 5s after removal of short circuit.
Over-voltage protection	115%~135% of rated output voltage turns on over-voltage protection. Protection:Turn off the output. And the normal output need reboot to restore after removal of fault.
Ambient conditions	
Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH

### Safety

Withstand voltage	I/P-O/P:3kVAC I/P-FG:2kVAC O/P-FG:0.5kVAC
Insulation Impedance	I/P-O/P/I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH
Standards	
Safety standards	Meet IEC60335-1,IEC61558-1,GB4943.1
EMC standards	Meet EN55022(CLSPR22)/CLASS B, GB9254 ClassB,EN55014,EN61000-3-2,3

### Others

Dimensions(L/W/H mm)(see installation dimensions)	99 / 97 / 30
Quality	0.22Kg

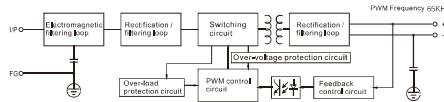
USP-75MFN-12G L



USP-75MFN-24G L



## Electrical schematic



## Ordering data

Type	Order no.	Order no.	
USP-75MFN-12G L	462157	USP-75MFN-24G L	462158

## Input data

Output voltage,DC	12V	24V
Output voltage accuracy	±1%	±1%
Rated output current	6A	3.2A
Output current range	0~6A	0~3.2A
Output power	72W	76.8W
Ripple and noise	120mVp-p	150mVp-p
Setting range of voltage,DC	± 10%	± 10%
Hold up time	30ms/230V(Full load)	30ms/230V(Full load)

## Input data

Input voltage range	85~264VAC,47~63Hz,120~370VDC	85~264VAC,47~63Hz,120~370VDC
Input voltage ,AC	2A/115V 1A/230VAC	2A/115V 1A/230VAC
Efficiency	88%	90%
Shock current	Turn on current,cooling 60A/230VAC	Turn on current,cooling 60A/230VAC
Leakage current	< 0.75mA/240VAC	< 0.75mA/240VAC

## Protections

Over-current protection	Rated output power 110%~150%	Rated output power 110%~150%
Short circuit protection	Protection:hiccup mode. The normal output can be restored automatically after removal of fault.	Protection:hiccup mode. The normal output can be restored automatically after removal of fault.
Over-voltage protection	Hiccup protection, short-circuit protection in long-term , self-recovery The recovery time is less than 5s after removal of short circuit	Hiccup protection, short-circuit protection in long-term , self-recovery The recovery time is less than 5s after removal of short circuit
	115%~135% of rated output voltage turns on over-voltage protection Protection:Turn off the output. And the normal output need reboot to restore after removal of fault.	115%~135% of rated output voltage turns on over-voltage protection Protection:Turn off the output. And the normal output need reboot to restore after removal of fault.

## Ambient conditions

Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH	-30°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH	-40°C~+85°C;10%~95%RH

## Safety

Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC
Insulation Impedance	I/P-O/P I/P-FG O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH	I/P-O/P I/P-FG O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH

## Standards

Safety standards	Meet IEC60335-1,IEC61558-1,GB4943.1	Meet IEC60335-1,IEC61558-1,GB4943.1
EMC standards	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3

## Others

Dimensions(L/W/H mm)(see installation dimensions)	99 / 97 / 30	99 / 97 / 30
Quality	0.22Kg	0.22Kg

# GL Universal switching power supply

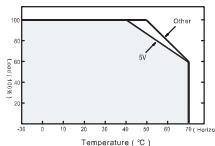
## Feature:

1. Input voltage range : 85~264VAC/120~370VDC
2. Protections: short circuit/over-current/over-voltage
3. Cooling by air
4. 100% full load aging test
5. Operable at an altitude of 5000 meters
6. Small size, light weight, and high efficiency
7. Power-on indication(LED)
8. Low ripple and noise
9. Two-year warranty

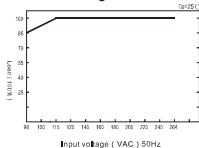
**USP-100MFN-05G L**



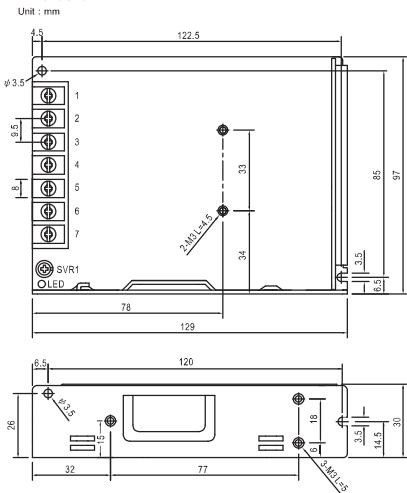
Load derating curve



Static derating curve



Dimensions



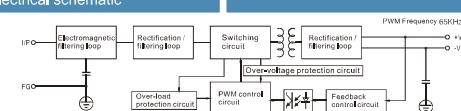
Terminal Pin distribution

Pin No.	Distribution	Pin No.	Distribution
1	AC/N	4	DC OUTPUT-V
2	AC/L	5	DC OUTPUT+V
3	FG		

Notes :

1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 127twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance is a sum of set up tolerance, voltage regulation and current regulation.
4. Line regulation is measured from low line to high line at rated load.
5. Load regulation is measured from 0% to 100% rated load.
6. Altitude above 2000 meters, low ambient environment 5°C/1000 meters
7. Power supply, a part of the components in the system, is confirmed in conjunction with the terminal equipment for electromagnetic compatibility.

Electrical schematic



Ordering data

Type	Order no.
USP-100MFN-05G L	462159

Input data

Output voltage,DC	5V
-------------------	----

Output voltage accuracy

Rated output current	18A
----------------------	-----

Output current range

Output power	0~18A
--------------	-------

Ripple and noise

Ripple and noise	100mVp-p
------------------	----------

Setting range of voltage,DC

Setting range of voltage,DC	±10%
-----------------------------	------

Hold up time

Hold up time	55ms/230V(Full load)
--------------	----------------------

Input data

Input voltage range	85~264VAC,47~63Hz,120~370VDC
---------------------	------------------------------

Input voltage ,AC

Input voltage ,AC	3A/115V 1.5A/230VAC
-------------------	---------------------

Efficiency

Efficiency	85%
------------	-----

Shock current

Shock current	Turn on current,cooling 65A/230VAC
---------------	------------------------------------

Leakage current

Leakage current	< 0.75mA/240VAC
-----------------	-----------------

Protections

Over-current protection	Rated output power 110%~150%
-------------------------	------------------------------

Protection:hiccup mode. The normal output can be restored automatically after removal of fault.

Short circuit protection, short-circuit protection in long-term .

The recovery time is less than 5s after removal of short circuit.

Over-voltage protection 115%~135% of rated output voltage turns on over-voltage protection

Protection:Turn off the output. And the normal output need reboot to restore after removal of fault.

Ambient conditions

Working temperature(see derating curve) -30°C~+70°C; 20%~90%RH

Storage temp/humidity(non condensing) -40°C~+85°C; 10%~95%RH

Safety

Withstand voltage I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC

Insulation Impedance I/P-O/P/I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH

Standards

Safety standards Meet IEC60335-1,IEC61558-1,GB4943.1

EMC standards Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2,3

Others

Dimensions(L/W/H mm)(see installation dimensions) 129 / 97 / 30

Quality

0.32Kg

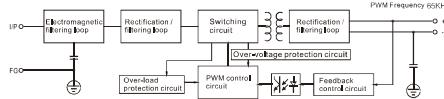
USP-100MFN-12G L



USP-100MFN-24G L



## Electrical schematic



## Ordering data

Type	Order no.	Order no.	
USP-100MFN-12G L	462160	USP-100MFN-24G L	462161

## Input data

Output voltage,DC	12V	24V
Output voltage accuracy	±1%	±1%
Rated output current	8.5A	4.5A
Output current range	0~8.5A	0~4.5A
Output power	102W	108W
Ripple and noise	120mVp-p	150mVp-p
Setting range of voltage,DC	± 10%	± 10%
Hold up time	55ms/230V(Full load)	55ms/230V(Full load)

## Input data

Input voltage range	85~264VAC,47~63Hz,120~370VDC	85~264VAC,47~63Hz,120~370VDC
Input voltage ,AC	3A/115V 1.5A/230VAC	3A/115V 1.5A/230VAC
Efficiency	86.5%	89.5%
Shock current	Turn on current,cooling 65A/230VAC	Turn on current,cooling 65A/230VAC
Leakage current	< 0.75mA/240VAC	< 0.75mA/240VAC

## Protections

Over-current protection	Rated output power 110%~150%	Rated output power 110%~150%
Short circuit protection	Protection: hiccup mode. The normal output can be restored automatically after removal of fault. Hiccup protection, short-circuit protection in long-term . self-recovery	Protection: hiccup mode. The normal output can be restored automatically after removal of fault. Hiccup protection, short-circuit protection in long-term . self-recovery
Over-voltage protection	The recovery time is less than 5s after removal of short circuit 115%~135% of rated output voltage turns on over-voltage protection Protection: Turn off the output. And the normal output need reboot to restore after removal of fault.	The recovery time is less than 5s after removal of short circuit 115%~135% of rated output voltage turns on over-voltage protection Protection: Turn off the output. And the normal output need reboot to restore after removal of fault.

## Ambient conditions

Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH	-30°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH	-40°C~+85°C;10%~95%RH

## Safety

Withstand voltage	I/P-O/P:3kVAC I/P-FG:2kVAC O/P-FG:0.5kVAC	I/P-O/P:3kVAC I/P-FG:2kVAC O/P-FG:0.5kVAC
Insulation Impedance	I/P-O/P/I/P-FG:O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH	I/P-O/P/I/P-FG:O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH

## Standards

Safety standards	Meet IEC60335-1,IEC61558-1,GB4943.1	Meet IEC60335-1,IEC61558-1,GB4943.1
EMC standards	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3

## Others

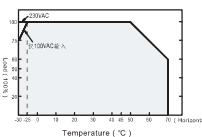
Dimensions(L/W/H mm)(see installation dimensions)	129 / 97 / 30	129 / 97 / 30
Quality	0.32Kg	0.32Kg

# GL Universal switching power supply

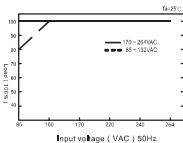
## Feature:

1. Input voltage range : 85~264VAC/120~370VDC
2. Protections: short circuit/over-current/over-voltage
3. Cooling by air
4. 100% full load aging test
5. Operable at an altitude of 5000 meters
6. Small size, light weight, and high efficiency
7. Power-on indication(LED)
8. Low ripple and noise
9. Two-year warranty

Load derating curve

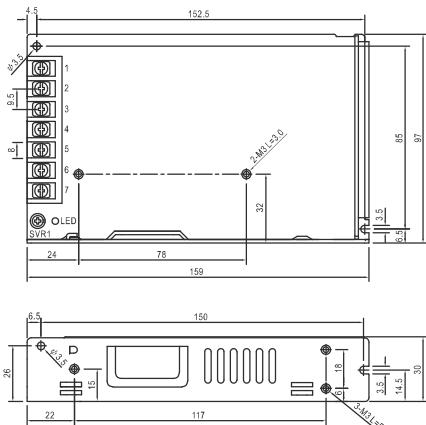


Static derating curve



## Dimensions

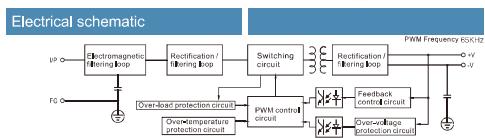
Unit : mm



## Notes :

1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 12twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance is a sum of set up tolerance, voltage regulation and current regulation.
4. Line regulation is measured from low line to high line at rated load.
5. Load regulation is measured from 0% to 100% rated load.
6. Altitude above 2000 meters, low ambient environment 5°C/1000 meters
7. Power supply, a part of the components in the system, is confirmed in conjunction with the terminal equipment for electromagnetic compatibility.

## USP-150MFN-12G L



## Ordering data

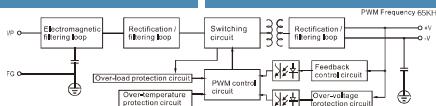
Type	Order no.
USP-150MFN-12G L	462198
<b>Input data</b>	
Output voltage,DC	12V
Output voltage accuracy	±2%
Rated output current	12.5A
Output current range	0~12.5A
Output power	150W
Ripple and noise	150mVp-p
Setting range of voltage,DC	±10%
Hold up time	16ms/230V(Full load)
<b>Input data</b>	
Input voltage range	85~264VAC,47~63Hz,120~370VDC
Input voltage ,AC	4A/115V 2A/230VAC
Efficiency	87%
Shock current	Turn on current,cooling 55A/230VAC
Leakage current	< 0.75mA/240VAC
<b>Protections</b>	
Over-current protection	Rated output power 110%~135%
Short circuit protection	Protection:hiccup mode, The normal output can be restored automatically after removal of fault.
Over-voltage protection	115%~135% of rated output voltage turns on over-voltage protection
Over-voltage protection	Protection:Turn off the output, And the normal output can be restored automatically after removal of fault.
<b>Ambient conditions</b>	
Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH
<b>Vibration resistance</b>	
Withstand voltage	10~500Hz,3G 10min/1 cycle , 60min , each axis
<b>Safety</b>	
Insulation Impedance	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC I/P-O/P/I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH
<b>Standards</b>	
EMC standards	Meet UL60950-1,TUV EN60950-1,GB4943 Meet EN50522/CLSPR22/CLASS B, GB9254 ClassB,EN55014,EN61000-2-3
Others	
Dimensions(L/W/H mm)(see installation dimensions)	159 / 97 / 30
Quality	0.45Kg

# USP-150W Switching power supply, single output

## USP-150MFN-24G L



### Electrical schematic



### Ordering data

Type	Order no.
USP-150MFN-24G L	462199

### Input data

Output voltage,DC	24V
Output voltage accuracy	±1%
Rated output current	6.5A
Output current range	0~6.5A
Output power	156W
Ripple and noise	200mVp-p
Setting range of voltage,DC	±10%
Hold up time	16ms/230V(Full load)

### Input data

Input voltage range	85~264VAC,47~63Hz,120~370VDC
Input voltage ,AC	4A/115V 2A/230VAC
Efficiency	88%
Shock current	Turn on current,cooling 55A/230VAC
Leakage current	< 0.75mA/240VAC

### Protections

Over-current protection	Rated output power 110%~135%
	Protection: hiccup mode. The normal output can be restored automatically after removal of fault.
Short circuit protection	115%~135% of rated output voltage turns on over-voltage protection
	Protection: Turn off the output. And the normal output can be restored automatically after removal of fault.
Over-voltage protection	100 ±10%(RT1 detects near the transformer)
	Protection: Turn off the output. And the normal output need reboot to restore after removal of fault.

### Ambient conditions

Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH

### Vibration resistance

10~500Hz,3G 10min/1 cycle , 60min , each axis

### Safety

Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC
Insulation Impedance	I/P-O/P,I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH

### Standards

EMC standards	Meet UL60950-1, TUV EN60950-1, GB4943 Meet EN55022(CISPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2,3
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### Others

Dimensions(L/W/H mm)(see installation dimensions)	159 / 97 / 30
Quality	0.45Kg

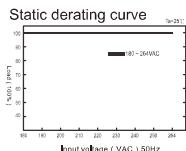
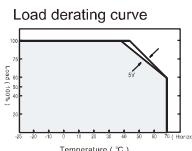
# GL Universal switching power supply

**USP-200MHN-05G L**



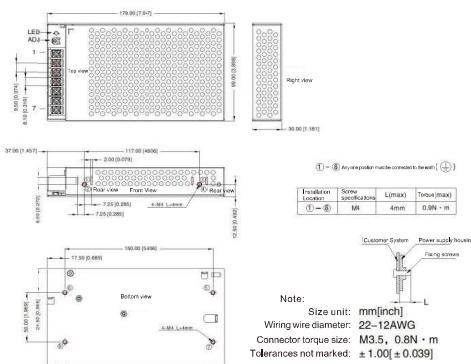
## Feature:

1. Input voltage range : 176~264VAC/240~370VDC
2. Protections: short circuit/over-current/over-voltage
3. Cooling by air
4. 100% full load aging test
5. Operable at an altitude of 5000 meters
6. Small size, light weight, and high efficiency
7. Power-on indication(LED)
8. Two-year warranty



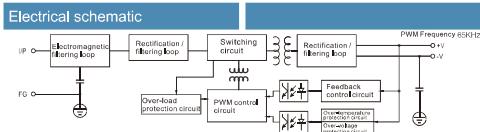
## Dimensions

Unit : mm



## Notes:

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. The tolerance is the sum of the voltage setting error, the voltage adjustment rate and the current adjustment rate.
4. Linear regulation measurement method: low to high voltage test at rated load.
5. Load regulation measurement method: from 0% to 100% of rated load.
6. The power supply should be considered as part of the system components and is subject to EMC-related verification in conjunction with the terminal equipment.



Ordering data	Type	Order no.
	USP-200MHN-05G L	462165
<b>Input data</b>		
Output voltage,DC	5V	
Output voltage accuracy	±3%	
Rated output current	30A	
Output current range	0~30A	
Output power	150W	
Ripple and noise	150mVp-p	
Setting range of voltage,DC	4.5~5.5V	
Hold up time	16ms/230V(Full load)	
<b>Input data</b>		
Input voltage range	176~264VAC,47~63Hz,240~370VDC	
Input voltage ,AC	2.2A/230VAC	
Efficiency	87%	
Shock current	Turn on current,cooling 60A/230VAC	
Leakage current	< 2mA/240VAC	
<b>Protections</b>		
Over-current protection	Rated output power 110%~150%	
Short circuit protection	Protection:hiccup mode. The normal output can be restored automatically after removal of fault. Hiccup protection, short-circuit protection in long-term . The recovery time is less than 5s after removal of short circuit	
Over-voltage protection	115%~135% of rated output voltage turns on over-voltage protection Protection:Turn off the output. And the normal output need reboot to restore after removal of fault.	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	
<b>Safety</b>		
Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC	
Insulation Impedance	I/P-O/P/I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet UL62368-1, EN62368-1,GB4943	
EMC standards	Meet EN55022(C/LSPR22)/CLASS B, GB9254 ClassB,EN55014,EN61000-3-2,3	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	179 / 99 / 30	
Quality	0.52Kg	

# USP-200W Switching power supply, single output

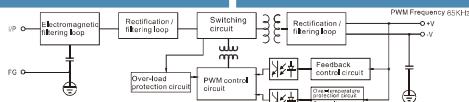
USP-200MHN-12G L



USP-200MHN-24G L



## Electrical schematic



## Ordering data

Type	Order no.	Type	Order no.
USP-200MHN-12G L	462166	USP-200MHN-24G L	462167

## Input data

Output voltage,DC	12V	24V
Output voltage accuracy	±1.5%	±1%
Rated output current	17A	8.8A
Output current range	0~17A	0~8.8A
Output power	204W	211.2W
Ripple and noise	150mVp-p	150mVp-p
Setting range of voltage,DC	10.2~13.8V	21.6~28.8V
Hold up time	16ms/230V(Full load)	16ms/230V(Full load)

## Input data

Input voltage range	176~264VAC,47~63Hz,240~370VDC	176~264VAC,47~63Hz,240~370VDC
Input voltage ,AC	2.2A/230VAC	2.2A/230VAC
Efficiency	87.5%	88.5%
Shock current	Turn on current,cooling 60A/230VAC	Turn on current,cooling 60A/230VAC

## Protections

Over-current protection	Rated output power 110%~150%	Rated output power 110%~150%
	Protection: hiccup mode. The normal output can be restored automatically after removal of fault.	Protection: hiccup mode. The normal output can be restored automatically after removal of fault.
Short circuit protection	Hiccup protection, short-circuit protection in long-term, self-recovery	Hiccup protection, short-circuit protection in long-term, self-recovery
	The recovery time is less than 5s after removal of short circuit	The recovery time is less than 5s after removal of short circuit

## Over-voltage protection

Over-voltage protection	115%~135% of rated output voltage turns on over-voltage protection	115%~135% of rated output voltage turns on over-voltage protection
	Protection: Turn off the output. And the normal output need reboot to restore after removal of fault.	Protection: Turn off the output. And the normal output need reboot to restore after removal of fault.

Ambient conditions		
Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH	-30°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	-40°C~+85°C; 10%~95%RH

## Safety

Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC
Insulation Impedance	100MΩ Ohms/500VDC/25°C/70%RH	100MΩ Ohms/500VDC/25°C/70%RH

## Standards

Safety standards	Meet UL62368-1, EN62368-1,GB4943	Meet UL62368-1, EN62368-1,GB4943
EMC standards	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3

## Others

Dimensions(L/W/H mm)(see installation dimensions)	179 / 99 / 30	179 / 99 / 30
Quality	0.52Kg	0.52Kg

# GL Universal switching power supply

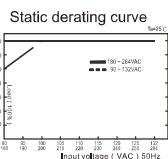
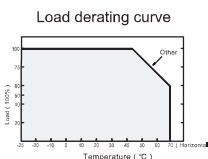
GL Universal switching power supply

**USP-350MSN-05G L**



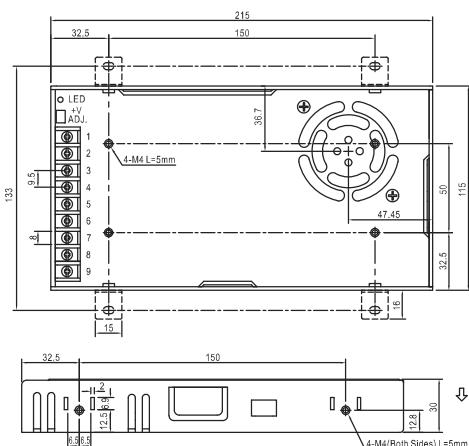
## Feature:

1. Input voltage range : 90~132VAC/176~264VAC
2. Input voltage range,DC : 240~370VDC
3. Protections:short circuit/over-load/over-voltage/over-temperature
4. Forced cooling by DC fan
- 5.100% full load aging test
6. Small size,light weight, and high efficiency
7. Power-on indication(LED)
- 8.Two-year warranty



## Dimensions

Unit : mm



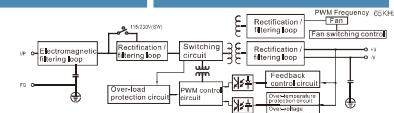
### Terminal Pin distribution

Pin No.	Distribution	Pin No.	Distribution
9	AC/N	4-6	DC OUTPUT -V
8	AC/L	1-3	DC OUTPUT +V
7	FG $\frac{1}{2}$		

### Notes:

- 1.All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
- 2.Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with 0.1uf & 47uf parallel capacitor.
- 3.The tolerance is the sum of the voltage setting error, the voltage adjustment rate and the current adjustment rate.
- 4.Linear regulation measurement method: low to high voltage test at rated load.
- 5.Load regulation measurement method: from 0% to 100% of rated load.
- 6.The power supply should be considered as part of the system components and is subject to EMC-related verification in conjunction with the terminal equipment.

## Electrical schematic



## Ordering data

Type	Order no.
USP-350MSN-05G L	462168
<b>Input data</b>	
Output voltage,DC	5V
Output voltage accuracy	$\pm 3\%$
Rated output current	60A
Output current range	0~60A
Output power	300W
Ripple and noise	150mVp-p
Setting range of voltage,DC	10%
Setup time/rise time/Hold up time	800ms,50ms,16ms/230V(Full load)
<b>Input data</b>	
Input voltage range	90~132VAC/180~264VAC,47~63Hz,240~373VDC
Input voltage ,AC	8A/115V 4A/230VAC
Efficiency	83.5%
Shock current	Turn on current,cooling 60A/230VAC
Leakage current	<2mA/240VAC
<b>Protections</b>	
Over-current protection	Rated output power 110%~140%
Short circuit protection	Protection:hiccup mode, The normal output can be restored automatically after removal of fault, 115%~135% of rated output voltage turns on over-voltage protection The recovery time is less than 5s after removal of short circuit
Over-temperature protection	100°C $\pm 10$ RTH3 detects near the magnet ring Protection: hiccup mode, Self-recovery after temperature is normal.
<b>Function</b>	
Fan switch control	RTH3 $\geq$ 50°C open, $\leq$ 40°C close
<b>Ambient conditions</b>	
Working temperature(see derating curve)	-25°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH
<b>Safety</b>	
Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC
Insulation Impedance	IP-O/P/FG,O/P/FG: 100MO Ohms/500VDC/25°C/70%RH
<b>Standards</b>	
Safety standards	Meet UL60950-1,TUV EN60950-1,GB4943
EMC standards	Meet EN55022(CLSPR22)/CLASS B, GB2254 CLASS B,EN55014,EN61000-3-2,3
<b>Others</b>	
Dimensions(L/W/H mm)(see installation dimensions)	215 / 115 / 30
Quality	0.70Kg

# USP-350W Switching power supply, single output

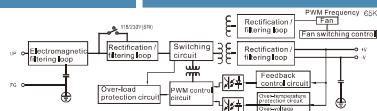
USP-350MSN-12G L



USP-350MSN-24G L



## Electrical schematic



## Ordering data

Type	Order no.	Type	Order no.
USP-350MSN-12G L	462169	USP-350MSN-24G L	462170

## Input data

Output voltage,DC	12V	24V
Output voltage accuracy	±1.5%	±1%
Rated output current	29A	14.6A
Output current range	0~29A	0~14.6A
Output power	348W	350.4W
Ripple and noise	150mVp-p	150mVp-p
Setting range of voltage,DC	10%	10%
Setup time/rise time/Hold up time	800ms,50ms,16ms/230V(Full load)	800ms,50ms,16ms/230V(Full load)

## Input data

Input voltage range	90~132VAC/180~264VAC,47~63Hz,240~373VDC	90~132VAC/180~264VAC,47~63Hz,240~373VDC
Input voltage ,AC	8A/115V 4A/230VAC	8A/115V 4A/230VAC
Efficiency	85%	87%
Shock current	Turn on current,cooling 60A/230VAC	Turn on current,cooling 60A/230VAC
Leakage current	< 2mA/240VAC	< 2mA/240VAC

## Protections

Over-current protection	Rated output power 110%~140%	Rated output power 110%~140%
Short circuit protection	Protection:hiccup mode. The normal output can be restored automatically after removal of fault. 115%~135% of rated output voltage turns on over-voltage protection. The recovery time is less than 5s after removal of short circuit	Protection:hiccup mode. The normal output can be restored automatically after removal of fault. 115%~135% of rated output voltage turns on over-voltage protection. The recovery time is less than 5s after removal of short circuit
Over-temperature protection	100°C ± 10% RTH3 detects near the magnet ring Protection: hiccup mode. Self-recovery after temperature is normal.	100°C ± 10% RTH3 detects near the magnet ring Protection: hiccup mode. Self-recovery after temperature is normal.

## Function

Fan switch control	RTH3≥50°C open,≤40°C close	RTH3≥50°C open,≤40°C close
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## Ambient conditions

Working temperature(see derating curve)	-25°C~+70°C; 20%~90%RH	-25°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH	-40°C~+85°C;10%~95%RH

## Safety

Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC
Insulation Impedance	I/P-O/P,I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH	I/P-O/P,I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH

## Standards

Safety standards	Meet UL60950-1,TUV EN60950-1,GB4943	Meet UL60950-1,TUV EN60950-1,GB4943
EMC standards	Meet EN55022(CLSPR22)CLASS B GB9254 ClassB,EN55014,EN61000-3-2.3	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3

## Others

Dimensions(L/W/H mm)(see installation dimensions)	215 / 115 / 30	215 / 115 / 30
Quality	0.70Kg	0.70Kg

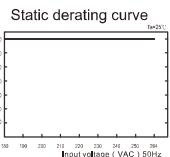
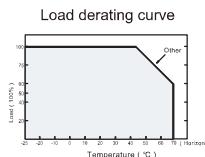
# GL Universal switching power supply

**USP-350MHN-05G L**



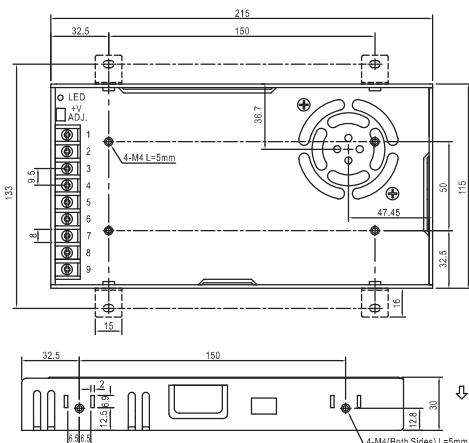
## Feature:

1. Input voltage range : 176~264VAC
2. Input voltage range,DC : 240~370VDC
3. Protections:short circuit/over-load/over-voltage/over-temperature
4. Forced cooling by DC fan
- 5.100% full load aging test
- 6.Small size,light weight,and high efficiency
- 7.Power-on indication(LED)
- 8.Two-year warranty



## Dimensions

Unit : mm



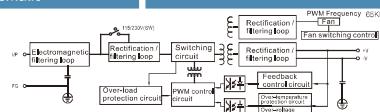
## Terminal Pin distribution

Pin No.	Distribution	Pin No.	Distribution
9	AC/N	4-6	DC OUTPUT -V
8	AC/L	1-3	DC OUTPUT +V
7	FG $\frac{1}{2}$		

## Notes:

- 1.All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
- 2.Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair wire terminated with 0.1uf & 47uf parallel capacitor.
- 3.The tolerance is the sum of the voltage setting error, the voltage adjustment rate and the current adjustment rate.
- 4.Linear regulation measurement method: low to high voltage test at rated load.
- 5.Load regulation measurement method: from 0% to 100% of rated load.
- 6.The power supply should be considered as part of the system components and is subject to EMC-related verification in conjunction with the terminal equipment.

## Electrical schematic



## Ordering data

Type	Order no.
USP-350MHN-05G L	462200
<b>Input data</b>	
Output voltage,DC	5V
Output voltage accuracy	$\pm 3\%$
Rated output current	60A
Output current range	0~60A
Output power	300W
Ripple and noise	150mVp-p
Setting range of voltage,DC	10%
Setup time	16ms/230V(Full load)
<b>Input data</b>	
Input voltage range	180~264VAC,47~63Hz,240~370VDC
Input voltage ,AC	3.4A/230VAC
Efficiency	83.5%
Shock current	Turn on current,cooling 60A/230VAC
Leakage current	<2mA/240VAC
<b>Protections</b>	
Over-current protection	Rated output power 110%~140%
Short circuit protection	Protection:hiccup mode. The nominal output can be restored automatically after removal of fault. 115%~135% of rated output voltage turns on over-voltage protection. The recovery time is less than 5s after removal of short circuit
Over-temperature protection	100°C $\pm 10\%$ RTH3 detects near the magnet ring Protection: hiccup mode. Self-recovery after temperature is normal.
<b>Function</b>	
Fan switch control	RTH3 $\geq 50^\circ\text{C}$ fan开启, $\leq 40^\circ\text{C}$ fan关断
<b>Ambient conditions</b>	
Working temperature(see derating curve)	-25°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH
<b>Safety</b>	
Withstand voltage	I/P-O/I/P-FG:2KVAC O/P-FG:0.5KVAC
Insulation Impedance	I/P-O/I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH
<b>Standards</b>	
Safety standards	Meet UL60950-1,TUV EN60950-1,GB4943
EMC standards	Meet EN55022(CISPR22)/CLASS B, GB9254 ClassB,EN50104,EN61000-3-2,3
<b>Others</b>	
Dimensions(L/W/H mm)(see installation dimensions)	215 / 115 / 30
Quality	0.70Kg

# USP-350W Switching power supply, single output

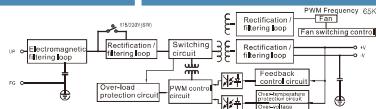
USP-350MHN-12G L



USP-350MHN-24G L



## Electrical schematic



## Ordering data

Type	Order no.	Type	Order no.
USP-350MHN-12G L	462201	USP-350MHN-24G L	462202

## Input data

Output voltage,DC	12V	24V
Output voltage accuracy	±1.5%	±1%
Rated output current	29A	14.6A
Output current range	0~29A	0~14.6A
Output power	348W	350.4W
Ripple and noise	150mV/p-p	150mV/p-p
Setting range of voltage,DC	10%	10%
Setup time	16ms/230V(Full load)	16ms/230V(Full load)

## Input data

Input voltage range	180~264VAC,47~63Hz,240~370VDC	180~264VAC,47~63Hz,240~370VDC
Input voltage ,AC	3.4A/230VAC	3.4A/230VAC
Efficiency	85%	87%
Shock current		

## Leakage current

Leakage current	<2mA/240VAC	<2mA/240VAC
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## Protections

Over-current protection	Rated output power 110%~140%	Rated output power 110%~140%
Short circuit protection	Protection: hiccup mode. The normal output can be restored automatically after removal of fault.	Protection: hiccup mode. The normal output can be restored automatically after removal of fault.

Short circuit protection	115%~135% of rated output voltage turns on over-voltage protection	115%~135% of rated output voltage turns on over-voltage protection
The recovery time is less than 5s after removal of short circuit.	The recovery time is less than 5s after removal of short circuit.	The recovery time is less than 5s after removal of short circuit.

Over-temperature protection	100°C ± 10% RTH3 detects near the magnet ring Protection: hiccup mode. Self-recovery after temperature is normal.	100°C ± 10% RTH3 detects near the magnet ring Protection: hiccup mode. Self-recovery after temperature is normal.
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## Function

Fan switch control	RTH3 ≥ 50°C fan open, ≤ 40°C fan off	RTH3 ≥ 50°C fan open, ≤ 40°C fan off
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## Ambient conditions

Working temperature(see derating curve)	-25°C~+70°C; 20%~90%RH	-25°C~+70°C; 20%~90%RH
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	-40°C~+85°C; 10%~95%RH

## Safety

Withstand voltage	I/P-O/P:3kVAC I/P-FG:2kVAC O/P-FG:0.5kVAC	I/P-O/P:3kVAC I/P-FG:2kVAC O/P-FG:0.5kVAC
Insulation Impedance	100MΩ Ohms/500VDC/25°C/70%RH	100MΩ Ohms/500VDC/25°C/70%RH

## Standards

Safety standards	Meet UL60950-1,TUV EN60950-1,GB4943	Meet UL60950-1,TUV EN60950-1,GB4943
EMC standards	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3	Meet EN55022(CLSPR22)CLASS B, GB9254 ClassB,EN55014,EN61000-3-2.3

## Others

Dimensions(L/W/H mm)(see installation dimensions)	215 / 115 / 30	215 / 115 / 30
Quality	0.70Kg	0.70Kg

# GL Universal switching power supply

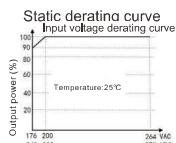
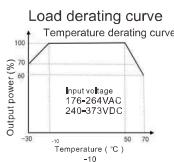
## Feature:

1. Input voltage range : 176~264VAC/240~370VDC
2. AC and DC (input voltage at same terminal)
3. Working temperature range : -20°C ~ +70°C
4. Power-on indication(LED)
5. Meet requirement of 5000 altitude
6. Equipped with DC fan forcing cooling air
7. Over-temperature/output short circuit/over-current/over-voltage protection

**USP-450MHN-12G L**

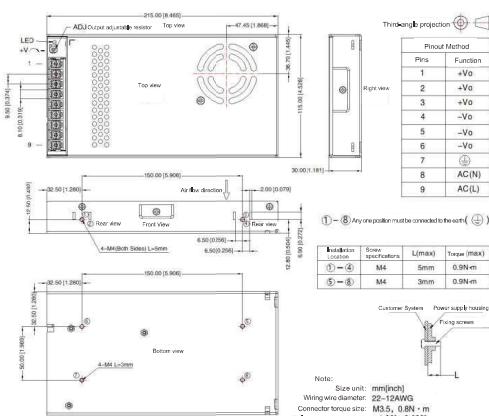


Electrical schematic



## Dimensions

Unit : mm



## Note :

1. All parameters are derived at Ta=25°C, humidity <75%RH, rated input voltage and rated output load unless otherwise stated.
2. To improve conversion efficiency, there may be some audio noise when the module is above the operating voltage, but this does not affect product performance or reliability.
3. When the product is used at the end, the housing needs to be connected to the system earth.
4. The ripple and noise test method is based on a reliance test, with 47UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to the output.
5. The power supply should be considered as part of the system components and all EMC tests need to be confirmed in conjunction with the terminal equipment.
6. Altitude above 2000 meters, low ambient environment 5°C/1000 meters
7. Over-temperature protection is tested at rated full load conditions.

Ordering data	Type	Order no.
	USP-450MHN-12G L	462221
<b>Input data</b>		
Output voltage,DC	12V	
Output voltage accuracy	± 1.5%	
Rated output current	37.5A	
Output current range	0~37.5A	
Output power	450W	
Ripple and noise	200mVp-p	
Setting range of voltage,DC	10.2~13.8V	
Hold up time	16ms/230V	
<b>Input data</b>		
Input voltage range	176~264VAC, 240~370VDC	
Input voltage ,AC	5A/230VAC	
Efficiency	85%	
Shock current	Turn on current,cooling 60A/230VAC	
Leakage current	2mA/240VAC	
<b>Protections</b>		
Over-current protection	The recovery time is less than 8s after removal of short circuit. Hiccup protection, short-circuit protection in long-term, self-recovery	
Short circuit protection	105%~180%,Hiccup protection, self-recovery	
Over-voltage protection	≤ 17.62V (Hiccup protection, self-recovery)	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	
<b>Safety</b>		
Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC	
Insulation Impedance	I/P-O/P/I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet GB4943.EN62368-1, BSEN62368-1,IEC/EN/UL623681	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	215 / 115 / 30	
Quality	0.75Kg	

USP-450MHN-24G L



USP-450MHN-36G L



Electrical schematic

Ordering data	Type	Order no.	Type	Order no.
	USP-450MHN-24G L	462222	USP-450MHN-36G L	462223
<b>Input data</b>				
Output voltage,DC	24V		36V	
Output voltage accuracy	±1%		±1%	
Rated output current	18.8A		12.5A	
Output current range	0~18.8A		0~12.5A	
Output power	600W		597.6W	
Ripple and noise	200mVp-p		200mVp-p	
Setting range of voltage,DC	21.6~28.8V		32.4~39.6V	
Hold up time	16ms/230V		16ms/230V	
<b>Input data</b>				
Input voltage range	176~264VAC, 240~370VDC		176~264VAC, 240~370VDC	
Input voltage ,AC	5A/230VAC		5A/230VAC	
Efficiency	87%		87.5%	
Shock current	Turn on current,cooling 60A/230VAC		Turn on current,cooling 60A/230VAC	
Leakage current	2mA/240VAC		2mA/240VAC	
<b>Protections</b>				
Over-current protection	The recovery time is less than 8s after removal of short circuit Hiccup protection, short-circuit protection in long-term, self-recovery		The recovery time is less than 8s after removal of short circuit Hiccup protection, short-circuit protection in long-term, self-recovery	
Short circuit protection	105%~180%Io,Hiccup protection, self-recovery		105%~180%Io,Hiccup protection, self-recovery	
Over-voltage protection	≤38V (Hiccup protection, self-recovery)		≤52V (Hiccup protection, self-recovery)	
<b>Ambient conditions</b>				
Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH		-30°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH		-40°C~+85°C;10%~95%RH	
<b>Safety</b>				
Withstand voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC		I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC	
Insulation Impedance	I/P-O/P/I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH		I/P-O/P/I/P-FG,O/P-FG: 100MΩ Ohms/500VDC/25°C/70%RH	
Standards	Meet GB4943,EN62368-1, BSEN62368-1,IEC/EN/UL623681		Meet GB4943,EN62368-1, BSEN62368-1,IEC/EN/UL623681	
Others				
Dimensions(L/W/H mm)(see installation dimensions)	215 / 115 / 30		215 / 115 / 30	
Quality	0.75Kg		0.75Kg	

# GL Universal switching power supply

## Feature:

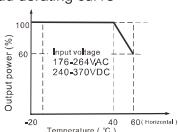
1. Input voltage range : 176~264VAC/240~370VDC
- 2.AC and DC (input voltage at same terminal)
- 3.Working temperature range : -20°C ~ +60°C
- 4.Power-on indication(LED)
- 5.Meet requirement of 5000 altitude
- 6.Equipped with DC fan forcing cooling air
- 7.Over-temperature/output short circuit/over-current/over-voltage protection

**USP-600MHN-12G L**

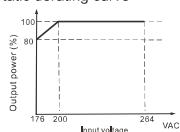


Electrical schematic

Load derating curve

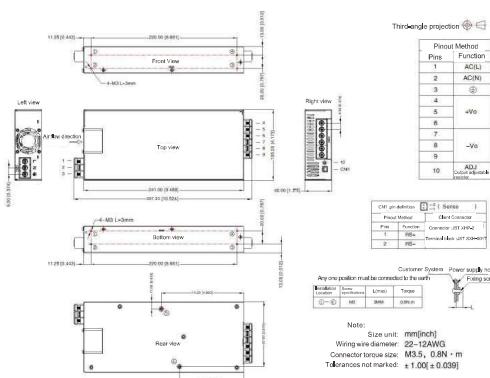


Static derating curve



Dimensions

Unit : mm



## Note :

- 1.All parameters are derived at Ta=25°C, humidity <75%RH, rated input voltage and rated output load unless otherwise stated
- 2.To improve conversion efficiency, there may be some audio noise when the module is above the operating voltage, but this does not affect product performance or reliability.
- 3.When the product is used at the end, the housing needs to be connected to the system earth.
- 4.The ripple and noise test method is based on a reliance test, with 47UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to the output.
- 5.The power supply should be considered as part of the system components and all EMC tests need to be confirmed in conjunction with the terminal equipment.
- 6.Attitude above 2000 meters, low ambient environment 5°C/1000 meters
- 7.Over-temperature protection is tested at rated full load conditions.

Ordering data	Type	Order no.
	USP-600MHN-12G L	462224
<b>Input data</b>		
Output voltage,DC	12V	
Output voltage accuracy	±1%	
Rated output current	50A	
Output current range	0~50A	
Output power	600W	
Ripple and noise	150mVp-p	
Setting range of voltage,DC	10~13.5V	
Hold up time	20ms/230VAC	
<b>Input data</b>		
Input voltage range	176~264VAC, 240~370VDC	
Input voltage ,AC	7.5A/230VAC	
Efficiency	85%	
Shock current	Turn on current,cooling 60A/230VAC	
Leakage current	2mA/240VAC	
<b>Protections</b>		
Over-current protection	The recovery time is less than 8s after removal of short circuit. Hiccup protection, short-circuit protection in long-term, self-recovery.	
Short circuit protection	105%-180%, Hiccup protection, self-recovery	
Over-voltage protection	<16.2V (hiccup protection, self-recovery)	
	70°C (Setup over-temperature protection)	
	40°C (Lift over-temperature protection)	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-20°C~+60°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	
<b>Safety</b>		
Withstand voltage	IP-O/P:3kVAC IP-FG:1.5kVAC O/P-FG:0.5kVAC	
Insulation Impedance	IP-O/P/FG,O/P-FG: 50MΩ Ohms/500VDC/25°C/70%RH	
Standards	Meet GB4943.IS13252(Part1)&EN62368-1, BSEN62368-1 IEC/EN/UL62368-1	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	267.3 / 106 / 40	
Quality	1.1Kg	

USP-600MHN-24G L



USP-600MHN-36G L



## Electrical schematic

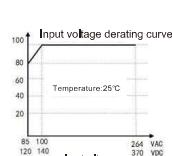
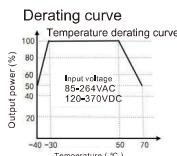
Ordering data	Type	Order no.	Type	Order no.
	USP-600MHN-24G L	462225	USP-600MHN-36G L	462226
<b>Input data</b>				
Output voltage,DC	24V		36V	
Output voltage accuracy	±1%		±1%	
Rated output current	25A		16.6A	
Output current range	0~25A		0~16.6A	
Output power	600W		597.6W	
Ripple and noise	150mVp-p		200mVp-p	
Setting range of voltage,DC	22~26.4V		32~40V	
Hold up time	20ms/230VAC		20ms/230VAC	
<b>Input data</b>				
Input voltage range	176~264VAC, 240~370VDC		176~264VAC, 240~370VDC	
Input voltage ,AC	7.5A/230VAC		7.5A/230VAC	
Efficiency	87%		87%	
Shock current	Turn on current,cooling 60A/230VAC		Turn on current,cooling 60A/230VAC	
Leakage current	2mA/240VAC		2mA/240VAC	
<b>Protections</b>				
Over-current protection	The recovery time is less than 8s after removal of short circuit Hiccup protection, short-circuit protection in long-term, self-recovery		The recovery time is less than 8s after removal of short circuit Hiccup protection, short-circuit protection in long-term, self-recovery	
Short circuit protection	105%~180%I <sub>o</sub> ,Hiccup protection, self-recovery		105%~180%I <sub>o</sub> ,Hiccup protection, self-recovery	
Over-voltage protection	<32.4V (Hiccup protection, self-recovery) 70°C (Setup over-temperature protection) 40°C (Lift over-temperature protection)		<50V (Hiccup protection, self-recovery) 70°C (Setup over-temperature protection) 40°C (Lift over-temperature protection)	
<b>Ambient conditions</b>				
Working temperature(see derating curve)	-20°C~+60°C; 20%~90%RH		-20°C~+60°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH		-40°C~+85°C;10%~95%RH	
<b>Safety</b>				
Withstand voltage	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC		I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC	
Insulation Impedance	I/P-O/P I/P-FG, O/P-FG: 50MΩ Ohms/500VDC/25°C/70%RH		I/P-O/P I/P-FG, O/P-FG: 50MΩ Ohms/500VDC/25°C/70%RH	
Standards	Meet GB4943,IS13252[Part1]&EN62368-1, BSEN62368-1,IEC/EN/UL623681		Meet GB4943,IS13252[Part1]&EN62368-1, BSEN62368-1,IEC/EN/UL623681	
Others				
Dimensions(L/W/H mm)(see installation dimensions)	267.3 / 106 / 40		267.3 / 106 / 40	
Quality	1.1Kg		1.1Kg	

# DN Rails switching power supply

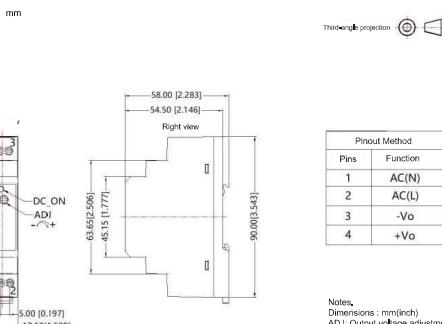
## Feature:

1. Input voltage range : 176~264VAC/240~370VDC
2. AC and DC (input voltage at same terminal)
3. Working temperature range : -40°C ~ +70°C
4. 4000VAC High isolation voltage
5. Low ripple and noise
6. Installed on TH-35/7.5/15
7. Low standby power consumption and high efficiency
8. Meet UL/IEC623689、IEC/EN61010 standard
9. Derating curve UL/IEC62368、IEC/EN61010

**USP-15PFN-05DN**



## Installation dimension



Notes:  
Dimensions: mm(inch)  
ADJ: Output voltage adjustment knob  
Wiring range: 24~240VAC  
Tightening torque: Max 0.4 N.m  
Rail type: T35/7.5, rail to rail connected  
Tolerances not marked ±1.00 (±0.039)

- Note :
1. All parameters are derived at Ta=25°C, humidity <75%RH, rated input voltage and rated output load unless otherwise stated
  2. To improve conversion efficiency, there may be some audio noise when the module is above the operating voltage, but this does not affect product performance or reliability.
  3. When the product is used at the end, the housing needs to be connected to the system earth.
  4. The ripple and noise test method is based on a reliance test, with 47UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to the output.
  5. The power supply should be considered as part of the system components and all EMC tests need to be confirmed in conjunction with the terminal equipment.

Electrical schematic

Ordering data	Type	Order no.
USP-15PFN-05DN	462203	
<b>Input data</b>		
Output voltage,DC	5V	
Output voltage accuracy	±2%	
Rated output current	2.4A	
Output current range	0~2.4A	
Output power	15W	
Ripple and noise	80mVp-p	
Setting range of voltage,DC	4.5~5.5V	
Hold up time	12ms/115VAC, 30ms/230VAC	
<b>Input data</b>		
Input voltage range	85~264VAC /127~370VDC	
Input voltage ,AC	0.5A/115VAC/0.25A/230VAC	
Efficiency	80%	
Shock current	Turn on current, cooling 25A/115VAC 15A/230VAC	
Leakage current	<0.5mA/240VAC	
<b>Protections</b>		
Over-current protection	The recovery time is less than 8s after removal of short circuit	
	Short-circuit protection in long-term, self-recovery	
Short circuit protection	>110% Self-recovery after removal of load	
	230VAC, Related load	
Over-voltage protection	<6.75V (Output voltage clamp or hiccup)	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	
<b>Safety</b>		
Withstand voltage	I/P>O/P: 4kVAC	
Insulation Impedance	I/P-O/P: 100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC62368-1,UL/IEC62368-1	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	90 / 17.5 / 58	
Quality	0.06Kg	

USP-15PFN-12DN



USP-15PFN-24DN



Electrical schematic

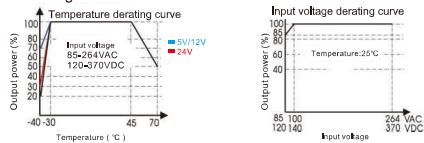
Ordering data	Type	Order no.	Type	Order no.
	USP-15PFN-12DN	462204	USP-15PFN-24DN	462205
<b>Input data</b>				
Output voltage,DC	12V		24V	
Output voltage accuracy	±1%		±1%	
Rated output current	1.25A		0.63A	
Output current range	0~1.25A		0~0.63A	
Output power	24W		36W	
Ripple and noise	120mVpp		150mVpp	
Setting range of voltage,DC	10.8~13.8V		21.6~29V	
Hold up time	12ms/115VAC, 30ms/230VAC		12ms/115VAC, 30ms/230VAC	
<b>Input data</b>				
Input voltage range	85~264VAC /127~370VDC		85~264VAC /127~370VDC	
Input voltage, AC	0.5A/115VAC/0.25A/230VAC		0.5A/115VAC/0.25A/230VAC	
Efficiency	85%		86%	
Shock current				
Leakage current	<0.5mA/240VAC		<0.5mA/240VAC	
<b>Protections</b>				
Over-current protection	The recovery time is less than 8s after removal of short circuit		The recovery time is less than 8s after removal of short circuit	
	Short-circuit protection in long-term , self-recovery		Short-circuit protection in long-term , self-recovery	
Short circuit protection	≥ 110% Self-recovery after removal of load		≥ 110% Self-recovery after removal of load	
	230VAC Related load		230VAC Related load	
Over-voltage protection	≤ 16.2V (Output voltage clamp or hiccup)		≤ 36V (Output voltage clamp or hiccup)	
<b>Ambient conditions</b>				
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH		-40°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH		-40°C~+85°C;10%~95%RH	
<b>Safety</b>				
Withstand voltage	I/P-O/P:4kVAC		I/P-O/P:4kVAC	
Insulation Impedance	I/P-O/P:100MΩ Ohms/500VDC/25°C/70%RH		I/P-O/P:100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>				
Safety standards	Meet IEC62368-1,UL,IEC62368-1		Meet IEC62368-1,UL,IEC62368-1	
<b>Others</b>				
Dimensions(L/W/H mm)(see installation dimensions)	90 / 17.5 / 58		90 / 17.5 / 58	
Quality	0.06Kg		0.06Kg	

# DN Rails switching power supply

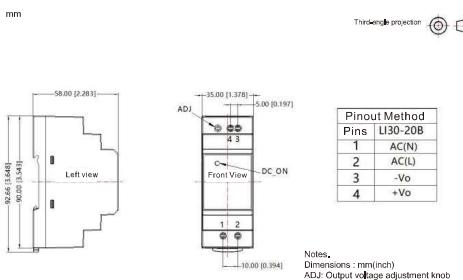
## Feature:

1. Input voltage range : 85~264VAC/127~370VDC
2. AC and DC (input voltage at same terminal)
3. Working temperature range : -40°C ~ +70°C
4. 4000VAC High isolation voltage
5. Low ripple and noise
6. Installed on TH-35/7.5/15
7. Input over-voltage resistance: input 300VAC lasts 5 without damage
8. Output short circuit/over-current/over-voltage/over-temperature protection
9. Derating curve EN61558

## Derating curve



## Installation dimension



**Note :**  
 1.All parameters are derived at Ta=25°C, humidity <75%RH, rated input voltage and rated output load unless otherwise stated  
 2.To improve conversion efficiency, there may be some audio noise when the module is above the operating voltage, but this does not affect product performance or reliability.  
 3.When the product is used at the end, the housing needs to be connected to the system earth.  
 4.The ripple and noise test method is based on a reliance test, with 47UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to the output.  
 5.The power supply should be considered as part of the system components and all EMC tests need to be confirmed in conjunction with the terminal equipment.

**USP-30PFN-05DN**



Electrical schematic

Ordering data	Type	Order no.
USP-30PFN-05DN	462206	
<b>Input data</b>		
Output voltage,DC	5V	
Output voltage accuracy	±2%	
Rated output current	3A	
Output current range	0~3A	
Output power	15W	
Ripple and noise	80mVp-p	
Setting range of voltage,DC	4.9~5.5V	
Hold up time	12ms/115VAC, 60ms/230VAC	
<b>Input data</b>		
Input voltage range	85~264VAC /127~370VDC	
Input voltage ,AC	0.9A/115VAC/0.5A/230VAC	
Efficiency	82%	
Shock current	Turn on current, cooling 25A/115VAC 45A/230VAC	
Leakage current	<0.5mA/240VAC	
<b>Protections</b>		
Over-current protection	The recovery time is less than 8s after removal of short circuit	
Short circuit protection	Short-circuit protection in long-term, self-recovery >120% to Self-recovery after removal of load 230VAC, related load	
Over-voltage protection	<7.5V (Output voltage clamp or hiccup)	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	
<b>Safety</b>		
Withstand voltage	I/P>O/P: 4kVAC	
Insulation Impedance	I/P-O/P: 100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC62368-1, UL/IEC62368-1	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	92.66 / 35 / 58	
Quality	0.115Kg	

USP-30PFN-12DN



USP-30PFN-24DN



Electrical schematic

Ordering data	Type	Order no.	Type	Order no.
	USP-30PFN-12DN	462207	USP-30PFN-24DN	462208
<b>Input data</b>				
Output voltage,DC	12V		24V	
Output voltage accuracy	±2%		±2%	
Rated output current	2A		1.5A	
Output current range	0~2A		0~1.5A	
Output power	24W		36W	
Ripple and noise	120mVp-p		150mVp-p	
Setting range of voltage,DC	10.8~13.8V		21.6~29V	
Hold up time	12ms/115VAC,60ms/230VAC		12ms/115VAC,60ms/230VAC	
<b>Input data</b>				
Input voltage range	85~264VAC /127~370VDC		85~264VAC /127~370VDC	
Input voltage, AC	0.9A/115VAC/0.5A/230VAC		0.9A/115VAC/0.5A/230VAC	
Efficiency	88%		88%	
Shock current	Turn on current,cooling 25A/115VAC 45A/230VAC		Turn on current,cooling 25A/115VAC 115A/230VAC	
Leakage current	<0.5mA/240VAC		<0.5mA/240VAC	
<b>Protections</b>				
Over-current protection	The recovery time is less than 8s after removal of short circuit Short-circuit protection in long-term , self-recovery		The recovery time is less than 8s after removal of short circuit Short-circuit protection in long-term , self-recovery	
Short circuit protection	≥ 120% Self-recovery after removal of load 230VAC,Related load		≥ 120% Self-recovery after removal of load 230VAC,Related load	
Over-voltage protection	< 16V (Output voltage clamp or hiccup)		< 36V (Output voltage clamp or hiccup)	
<b>Ambient conditions</b>				
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH		-40°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH		-40°C~+85°C;10%~95%RH	
<b>Safety</b>				
Withstand voltage	I/P-O/P:4kVAC		I/P-O/P:4kVAC	
Insulation Impedance	I/P-O/P:100MΩ Ohms/500VDC/25°C/70%RH		I/P-O/P:100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>				
Safety standards	Meet IEC62368-1,UL,IEC62368-1		Meet IEC62368-1,UL,IEC62368-1	
<b>Others</b>				
Dimensions(L/W/H mm)(see installation dimensions)	92.66 / 35 / 58		92.66 / 35 / 58	
Quality	0.115Kg		0.115Kg	

# DN Rails switching power supply

## Feature:

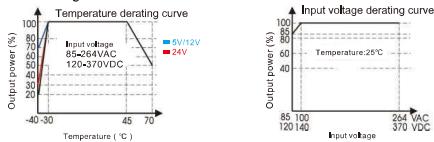
1. Input voltage range : 85~264VAC/127~370VDC
2. AC and DC (input voltage at same terminal)
3. Working temperature range : -40°C ~ +70°C
4. 4000VAC High isolation voltage
5. Low ripple and noise
6. Installed on TH-35/7.5/15
7. Input over-voltage resistance: input 300VAC lasts 5 without damage
8. Output short circuit/over-current/over-voltage/over-temperature protection
9. Derating curve EN61558

**USP-60PFN-05DN**



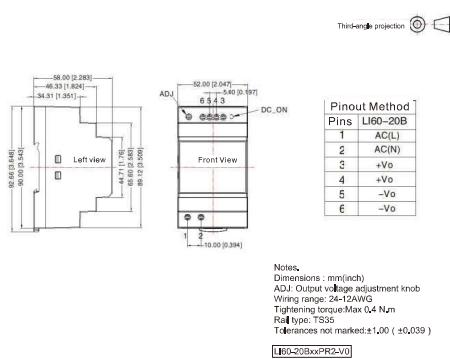
Electrical schematic

## Derating curve



## Installation dimension

mm



Notes:  
Dimensions : mm (inch)  
Adj. Output voltage adjustment knob  
Wiring range: 24-12AWG  
Tightening torque:Max 0.4 N.m  
Rail type: TS35  
Tolerances not marked: ±1.00 ( ±0.039 )

L60-20BxPR2xV0

## Note :

1. All parameters are derived at Ta=25°C, humidity <75%RH, rated input voltage and rated output load unless otherwise stated
2. To improve conversion efficiency, there may be some audio noise when the module is above the operating voltage, but this does not affect product performance or reliability.
3. When the product is used at the end, the housing needs to be connected to the system earth.
4. The ripple and noise test method is based on a reliance test, with 47UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to the output.
5. The power supply should be considered as part of the system components and all EMC tests need to be confirmed in conjunction with the terminal equipment.

Ordering data	Type	Order no.
	USP-60PFN-05DN	462209
<b>Input data</b>		
Output voltage,DC	5V	
Output voltage accuracy	±2%	
Rated output current	6.5A	
Output current range	0~6.5A	
Output power	32.5W	
Ripple and noise	100mVpp	
Setting range of voltage,DC	4.9-5.5V	
Hold up time	15ms/115VAC, 80ms/230VAC	
<b>Input data</b>		
Input voltage range	85~264VAC /127~370VDC	
Input voltage ,AC	1.2A/115VAC/0.8A/230VAC	
Efficiency	84%	
Shock current	Turn on current,cooling 30A/115VAC 60A/230VAC	
Leakage current	<0.5mA/240VAC	
<b>Protections</b>		
Over-current protection	The recovery time is less than 8s after removal of short circuit	
Short circuit protection	Short-circuit protection in long-term , self-recovery >120% to Self-recovery after removal of load 230VAC,related load	
Over-voltage protection	<7.5V (Output voltage clamp or hiccup)	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH	
<b>Safety</b>		
Withstand voltage	I/P>O/P:4kVAC	
Insulation Impedance	I/P-O/P:100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC61325[Part1]&EN62368-1,UL/IEC62368-1	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	92.66 / 52 / 58	
Quality	0.175Kg	

USP-60PFN-12DN



USP-60PFN-24DN



Electrical schematic

Ordering data	Type	Order no.	Type	Order no.
	USP-60PFN-12DN	462210	USP-60PFN-24DN	462211
<b>Input data</b>				
Output voltage,DC	12V		24V	
Output voltage accuracy	±2%		±2%	
Rated output current	4.5A		2.5A	
Output current range	0~4.5A		0~2.5A	
Output power	54W		60W	
Ripple and noise	120mVp-p		150mVp-p	
Setting range of voltage,DC	10.8~13.8V		21.6~29V	
Hold up time	15ms/115VAC,80ms/230VAC		15ms/115VAC,80ms/230VAC	
<b>Input data</b>				
Input voltage range	85~264VAC /127~370VDC		85~264VAC /127~370VDC	
Input voltage ,AC	1.2A/115VAC/0.8A/230VAC		1.2A/115VAC/0.8A/230VAC	
Efficiency	88%		90%	
Shock current	Turn on current,cooling 30A/115VAC 60A/230VAC		Turn on current,cooling 30A/115VAC 60A/230VAC	
Leakage current	<0.5mA/240VAC		<0.5mA/240VAC	
<b>Protections</b>				
Over-current protection	The recovery time is less than 8s after removal of short circuit Short-circuit protection in long-term , self-recovery		The recovery time is less than 8s after removal of short circuit Short-circuit protection in long-term , self-recovery	
Short circuit protection	≥120% Self-recovery after removal of load 230VAC,Related load		≥120% Self-recovery after removal of load 230VAC,Related load	
Over-voltage protection	<16V (Output voltage clamp or hiccup)		<36V (Output voltage clamp or hiccup)	
<b>Ambient conditions</b>				
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH		-40°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH		-40°C~+85°C;10%~95%RH	
<b>Safety</b>				
Withstand voltage	I/P-O/P:4kVAC		I/P-O/P:4kVAC	
Insulation Impedance	I/P-O/P:100MΩ Ohms/500VDC/25°C/70%RH		I/P-O/P:100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>				
Safety standards	Meet IEC62368-1,UL,IEC62368-1		Meet IEC62368-1,UL,IEC62368-1	
<b>Others</b>				
Dimensions(L/W/H mm)(see installation dimensions)	92.66 / 52 / 58		92.66 / 52 / 58	
Quality	0.175Kg		0.175Kg	

# DN Rails switching power supply

## Feature:

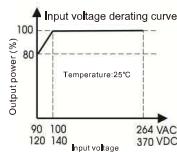
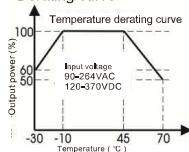
1. Input voltage range : 90~264VAC/127~370VDC
2. AC and DC (input voltage at same terminal)
3. Working temperature range : -30°C ~ +70°C
4. 4000VAC High isolation voltage
5. Low ripple and noise
6. Installed on TH-35/7.5/15
7. Small size; for installation and use of small chassis and narrow space
8. Output short circuit/over-current/over-voltage/over-temperature protection
9. Derating curve EN61558

**USP-75MFN-12DN**



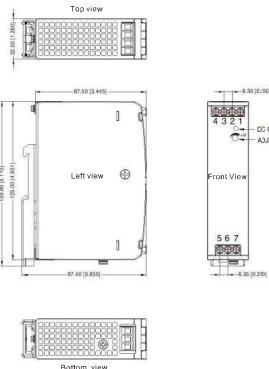
Electrical schematic

## Derating curve



## Installation dimension

mm



Pinout Method	
Pins	Function
1	-Vo
2	-Vo
3	+Vo
4	+Vo
5	AC(N)
6	AC(L)
7	

Notes:  
Dimensions : mm(inch)  
ADJ: Output voltage adjustment knob  
Wiring : 26~370VAC  
Tightening torque:Max 0.79 μn  
Rail type: Ta35  
Tolerances not marked: $\pm 1.00$  ( $\pm 0.039$ )

## Note :

1. All parameters are derived at Ta=25°C, humidity <75%RH, rated input voltage and rated output load unless otherwise stated
2. To improve conversion efficiency, there may be some audio noise when the module is above the operating voltage, but this does not affect product performance or reliability.
3. When the product is used at the end, the housing needs to be connected to the system earth.
4. The ripple and noise test method is based on a reliance test, with 47UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to the output.
5. The power supply should be considered as part of the system components and all EMC tests need to be confirmed in conjunction with the terminal equipment.

Ordering data	Type	Order no.
	USP-75MFN-12DN	462212
<b>Input data</b>		
Output voltage,DC	12V	
Output voltage accuracy	$\pm 2\%$	
Rated output current	6.3A	
Output current range	0~6.3A	
Output power	75.6W	
Ripple and noise	80mVp-p	
Setting range of voltage,DC	12~14V	
Hold up time	12ms/115VAC, 60ms/230VAC	
<b>Input data</b>		
Input voltage range	90~264VAC /127~370VDC	
Input voltage ,AC	2A/115VAC/1A/230VAC	
Efficiency	86%	
Shock current	Turn on current,cooling 45A/115VAC 25A/230VAC	
Leakage current	<0.5mA/240VAC	
<b>Protections</b>		
Over-current protection	The recovery time is less than 8s after removal of short circuit	
Short circuit protection	Short-circuit protection in long-term , self-recovery Over-current protection/high temperature : 105%~150% Constant current related to load. Self-recovery after removal of load(230VAC related load)	
Over-voltage protection	Over-current protection/high temperature : 105%~150% Constant current related to load. Self-recovery after removal of load(230VAC related load)	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	
<b>Safety</b>		
Withstand voltage	I/P-O/P: 4kVAC I/F-FG: 2kVAC O/P-FG: 0.5kVAC	
Insulation Impedance	I/P-O/P:100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC62368-1,UL61010-1	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	87.5 / 32 / 125	
Quality	0.35Kg	

**USP-75MFN-24DN**

Electrical schematic

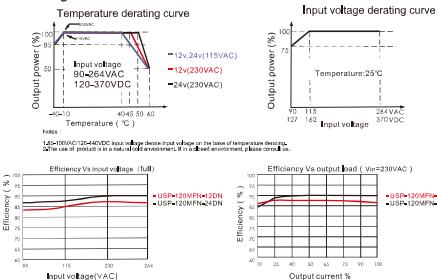
Ordering data	Type	Order no.
	USP-75MFN-24DN	462213
<b>Input data</b>		
Output voltage,DC	24V	
Output voltage accuracy	±1%	
Rated output current	3.2A	
Output current range	0~3.2A	
Output power	76.8W	
Ripple and noise	120mVpp	
Setting range of voltage,DC	24~28V	
Hold up time	12ms/115VAC, 60ms/230VAC	
<b>Input data</b>		
Input voltage range	90~264VAC /127~370VDC	
Input voltage ,AC	2A/115VAC/1A/230VAC	
Efficiency	89%	
Shock current	Turn on current,cooling 45A/115VAC 25A/230VAC	
Leakage current	<0.5mA/240VAC	
<b>Protections</b>		
Over-current protection	The recovery time is less than 8s after removal of short circuit Short-circuit protection in long-term , self-recovery Over-current protection/high temperature : 105%~150%Io Constant current mode, Self-recovery after removal of load(230VAC rated load) Over-current protection/low/high temperature : ≥105%Io Constant current mode, Self-recovery after removal of load(230VAC rated load)	
Short circuit protection		
Over-voltage protection	<33V (Off output voltage, and recover input) Off output voltage, and recover after temperature drop	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-30°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	
<b>Safety</b>		
Withstand voltage	IP-O/P: 4KVAC IP-FG: 2KVAC O/P-FG: 0.5KVAC	
Insulation Impedance	IP-O/P:100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC13252(Part1)&EN62368-1,UL61010-1	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	87.5 / 32 / 125	
Quality	0.35Kg	

# DN Rails switching power supply

## Feature:

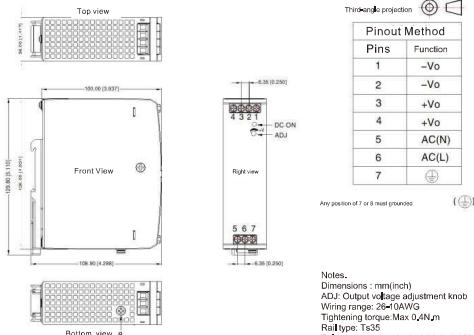
1. Input voltage range : 90~264VAC/127~370VDC
2. AC and DC (input voltage at same terminal)
3. Working temperature range : -20°C ~ +60°C
4. 4.000VAC High isolation voltage
5. Low ripple and noise
6. Installed on TH-35/7.5/15
7. Low standby power consumption and high efficiency
8. Output short circuit/over-current/over-voltage/over-temperature protection
9. Meet IEC/UL/BS EN62368 standards

## Derating curve



## Installation dimension

mm



### Note :

1. All parameters are derived at Ta=25°C, humidity <75%RH, rated input voltage and rated output load unless otherwise stated
2. To improve conversion efficiency, there may be some audio noise when the module is above the operating voltage, but this does not affect product performance or reliability.
3. When the product is used at the end, the housing needs to be connected to the system earth.
4. The ripple and noise test method is based on a reliance test, with 47UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to the output.
5. The power supply should be considered as part of the system components and all EMC tests need to be confirmed in conjunction with the terminal equipment.

## USP-120MFN-12DN



Electrical schematic

Ordering data	Type	Order no.
USP-120MFN-12DN	462214	
<b>Input data</b>		
Output voltage,DC	12V	
Output voltage accuracy	±2%	
Rated output current	10A	
Output current range	0~10A	
Output power	120W	
Ripple and noise	100mVpp	
Setting range of voltage,DC	12~14V	
Hold up time	8ms/115VAC,16ms/230VAC	
<b>Input data</b>		
Input voltage range	90~264VAC /127~370VDC	
Input voltage ,AC	2.7A/115VAC/1.6A/230VAC	
Efficiency	85%	
Shock current	Turn on current,cooling 30A/115VAC 55A/230VAC	
Leakage current	<1mA/240VAC	
<b>Protections</b>		
Over-current protection	The recovery time is less than 8s after removal of short circuit	
Short circuit protection	Short-circuit protection in long-term , self-recovery	
Short circuit protection	Over-current protection(high temperature : 105%~150% of constant current self-recovery after removal of heat(230VAC related heat))	
Over-voltage protection	Over-current protection[high temperature : ≥105% of constant current mode self-recovery after removal of heat(230VAC related heat)]	
Over-voltage protection	<17V (Off output voltage, and recover input)	
Ambient conditions	Off output voltage, and recover after temperature drop	
Working temperature(see derating curve)	-20°C~+60°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH	
<b>Safety</b>		
Withstand voltage	IP(O/P): 4kVAC IP(FG): 2kVAC O/P(FG): 0.5kVAC	
Insulation Impedance	IP(O/P):100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC13252(Part1)&EN62368-1, IEC/UL/BS EN62368-1, UL61010-1, UL508	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	100 / 36 / 125	
Quality	0.41Kg	

**USP-120MFN-24DN**

Electrical schematic

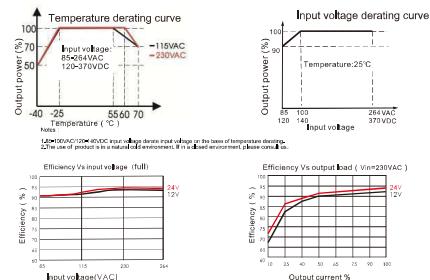
Ordering data	Type	Order no.
	USP-120MFN-24DN	462215
<b>Input data</b>		
Output voltage,DC	24V	
Output voltage accuracy	±1%	
Rated output current	5A	
Output current range	0~5A	
Output power	120W	
Ripple and noise	120mVp-p	
Setting range of voltage,DC	24~28V	
Hold up time	8ms/115VAC, 16ms/230VAC	
<b>Input data</b>		
Input voltage range	90~264VAC /127~370VDC	
Input voltage ,AC	2.7A/115VAC/1.6A/230VAC	
Efficiency	88%	
Shock current	Turn on current,cooling 30A/115VAC 55A/230VAC	
Leakage current	<1mA/240VAC	
<b>Protections</b>		
Over-current protection	The recovery time is less than 8s after removal of short circuit Short-circuit protection in long-term , self-recovery Over-current protection/high temperature : 105%~150%Io Constant current mode, Self-recovery after removal of load(230VAC rated load) Over-current protection/low/high temperature : ≥105%Io Constant current mode, Self-recovery after removal of load(230VAC rated load)	
Short circuit protection	<33V (Off output voltage, and recover input)	
Over-voltage protection	Off output voltage, and recover after temperature drop	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-20°C~+60°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	
<b>Safety</b>		
Withstand voltage	IP(O/P: 4KVAC IP(FG: 2KVAC O/P(FG: 0.5KVAC	
Insulation Impedance	IP(O/P: 100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC13252(Part1)&EN62368-1,IEC/UL/BS EN62368-1, UL61010-1,UL508	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	100 / 36 / 125	
Quality	0.41Kg	

# DN rails switching power supply

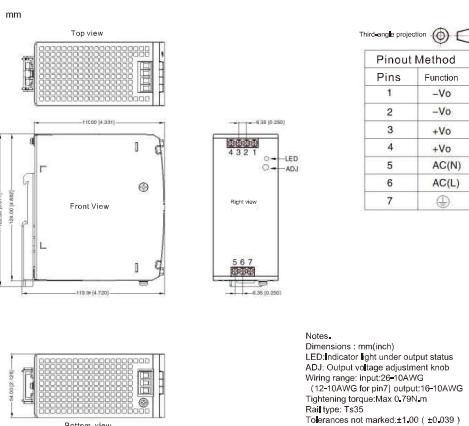
## Feature:

1. Input voltage range : 90~264VAC/127~370VDC
2. AC and DC (input voltage at same terminal)
3. Working temperature range : -40°C to +70°C
4. Efficiency up to 94% and high reliability
5. DC OK function
6. Active PFC
7. 150% peak power lasts output for 3s.
8. Output short circuit/over-current/over-voltage/over-temperature protection
9. Meet IEC/UL/BS EN62368 standards

## Derating curve



## Installation dimension



## USP-120MFA-12DXN



Electrical schematic

Ordering data	Type	Order no.
USP-120MFA-12DXN	462234	
<b>Input data</b>		
Output voltage,DC	12V	
Output voltage accuracy	±1%	
Rated output current	10A	
Output current range	0~10A	
Output power	120W	
Ripple and noise	100mVpp	
Setting range of voltage,DC	11.8~14V	
Hold up time	20ms/230VAC	
DC OK function	30VDC/1A. May work when the output voltage is normal, the relay node is closed. When it is abnormal (<90%Vo), the relay node is disconnected.	
<b>Input data</b>		
Input voltage range	90~264VAC / 127~370VDC	
Input voltage ,AC	1.5A/115VAC/0.75A/230VAC	
Efficiency	93.5%	
Shock current	Turn on current, cooling 15A/115VAC 30A/230VAC	
Leakage current	<1mA/240VAC	
<b>Protections</b>		
Over-current protection	The recovery time is 10s after removal of short circuit/Hiccup mode. Constant current Works for 1s, off for 10s. Short-circuit protection in long-term, self-recovery Over-current protection/high temperature : 105%~150% self-recovery Over-current protection/low/high temperature : ≥105% self-recovery	
Short circuit protection		
Over-voltage protection	\$18VDC self-recovery after removal of fault ; 220VDC self-recovery, and recover after temperature drop Off output voltage and recover after temperature drop	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH non condensing	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH non condensing	
<b>Safety</b>		
Withstand voltage	I/P/O/P:3kVAC I/P-FG:1.5kVAC O/P-FG: 0.5kVAC	
Insulation Impedance	I/P-O/P:50MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC/UL/BS EN62368-1, UL61010-1,UL61010-2-201	
<b>Others</b>		
Dimensions(LWH mm)(see installation dimensions)	110 / 32 / 128	
Quality	0.49Kg	

**USP-120MFA-24DXN**

Electrical schematic

Ordering data	Type	Order no.
	USP-120MFA-24DXN	462235
<b>Input data</b>		
Output voltage,DC	24V	
Output voltage accuracy	±1%	
Rated output current	5A	
Output current range	0~5A	
Output power	120W	
Ripple and noise	200mVpp	
Setting range of voltage,DC	23.5~28V	
Hold up time	20ms/230VAC	
DC Ok function		
<b>Input data</b>		
Input voltage range	90~264VAC /127~370VDC	
Input voltage .AC	1.5A/115VAC/0.75A/230VAC	
Efficiency	94%	
Shock current		
Leakage current	<1mA/240VAC	
<b>Protections</b>		
Over-current protection	The recovery time is 10s after removal of short circuit,Hiccup mode,Constant current Works for 1s, off for 10s,Short-circuit protection in long-term, self-recovery	
Short circuit protection	Over-current protection/high temperature : 105%~200% self-recovery Over-current protection/low/high temperature : >105% self-recovery	
Over-voltage protection	≤185V, self-recovery after removal of fault ) ≤235V (Off output voltage, and recover after temperature drop ) Off output voltage, and recover after temperature drop	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH non condensing	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH non condensing	
<b>Safety</b>		
Withstand voltage	I/P-O/P:3kVAC I/P-FG:1.5kVAC O/P-FG:0.5kVAC	
Insulation Impedance	I/P-O/P:50MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC/UL/BS EN62368-1, UL61010-1,UL61010-2-201	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	110 / 32 / 128	
Quality	0.49kg	

# DN rails switching power supply

## Feature:

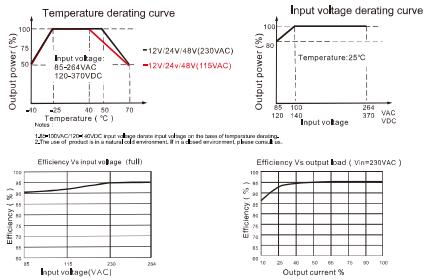
1. Input voltage range : 85~264VAC/120~370VDC
2. AC and DC (input voltage at same terminal)
3. Working temperature range : -40°C to +70°C
4. High efficiency and reliability
5. Active PFC
6. 150% peak power lasts output for 3s.
7. Output short circuit/over-current/over-voltage/over-temperature protection
9. Meet IEC/UL/BS EN 62368、UL61010 standards

**USP-240MFA-12DN**

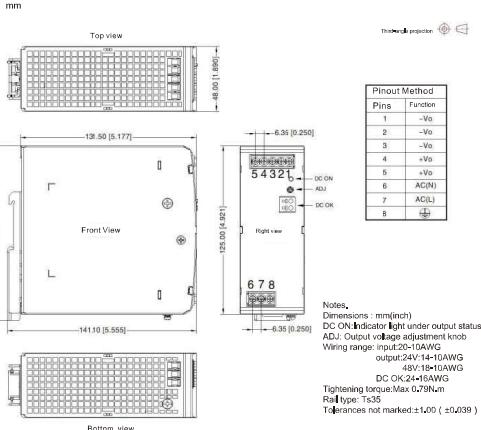


Electrical schematic

## Derating curve



## Installation dimension



## Note :

1. All parameters are derived at Ta=25°C, humidity <75%RH, rated input voltage and rated output load unless otherwise stated
2. To improve conversion efficiency, there may be some audio noise when the module is above the operating voltage, but this does not affect product performance or reliability.
3. When the product is used at the end, the housing needs to be connected to the system earth.
4. Our products need to be stored in accordance with ISO14001 and environmental laws and regulations, and handed over to qualified units for disposal after scrapping.
5. The output adjustable resistor ADJ adjusts output voltage. Clockwise to rise
6. Altitude above 2000 meters, low ambient environment 5°C/1000 meters

Ordering data	Type	Order no.
	USP-240MFA-12DN	462216
<b>Input data</b>		
Output voltage,DC	12V	
Output voltage accuracy	$\pm 2\%$	
Rated output current	16A	
Output current range	0~16A	
Output power	192W	
Ripple and noise	150mVpp	
Setting range of voltage,DC	12~14V	
Hold up time	20ms/230VAC	
<b>Input data</b>		
Input voltage range	85~264VAC /120~370VDC	
Input voltage ,AC	3A/115VAC/1.5A/230VAC	
Efficiency	93%	
Shock current	Turn on current,cooling 15A/115VAC 30A/230VAC	
Leakage current	<1mA/264VAC	
<b>Protections</b>		
Over-current protection	The recovery time is 10s after removal of short circuit/Hiccup mode,Constant current Works for 1s, off for 10s,Short-circuit protection in long-term self-recovery	
Short circuit protection	Over-current protection/high temperature : 110%~200% of constant current,Self-recovery after removal of load(230VAC related load)	
Over-voltage protection	Over-current protection/high temperature : 110%~200% of constant current,Self-recovery after removal of load(230VAC related load)	
	±18°C (Hiccup,self-recovery )	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	
<b>Safety</b>		
Withstand voltage	IP20/IP3: 3kVAC IP2/FG: 2kVAC O/P2/G: 0.5kVAC	
Insulation Impedance	IP20/IP3: IP-FG,O/P-FG,100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC13252(Part1) & EN62368-1, IEC/UL/BS EN62368-1, UL61010-1, UL508	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	110 / 54 / 124	
Quality	0.6Kg	

USP-240MFA-24DN



USP-240MFA-48DN



Electrical schematic

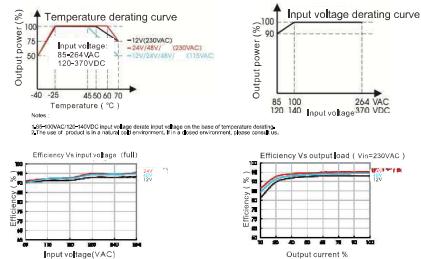
Ordering data	Type	Order no.	Type	Order no.
	USP-240MFA-24DN	462217	USP-240MFA-48DN	462218
<b>Input data</b>				
Output voltage,DC	24V		48V	
Output voltage accuracy	±1%		±1%	
Rated output current	10A		5A	
Output current range	0~10A		0~5A	
Output power	240W		240W	
Ripple and noise	150mVp-p		150mVp-p	
Setting range of voltage,DC	24~28V		48~53V	
Hold up time	20ms/230VAC		20ms/230VAC	
<b>Input data</b>				
Input voltage range	85~264VAC /120~370VDC		85~264VAC /120~370VDC	
Input voltage, AC	3A/115VAC/1.5A/230VAC		3A/115VAC/1.5A/230VAC	
Efficiency	94%		94%	
Shock current	Turn on current,cooling 15A/115VAC 30A/230VAC		Turn on current,cooling 15A/115VAC 30A/230VAC	
Leakage current	<1mA/264VAC		<1mA/264VAC	
<b>Protections</b>				
Over-current protection	The recovery time is 10s after removal of short circuit.Hiccup mode.Constant current		The recovery time is 10s after removal of short circuit.Hiccup mode.Constant current	
Short circuit protection	Works for 1s, off for 10s.Short-circuit protection in long-term, self-recovery Over-current protection/high temperature : 110%~200% Constant current mode, Self-recovery after removal of load(230VAC related load) Over-current protection/low/high temperature : >105% Constant current mode, Self-recovery after removal of load(230VAC related load)		Works for 1s, off for 10s.Short-circuit protection in long-term, self-recovery Over-current protection/high temperature : 110%~200% Constant current mode, Self-recovery after removal of load(230VAC related load) Over-current protection/low/high temperature : >105% Constant current mode, Self-recovery after removal of load(230VAC related load)	
Over-voltage protection	<35V ( Hiccup,self-recovery )		<60V ( Hiccup,self-recovery )	
	80°C ( 230VAC, Related load )		80°C ( 230VAC, Related load )	
<b>Ambient conditions</b>				
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH		-40°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH		-40°C~+85°C;10%~95%RH	
<b>Safety</b>				
Withstand voltage	IP-O/P: 3kVAC IP-FG: 2kVAC O/P-FG: 0.5kVAC		IP-O/P: 3kVAC IP-FG: 2kVAC O/P-FG: 0.5kVAC	
Insulation Impedance	IP-O/P, IP-FG, O/P-FG:100MΩ Ohms/500VDC/25°C/70%RH		IP-O/P IP-FG O/P-FG:100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>				
Safety standards	Meet IEC62352(Part1)&EN62368-1,IEC/UL/BS EN62368-1, UL61010-1,UL508		Meet IEC62352(Part1)&EN62368-1,IEC/UL/BS EN62368-1, UL61010-1,UL508	
<b>Others</b>				
Dimensions(L/W/H mm)(see installation dimensions)	110 / 54 / 124		110 / 54 / 124	
Quality	0.6Kg		0.6Kg	

# DN Rails switching power supply

Feature:

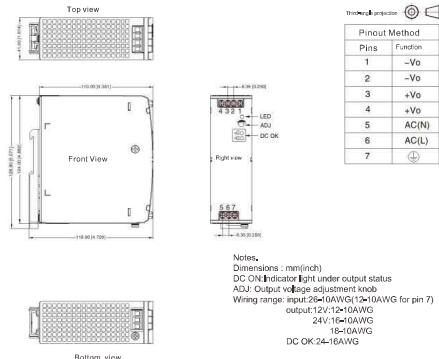
1. Input voltage range : 85~264VAC/120~370VDC
- 2.AC and DC (input voltage at same terminal)
- 3.Working temperature range : -40°C to +70°C
- 4.High efficiency and reliability
- 5.DC OK function
- 6.Active PFC
- 7.150% peak power lasts output for 3s.
- 8.Power-on indication(LED)
- 9.Output short circuit/over-current/over-voltage/over-temperature protection
- 10.Meet IEC/UL/BS EN 62368、UL61010 standards

Derating curve



## Installation dimension

mm



### Note :

- All parameters are derived at Ta=25°C, humidity <75%RH, rated input voltage and rated output load unless otherwise stated
- To improve conversion efficiency, there may be some audio noise when the module is above the operating voltage, but this does not affect product performance or reliability.
- When the product is used at the end, the housing needs to be connected to the system earth.
- Our products need to be stored in accordance with ISO14001 and environmental laws and regulations, and handed over to qualified units for disposal after scrapping.
- The output adjustable resistor ADJ adjusts output voltage, Clockwise to rise
- Altitude above 2000 meters, low ambient environment 5°C/1000 meters

**USP-240MFA-12DXN**



Electrical schematic

Ordering data	Type	Order no.
USP-240MFA-12DXN	462236	
<b>Input data</b>		
Output voltage,DC	12V	
Output voltage accuracy	±2%	
Rated output current	16A	
Output current range	0~16A	
Output power	192W	
Ripple and noise	100mVpp	
Setting range of voltage,DC	12~14V	
Hold up time	20ms/230VAC	
DC OK function	30VDC/1A Max When the output voltage is normal, the relay node is closed. When it is abnormal(<90%Vo), the relay node is disconnected	
<b>Input data</b>		
Input voltage range	85~264VAC / 120~370VDC	
Input voltage ,AC	3A/115VAC/1.5A/230VAC	
Efficiency	92%	
Shock current	Turn on current,cooling 15A/115VAC 30A/230VAC	
Leakage current	<0.5mA/264VAC	
<b>Protections</b>		
Over-current protection	The recovery time is 10s after removal of short circuit(Hiccup mode,Constant current)	
Short circuit protection	Works for 1s, off for 10s,Short-circuit protection in long-term, self-recovery	
Over-current protection(high temperature : 105%~200%)	Over-current protection(recovery : 105%~200%)	
Over-current protection(low/high temperature : >105%)	Over-current protection(recovery : >105%)	
Over-voltage protection	≤18V ( Hiccup,self-recovery )	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH non condensing	
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH non condensing	
<b>Safety</b>		
Withstand voltage	IP(O/P: 3kVAC IP(FG: 2kVAC O/P(FG: 0.5kVAC	
Insulation Impedance	IP(O/P:50MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IS13252(Par1)&EN62368-1, IEC/UL/BS EN62368-1,UL61010-1,UL61010-2-201	
<b>Others</b>		
Dimensions(LWH mm)(see installation dimensions)	110 / 41 / 124	
Quality	0.65g	

# USP-240W Switching power supply, single output

**USP-240MFA-24DXN**



Electrical schematic

**USP-240MFA-48DXN**



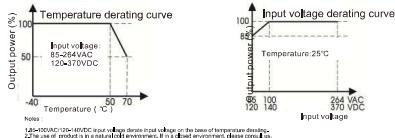
Ordering data	Type	Order no.	Type	Order no.
	USP-240MFA-24DXN	462237	USP-240MFA-48DXN	462238
<b>Input data</b>				
Output voltage,DC	24V		48V	
Output voltage accuracy	±1%		±1%	
Rated output current	10A		5A	
Output current range	0~10A		0~5A	
Output power	240W		240W	
Ripple and noise	120mVp-p		150mVp-p	
Setting range of voltage,DC	24~28V		48~53V	
Hold up time	20ms/230VAC		20ms/230VAC	
DC Ok function	30VDC/1A Max When the output voltage is normal, the relay node is closed, When it is abnormal( <90%Vo), the relay node is disconnected		30VDC/1A Max When the output voltage is normal, the relay node is closed, When it is abnormal( <90%Vo), the relay node is disconnected	
<b>Input data</b>				
Input voltage range	85~264VAC /120~370VDC		85~264VAC /120~370VDC	
Input voltage ,AC	3A/115VAC/1.5A/230VAC		3A/115VAC/1.5A/230VAC	
Efficiency	94%		94%	
Shock current	Turn on current,cooling 15A/115VAC 30A/230VAC		Turn on current,cooling 15A/115VAC 30A/230VAC	
Leakage current	<0.5mA/264VAC		<0.5mA/264VAC	
<b>Protections</b>				
Over-current protection	The recovery time is 10s after removal of short circuit,Hiccup mode,Constant current		The recovery time is 10s after removal of short circuit,Hiccup mode,Constant current	
Short circuit protection	Works for 1s, off for 10s,Short-circuit protection in long-term , self-recovery Over-current protection(high temperature : 105%~200%) self-recovery Over-current protection(kw/high temperature : >105%) self-recovery		Works for 1s, off for 10s,Short-circuit protection in long-term , self-recovery Over-current protection(high temperature : 105%~200%) self-recovery Over-current protection(kw/high temperature : >105%) self-recovery	
Over-voltage protection	≤35V (Hiccup,self-recovery ) 80°C ( 230VAC , Related load )		≤60V ( Hiccup,self-recovery ) 80°C ( 230VAC , Related load )	
<b>Ambient conditions</b>				
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH无冷凝		-40°C~+70°C; 20%~90%RH无冷凝	
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH无冷凝		-40°C~+85°C;10%~95%RH无冷凝	
<b>Safety</b>				
Withstand voltage	I/P-O/P: 3kVAC I/P-FG: 2kVAC O/P-FG: 0.5kVAC		I/P-O/P: 3kVAC I/P-FG: 2kVAC O/P-FG: 0.5kVAC	
Insulation Impedance	I/P-O/P:50MΩ Ohms/500VDC/25°C/70%RH		I/P-O/P:50MΩ Ohms/500VDC/25°C/70%RH	
Standards	Meet IEC62368-1,UL61010-1,IEC/UL/BS EN62368-1,UL61010-1,UL61010-2-201		Meet IEC62368-1,UL61010-1,IEC/UL/BS EN62368-1,UL61010-1,UL61010-2-201	
Others				
Dimensions(L/W/H mm)(see installation dimensions)	110 / 41 / 124		110 / 41 / 124	
Quality	0.65g		0.65g	

# DN Rails switching power supply

## Feature:

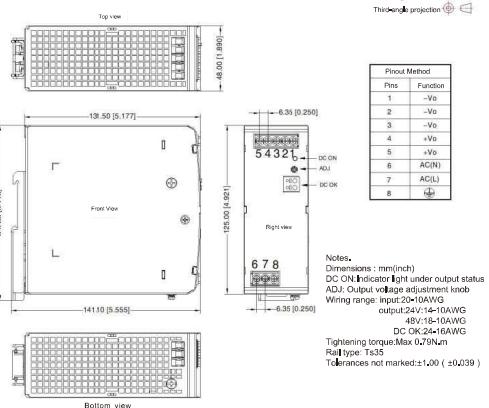
1. Input voltage range : 85~264VAC/120~370VDC
2. AC and DC (input voltage at same terminal)
3. Working temperature range : -40°C to +70°C
4. High efficiency and reliability
5. Active PFC
6. 150% peak power lasts output for 3s.
7. Power-on indication(LED)
8. Output short circuit/over-current/over-voltage/over-temperature protection
9. Meet IEC/UL/BS EN 62368、UL61010 standards

## Derating curve



## Installation dimension

mm



## Note :

- All parameters are derived at Ta=25°C, humidity <75%RH, rated input voltage and rated output load unless otherwise stated
- To improve conversion efficiency, there may be some audio noise when the module is above the operating voltage, but this does not affect product performance or reliability.
- When the product is used at the end, the housing needs to be connected to the system earth.
- Our products need to be stored in accordance with ISO14001 and environmental laws and regulations, and handed over to qualified units for disposal after scrapping.
- The output adjustable resistor ADJ adjusts output voltage, Clockwise to rise
- Altitude above 2000 meters, low ambient environment 5°C/1000 meters

## USP-480MFA-24DN



Electrical schematic

Ordering data	Type	Order no.
	USP-480MFA-24DN	462219
<b>Input data</b>		
Output voltage,DC	24V	
Output voltage accuracy	$\pm 1\%$	
Rated output current	20A	
Output current range	0~20A	
Output power	480W	
Ripple and noise	50mVpp	
Setting range of voltage,DC	24~48V	
Hold up time	22ms/230VAC 30VDC/1A	
<b>Input data</b>		
Input voltage range	85~264VAC / 120~370VDC	
Input voltage ,AC	5A/115VAC/2.5A/230VAC	
Efficiency	94.5%	
Shock current	Turn on current,cooling 15A/115VAC 15A/230VAC	
Leakage current	<1mA/264VAC	
<b>Protections</b>		
Over-current protection	The recovery time is 10s after removal of short circuit.	
	Hiccup mode:Constant current works for 1s, off for 10s.	
	Short circuit protection in long-term ; self-recovery	
Short circuit protection	150%Io.Work for 1s,off output	
	Self-recovery after removal of load (230VAC related load)	
Over-voltage protection	$\leq 29~35V$ , Hiccup	
	90°C turn on .60°C turn off ( 230VAC , Related load )	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C; 10%~95%RH	
<b>Safety</b>		
Withstand voltage	I/P/O/P: 3kVAC I/P/FG: 2kVAC O/P/FG: 0.5kVAC	
Insulation Impedance	I/P-O/P:100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IIS13252(Part1)&EN62368-1, IEC/UL62368-1, UL61010-1	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	131.5 / 48 / 125	
Quality	0.98Kg	

**USP-480MFA-48DN**

Electrical schematic

Ordering data	Type	Order no.
	USP-480MFA-48DN	462220
<b>Input data</b>		
Output voltage,DC	48V	
Output voltage accuracy	±1%	
Rated output current	10A	
Output current range	0~10A	
Output power	480W	
Ripple and noise	70mVp-p	
Setting range of voltage,DC	48~55V	
Hold up time	22ms/230VAC 30VDC/1A	
<b>Input data</b>		
Input voltage range	85~264VAC /120~370VDC	
Input voltage ,AC	5A/115VAC/2.5A/230VAC	
Efficiency	94.5%	
Shock current	Turn on current,cooling 15A/115VAC 15A/230VAC	
Leakage current	<1mA/264VAC	
<b>Protections</b>		
Over-current protection	The recovery time is 10s after removal of short circuit. Hiccup mode,Constant current works for 1s, off for 10s. Short-circuit protection in long-term, self-recovery	
Short circuit protection	150%Io,Work for 1s,off output Self-recovery after removal of load (230VAC,related load)	
Over-voltage protection	s56-60V , Hiccup 90°C,turn on .60°C turn off ( 230VAC , Related load )	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-40°C~+70°C; 20%~90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C;10%~95%RH	
<b>Safety</b>		
Withstand voltage	IP-O/P: 3KVAC IP-FG: 2KVAC O/P-FG: 0.5KVAC	
Insulation Impedance	IP-O/P:100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC62368-1, IEC/UL62368-1, UL61010-1	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	131.5 / 48 / 125	
Quality	0.98Kg	

# Rails redundancy modules

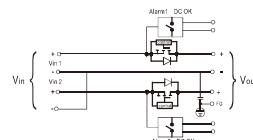
## Feature:

1. Support redundancy system of 1+1 and N+1
2. Two input and one output channels
3. For 24V/48V redundancy system
4. Output current up to 40A
5. Cooling by natural air
6. -40~+80°C wide range, Temperature (> +60°C derating)
7. The width is 32mm (ultra-thin)
8. Internal channels: DC OK signal and alarm relay contact
9. Three-year warranty

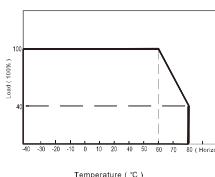
## USP-DM24V 20A



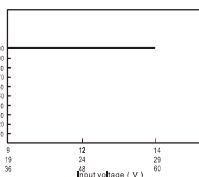
Electrical schematic



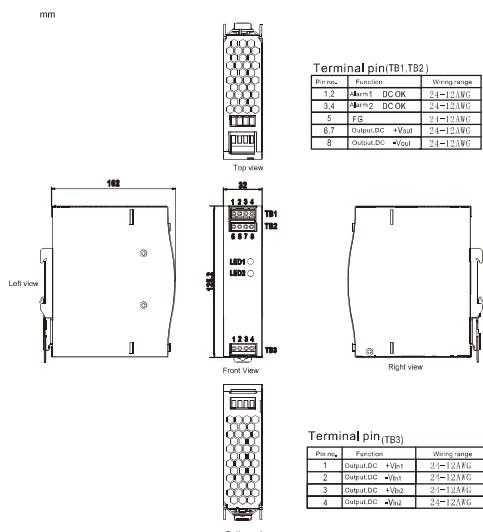
Derating curve



Static feature curve



Installation dimension



DO OK Relay

Contact power(max)	30W/1A resistive load
Contact pull-in/(norm)	Power on
Contact remove(fail)	Power off/overvoltage/undervoltage

## Ordering data

## Type

## Order no.

USP-DM 24V 20A

462230

## Output data

## Type

## Order no.

Output voltage , DC

24V

Output voltage accuracy

19-29V

Rated output current

Input 0~20A /time

Voltage drop

0.25V

Peak current

Input 0~30A 5S /time

Efficiency

98%

## Input data

## Type

## Order no.

Input reverse current

1mA

Input reverse voltage

40VDC

Related current

Input 0~20A /time

Peak current

30A 5S

Capacitance

320μF

Standby power consumption

1.5W

## Protections

<30A 5S no damage

Short circuit

<30A 5S no damage

## Functions

Support redundancy of 1+1 and N+1

2 input voltage alarms

< 18V to > 31V(±5%)

Relay

30Vdc/1A Resistive load

LED status

Green for OK

## Ambient conditions

Air self-convection

Working temperature(see load derating curve)

-40°C~+80°C; 5%; 95%RH

Storage temp(non condensing)

-40°C~+85°C

Temp coefficient

±0.03%/°C ( 0~60°C )

Vibration resistance

Components:10~500Hz, 5G 10 mins/cycle, X,Y,Z, 60 mins each, each axis. Meet IEC61373

## Safety

IP/OP-case:0.5KVac

Insulation Impedance

IP/OP-case, IP/OP-relay:  
> 100M Ohms/500VDC/25°C/70°C RH

## Standards

Meet EN55032,UL62368-1,IEC62368-1

Safety standards

Meet EN61000-4-2,3,4,5,6,8

## Others

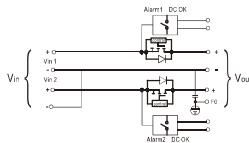
Dimensions(L/W/H mm)(see installation dimensions)

Quality

102 / 32 / 125.2

**USP-DM48V 20A**

Electrical schematic



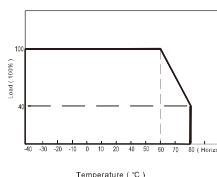
Ordering data	Type	Order no.
	USP-DM 48V 20A	462232
Output data		
Output voltage , DC	48V	
Output voltage accuracy	36~60V	
Rated output current	Input 0~20A /time	
Voltage drop	0.25V	
Peak current	Input 0~30A 5S /time	
Efficiency	98%	
Input data		
Input reverse current	1mA	
Input reverse voltage	65VDC	
Related current	Input 0~20A /time	
Peak current	30A 5S	
Capacitance	320uF	
Standby power consumption	1.5W	
Protections		
Over-load	<30A 5S no damage	
Short circuit	<30A 5S no damage	
Functions		
Redundancy	Support redundancy of 1+1 and N+1	
2 input voltage alarms	<34.2V to >63V(±5%)	
Relay	30Vdc/1A Resistive load	
LED status	Green for OK	
Ambient conditions		
Cooling	Air self-convection	
Working temperature(see load derating curve)	-40°C~+80°C; 5%~95%RH	
Storage temp(non condensing)	-40°C~+85°C	
Temp coefficient	±0.03%/°C ( 0~60°C )	
Vibration resistance	Components:10~500Hz, 5G 10 mins/cycle, X,Y,Z,60 mins each, each axis ,Meet IEC61373	
Safety		
Withstand voltage	IP/OP-case:0.5KVac	
Insulation Impedance	IP/OP-case,IP/OP-relay: > 100M Ohms/500VDC/25°C/70°C RH	
Standards		
Safety standards	Meet EN55032,UL62368-1,IEC62368-1	
Others	Meet EN61000-4-2,3,4,5,6,8	
Dimensions(L/W/H mm)(see installation dimensions)		
Quality	102 / 32 / 125.2	

# Rails redundancy modules

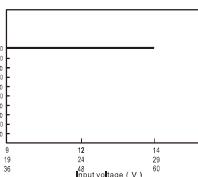
## Feature:

1. Support redundancy system of 1+1 and N+1
2. Two input and one output channels
3. For 24V/48V redundancy system
4. Output current up to 40A
5. Cooling by natural air
6. -40~+80°C wide range, Temperature (> +60°C derating)
7. The width is 55mm (ultra-thin)
8. Internal channels: DC OK signal and alarm relay contact
9. Three-year warranty

Derating curve

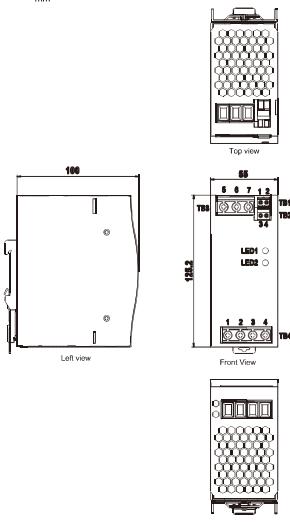


Static feature curve



Installation dimension

mm



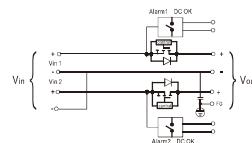
DO OK Relay

Contact power(max)	30W/1A resistive load
Contact pull(inform)	Power on
Contact remove(fail)	Power off/overvoltage/undervoltage

## USP-DM24V 40A



Electrical schematic



### Ordering data

### Type

### Order no.

USP-DM24V 40A

462231

### Output data

Output voltage , DC	24V
Output voltage accuracy	19-29V
Rated output current	Input 0~40A /time
Voltage drop	0.3V
Peak current	Input 0~60A 5S /time
Efficiency	98%

### Input data

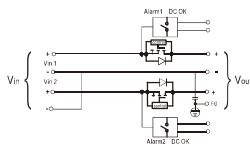
Input reverse current	1mA
Input reverse voltage	40VDC
Related current	Input 0~40A /time
Peak current	60A 5S
Capacitance	320μF
Standby power consumption	1.5W
Protections	
Over-load	<60A 5S no damage
Short circuit	<60A 5S no damage
Functions	
Redundancy	Support redundancy of 1+1 and N+1
2 input voltage alarms	< 18V to > 31V(±5%)
Relay	30Vdc/1A Resistive load
LED status	Green for OK

### Ambient conditions

Cooling	Air self-convection
Working temperature(see load derating curve)	-40°C~+80°C; 5%; 95%RH
Storage temp(non condensing)	-40°C~+85°C
Temp coefficient	±0.03%/C (-0~60°C )
Vibration resistance	Components:10~500Hz, 5G 10 mins/cycle, X,Y,Z, 60 mins each, each axis. Meet IEC61373

### Safety

Withstand voltage	IP/OP-case:0.5KVac IP/OP-case,IP/OP-relay: > 100M Ohms/500VDC/25°C/70%RH
Insulation Impedance	
Standards	
Safety standards	Meet EN55032,UL62368-1,IEC62368-1
Others	Meet EN61000-4-2,3,4,5,6,8
Dimensions(L/W/H mm)(see installation dimensions)	
Quality	100 / 55 / 125.2

**USP-DM48V 40A****Electrical schematic**

Ordering data	Type	Order no.
	USP-DM48V 40A	462233
Output data		
Output voltage , DC	48V	
Output voltage accuracy	36~60V	
Rated output current	Input 0~40A /time	
Voltage drop	0.3V	
Peak current	Input 0~60A 5S /time	
Efficiency	98%	
Input data		
Input reverse current	1mA	
Input reverse voltage	60VDC	
Related current	Input 0~40A /time	
Peak current	60A 5S	
Capacitance	320uF	
Standby power consumption	1.5W	
Protections		
Over-load	<60A 5S no damage	
Short circuit	<60A 5S no damage	
Functions		
Redundancy	Support redundancy of 1+1 and N+1	
2 input voltage alarms	<34.2V to >63V(±5%)	
Relay	30Vdc/1A Resistive load	
LED status	Green for OK	
Ambient conditions		
Cooling		
Working temperature(see load derating curve)	-40°C~+80°C; 5%~95%RH	
Storage temp(non condensing)	-40°C~+85°C	
Temp coefficient	±0.03%/°C ( 0~60°C )	
Vibration resistance	Components:10~500Hz,5G 10 mins/cycle, X,Y,Z,60 mins each, each axis .Meet IEC61373	
Safety		
Withstand voltage	IP/OP-case:0.5kVac	
Insulation Impedance	IP/OP-case,IP/OP-relay: > 100M Ohms/500VDC/25°C/70°C RH	
Standards		
Safety standards	Meet EN55032,UL62368-1,IEC62368-1	
Others	Meet EN61000-4-2,3,4,5,6,8	
Dimensions(L/W/H mm)(see installation dimensions)	100 / 55 / 125.2	
Quality	100 / 55 / 125.2	

# Customized switching power supply

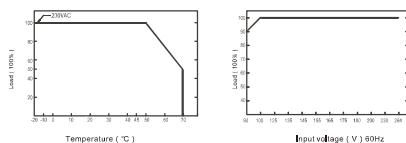
**USP-150MHN-12S2D**

## Feature:

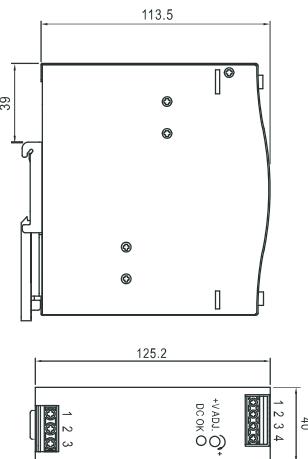
- 1.180~264VAC input voltage,AC
- 2.Small size,light weight, and high efficiency
- 3.Protections:short circuit/over-load/over-voltage/over-temperature
- 4.Cooling by natural air
- 5.Installed on TH-35/7.5/15
- 6.100% full load burn-in test
- 7.Two-year warranty



## Derating curve



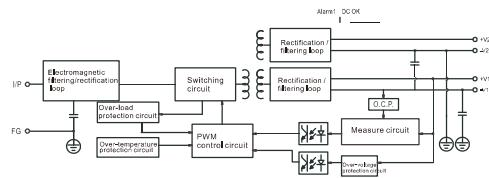
## Installation dimensions



## Note :

- 1.All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
- 2.Ripples & noise are measured at 20MHz of bandwidth by using a 12"twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
- 3.Tolerance:includes set up tolerance, line regulation and load regulation.
- 4.Power supply, a part of the components in the system, is confirmed in conjunction with the terminal equipment for electromagnetic compatibility.
- 5.Derating output is required under low input voltage(see derating curve)

## Electrical schematic



## Ordering data

Type	Order no.
USP-150MHN-12S2D	462188

## Output data

Input data	
Related input voltage	200VAC~240VAC
Input voltage range	180~264VAC/230~370VDC
Input current(typical)	1.5A/230VAC
Frequency range	47~63Hz
Efficiency(typical)	87%
Output data	V1 V2
Related output voltage	12V 12V
Related output current	±2% ±5%
Setting range of the output voltage	0~6.25A 0~6.25A
Ripple and noise	100mVp-p 100mVp-p
Output power	150W
Over-voltage protection	14~17V
Over-load protection	Related output power 105%~130%
Over-temperature protection	Off output,recovery after power supply restarts

## Technical data

Working temperature(see output derating curve)	~20~+70°C
Storage temp	-40°C~+85°C

Working humidity(non condensing)	10%~95%RH
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## Ambient conditions

Safety standards	Meet UL508,TUV EN60950-1
EMI conduction and radiation	Meet EN55022, EN55011 Class A

EMS immunity	Meet EN61000-4-2,3,4,5,6,8,11
Withstand voltage	IP-O/P:3kVAC IP-FG:2kVAC O/P-FG:0.5kVAC

## Others

Dimensions(L/W/H mm)(see installation dimensions)	113.5 / 40 / 125.2
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Quality	0.6Kg
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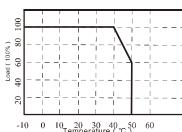
## USP-150MHN-12S24D

## Feature:

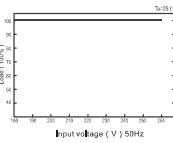
- 1.170~264VAC input voltage,AC
- 2.Protections:short circuit/over-load/over-voltage
- 3.Cooling by natural air
- 4.100% full load burn-in test
- 5.LED power indicator
- 6.Small size,light weight,and high efficiency
- 7.Two-year warranty



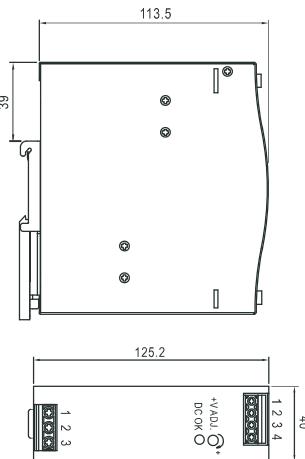
Derating curve



Static feature curve



## Installation dimensions



## Note :

- 1.All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
- 2.Ripples & noise are measured at 20MHz of bandwidth by using a 12"twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
- 3.Tolerance:includes set up tolerance, line regulation and load regulation.
- 4.Power supply, a part of the components in the system, is confirmed in conjunction with the terminal equipment for electromagnetic compatibility.
- 5.Derating output is required under low input voltage(see derating curve)

Ordering data	Type	Order no.
	USP-150MHN-12S24D	462201
<b>Output data</b>		
Input data		
Related input voltage	200VAC~240VAC	
Input voltage range	170~264VAC	
Input current(typical)	2A/230V	
Frequency range	47~63Hz	
Efficiency(typical)	83%	
Output data	V1	V2
Related output voltage	12V	24V
Related output voltage	5A	6A
Setting range of the output voltage	± 10.0%	±10.0%
Output current range	0.5~5A	0.6~6A
Power	150W	
Ripple and noise(Max) <sup>note2</sup>	120mVp	240mVp
Voltage tolerance note3 <sup>note3</sup>	±1%	±10%
Setup/rise time(Max)	<1s,<100ms/230VAC	
Hold up time(Min)	20ms/230VAC	
Over-load protection	105%~150% of related output power	
Over-voltage protection	105%~150% of related output voltage	
<b>Ambient conditions</b>		
Working temperature(see load derating curve)	-10°C ~+40°C	
Working humidity(non condensing)	20~90%RH	
Storage temp/humidity(non condensing)	-30~+85°C,10~95%RH	
<b>Safety and EMC</b>		
Safety standards	Meet UL1950	
Withstand voltage	I/P-O/P:3kVAC I/P-FG:1.5kVAC O/P-FG:0.5kVAC	
Insulation Impedance	I/P-O/P,I/P-FG,O/P-FG:100MΩ megger /500VDC	
Leakage current ( typical)	L/F/G230VAC,1mA,1min / N+F/G230VAC,1mA,1min	
EMI conduction and radiation	Meet En60950	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	113.5 / 40 / 125.2	
Quality	0.6Kg	

# Customized switching power supply

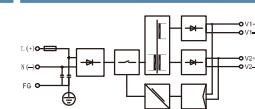
## Feature:

- 1.170~264VAC input voltage,AC
- 2.Protections:short circuit/over-load/over-voltage
- 3.Cooling by air convection
- 4.100% full load burn-in test
- 5.LED power indicator
- 6.Small size,light weight,and high efficiency
- 7.Two-year warranty

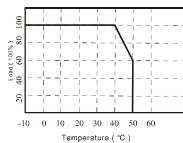
**USP-150MHN-24S12D**



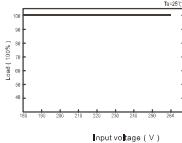
Electrical schematic



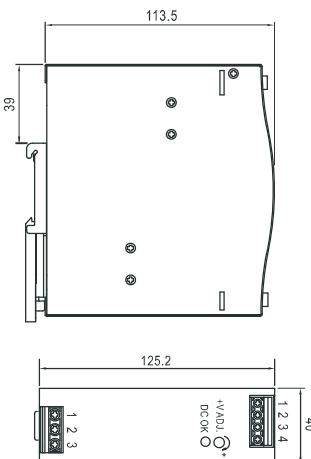
Derating curve



Static feature curve



Installation dimensions



## Note :

- 1.All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
- 2.Ripples & noise are measured at 20MHz of bandwidth by using a 12"twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
- 3.Tolerance:includes set up tolerance, line regulation and load regulation.
- 4.Power supply, a part of the components in the system, is confirmed in conjunction with the terminal equipment for electromagnetic compatibility.
- 5.Derating output is required under low input voltage(see derating curve)

Ordering data	Type	Order no.
	USP-150MHN-24S12D	462202
<b>Output data</b>		
Input data		
Related input voltage	200VAC~240VAC	
Input voltage range	170~264VAC	
Input current(typical)	2A/230V	
Frequency range	47~63Hz	
Efficiency(typical)	83%	
Output data	V1	V2
Related output voltage	24V	12V
Related output voltage	6A	5A
Setting range of the output voltage	±10.0%	±10.0%
Output current range	0~6A	0~5A
Power	150W	
Ripple and noise(Max) <sup>note2</sup>	240mVp	120mVp
Voltage tolerance note3	±1%	±10%
Setup/rise time(Max)	<1s,<100ms/230VAC	
Hold up time(Min)	20ms/230VAC	
Over-load protection	105%~150% of related output power	
Over-voltage protection	105%~150% of related output voltage	
<b>Ambient conditions</b>		
Working temperature(see load derating curve)	-10°C ~ +40°C	
Working humidity(non condensing)	20~90%RH	
Storage temp/humidity(non condensing)	-30~+85°C,10~95%RH	
<b>Safety and EMC</b>		
Safety standards	Meet UL1950	
Withstand voltage	I/P-O/P:3kVAC I/P-FG:1.5kVAC O/P-FG:0.5kVAC	
Insulation Impedance	I/P-O/P/I/P-FG,O/P-FG:100MΩ megger/500VDC	
Leakage current ( typical)	L-FG230VAC,1mA,1min / N-FG230VAC,1mA,1min	
EMI conduction and radiation	Meet En60950	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	113.5 / 40 / 125.2	
Quality	0.6Kg	

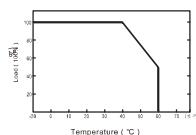
## USP-35MFN-DAG

## Feature:

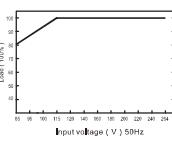
1. Protections: short circuit/over-load/over-voltage
2. Protections: short circuit/over-load/over-voltage
3. Cooling by natural air
4. 100% full load burn-in test
5. Two-year warranty



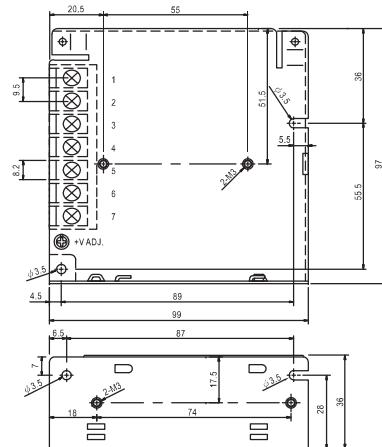
Derating curve



Static feature curve



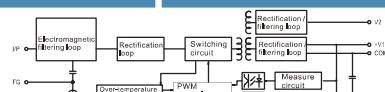
Installation dimensions



Note :

1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance is a sum of voltage set up tolerance, voltage regulation and current regulation.

## Electrical schematic



## Ordering data

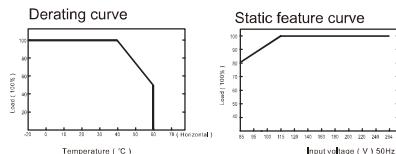
Type	Order no.
USP-35MFN-DAG	462198
Output data	
Input data	
Related input voltage	100VAC~240VAC
Input voltage range	85~264VAC/120~370VDC
Input current(typical)	0.75A
Frequency range	47~63Hz
Efficiency(typical)	78%
Output data	V1 V2
Related output voltage	5V 12V
Related output voltage	4A 1A
Setting range of the output voltage	V1: 4.75~5.5V
Output current range	0.5~5A 0.1~1.5A
Power	32W
Ripple and noise(Max) <sup>note2</sup>	80mVp-p
Voltage tolerance note3 <sup>note3</sup>	±2.0%
Setup/rise time(Max)	500ms,30ms/230VAC 1200ms,30ms/115VAC
Hold up time(Min)	50ms/230VAC 10ms/115VAC
Over-load protection	105%~150% of related output power
Over-voltage protection	105%~150% of related output voltage
Ambient conditions	
Working temperature(see load derating curve)	-20°C ~+60°C
Working humidity(non condensing)	20~90%RH
Storage temp/humidity(non condensing)	-40 ~+85°C,10 ~95%RH
Safety and EMC	
Safety standards	Meet UL60950-1,CB(IEC60950-1)
Withstand voltage	I/P-O/P,I/P-FG,O/P-FG:2KVAC
Insulation Impedance	I/P-O/P,I/P-FG,O/P-FG:100MQ megger/500VDC
Leakage current ( typical)	<2mA/240VAC
EMI conduction and radiation	Meet EN55022CLASS B
Others	
Dimensions(L/W/H mm)(see installation dimensions)	99 / 97 / 36
Quality	

# Customized switching power supply

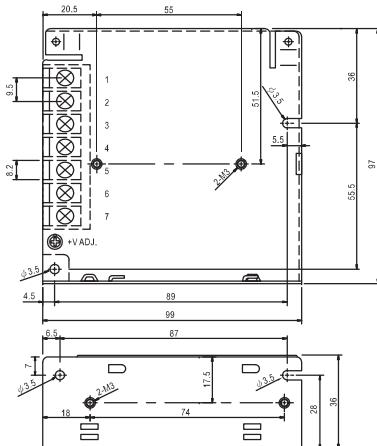
**USP-35MFN-DBG**

**Feature:**

1. Input voltage range, AC(international full-range)
2. Protections: short circuit/over-load/over-voltage
3. Cooling by natural air
4. 100% full load burn-in test
5. Two-year warranty

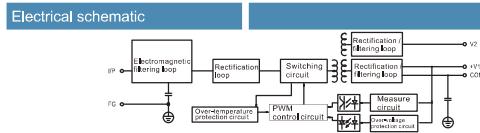


**Installation dimensions**



**Note :**

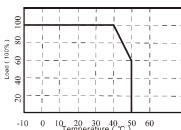
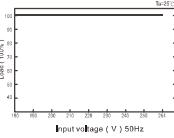
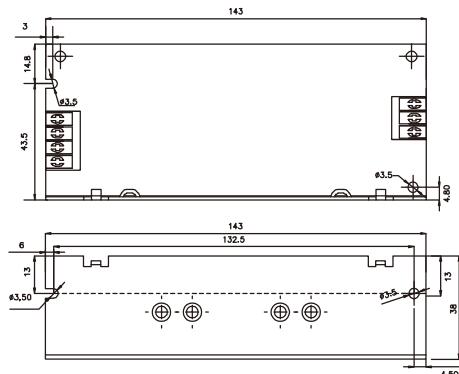
1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance is a sum of voltage set up tolerance, voltage regulation and current regulation.



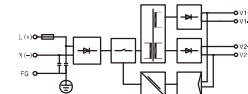
Ordering data	Type	Order no.
	USP-35MFN-DBG	462199
<b>Output data</b>		
Input data		
Related input voltage	100VAC~240VAC	
Input voltage range	85~264VAC/120~370VDC	
Input current(typical)	0.75A	
Frequency range	47~63Hz	
Efficiency(typical)	81%	
<b>Output data</b>	V1	V2
Related output voltage	5V	24V
Related output voltage	2.2A	1A
Setting range of the output voltage	V1: 4.75~5.5V	
Output current range	0.5~4A	0.2~1.3A
Power	35W	
Ripple and noise(Max) <sup>note2</sup>	80mVp-p	200mVp-p
Voltage tolerance <sup>note3</sup>	±2.0%	±6.0%
Setup/rise time(Max)	500ms,30ms/230VAC 1200ms,30ms/115VAC	
Hold up time(Min)	50ms/230VAC 10ms/115VAC	
Over-load protection	110%~150% of related output power	
Over-voltage protection	105%~150% of related output voltage	
<b>Ambient conditions</b>		
Working temperature(see load derating curve)	-20°C~+60°C	
Working humidity(non condensing)	20~90%RH	
Storage temp/humidity(non condensing)	-40~+85°C, 10~95%RH	
<b>Safety and EMC</b>		
Safety standards	Meet UL60950-1,CB(IEC60950-1)	
Withstand voltage	I/P-O/P:3kVAC I/P-FG:2kVAC O/P-FG:0.5kVAC	
Insulation Impedance	I/P-O/P,I/P-FG,O/P-FG:100MΩ megger/500VDC	
Leakage current ( typical)	<2mA/240VAC	
EMI conduction and radiation	meggerEN55022CLASS B	
<b>Others</b>		
Dimensions(L/W/H mm)(see installation dimensions)	99 / 97 / 36	
Quality		

**USP-50MHN-12S2 A****Feature:**

1. Input voltage range: 180~264VAC
2. Protections: short circuit/over-load/over-voltage
3. Cooling by natural air
4. 100% full load burn-in test
5. Power-on indication(LED)
6. Small size and light weight
- 5 Two-year warranty

**Derating curve****Static feature curve****Installation dimensions****Note :**

1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance is a sum of voltage set up tolerance, voltage regulation and current regulation.

**Electrical schematic****Ordering data****Type** **Order no.**

USP-50MHN-12S2 A 462193

**Output data****Input data**

Related input voltage 200VAC~240VAC

Input voltage range 180~264VAC

Input current(typical) 0.7A

Frequency range 47~63Hz

Efficiency(typical) 75%

**Output data**

V1 V2

Related output voltage -12V +12V

Related output voltage 2A 2A

Setting range of the output voltage +10.0% +10.0%

Output current range 0~2A 0~2A

Power 48W

Ripple and noise(Max)<sup>note2</sup> V1 ripple: <100mVp, V2 ripple: <100mVp

Voltage tolerance note3

±2.0%

Setup/rise time(Max) 100ms,100ms/230VAC

Hold up time(Min) 20ms/230VAC

Over-load protection 110%~150% of related output power

Over-voltage protection 105%~150% of related output voltage

**Ambient conditions**

Working temperature(see load derating curve) -10°C ~+50°C

Working humidity(non condensing) 20~90%RH

Storage temp/humidity(non condensing) -25 ~ +85°C, 10 ~ 95%RH

**Safety and EMC**

Safety standards Meet UL60950, IEC60950

Withstand voltage IP-O/P:3kVAC IP-FG:1.5kVAC O/P-FG:0.5kVAC

Insulation Impedance IP-O/P/FG:100MQ megger/500VDC

Leakage current ( typical) &lt;2mA/230VAC

EMI conduction and radiation Meet EN55022CLASS A

**Others**

Dimensions(L/W/H mm)(see installation dimensions)

143 / 58 / 36

Quality

# Customized switching power supply

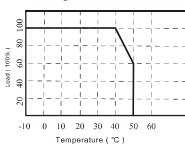
**USP-50MHN-12S24**



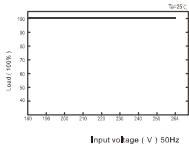
## Feature:

1. Input voltage range 180~264VAC
2. Protections: short circuit/over-load/over-voltage
3. Cooling by air convection
4. 100% full load burn-in test
5. Power-on indication(LED)
6. Small size and light weight
7. Two-year warranty

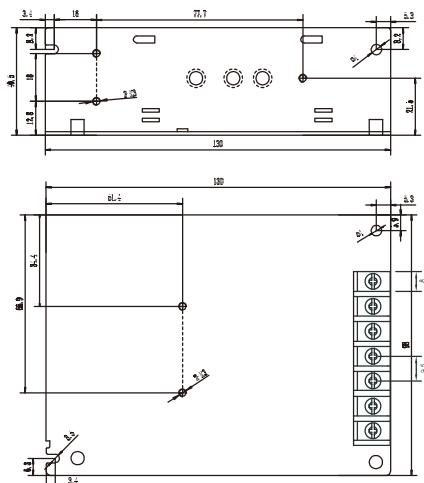
Derating curve



Static feature curve



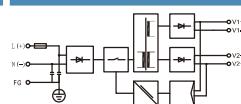
Installation dimensions



Note :

1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance is a sum of voltage set up tolerance, voltage regulation and current regulation.

Electrical schematic

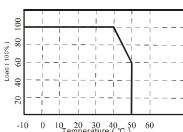
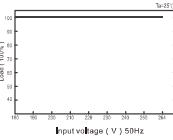
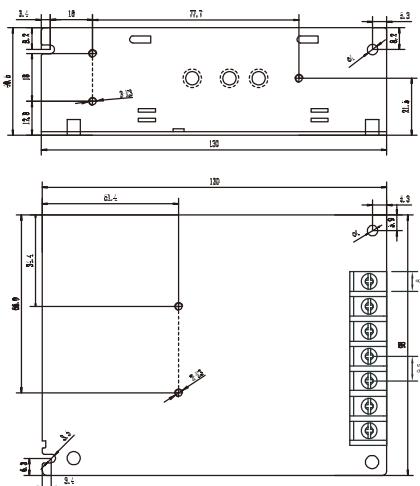


Ordering data

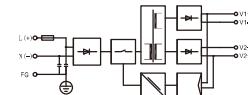
Type	Order no.
USP-50MHN-12S24	462191
<b>Output data</b>	
Input data	
Related input voltage	200VAC~240VAC
Input voltage range	180~264VAC
Input current(typical)	0.7A
Frequency range	47~63Hz
Efficiency(typical)	75%
Output data	V1 V2
Related output voltage	12V 24V
Setting range of the output voltage	+10.0% +10.0%
Output current range	0~2A 0~1A
Power	48W
Ripple and noise(Max) <sup>note2</sup>	V1 ripple: < 100mVp, V2 ripple: < 150mVp
Voltage tolerance <sup>note3</sup>	±2.0%
Setup/rise time(Max)	100ms, 100ms/230VAC
Hold up time(Min)	20ms/230VAC
Over-load protection	110%~150% of related output power
Over-voltage protection	105%~150% of related output voltage
<b>Ambient conditions</b>	
Working temperature(see load derating curve)	-10°C~+50°C
Working humidity(non condensing)	20~90%RH
Storage temp/humidity(non condensing)	-25~+85°C, 10~95%RH
<b>Safety and EMC</b>	
Safety standards	megger UL60950, IEC60950
Withstand voltage	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC
Insulation Impedance	I/P-O/P, I/P-FG, O/P-G:100MΩ megger/500VDC
Leakage current ( typical)	<2mA/230VAC
EMI conduction and radiation	megger EN55022 CLASS A
<b>Others</b>	
Dimensions(L/W/H mm)(see installation dimensions)	130 / 97 / 40
Quality	

**USP-50MHN-12S2****Feature:**

1. Input voltage range: 180~264VAC
2. Protections: short circuit/over-load/over-voltage
3. Cooling by natural air
4. 100% full load burn-in test
5. Power-on indication(LED)
6. Small size and light weight
- 5 Two-year warranty

**Derating curve****Static feature curve****Installation dimensions****Note :**

1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance is a sum of voltage set up tolerance, voltage regulation and current regulation.

**Electrical schematic****Ordering data****Type** **Order no.**

USP-50MHN-12S2 462192

**Output data****Input data**

Related input voltage 200VAC~240VAC

Input voltage range 180~264VAC

Input current(typical) 0.7A

Frequency range 47~63Hz

Efficiency(typical) 75%

**Output data** **V1** **V2**

Related output voltage 12V 12V

Related output voltage 2A 2A

Setting range of the output voltage +10.0% +10.0%

Output current range 0~2A 0~2A

Power 48W

Ripple and noise(Max)<sup>note2</sup> V1ripple: < 100mVp, V2ripple: < 100mVpVoltage tolerance note3 <sup>note3</sup> ±2.0%

Setup/rise time(Max) 100ms, 100ms/230VAC

Hold up time(Min) 20ms/230VAC

Over-load protection 110%~150% of related output power

Over-voltage protection 105%~150% of related output voltage

**Ambient conditions**

Working temperature(see load derating curve) -10°C ~+50°C

Working humidity(non condensing) 20~90%RH

Storage temp/humidity(non condensing) -25 ~+85°C, 10 ~95%RH

**Safety and EMC**

Safety standards Meet UL60950, IEC60950

Withstand voltage IP-O/P:3kVAC IP-FG:1.5kVAC O/P:FG:0.5kVAC

Insulation Impedance IP-O/P/FG:O/P-FG:100MQ megger/500VDC

Leakage current ( typical) &lt;2mA/230VAC

EMI conduction and radiation Meet EN55022CLASS A

**Others**

Dimensions(L/W/H mm)(see installation dimensions) 130 / 97 / 40

Quality

# Customized switching power supply

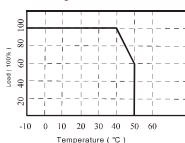
**USP-150MHN-12S2 E**



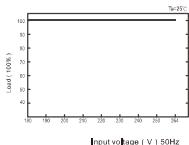
## Feature:

1. Input voltage range 170~264VAC
2. Protections: short circuit/over-load/over-voltage
3. Cooling by air convection
4. 100% full load burn-in test
5. Power-on indication(LED)
6. Small size and light weight
7. Two-year warranty

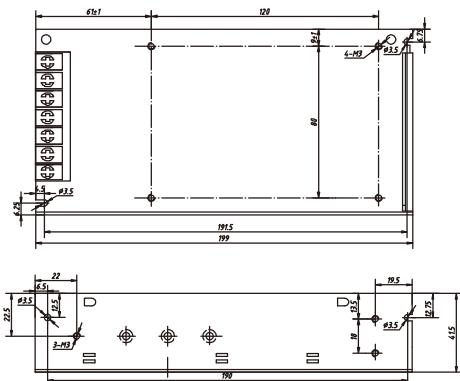
Derating curve



Static feature curve



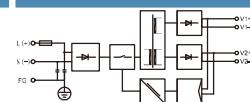
Installation dimensions



Note :

1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance is a sum of voltage set up tolerance, voltage regulation and current regulation.

Electrical schematic



Ordering data

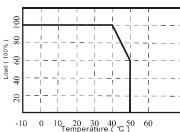
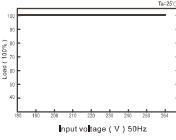
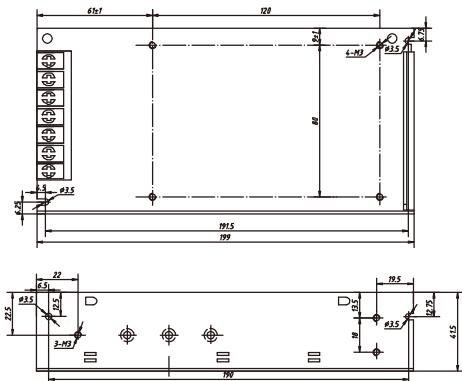
Type	Order no.
USP-150MHN-12S2 E	462195
<b>Output data</b>	
Input data	
Related input voltage	200VAC~240VAC
Input voltage range	170~264VAC
Input current(typical)	2A/230V
Frequency range	47~63Hz
Efficiency(typical)	83%
<b>Output data</b>	
V1	V2
Related output voltage	12V
Setting range of the output voltage	+10.0%
Output current range	0~6.25A
Power	150W
Ripple and noise(Max) <sup>note2</sup>	≤200mVp
Voltage tolerance note3	±1.0%
Setup/rise time(Max)	<1s,<100ms/230VAC
Hold up time(Min)	20ms/230VAC
Over-load protection	105%~150% of related output power
Over-voltage protection	105%~150% of related output voltage
<b>Ambient conditions</b>	
Working temperature(see load derating curve)	-10°C ~ +40°C
Working humidity(non condensing)	20~90%RH
Storage temp/humidity(non condensing)	-30 ~ +85°C, 10 ~ 95%RH
<b>Safety and EMC</b>	
Safety standards	megger UL1950
Withstand voltage	IP-O/P:3KVAC IP-FG:1.5KVAC O/P-FG:0.5KVAC
Insulation Impedance	I/P-O/P/I/P-FG,O/P-G:100MΩ megger/500VDC
Leakage current ( typical)	L-FG230VAC,1mA,1min / N-FG230VAC,1mA,1min
EMI conduction and radiation	megger En60950

Others

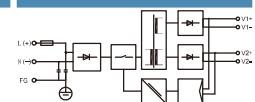
Dimensions(L/W/H mm)(see installation dimensions)	199 / 96 / 42
Quality	

**USP-150MHN-12S24****Feature:**

1. Input voltage range: 170~264VAC
2. Protections: short circuit/over-load/over-voltage
3. Cooling by natural air
4. 100% full load burn-in test
5. Power-on indication(LED)
6. Small size and light weight
- 5 Two-year warranty

**Derating curve****Static feature curve****Installation dimensions**

**Note :**  
 1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.  
 2. Ripples & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.  
 3. Tolerance = sum of voltage set up tolerance, voltage regulation and current regulation.

**Electrical schematic****Ordering data****Type** Order no.

USP-150MHN-12S24 462196

**Output data****Input data**

Related input voltage 200VAC~240VAC

Input voltage range 170~264VAC

Input current(typical) 2A/230V

Frequency range 47~63Hz

Efficiency(typical) 83%

**Output data**

V1 V2

Related output voltage 12V 24V

Related output voltage 5A 6A

Setting range of the output voltage ±10.0% ±10.0%

Output current range 0.5~5A 0.6~6A

Power 150W

Ripple and noise(Max)<sup>note2</sup> 120mVp 240mVp

Voltage tolerance note3 ±1% ±10%

Setup/rise time(Max) &lt;1s,&lt;100ms/230VAC

Hold up time(Min) 20ms/230VAC

Over-load protection 105%~150% of related output power

Over-voltage protection 105%~150% of related output voltage

**Ambient conditions**

Working temperature(see load derating curve) -10°C ~+40°C

Working humidity(non condensing) 20~90%RH

Storage temp/humidity(non condensing) -30 ~+85°C, 10 ~95%RH

**Safety and EMC**

Safety standards Meet UL1950

Withstand voltage IP-O/P:3kVAC IP-FG:1.5kVAC O/P:FG:0.5kVAC

Insulation Impedance IP-O/P IP-FG,O/P:FG:100MQ megger/500VDC

Leakage current ( typical) L-FG230VAC,1mA,1min / N-FG230VAC,1mA,1min

EMI conduction and radiation Meet EN60950

**Others**

Dimensions(L/W/H mm)(see installation dimensions)

199 / 96 / 42

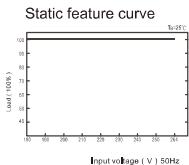
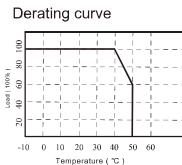
Quality

# Customized switching power supply

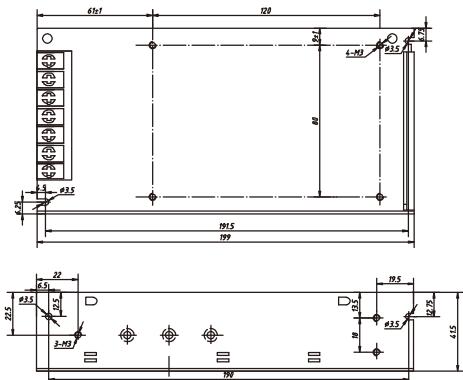
**USP-150MHN-24S12**

## Feature:

1. Input voltage range 170~264VAC
2. Protections: short circuit/over-load/over-voltage
3. Cooling by air convection
4. 100% full load burn-in test
5. Power-on indication(LED)
6. Small size and light weight
7. Two-year warranty



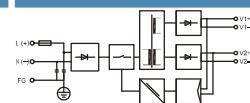
## Installation dimensions



## Note :

1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance is a sum of voltage set up tolerance, voltage regulation and current regulation.

## Electrical schematic



## Ordering data

Type USP-150MHN-24S12 Order no. 462197

## Output data

Input data		
Related input voltage	200VAC~240VAC	
Input voltage range	170~264VAC	
Input current(typical)	2A/230V	
Frequency range	47~63Hz	
Efficiency(typical)	83%	
Output data	V1	V2
Related output voltage	24V	12V
Related output voltage	6A	5A
Setting range of the output voltage	±10.0%	±10.0%
Output current range	0~6A	0~5A
Power	150W	
Ripple and noise(Max) <sup>note2</sup>	240mVp	120mVp
Voltage tolerance note3 <sup>note3</sup>	±1%	±10%
Setup/rise time(Max)	<1s,<100ms@230VAC	
Hold up time(Min)	20ms@230VAC	
Over-load protection	105%~150% of related output power	
Over-voltage protection	105%~150% of related output voltage	
Ambient conditions		
Working temperature(see load derating curve)	-10°C ~ +40°C	
Working humidity(non condensing)	20~90%RH	
Storage temp/humidity(non condensing)	-30 ~ +85°C, 10 ~ 95%RH	
Safety and EMC		
Safety standards	megger UI1950	
Withstand voltage	I/P-O/P:3KVAC I/P+FG:1.5KVAC O/P+FG:0.5KVAC	
Insulation Impedance	I/P-O/P/I/P+FG,O/P+G:100MΩ megger/500VDC	
Leakage current ( typical)	L-FG230VAC,1mA,1min / N-FG230VAC,1mA,1min	
EMI conduction and radiation	megger En60950	
Others		
Dimensions(L/W/H mm)(see installation dimensions)	199 / 96 / 42	
Quality		

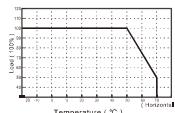
## USP-250MHN-24R12G



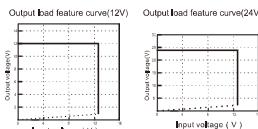
### Feature:

1. Input voltage range: 180~264VAC
2. Protections: short circuit/over-load
3. Working temperature range(-20°C~70°C)
4. Meet safety standards and EMC standards
5. Suit industrial control motor load industry, and prevent output voltage from pouring back
6. Input and output terminals with protective covers for safer use
7. High efficiency ,long service life, high reliability and 100% full load burn-in test
8. Two-year warranty

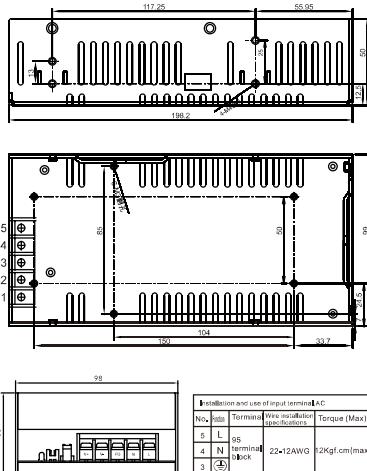
Derating curve



Static feature curve



Installation dimensions



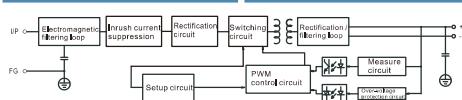
Installation and use of input terminals DC			
No.	Function	Terminal	Wire insulation length
Cn1	Switching of output voltage	1# twisted pair (see P.9 Note 3)	190~200mm (white)
Cn2		2~4# terminal block	12AWG (max)

Installation and use of output terminals DC			
No.	Function	Terminal	Wire insulation length
2	-V	5# twisted pair (see P.9 Note 3)	190~200mm (black)
1	V	6# twisted pair (see P.9 Note 3)	190~200mm (black)

- Note :
1. When used for shock load industries, such as industrial control, output power and output current of peak up to 288W and 12.5±1A.
  2. Ripple and noise is connected by 12# twisted pair, The oscilloscope bandwidth is set to 20MHz, use Tektronix P3010100M polypropylene capacitor and 10uF electrolytic capacitor, and applies Sample scanning mode.
  3. Schematic diagram of output ripple and dynamic test: connect power input to AC SOURCE, and connect power output to electronic load through the fixture board, (30cm×2cm is used for test)
  4. Sampling line samples directly from the output port of power supply. Power line selects the wire with insulation of the corresponding wire diameter according to the size of the output current.
  5. Take derate when low input voltage or high temperature of working environment (see more from derating curve)
  6. Test spare parts: 500VDC of test voltage, 25°C of test temperature, and 65% RH of relative humidity.

### Electrical schematic



### Ordering data

Type	Order no.
USP-250MHN-24R12G	462239

### Output data

Input data	
Related input voltage	180~264VAC , 47~63Hz
Input voltage range	< 65A(220Vac Cold start)
Input current(typical)	3A/180~264VAC
Frequency range	≥87%(220Vac input,24V Output & Full load)
Efficiency(typical)	≥87%(220Vac input,24V Output & Full load)
Output data	
Related output voltage	12V(Default output) 12V,STB disconnected 11.8~12.3V
Related output voltage	10V
Setting range of the output voltage	0~10A
Output current range	12V Output 120W 0~70°C,<=240mV~20~0°C,<=480mV
Power	10%~100%Load: V <sub>p-p</sub> <=±2400mV 10%~50%Load: V <sub>p-p</sub> <=±1800mV 50%~100%Load: V <sub>p-p</sub> <=±1600mV
Ripple and noise <sup>note2</sup>	3S/15mS ( 220Vac input, Full load)
Voltage tolerance <sup>note3</sup>	±3%/ ± 1%
Setup/rise time(Max)	± 3%
Hold up time(Min)	± 3%

### Ambient conditions

Working temperature(see load derating curve)	11.5A ~ 15.0A Constant current (Test method: current output current until self-recover protection)
Working humidity(non condensing)	Protection mode:Limited by constant current, and self-recover after eliminating over-power
Storage temp/humidity(non condensing)	Protection mode:Limited by constant current , and self-recover after eliminating over-power

### Safety and EMC

Safety standards	20~70°C ; 20%~90%RH
Withstand voltage	40~+85°C,10~95%RH

### Insulation Impedance

EMI conduction and radiation	Meet GB4943/EN60950
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Input/output:3KVac/10mA ; Output/shell:1.5KVac/10mA ; Output/shell:0.5KVDC/10mA	Test time 1min
Input to grounds:3.5mA ; Input/outputs:0.25mA	
Input/output: 100M ohms ; Output/shell: 100M ohms ; Output/shell: 100M ohms	

### Others

Dimensions(L/W/H mm)(see installation dimensions)	199 / 99 / 50
Quality	0.86Kg



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