



# Switching power supply



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## 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 pilot 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 A 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



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.

Switching 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:

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.

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



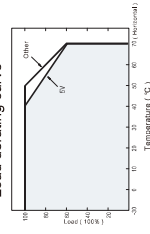
No.	Content	Specification code
1	Output power	15W~1500W
2	Structure code	M: Low voltage P: Plastic shell U: U-shaped bracket(shell) O: Open frame N: Mini metal shell
3	Input voltage range	L: Voltage range(85~127VAC) H: Switch(175~264VAC) F: Universal(85~264VAC) S: Universal(115V/230V) T: Three phase(380VAC)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

USP-35MFN-05G L

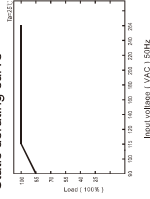


- Feature:**
1. Input voltage range;
  2. Protections: short circuit/over-current/over-voltage
  3. Cooling by air
  4. 100% full load aging test
  5. Operable at an altitude of 5000 meters
  6. Small size light weight, and high efficiency
  7. Power-on indication(LED)
  8. Low ripple and noise
  9.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

Load derating curve

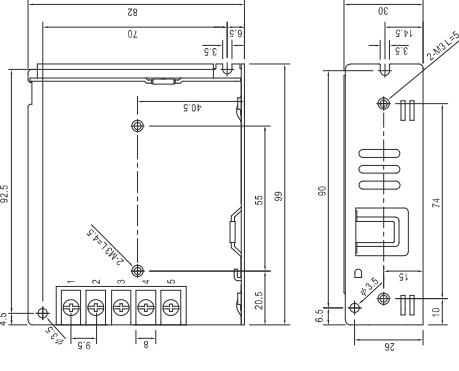


Static derating curve



Dimensions

Unit: mm

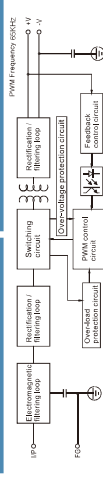


Pin No.	Distribution	Pin No.	Distribution
1	AC IN	4	DC OUTPUT +V
2	AC L	5	DC OUTPUT -V
3	FG ♂		

Notes :

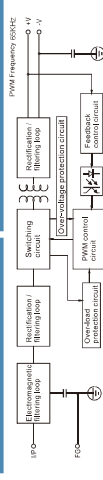
1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μf & 47μf parallel capacitor.
3. Tolerance is a sum of set up tolerance, voltage 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	80mV(p-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. The recovery time is less than 5s after removal of short circuit	
Over-voltage protection	115%~135% of rated output voltage lums 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	IP-O-P:3KVAC IP-F-G:2KVAC O-P-F-G:1.0KVAC IP-O-P:IP-F-G:O-P-F-G:	
Insulation Impedance	100MD Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC60335-1,IEC61558-1,GB4943.1	
EMC standards	Meet EN55022(CLSRP22)CLASS B; GB9254 ClassB,EN55014,EN61000-3-2,3	
<b>Others</b>		
Dimension(L*W*H)(see installation dimensions)	99 / 82 / 30	
Quality	0.17Kg	

Electrical schematic

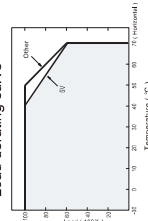


Ordering data	Type	Order no.
	USP-35MFN-12G L	462148
	USP-35MFN-24G L	462149
<b>Input data</b>		
Output voltage,DC	12V	24V
Output voltage accuracy	±1%	±1%
Rated output current	3A	1.5A
Output current range	0~3A	0~1.5A
Output power	36W	36W
Ripple and noise	120mV(p-p)	150mV(p-p)
Setting range of voltage,DC	±10%	±10%
Hold up time	30ms(230V(Full load))	30ms(230V(Full load))
<b>Input data</b>		
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)
<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.	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. The recovery time is less than 5s after removal of short circuit	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 lums 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 lums 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	-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	IP-O-P:3KVAC IP-F-G:2KVAC O-P-F-G:1.0KVAC IP-O-P:IP-F-G:O-P-F-G:	IP-O-P:3KVAC IP-F-G:2KVAC O-P-F-G:1.0KVAC IP-O-P:IP-F-G:O-P-F-G:
Insulation Impedance	100MD Ohms/500VDC/25°C/70%RH	100MD Ohms/500VDC/25°C/70%RH
<b>Standards</b>		
Safety standards	Meet IEC60335-1,IEC61558-1,GB4943.1	Meet IEC60335-1,IEC61558-1,GB4943.1
EMC standards	Meet EN55022(CLSRP22)CLASS B; GB9254 ClassB,EN55014,EN61000-3-2,3	Meet EN55022(CLSRP22)CLASS B; GB9254 ClassB,EN55014,EN61000-3-2,3
<b>Others</b>		
Dimension(L*W*H)(see installation dimensions)	99 / 82 / 30	99 / 82 / 30
Quality	0.17Kg	0.17Kg

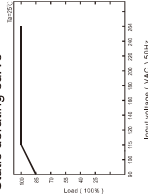
Feature:

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

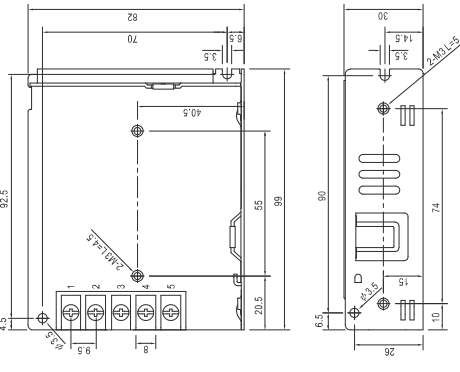


Static derating curve



Dimensions

Unit: mm

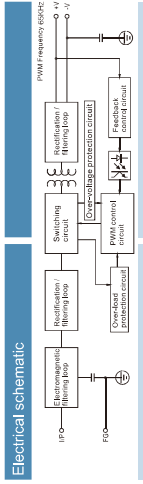


Pin No.	Distribution	Pin No.	Distribution
1	ACIN	4	DC OUTPUT-V
2	ACLN	5	DC OUTPUT+V
3	PGND		

Notes :

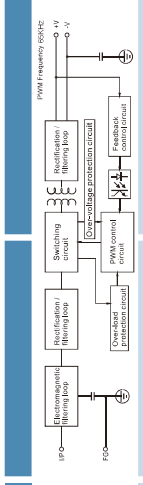
1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripples & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor.
3. Tolerance is a sum of set up tolerance, voltage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

USP-50MFN-05G L



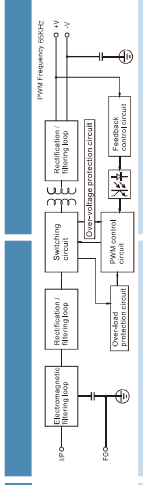
Ordering data	Type	Order no.
USP-50MFN-05G L		462150
Input data		
Output voltage,DC	5V	
Output voltage accuracy	±2%	
Rated output current	10A	
Output current range	0-10A	
Output power	50W	
Ripple and noise	80mV(P-P)	
Setting range of voltage,DC	±10%	
Hold up time	30ms(230V(Full load))	
Input data		
Input voltage range	85-264VAC/47-63Hz,120-370VDC	
Input voltage AC	1.2A(115V) 0.8A(230VAC)	
Efficiency	86%	
Shock current	Turn on current,cooling 50A(230VAC)	
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	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 lums 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	IP-O/P:3KVAC IP-F/G:2KVAC O/P-F/G:0.5KVAC IP-O/P:IP-F/G: O/P-F/G:	
Insulation Impedance	100MΩ Ohms/500VDC/25°C/70%RH	
Standards	Meet IEC60335-1,IEC61155B-1,GB4943.1 Meet EN55022,CLSPR22,CLASS B, GB9254 ClassB,EN55014,EN61000-3-2,3	
EMC standards		
Others		
Dimension(L*W*H)(see installation dimensions)	99 / 82 / 30	
Quality	0.18Kg	

USP-50MFN-12G L



Ordering data	Type	Order no.
USP-50MFN-12G L		462151
Input data		
Output voltage,DC	12V	
Output voltage accuracy	±1%	
Rated output current	4.2A	
Output current range	0-4.2A	
Output power	50.4W	
Ripple and noise	120mV(P-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	1.2A(115V) 0.8A(230VAC)	
Efficiency	87%	
Shock current	Turn on current,cooling 50A(230VAC)	
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	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 lums 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	IP-O/P:3KVAC IP-F/G:2KVAC O/P-F/G:0.5KVAC IP-O/P:IP-F/G: O/P-F/G:	
Insulation Impedance	100MΩ Ohms/500VDC/25°C/70%RH	
Standards	Meet IEC60335-1,IEC61155B-1,GB4943.1 Meet EN55022,CLSPR22,CLASS B, GB9254 ClassB,EN55014,EN61000-3-2,3	
EMC standards		
Others		
Dimension(L*W*H)(see installation dimensions)	99 / 82 / 30	
Quality	0.18Kg	

USP-50MFN-24G L



Ordering data	Type	Order no.
USP-50MFN-24G L		462152
Input data		
Output voltage,DC	24V	
Output voltage accuracy	±1%	
Rated output current	2.2A	
Output current range	0-2.2A	
Output power	52.8W	
Ripple and noise	150mV(P-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	1.2A(115V) 0.8A(230VAC)	
Efficiency	89%	
Shock current	Turn on current,cooling 50A(230VAC)	
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	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 lums 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	IP-O/P:3KVAC IP-F/G:2KVAC O/P-F/G:0.5KVAC IP-O/P:IP-F/G: O/P-F/G:	
Insulation Impedance	100MΩ Ohms/500VDC/25°C/70%RH	
Standards	Meet IEC60335-1,IEC61155B-1,GB4943.1 Meet EN55022,CLSPR22,CLASS B, GB9254 ClassB,EN55014,EN61000-3-2,3	
EMC standards		
Others		
Dimension(L*W*H)(see installation dimensions)	99 / 82 / 30	
Quality	0.18Kg	





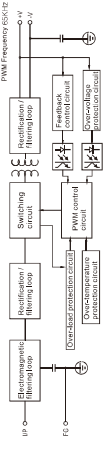
USP-150MFN-12G L



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

Electrical schematic



Ordering data	Type	Order no.
	USP-150MFN-12G L	462198

Output voltage,DC	12V
Output voltage accuracy	±1%
Rated output current	12.5A
Output current range	0-12.5A
Output power	150W
Ripple and noise	150mV/PP
Setting range of voltage,DC	±10%
Hold-up time	16ms/230V(Full load)

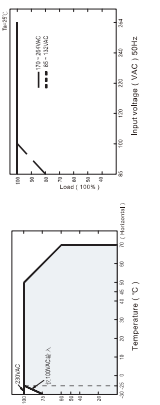
Input data	
Input voltage range	85-264VAC/47-63Hz/120-370VDC
Input voltage AC	4A/115V 2A/230VAC
Efficiency	87%
Shock current	Turn on current,cooling 55A/230VAC
Leakage current	<0.75mA/240VAC

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:hiccup mode. 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 reset to restore after removal of fault.

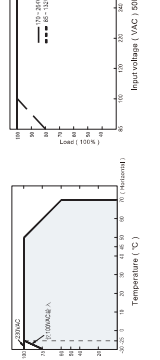
Ambient conditions	
Working temperature(see derating curve)	-30°C→+70°C; 20%-90%RH
Storage temp/humidity(non condensing)	-40°C→+85°C; 10%-95%RH
Vibration resistance	10-500Hz,3G 10min/1 cycle , 60min , each axis
Safety	IP-OP:3KVAC IP-FG:2KVAC OP-FG:0.5KVAC
Withstand voltage	IP-OP/IP-FG:OP-FG:
Insulation Impedance	100MΩ,Onms/500VDC/25°C/70%RH

Standards	
Meet UL 60950-1,ULV EN60950-1,GB4943	
Meet EN60922(CLSPR22)CLASS B, GB9234 ClassE/EN61050-2/3	
EMC standards	
Others	
Dimensions(L*W*H mm)(see installation dimensions)	159 / 97 / 30
Quality	0.45Kg

Load derating curve

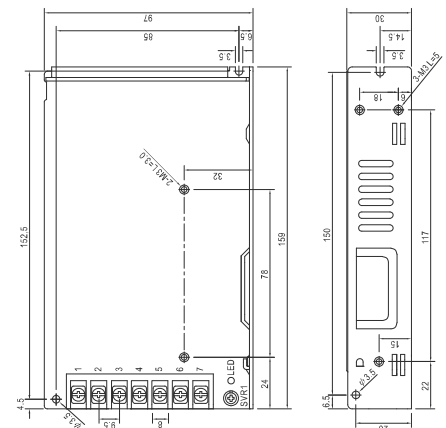


Static derating curve



Dimensions

Unit : mm



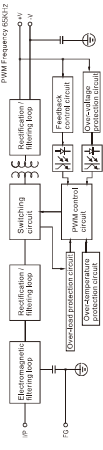
Notes :

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 12"twisted pair-wire terminated with a 0.1μf & 47μf 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-24G L



Electrical schematic



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

Output voltage,DC	24V
Output voltage accuracy	±1%
Rated output current	6.5A
Output current range	0-6.5A
Output power	150W
Ripple and noise	200mV/PP
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:hiccup mode. 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 reset 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	IP-OP:3KVAC IP-FG:2KVAC OP-FG:0.5KVAC
Withstand voltage	IP-OP/IP-FG:OP-FG:
Insulation Impedance	100MΩ,Onms/500VDC/25°C/70%RH

Standards	
Meet UL 60950-1,ULV EN60950-1,GB4943	
Meet EN60922(CLSPR22)CLASS B, GB9234 ClassE/EN61050-2/3	
EMC standards	
Others	
Dimensions(L*W*H mm)(see installation dimensions)	159 / 97 / 30
Quality	0.45Kg



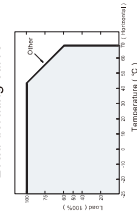




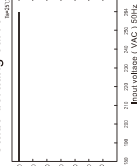
Feature:

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

Load derating curve

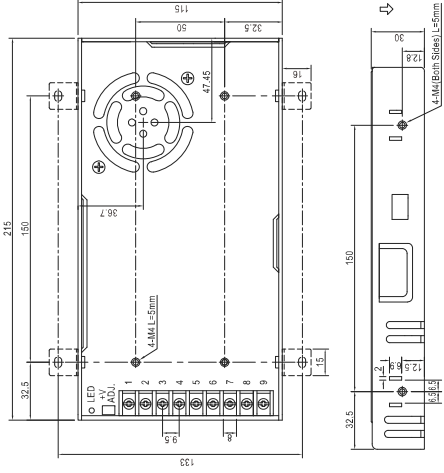


Static derating curve



Dimensions

Unit : mm



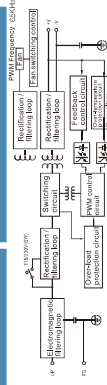
Notes:

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
  2. 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
- 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.

USP-350MHN-05G L



Electrical schematic

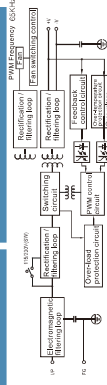


Ordering data	Type	Order no.
	USP-350MHN-05G L	462200
<b>Input data</b>		
Output voltage,DC	5V	
Output voltage accuracy	±1.5%	
Rated output current	60A	
Output current range	0-60A	
Output power	300W	
Ripple and noise	150mV/PP	
Setting range of voltage,DC	10%	
Setup time	16ms/230V(Full load)	
<b>Input data</b>		
Input voltage range	180-264VAC,47-65Hz,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>		
Overcurrent protection	Rated output power 110%-140% 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 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.	
<b>Function</b>		
Fan switch control	RTH3 > 50°C 风扇开启, < 40°C 风扇关闭	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-25°C → +70°C; 20%-90%RH	
Storage temperature(humidity(non condensing)	-40°C → +85°C; 10%-95%RH	
<b>Safety</b>		
Withstand voltage	IP-O/P:3KVAC IP-F/G:2KVAC O/P-F/G:0.5KVAC IP-O/P:IP-F/G:O/P-F/G:	
Insulation Impedance	100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet UL60950-1, TUV EN60950-1, GB4943 Meet EN55022(CLSPR22)CLASS B.	
EMC standards	GB9254 ClassB,EN55014,EN61000-3-2,3	
<b>Others</b>		
Dimensions(L*W*H mm)(see installation dimensions)	215 / 115 / 30	
Quality	0.70Kg	

USP-350MHN-12G L



Electrical schematic

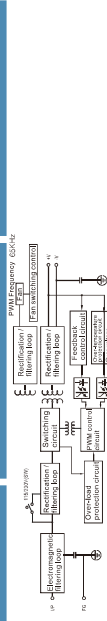


Ordering data	Type	Order no.
	USP-350MHN-12G L	462201
<b>Input data</b>		
Output voltage,DC	12V	
Output voltage accuracy	±1.5%	
Rated output current	29A	
Output current range	0-29A	
Output power	348W	
Ripple and noise	150mV/PP	
Setting range of voltage,DC	10%	
Setup time	16ms/230V(Full load)	
<b>Input data</b>		
Input voltage range	180-264VAC,47-65Hz,240-370VDC	
Input voltage AC	3.4A/230VAC	
Efficiency	85%	
Shock current		
Leakage current	< 2mA/240VAC	
<b>Protections</b>		
Overcurrent protection	Rated output power 110%-140% 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 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.	
<b>Function</b>		
Fan switch control	RTH3 > 50°C 风扇开启, < 40°C 风扇关闭	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-25°C → +70°C; 20%-90%RH	
Storage temperature(humidity(non condensing)	-40°C → +85°C; 10%-95%RH	
<b>Safety</b>		
Withstand voltage	IP-O/P:3KVAC IP-F/G:2KVAC O/P-F/G:0.5KVAC IP-O/P:IP-F/G:O/P-F/G:	
Insulation Impedance	100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet UL60950-1, TUV EN60950-1, GB4943 Meet EN55022(CLSPR22)CLASS B.	
EMC standards	GB9254 ClassB,EN55014,EN61000-3-2,3	
<b>Others</b>		
Dimensions(L*W*H mm)(see installation dimensions)	215 / 115 / 30	
Quality	0.70Kg	

USP-350MHN-24G L



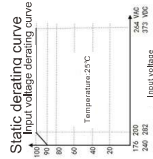
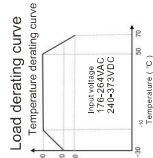
Electrical schematic



Ordering data	Type	Order no.
	USP-350MHN-24G L	462202
<b>Input data</b>		
Output voltage,DC	24V	
Output voltage accuracy	±1%	
Rated output current	14.6A	
Output current range	0-14.6A	
Output power	350.4W	
Ripple and noise	150mV/PP	
Setting range of voltage,DC	10%	
Setup time	16ms/230V(Full load)	
<b>Input data</b>		
Input voltage range	180-264VAC,47-65Hz,240-370VDC	
Input voltage AC	3.4A/230VAC	
Efficiency	87%	
Shock current		
Leakage current	< 2mA/240VAC	
<b>Protections</b>		
Overcurrent protection	Rated output power 110%-140% 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 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.	
<b>Function</b>		
Fan switch control	RTH3 > 50°C 风扇开启, < 40°C 风扇关闭	
<b>Ambient conditions</b>		
Working temperature(see derating curve)	-25°C → +70°C; 20%-90%RH	
Storage temperature(humidity(non condensing)	-40°C → +85°C; 10%-95%RH	
<b>Safety</b>		
Withstand voltage	IP-O/P:3KVAC IP-F/G:2KVAC O/P-F/G:0.5KVAC IP-O/P:IP-F/G:O/P-F/G:	
Insulation Impedance	100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet UL60950-1, TUV EN60950-1, GB4943 Meet EN55022(CLSPR22)CLASS B.	
EMC standards	GB9254 ClassB,EN55014,EN61000-3-2,3	
<b>Others</b>		
Dimensions(L*W*H mm)(see installation dimensions)	215 / 115 / 30	
Quality	0.70Kg	

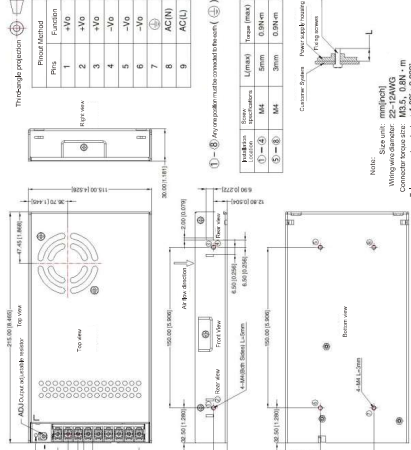
Feature:

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



Dimensions

Unit : mm



- Note :
1. All parameters are derived at T<sub>a</sub>=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 reference test, with <math>7\mu F</math> electrolytic capacitors and 0.1μF 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.

USP-450MHN-12G L



Electrical schematic

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	200mV/PP	
Setting range of voltage,DC	10.2-13.9V	
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%I <sub>o</sub> ,Hiccup protection, self-recovery	
Over-voltage protection	<math>\leq 17.62V</math> (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	IP-O/P:3KVAC IP-F/G:2KVAC O/P-F/G:0.5KVAC IP-O/P:IP-F/G:O/P-F/G:	
Insulation Impedance	100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>	Meet GB4943.1,EN62368-1, BSEN62368-1 IEC/EN/UL623681	
<b>Others</b>		
Dimensions(L*W*H)(see installation dimensions)	215 / 115 / 30	
Quality	0.75Kg	

USP-450MHN-24G L



Electrical schematic

Ordering data	Type	Order no.
	USP-450MHN-24G L	462222
<b>Input data</b>		
Output voltage,DC	24V	
Output voltage accuracy	±1%	
Rated output current	18.8A	
Output current range	0-18.8A	
Output power	600W	
Ripple and noise	200mV/PP	
Setting range of voltage,DC	21.6-28.8V	
Hold up time	16ms/230V	
<b>Input data</b>		
Input voltage range	176-264VAC, 240-370VDC	
Input voltage AC	5A/230VAC	
Efficiency	87%	
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%I <sub>o</sub> ,Hiccup protection, self-recovery	
Over-voltage protection	<math>\leq 38V</math> (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	IP-O/P:3KVAC IP-F/G:2KVAC O/P-F/G:0.5KVAC IP-O/P:IP-F/G:O/P-F/G:	
Insulation Impedance	100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>	Meet GB4943.1,EN62368-1, BSEN62368-1 IEC/EN/UL623681	
<b>Others</b>		
Dimensions(L*W*H)(see installation dimensions)	215 / 115 / 30	
Quality	0.75Kg	

USP-450MHN-36G L



Electrical schematic

Ordering data	Type	Order no.
	USP-450MHN-36G L	462223
<b>Input data</b>		
Output voltage,DC	36V	
Output voltage accuracy	±1%	
Rated output current	12.5A	
Output current range	0-12.5A	
Output power	597.6W	
Ripple and noise	200mV/PP	
Setting range of voltage,DC	32.4-39.6V	
Hold up time	16ms/230V	
<b>Input data</b>		
Input voltage range	176-264VAC, 240-370VDC	
Input voltage AC	5A/230VAC	
Efficiency	87.5%	
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%I <sub>o</sub> ,Hiccup protection, self-recovery	
Over-voltage protection	<math>\leq 52V</math> (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	IP-O/P:3KVAC IP-F/G:2KVAC O/P-F/G:0.5KVAC IP-O/P:IP-F/G:O/P-F/G:	
Insulation Impedance	100MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>	Meet GB4943.1,EN62368-1, BSEN62368-1 IEC/EN/UL623681	
<b>Others</b>		
Dimensions(L*W*H)(see installation dimensions)	215 / 115 / 30	
Quality	0.75Kg	

USP-600MHN-12G L

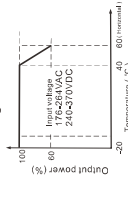


- Feature:**
1. Input voltage range : 176~264VAC/240~370VDC
  2. AC and DC (input voltage at same terminal)
  3. Working temperature range : -20°C ~ +60°C
  4. Power-on indication(LED)
  5. Meet requirement of 5000 altitude
  6. Equipped with DC fan forcing cooling air
  7. Over-temperature/output short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

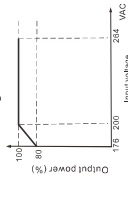
Electrical schematic

Ordering data	Type	Order no.
Ordering data	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	150mV/PP	
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%Io, Hiccup protection, self-recovery	
<b>Over-voltage protection</b>	≤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-OP:3KVAC IP-FG:1.5KVAC OIP-FG:0.5KVAC	
Insulation Impedance	IP-OP/IP-FG/OIP-FG: 50MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet GB4943.1(S13252 Part1)&EN62368-1, BSEN62368-1 IEC/EN/UL623681	
<b>Others</b>		
Dimensions(L*W*H mm)(see installation dimensions)	267.3 / 106 / 40	
Quality	1.1Kg	

Load derating curve

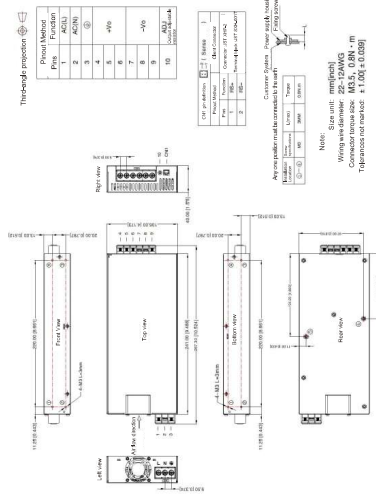


Static derating curve



Dimensions

Unit : mm



- Note :**
1. All parameters are derived at  $T_a=25^\circ\text{C}$ , humidity <math><75\%RH</math>, 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 reference test, with <math>\le 7Uf</math> 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.

Electrical schematic

Ordering data	Type	Order no.
Ordering data	USP-600MHN-24G L	462225
<b>Input data</b>		
Output voltage,DC	24V	
Output voltage accuracy	±1%	
Rated output current	25A	
Output current range	0~25A	
Output power	600W	
Ripple and noise	150mV/PP	
Setting range of voltage,DC	22~26.4V	
Hold up time	20ms@230VAC	
<b>Input data</b>		
Input voltage range	176~264VAC, 240~370VDC	
Input voltage AC	7.5A@230VAC	
Efficiency	87%	
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%Io, Hiccup protection, self-recovery	
<b>Over-voltage protection</b>	≤32.4V (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-OP:3KVAC IP-FG:1.5KVAC OIP-FG:0.5KVAC	
Insulation Impedance	IP-OP/IP-FG/OIP-FG: 50MΩ Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet GB4943.1(S13252 Part1)&EN62368-1, BSEN62368-1 IEC/EN/UL623681	
<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

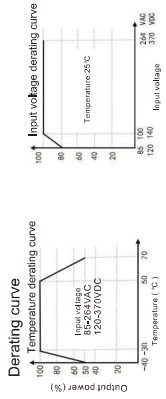


USP-15PFN-05DN



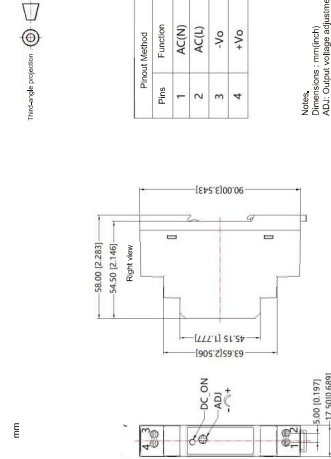
Electrical schematic

- 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. 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. Meet UL/IEC623689、IEC/EN61010 standard
  9. Derating curve UL/IEC62368、IEC/EN61010



Note:  
1. It is apply to temperature derating curve for 85-115VAC/120-170VDC input voltage but need low voltage derating.  
2. The type of product is in natural cold environment. If in a closed environment, please consult us.

Installation dimension



Note:  
Pin1: ADJ. Output voltage adjustment knob  
Pin2: Input voltage range, 240VAC/115VAC  
Pin3: Input voltage range, 115VAC/115VAC  
Pin type: TS35; not to be grounded  
Tolerances not marked: ±1.00 (±0.039)

- Note :**
1. All parameters are derived at T<sub>a</sub>=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 reference test, with ±7UF 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.
Input data	USP-15PFN-05DN	462203
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	
Input data		
Input voltage range	85-264VAC /127-370VDC	
Input voltage AC	0.5A/115VAC/0.25A/230VAC	
Efficiency	80%	
Shock current	Turn on current, loading: 25A/115VAC、15A/230VAC	
Leakage current	<0.5mA/240VAC	
Protections		
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-voltage protection	>110% Self-recovery after removal of load	
Ambient conditions	230VAC, Related load	
Working temperature (see derating curve)	-40°C~+70°C; 20%-90%RH	
Storage temp/humidity (non condensing)	-40°C~+85°C; 10%-95%RH	
Withstand voltage	IP-OIP-4KVAC	
Insulation Impedance	IP-OIP:100MΩ, Ohms/500VDC/25°C/70%RH	
Standards		
Safety standards	Meet IS13252(part1)&EN62368-1, UL/IEC62368-1	
Others		
Dimensions(L*W*H:mm)(see installation dimensions)	90 / 17.5 / 58	
Quality	0.06Kg	

USP-15PFN-12DN



Electrical schematic

Ordering data	Type	Order no.
Input data	USP-15PFN-12DN	462204
Output voltage DC	12V	
Output voltage accuracy	±1%	
Rated output current	1.25A	
Output current range	0~1.25A	
Output power	24W	
Ripple and noise	120mVp-p	
Setting range of voltage DC	10.8-13.8V	
Hold up time	12ms/115VAC, 30ms/230VAC	
Input data		
Input voltage range	85-264VAC /127-370VDC	
Input voltage AC	0.5A/115VAC/0.25A/230VAC	
Efficiency	85%	
Shock current		
Leakage current	<0.5mA/240VAC	
Protections		
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-voltage protection	>110% Self-recovery after removal of load	
Ambient conditions	230VAC, Related load	
Working temperature (see derating curve)	-40°C~+70°C; 20%-90%RH	
Storage temp/humidity (non condensing)	-40°C~+85°C; 10%-95%RH	
Withstand voltage	IP-OIP-4KVAC	
Insulation Impedance	IP-OIP:100MΩ, Ohms/500VDC/25°C/70%RH	
Standards		
Safety standards	Meet IS13252(part1)&EN62368-1, UL/IEC62368-1	
Others		
Dimensions(L*W*H:mm)(see installation dimensions)	90 / 17.5 / 58	
Quality	0.06Kg	

USP-15PFN-24DN

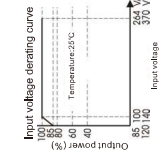
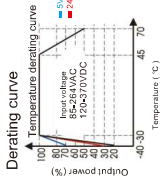


Electrical schematic

Ordering data	Type	Order no.
Input data	USP-15PFN-24DN	462205
Output voltage DC	24V	
Output voltage accuracy	±1%	
Rated output current	0.63A	
Output current range	0~0.63A	
Output power	36W	
Ripple and noise	150mVp-p	
Setting range of voltage DC	21.6-29V	
Hold up time	12ms/115VAC, 30ms/230VAC	
Input data		
Input voltage range	85-264VAC /127-370VDC	
Input voltage AC	0.5A/115VAC/0.25A/230VAC	
Efficiency	88%	
Shock current		
Leakage current	<0.5mA/240VAC	
Protections		
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-voltage protection	>110% Self-recovery after removal of load	
Ambient conditions	230VAC, Related load	
Working temperature (see derating curve)	-40°C~+70°C; 20%-90%RH	
Storage temp/humidity (non condensing)	-40°C~+85°C; 10%-95%RH	
Withstand voltage	IP-OIP-4KVAC	
Insulation Impedance	IP-OIP:100MΩ, Ohms/500VDC/25°C/70%RH	
Standards		
Safety standards	Meet IS13252(part1)&EN62368-1, UL/IEC62368-1	
Others		
Dimensions(L*W*H:mm)(see installation dimensions)	90 / 17.5 / 58	
Quality	0.06Kg	

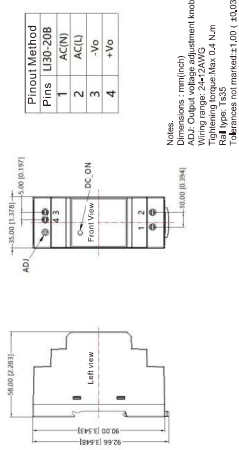
Feature:

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. 4.000VAC 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



Installation dimension

mm



- Note :
1. All parameters are derived at T<sub>a</sub>=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 reference test, with ±7UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to the system earth.
  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

USP-30PFN-05DN



Ordering data	Type	Order no.
Ordering data	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	80mV(p-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, loading 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 in long-term, self-recovery	
Short circuit protection	> 120% <sub>p</sub> 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	IP-OIP-4KVAC	
Insulation Impedance	IP-OIP:100MΩ, Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC62368-1 & EN62368-1 UL1950	
<b>Others</b>		
Dimensions(L*W*H mm)(see installation dimensions)	92.66 / 35 / 58	
Quality	0.115Kg	

Electrical schematic

USP-30PFN-12DN



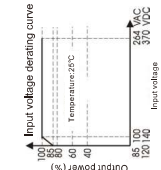
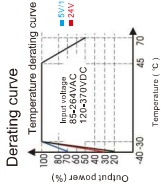
USP-30PFN-24DN



Ordering data	Type	Order no.
Ordering data	USP-30PFN-12DN	462207
<b>Input data</b>		
Output voltage DC	12V	
Output voltage accuracy	±2%	
Rated output current	2A	
Output current range	0~2A	
Output power	24W	
Ripple and noise	120mV(p-p)	
Setting range of voltage DC	10.8~13.8V	
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	88%	
Shock current	Turn on current, loading 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 in long-term, self-recovery	
Short circuit protection	> 120% <sub>p</sub> Self-recovery after removal of load	
	230VAC Related load	
Over-voltage protection	<18V/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	IP-OIP-4KVAC	
Insulation Impedance	IP-OIP:100MΩ, Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC62368-1 & EN62368-1 UL1950	
<b>Others</b>		
Dimensions(L*W*H mm)(see installation dimensions)	92.66 / 35 / 58	
Quality	0.115Kg	

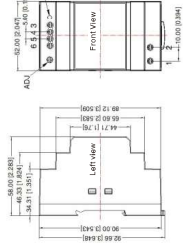
Ordering data	Type	Order no.
Ordering data	USP-30PFN-24DN	462208
<b>Input data</b>		
Output voltage DC	24V	
Output voltage accuracy	±2%	
Rated output current	1.5A	
Output current range	0~1.5A	
Output power	36W	
Ripple and noise	150mV(p-p)	
Setting range of voltage DC	21.6~29V	
Hold up time	12ms/115VAC, 60ms/230VAC	
<b>Input data</b>		
Input voltage range	85~264VAC /127~370VDC	
Input voltage AC	0.9A/115VAC/0.5A/230VAC	
Efficiency	88%	
Shock current	Turn on current, loading 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 in long-term, self-recovery	
Short circuit protection	> 120% <sub>p</sub> Self-recovery after removal of load	
	230VAC Related load	
Over-voltage protection	<35V/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	IP-OIP-4KVAC	
Insulation Impedance	IP-OIP:100MΩ, Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IEC62368-1 & EN62368-1 UL1950	
<b>Others</b>		
Dimensions(L*W*H mm)(see installation dimensions)	92.66 / 35 / 58	
Quality	0.115Kg	

- 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. 4.000VAC 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



**Installation dimension**

mm



Pinout Method	
Pins	LIB-20B
1	ACL
2	AC(N)
3	+V(O)
4	-V(O)
5	+V(O)
6	-V(O)

**Notes:**  
 Dimensions: mm (inch)  
 Mounting hole diameter: 4.5mm (0.177 inch)  
 Wiring range: 24~24AWG  
 Tightening torque: Max 0.4 N·m  
 Torque: 0.4 N·m (0.35 lb·ft)  
 Torque: 0.4 N·m (0.35 lb·ft)  
 Torque: 0.4 N·m (0.35 lb·ft)  
 Torque: 0.4 N·m (0.35 lb·ft)

[LIB-20BxR20]

- Note :**
1. All parameters are derived at T<sub>a</sub>=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 reference test, with ±7UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to the
  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-60PFN-05DN**



**Electrical schematic**

Ordering data	Type	Order no.
Output voltage DC	USP-60PFN-05DN	462209
Output voltage accuracy	5V	±2%
Rated output current	6.5A	0~6.5A
Output current range	32.5W	100mV/p-p
Ripple and noise	15ms/115VAC, 80ms/230VAC	4.9~5.5V
Setting range of voltage DC	85~264VAC /127~370VDC	1.2A/115VAC/0.8A/230VAC
Hold up time	85~264VAC /127~370VDC	15ms/115VAC, 80ms/230VAC
Input data	85~264VAC /127~370VDC	84%
Input voltage range	1.2A/115VAC/0.8A/230VAC	Turn on current, cooling 30A/115VAC 60A/230VAC
Input voltage AC	85~264VAC /127~370VDC	<0.5mA/240VAC
Efficiency	84%	
Shock current	Turn on current, cooling 30A/115VAC 60A/230VAC	
Leakage current	<0.5mA/240VAC	
Protections		
Over-current protection	The recovery time is less than 8s after removal of short circuit	
Short circuit protection	Short-circuit protection in tripterm, self-recovery	
Over-voltage protection	> 120% Self-recovery after removal of load	
Ambient conditions	230VAC Related load	
Working temperature (see derating curve)	<7.5V (Output voltage clamp or hiccup)	
Storage temp/humidity (non condensing)		
Withstand voltage		
Insulation Impedance		
Standards		
Safety standards		
Others		
Dimensions (W*H*mm) (see installation dimensions)		
Quality		

**USP-60PFN-12DN**



**Electrical schematic**

Ordering data	Type	Order no.
Output voltage DC	USP-60PFN-12DN	462210
Output voltage accuracy	12V	±2%
Rated output current	4.5A	0~4.5A
Output current range	54W	120mV/p-p
Ripple and noise	15ms/115VAC, 80ms/230VAC	10.8~13.8V
Setting range of voltage DC	85~264VAC /127~370VDC	15ms/115VAC, 80ms/230VAC
Hold up time	85~264VAC /127~370VDC	85~264VAC /127~370VDC
Input data	85~264VAC /127~370VDC	1.2A/115VAC/0.8A/230VAC
Input voltage range	1.2A/115VAC/0.8A/230VAC	90%
Input voltage AC	85~264VAC /127~370VDC	Turn on current, cooling 30A/115VAC 60A/230VAC
Efficiency	88%	
Shock current	Turn on current, cooling 30A/115VAC 60A/230VAC	
Leakage current	<0.5mA/240VAC	
Protections		
Over-current protection	The recovery time is less than 8s after removal of short circuit	
Short circuit protection	Short-circuit protection in tripterm, self-recovery	
Over-voltage protection	> 120% Self-recovery after removal of load	
Ambient conditions	230VAC Related load	
Working temperature (see derating curve)	<16V (Output voltage clamp or hiccup)	
Storage temp/humidity (non condensing)		
Withstand voltage		
Insulation Impedance		
Standards		
Safety standards		
Others		
Dimensions (W*H*mm) (see installation dimensions)		
Quality		

**USP-60PFN-24DN**



**Electrical schematic**

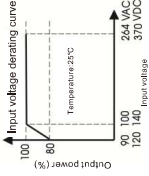
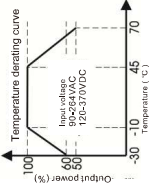
Ordering data	Type	Order no.
Output voltage DC	USP-60PFN-24DN	462211
Output voltage accuracy	24V	±2%
Rated output current	2.5A	0~2.5A
Output current range	60W	150mV/p-p
Ripple and noise	15ms/115VAC, 80ms/230VAC	21.6~29V
Setting range of voltage DC	85~264VAC /127~370VDC	15ms/115VAC, 80ms/230VAC
Hold up time	85~264VAC /127~370VDC	85~264VAC /127~370VDC
Input data	85~264VAC /127~370VDC	1.2A/115VAC/0.8A/230VAC
Input voltage range	1.2A/115VAC/0.8A/230VAC	90%
Input voltage AC	85~264VAC /127~370VDC	Turn on current, cooling 30A/115VAC 60A/230VAC
Efficiency	88%	
Shock current	Turn on current, cooling 30A/115VAC 60A/230VAC	
Leakage current	<0.5mA/240VAC	
Protections		
Over-current protection	The recovery time is less than 8s after removal of short circuit	
Short circuit protection	Short-circuit protection in tripterm, self-recovery	
Over-voltage protection	> 120% Self-recovery after removal of load	
Ambient conditions	230VAC Related load	
Working temperature (see derating curve)	<36V (Output voltage clamp or hiccup)	
Storage temp/humidity (non condensing)		
Withstand voltage		
Insulation Impedance		
Standards		
Safety standards		
Others		
Dimensions (W*H*mm) (see installation dimensions)		
Quality		



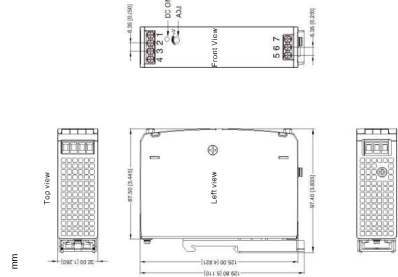
Feature:

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. 4.000VAC 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

Derating curve



Installation dimension



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

Notes:  
 Dimensions: mm(min)  
 Dimensions in parentheses are minimum dimensions  
 Mounting hole  
 Wiring range: 26~0.6AWG  
 Tightening torque: Max 0.79 N·m  
 Torque: 0.15~0.25 N·m  
 References: not marked, IEC 60338

- 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 reference test, with 7UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to 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



USP-75MFN-12DN

Ordering data	Type	Order no.
Ordering data	USP-75MFN-12DN	462212
<b>Input data</b>		
Output voltage DC	12V	
Output voltage accuracy	±2%	
Rated output current	6.3A	
Output current range	0~6.3A	
Output power	75.6W	
Ripple and noise	80mV(p-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% load/230VAC related load Over-current protection/low/high temperature : 105%-150% load/230VAC related load Over-current protection/low/high temperature : 105%-150% load/230VAC related load	
Over-voltage protection	<17V (Off output voltage, and recover input)	
<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-OVP: 4KVAC IP-FG: 2KVAC OIP-FG: 0.5KVAC	
Insulation Impedance	IP-OIP:100MΩ, Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IS13252(Part1)&EN62368-1 UL61010-1	
<b>Others</b>		
Dimensions(L*W*H mm)(see installation dimensions)	87.5 / 32 / 125	
Quality	0.35Kg	

Electrical schematic



USP-75MFN-24DN

Ordering data	Type	Order no.
Ordering data	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	120mV(p-p)	
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	Short-circuit protection in long-term, self-recovery Over-current protection/high temperature : 105%-150% load/230VAC related load Over-current protection/low/high temperature : 105%-150% load/230VAC related load Over-current protection/low/high temperature : 105%-150% load/230VAC related load	
Over-voltage protection	<33V (Off output voltage, and recover input)	
<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-OVP: 4KVAC IP-FG: 2KVAC OIP-FG: 0.5KVAC	
Insulation Impedance	IP-OIP:100MΩ, Ohms/500VDC/25°C/70%RH	
<b>Standards</b>		
Safety standards	Meet IS13252(Part1)&EN62368-1 UL61010-1	
<b>Others</b>		
Dimensions(L*W*H mm)(see installation dimensions)	87.5 / 32 / 125	
Quality	0.35Kg	



Electrical schematic

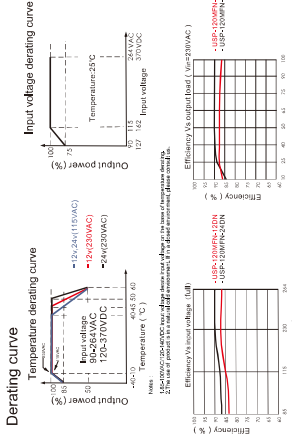
Ordering data	Type	Order no.
Input data	USP-120MFN-24DN	462215
Output voltage DC	24V	
Output voltage accuracy	±1%	
Rated output current	5A	
Output current range	0-5A	
Output power	120W	
Ripple and noise	120mV/p-p	
Setting range of voltage DC	24-28V	
Hold up time	8ms (115VAC, 16ms/230VAC)	
Input data		
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	
Protections		
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% load/230VAC related load Over-current protection/low/high temperature : 105%-150% load/230VAC related load Over-current protection/self-recovery after removal of load/230VAC related load	
Over-voltage protection	<33V (Off output voltage, and recover input)	
Ambient conditions		
Working temperature(see derating curve)	-20°C~+60°C, 20%-90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C, 10%-95%RH	
Safety		
Withstand voltage	IP-OIP: 4KVAC IP-FG: 2KVAC OIP-FG: 0.5KVAC	
Insulation Impedance	IP-OIP: 100MΩ Ohms/500VDC/25°C/70%RH	
Standards		
Safety standards	Meet IS13252(Part1)&EN62368-1 IEC/UL/BS EN62368-1, UL61010-1, UL508	
Others		
Dimensions(L*W*H mm)(see installation dimensions)	100 / 36 / 125	
Quality	0.41Kg	



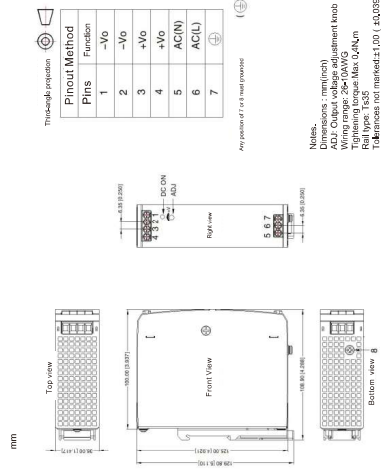
Electrical schematic

Ordering data	Type	Order no.
Input data	USP-120MFN-12DN	462214
Output voltage DC	12V	
Output voltage accuracy	±2%	
Rated output current	10A	
Output current range	0-10A	
Output power	120W	
Ripple and noise	100mV/p-p	
Setting range of voltage DC	12-14V	
Hold up time	8ms (115VAC, 16ms/230VAC)	
Input data		
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	
Protections		
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% load/230VAC related load Over-current protection/low/high temperature : 105%-150% load/230VAC related load Over-current protection/self-recovery after removal of load/230VAC related load	
Over-voltage protection	<17V (Off output voltage, and recover input)	
Ambient conditions		
Working temperature(see derating curve)	-20°C~+60°C, 20%-90%RH	
Storage temp/humidity(non condensing)	-40°C~+85°C, 10%-95%RH	
Safety		
Withstand voltage	IP-OIP: 4KVAC IP-FG: 2KVAC OIP-FG: 0.5KVAC	
Insulation Impedance	IP-OIP: 100MΩ Ohms/500VDC/25°C/70%RH	
Standards		
Safety standards	Meet IS13252(Part1)&EN62368-1 IEC/UL/BS EN62368-1, UL61010-1, UL508	
Others		
Dimensions(L*W*H mm)(see installation dimensions)	100 / 36 / 125	
Quality	0.41Kg	

- 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



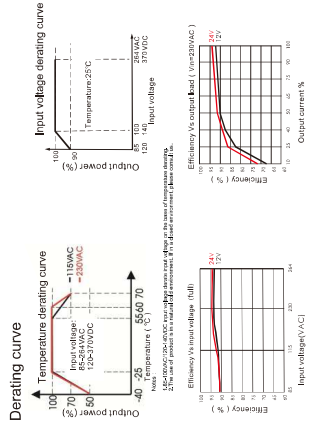
Installation dimension



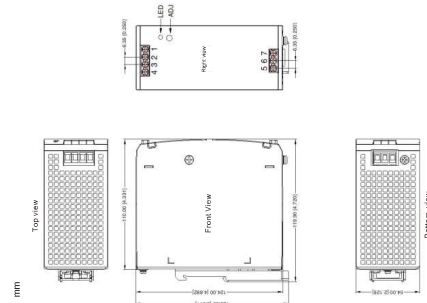
- Note :**
1. All parameters are derived at Ta=25°C, humidity <75%RH, rated input voltage and rated output load unless otherwise stated
  2. To improve conversion efficiency, there may be some audio noise when the module is above the operating voltage, but this does not affect product performance or 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 reference test, with ±7UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to the
  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



Installation dimension



- Notes:**
- 1. All parameters are derived at T<sub>a</sub>=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 reference test, with ±7UF electrolytic capacitors and 0.1UF ceramic capacitors connected in parallel to 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.
Input data	USP-120MFA-12DXN	462234
Output voltage DC	12V	
Output voltage accuracy	± 1%	
Rated output current	10A	
Output current range	0~10A	
Output power	120W	
Ripple and noise	100mV/p-p	
Setting range of voltage DC	11.8~14V	
Hold up time	20ms/230VAC	
DC Ok function	30VDC/1A Max. When the output voltage is abnormal < 80%V <sub>o</sub> , the relay module is disconnected	

Input data	Type	Order no.
Input voltage range	90~264VAC /127~370VDC	
Input voltage AC	1.5A/115VAC/0.75A/230VAC	
Efficiency	98.5%	
Shock current	Turn on current, cooling 15A/115VAC 30A/230VAC	
Leakage current	<1mA/240VAC	
Protections	The recovery time is 10s after removal of short circuit. Holdup mode, Constant current	
Over-current protection	Works for 1s, off for 10s. Short-circuit protection in long-term, self-recovery	
Short circuit protection	Over-current protection (low/high temperature : >105% self-recovery)	
Over-voltage protection	≤15V (hiccup, self-recovery after removal of fault ) temperature drop )	

Ambient conditions	Type	Order no.
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	
Safety		
Withstand voltage	IP-OP:3KVAC IP-FC:1.5KVAC OIP-FC:0.5KVAC	
Insulation Impedance	IP-OP:50MΩ Ohms/500VDC/25°C/70%RH	
Standards	Meet IEC/UL/BS EN62368-1, UL61010-1, UL61010-10, IEC 60950-1	
Others	Dimensions(L*W*H mm)(see installation dimensions)	110 / 32 / 128
Quality		0.49Kg

Ordering data	Type	Order no.
Input data	USP-120MFA-24DXN	462235
Output voltage DC	24V	
Output voltage accuracy	± 1%	
Rated output current	5A	
Output current range	0~5A	
Output power	120W	
Ripple and noise	200mV/p-p	
Setting range of voltage DC	23.5~28V	
Hold up time	20ms/230VAC	
DC Ok function		

Input data	Type	Order no.
Input voltage range	90~264VAC /127~370VDC	
Input voltage AC	1.5A/115VAC/0.75A/230VAC	
Efficiency	94%	
Shock current		
Leakage current	<1mA/240VAC	
Protections		
Over-current protection	The recovery time is 10s after removal of short circuit. Holdup mode, Constant current	
Short circuit protection	Works for 1s, off for 10s. Short-circuit protection in long-term, self-recovery	
Over-voltage protection	Over-current protection (low/high temperature : >105% self-recovery)	
Over-voltage protection	≤15V (hiccup, self-recovery after removal of fault ) temperature drop )	

Ambient conditions	Type	Order no.
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	
Safety		
Withstand voltage	IP-OP:3KVAC IP-FC:1.5KVAC OIP-FC:0.5KVAC	
Insulation Impedance	IP-OP:50MΩ Ohms/500VDC/25°C/70%RH	
Standards	Meet IEC/UL/BS EN62368-1, UL61010-1, UL61010-10, IEC 60950-1	
Others	Dimensions(L*W*H mm)(see installation dimensions)	110 / 32 / 128
Quality		0.49Kg

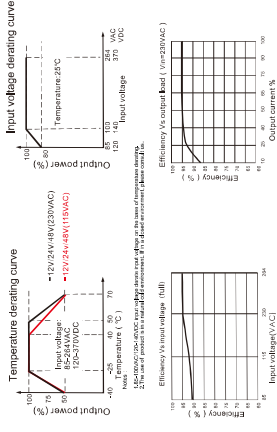
# DN Rails switching power supply

DN Rails switching power supply

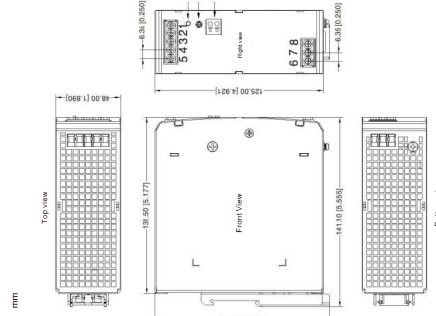
## Feature:

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.
8. Output short circuit/over-current/over-voltage/over-temperature protection
9. Meet IEC/UL/BS EN 62368、UL61010 standards

## Derating curve



## Installation dimension



Pin	Function
1	+Vo
2	-Vo
3	NC
4	+Vo
5	+Vo
6	ACN
7	AC/L
8	PE

Notes:  
 Dimensions: mm(inch)  
 DC ON indicator light under output status  
 Input: 24V~14-10AWG output: 24V~14-10AWG  
 Working range: Input: 230V/0VAC  
 DC: 0V/24-16V/0V  
 Tightening torque: Max. 0.78N.m  
 Tolerances not marked: ±1.00 (±0.039)

1. All parameters are derived at T<sub>a</sub>=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 ISO 14001 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/10000 meters

# USP-240W Switching power supply, single output

DN Rails switching power supply

## USP-240MFA-24DN



## USP-240MFA-48DN



## Electrical schematic

Ordering data	Type	Order no.	Type	Order no.
Input data	USP-240MFA-24DN	462217	USP-240MFA-48DN	462218
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	150mV/p-p		150mV/p-p	
Setting range of voltage DC	24-28V		48-53V	
Hold up time	20ms/230VAC		20ms/230VAC	
Input data				
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	
Protections				
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 Over-current protection (high temperature: 110%~200% load/230VAC related load) Over-current protection (low temperature: ≥105% load/230VAC related load) Over-current protection (high temperature: ≥105% load/230VAC related load) Over-current protection (low temperature: ≥105% load/230VAC related load)		Works for 1s, off for 10s. Short-circuit protection Over-current protection (high temperature: 110%~200% load/230VAC related load) Over-current protection (low temperature: ≥105% load/230VAC related load) Over-current protection (high temperature: ≥105% load/230VAC related load) Over-current protection (low temperature: ≥105% load/230VAC related load)	
Over-voltage protection	<35V (Hiccup self-recovery)		<60V (Hiccup self-recovery)	
Ambient conditions	80°C (230VAC, Related load)		80°C (230VAC, Related load)	
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	
Withstand voltage	IP>OP: 3KVAC IP-F-G; 2KVAC OP-F-G; 0.5KVAC IP-OP/OP-F-G; 100MQ Ohms/500VDC/25°C/70%RH		IP>OP: 3KVAC IP-F-G; 2KVAC OP-F-G; 0.5KVAC IP-OP/OP-F-G; 100MQ Ohms/500VDC/25°C/70%RH	
Insulation Impedance	Meet IS13252 (Part1) & EN62368-1 IEC/UL/BS EN62368-1, UL61010-1, UL508		Meet IS13252 (Part1) & EN62368-1 IEC/UL/BS EN62368-1, UL61010-1, UL508	
Standards				
Safety standards				
Others	Dimensions(L*W*H mm)(see installation dimensions)		110 / 54 / 124	
Quality			0.6KG	

## Electrical schematic

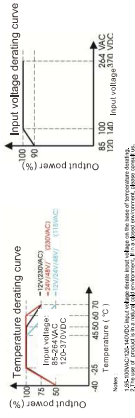
Ordering data	Type	Order no.
Input data	USP-240MFA-12DN	462216
Output voltage DC	12V	
Output voltage accuracy	±2%	
Rated output current	16A	
Output current range	0~16A	
Output power	192W	
Ripple and noise	150mV/p-p	
Setting range of voltage DC	12-14V	
Hold up time	20ms/230VAC	
Input data		
Input voltage 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	
Protections		
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 Over-current protection (high temperature: 110%~200% load/230VAC related load) Over-current protection (low temperature: ≥105% load/230VAC related load) Over-current protection (high temperature: ≥105% load/230VAC related load) Over-current protection (low temperature: ≥105% load/230VAC related load)	
Over-voltage protection	<51V (Hiccup self-recovery)	
Ambient conditions	80°C (230VAC, Related load)	
Working temperature (see derating curve)	-40°C~+70°C; 20%~90%RH	
Storage temp/humidity (non condensing)	-40°C~+85°C; 10%~95%RH	
Withstand voltage	IP>OP: 3KVAC IP-F-G; 2KVAC OP-F-G; 0.5KVAC IP-OP/OP-F-G; 100MQ Ohms/500VDC/25°C/70%RH	
Insulation Impedance	Meet IS13252 (Part1) & EN62368-1 IEC/UL/BS EN62368-1, UL61010-1, UL508	
Standards		
Safety standards		
Others	Dimensions(L*W*H mm)(see installation dimensions)	
Quality		

USP-240MFA-12DXN



Electrical schematic

Ordering data	Type	Order no.
Input data	USP-240MFA-12DXN	462236
Output voltage DC	12V	
Output voltage accuracy	±2%	
Rated output current	16A	
Output current range	0~16A	
Output power	192W	
Ripple and noise	100mV(p-p)	
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 mode is closed. When it is abnormal (< 95%Vo), the relay mode is disconnected	



Installation dimension

mm

**Top view**  
 Dimensions: 100mm (width), 100mm (depth), 100mm (height).

**Front view**  
 Dimensions: 100mm (width), 100mm (height).

**Bottom view**  
 Dimensions: 100mm (width), 100mm (depth), 100mm (height).

**Pin list:**

Pin	Function
1	0V
2	0V
3	0V
4	0V
5	AC(N)
6	AC(L)
7	⊕

**Notes:**  
 1. Dimensions: mm (inch)  
 2. DC ON indicator light under output status  
 3. Output voltage: 12V (12V±0.1V) (24V±0.1V) (48V±0.1V) (96V±0.1V) (192V±0.1V) (240V±0.1V) (264V±0.1V) (for pin 7)  
 4. Max. output current: 16A (12V±0.1V) (24V±0.1V) (48V±0.1V) (96V±0.1V) (192V±0.1V) (240V±0.1V) (264V±0.1V)  
 5. DC OK: 24V±0.1V (12V±0.1V) (48V±0.1V) (96V±0.1V) (192V±0.1V) (240V±0.1V) (264V±0.1V)

- 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 ISO 14001 and ISO 9001 standards and regulations, and handed over to qualified units for recycling.
  - The output adjustable resistor ADJ adjusts output voltage. Clockwise to rise and counter-clockwise to fall.
  - Allitude above 2000 meters, low ambient environment 5°C/1000 meters

USP-240MFA-24DXN



Electrical schematic

Ordering data	Type	Order no.
Input data	USP-240MFA-24DXN	462237
Output voltage DC	24V	
Output voltage accuracy	±1%	
Rated output current	10A	
Output current range	0~10A	
Output power	240W	
Ripple and noise	120mV(p-p)	
Setting range of voltage DC	24~28V	
Hold up time	20ms/230VAC	
DC OK function	30VDC/1A Max. When the output voltage is normal, the relay mode is closed. When it is abnormal (< 95%Vo), the relay mode is disconnected	

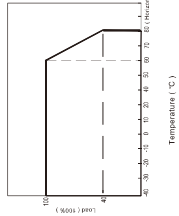
Ordering data	Type	Order no.
Input data	USP-240MFA-48DXN	462238
Output voltage DC	48V	
Output voltage accuracy	±1%	
Rated output current	5A	
Output current range	0~5A	
Output power	240W	
Ripple and noise	150mV(p-p)	
Setting range of voltage DC	48~53V	
Hold up time	20ms/230VAC	
DC OK function	30VDC/1A Max. When the output voltage is normal, the relay mode is closed. When it is abnormal (< 95%Vo), the relay mode is disconnected	

Ordering data	Type	Order no.
Input data	USP-240MFA-12DXN	462236
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
Protections		
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 105%~200% (10s) call-recovery >105% self-recovery	Works for 1s, off for 10s. Short-circuit protection in long-term, self-recovery 105%~200% (10s) call-recovery >105% self-recovery
Over-voltage protection	<35V (Hiccup, self-recovery) 80°C ( 230VAC , Related load )	<35V (Hiccup, self-recovery) 80°C ( 230VAC , Related load )
Ambient conditions	Working temperature (see derating curve) -40°C~+70°C; 20%~90%RH non condensing	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	-40°C~+85°C; 10%~95%RH non condensing
Withstand voltage	IP-OP: 3KVAC IP-FG: 2KVAC OP-FG: 0.5KVAC	IP-OP: 3KVAC IP-FG: 2KVAC OP-FG: 0.5KVAC
Insulation Impedance	IP-OP/FP: 50MD Ohms/500VDC/25°C/70%RH	IP-OP/FP: 50MD Ohms/500VDC/25°C/70%RH
Standards	Meet IEC/UL/BS EN 62368-1, IEC/UL/BS EN62368-1, UL61010-1, UL61010-2-201	Meet IEC/UL/BS EN 62368-1, IEC/UL/BS EN62368-1, UL61010-1, UL61010-2-201
Others	Dimensions (L*W*H mm) (see installation dimensions) 110 / 41 / 124	Dimensions (L*W*H mm) (see installation dimensions) 110 / 41 / 124
Quality	0.65g	0.65g

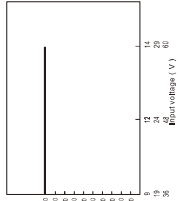


- Feature:**
- 1.Support redundancy system of 1+1 and N+1
  - 2.Two input and one output channels
  - 3.For 24V/48V redundancy system
  - 4.Output current up to 40A
  - 5.Cooling by natural air
  - 6.--40--+80°Cwide range,Temperature(> +60°C derating)
  - 7.The width is 32mm(ultra-thin)
  - 8.Internal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

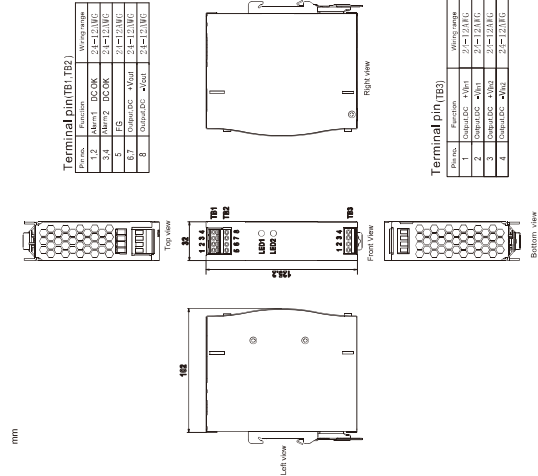
Derating curve



Static feature curve



**Installation dimension**



**Terminal pin(TB1:TB3)**

Pin No.	Function	Wiring range
1,2	Alarm-1,DCOK	2-12/24Vdc
3,4	Alarm-2,DCOK	2-12/24Vdc
5	FE	2-12/24Vdc
6	FE	2-12/24Vdc
7	Output DC	2-12/24Vdc
8	Output DC	2-12/24Vdc

**Terminal pin (TB3)**

Pin No.	Function	Wiring range
1	Output DC	2-12/24Vdc
2	Output DC	2-12/24Vdc
3	Output DC	2-12/24Vdc
4	Output DC	2-12/24Vdc

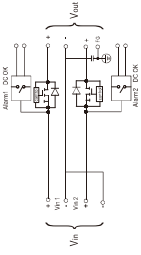
**DO OK Relay**

Contact power(max)	30V/1A resistive load
Contact pull-in current	Release coil
Contact return current	Power off release coil self-voltage

**USP-DM24V 20A**



**Electrical schematic**

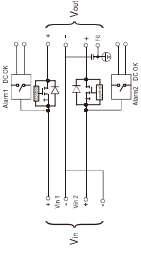


Ordering data	Type	Order no.
Output voltage , DC	USP-DM 24V 20A	462230
Output voltage accuracy	24V	
Rated output current	Input 0~20A /time	
Voltage drop	0.25V	
Peak current	Input 0~30A 5S /time	
Efficiency	98%	
<b>Input data</b>		
Input reverse current	1mA	
Input reverse voltage	40VDC	
Related current	Input 0~20A /time	
Peak current	30A 5S	
Capacitance	320uF	
Standby power consumption	1.5W	
<b>Protections</b>		
Over-load	<30A 5S no damage	
Short circuit	<30A 5S no damage	
<b>Functions</b>		
Redundancy	Support redundancy of 1+1 and N+1	
2 input voltage alarms	< 18V to > 31V(±5%)	
Relay	30Vdc/1A Resistive load Green for OK	
LED status	Green for OK	
<b>Ambient conditions</b>		
Cooling	Air self-connection	
Working temperature(see load derating curve)	-40°C--+80°C; 5%-95%RH	
Storage temp(on 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 .MeetIEC61373	
<b>Safety</b>		
Withstand voltage	IP/OP-case:0.5KV/ac	
Insulation Impedance	IP/OP-case:IP/OP-relay: > 100M Ohms/500VDC/25°C/70°CRH	
<b>Standards</b>		
Safety standards	Meet EN55032,UL62368-1,IEC62368-1	
<b>Others</b>	Meet EN61000-4-2,3,4,5,6,8	
Dimensions(L*W*H mm)(see installation dimensions)		102 / 32 / 125.2
Quality		

**USP-DM48V 20A**



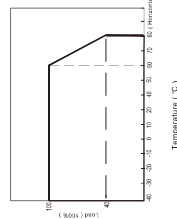
**Electrical schematic**



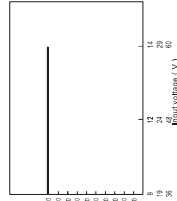
Ordering data	Type	Order no.
Output voltage , DC	USP-DM 48V 20A	462232
Output voltage accuracy	48V	
Rated output current	Input 0~20A /time	
Voltage drop	0.25V	
Peak current	Input 0~30A 5S /time	
Efficiency	98%	
<b>Input data</b>		
Input reverse current	1mA	
Input reverse voltage	65VDC	
Related current	Input 0~20A /time	
Peak current	30A 5S	
Capacitance	320uF	
Standby power consumption	1.5W	
<b>Protections</b>		
Over-load	<30A 5S no damage	
Short circuit	<30A 5S no damage	
<b>Functions</b>		
Redundancy	Support redundancy of 1+1 and N+1	
2 input voltage alarms	< 34.2V to > 65V(±5%)	
Relay	30Vdc/1A Resistive load Green for OK	
LED status	Green for OK	
<b>Ambient conditions</b>		
Cooling	Air self-connection	
Working temperature(see load derating curve)	-40°C--+80°C; 5%-95%RH	
Storage temp(on 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 .MeetIEC61373	
<b>Safety</b>		
Withstand voltage	IP/OP-case:0.5KV/ac	
Insulation Impedance	IP/OP-case:IP/OP-relay: > 100M Ohms/500VDC/25°C/70°CRH	
<b>Standards</b>		
Safety standards	Meet EN55032,UL62368-1,IEC62368-1	
<b>Others</b>	Meet EN61000-4-2,3,4,5,6,8	
Dimensions(L*W*H mm)(see installation dimensions)		102 / 32 / 125.2
Quality		

- 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--+60°Cwide 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

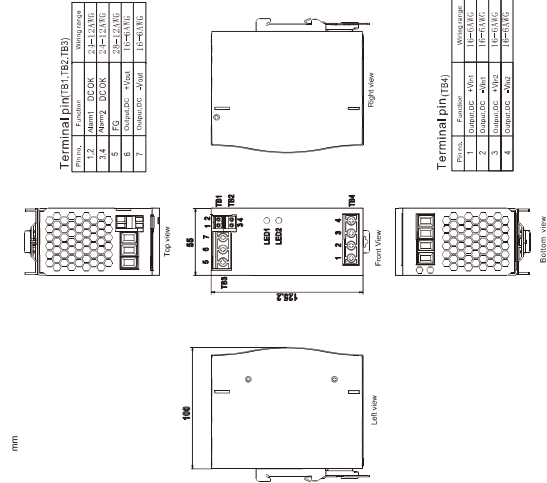
Derating curve



Static feature curve



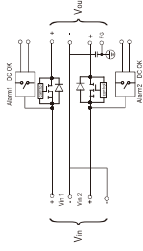
Installation dimension



**USP-DM24V 40A**



Electrical schematic

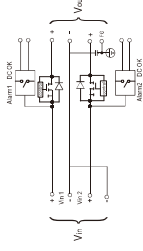


Ordering data	Type	Order no.
Output voltage , DC	USP-DM24V 40A	462231
Output voltage accuracy		24V
Rated output current		19-29V
Voltage drop		0.3V
Peak current		Input 0-60A, 5S /time
Efficiency		98%
<b>Input data</b>		
Input reverse current		1mA
Input reverse voltage		40VDC
Related current		Input 0-40A /time
Peak current		60A, 5S
Capacitance		320uF
Standby power consumption		1.5W
<b>Protections</b>		
Over-load		<60A, 5S no damage
Short circuit		<60A, 5S no damage
<b>Functions</b>		
Redundancy		Support redundancy of 1+1 and N+1
2 input voltage alarms		< 18V to > 31V(±5%)
<b>Relay</b>		30Vdc/1A Resistive load
<b>LED status</b>		Green for OK
<b>Ambient conditions</b>		
Cooling		Natural self-cooling
Working temperature(see load derating curve)		-40°C ~ +80°C; 5%~95%RH
Storage temp(on 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
<b>Safety</b>		
Withstand voltage		IP/OP-case: 0.5kVac
Insulation Impedance		IP/OP-case: IP/OP-relay: > 100M Ohms/500VDC/25°C/70°CRH
<b>Standards</b>		
Safety standards		Meet EN55032, UL62368-1, IEC62368-1
<b>Others</b>		Meet EN61000-4-2, 3, 4, 5, 6, 8
Dimensions(L*W*H mm)(see installation dimensions)		100 / 55 / 125.2
Quality		

**USP-DM48V 40A**



Electrical schematic



Ordering data	Type	Order no.
Output voltage , DC	USP-DM48V 40A	462233
Output voltage accuracy		48V
Rated output current		36-60V
Voltage drop		Input 0-40A /time
Peak current		Input 0-60A, 5S /time
Efficiency		98%
<b>Input data</b>		
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
<b>Protections</b>		
Over-load		<60A, 5S no damage
Short circuit		<60A, 5S no damage
<b>Functions</b>		
Redundancy		Support redundancy of 1+1 and N+1
2 input voltage alarms		< 34.2V to > 65V(±5%)
<b>Relay</b>		30Vdc/1A Resistive load
<b>LED status</b>		Green for OK
<b>Ambient conditions</b>		
Cooling		Natural self-cooling
Working temperature(see load derating curve)		-40°C ~ +80°C; 5%~95%RH
Storage temp(on 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
<b>Safety</b>		
Withstand voltage		IP/OP-case: 0.5kVac
Insulation Impedance		IP/OP-case: IP/OP-relay: > 100M Ohms/500VDC/25°C/70°CRH
<b>Standards</b>		
Safety standards		Meet EN55032, UL62368-1, IEC62368-1
<b>Others</b>		Meet EN61000-4-2, 3, 4, 5, 6, 8
Dimensions(L*W*H mm)(see installation dimensions)		100 / 55 / 125.2
Quality		

**DO OK Relay**

Contact power(max)	30V/1A resistive load
Contact pull-in(max)	Release on
Contact return time(max)	Power off on time > 20ms, self-restore



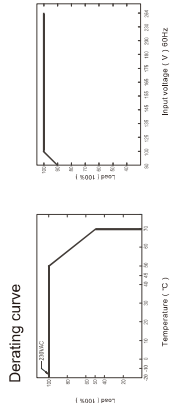
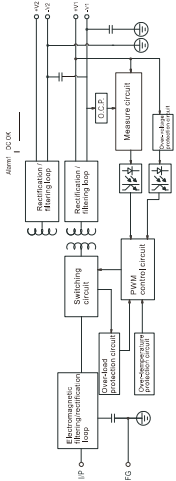
USP-150MHN-12S2D



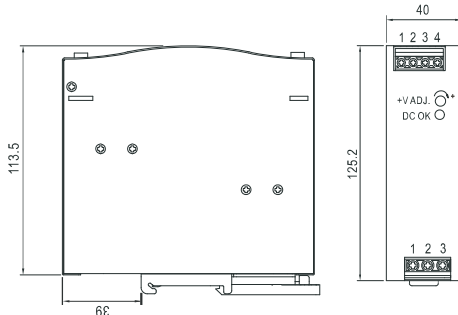
Feature:

- 1.180~264VAC input voltage,AC
- 2.Small size,light weight,and high efficiency
- 3.Protectio: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

Electrical schematic



Installation dimensions



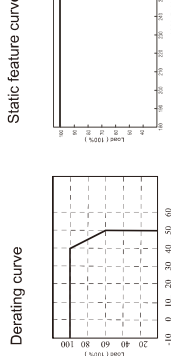
- Note :
- 1.All parameters not specially mentioned are measured at 230VAC input,rated load and 25°C of ambient temperature.
  - 2.Ripple & noise are measured at 20MHz of bandwidth by using a 12"twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.
  - 3.Tolerance:includes set up tolerance,line 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.Operating output is required under low input voltage(see derating curve)

USP-150MHN-12S24D

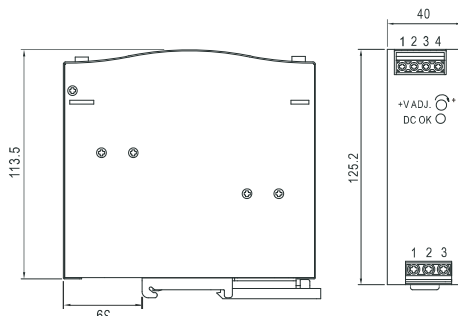


Feature:

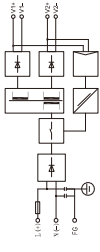
- 1.170~264VAC input voltage,AC
- 2.Protectio:short circuit/over-load/over-voltage
- 3.Cooling by natural air
- 4.100% full load burn-in test
- 5.LED power indicator
- 6.Small size,light weight,and high efficiency
- 7.Two-year warranty



Installation dimensions



- Note :
- 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.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.Operating 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		
Related output voltage	V1 12V	V2 24V
Related output voltage	5A	6A
Setting range of the output voltage	±10.0%	±10.0%
Output current range	0.5-5A	0.5-6A
Power	150W	
Ripple and noise(Max) <sup>max</sup>	120mVp	240mVp
Voltage tolerance <sup>max</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	IP-OP:3KVAC IP-FG:1.5KVAC OP-FG:0.5KVAC	
Insulation Impedance	IP-OP:IP-FG:OP-FG:100MQ megger/500VDC	
Leakage current ( typical)	L-FG:200uA/C, 1mA, 1mm /NF-FG:200uA/C, 1mA, 1mm	
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	

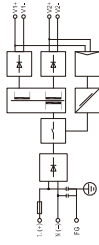
Feature:

- 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

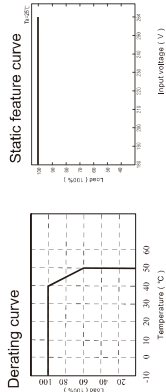


USP-150MHN-24S12D

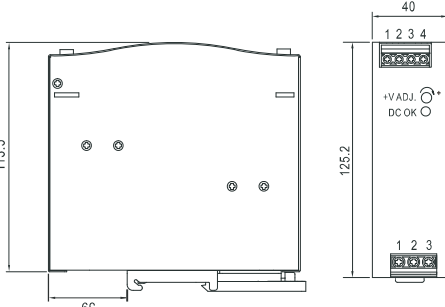
Electrical schematic



Ordering data	Type	Order no.
Output data	USP-150MHN-24S12D	462202
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	24V	V2
Related output voltage	6A	12V
Related output voltage	±10.0%	5A
Selling range of the output voltage	±10.0%	±10.0%
Output current range	0~6A	0~5A
Power	150W	
Ripple and noise(Max) <sup>note3</sup>	240mVp	120mVp
Voltage tolerance <sup>note3</sup>	±1%	±10%
Setup/rise time(Max)	<1%, <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℃~+40℃	
Working humidity(non condensing)	20~90%RH	
Storage temp/humidity(non condensing)	-30~+85℃,10~95%RH	
Safety and EMC		
Safety standards	Meet UL1950	
Withstand voltage	IP-O/IP:3KVAC I/P-F/G:1.5KVAC O/P-F/G:0.5KVAC	
Insulation Impedance	I/P-O/IP:F-G:O/P-F/G:100MQ megger/500VDC	
Leakage current ( typical)	L-F/G:230VAC,1mA,1min / N/F/G:230VAC,1mA,1min	
EMI conduction and radiation	Meet EN60950	
Others		
Dimensions(L*W*H mm)(see installation dimensions)	113.5 / 40 / 125.2	
Quality	0.6Kg	



Installation dimensions

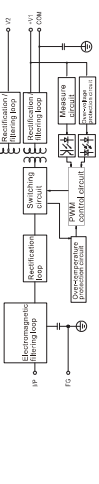


- Note :
- 1.All parameters not specially mentioned are measured at 230VAC input,rated load and 25℃ of ambient temperature.
  - 2.Ripples & noise are measured at 20MHz of bandwidth by using a 12"twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.
  - 3.Tolerance:includes set up tolerance, 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)

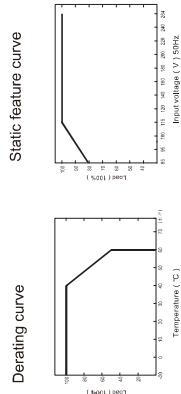
USP-35MFN-DAG



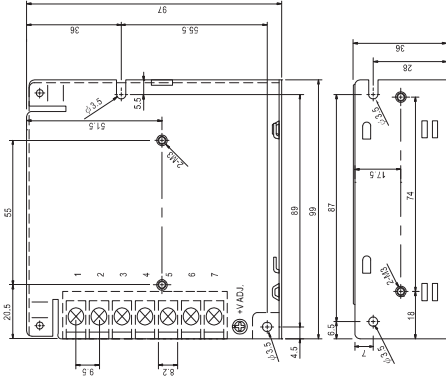
Electrical schematic



Ordering data	Type	Order no.
Output data	USP-35MFN-DAG	462198
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	5V	V2
Related output voltage	4A	12V
Related output voltage	0.5~5A	1A
Selling range of the output voltage	0.5~5A	0.1~1.5A
Output current range	32W	
Power		
Ripple and noise(Max) <sup>note3</sup>	80mVp-p	120mVp-p
Voltage tolerance <sup>note3</sup>	±2.0%	±5.0%
Setup/rise time(Max)	50ms/30ms/230VAC 120ms/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℃~+60℃	
Working humidity(non condensing)	20~90%RH	
Storage temp/humidity(non condensing)	-40~+85℃,10~95%RH	
Safety and EMC		
Safety standards	Meet UL60950-1,CB(IEC60950-1)	
Withstand voltage	IP-O/IP:3KVAC I/P-F/G:2KVAC O/P-F/G:0.5KVAC	
Insulation Impedance	I/P-O/IP:F-G:O/P-F/G: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		



Installation dimensions



- Note :
- 1.All parameters not specially mentioned are measured at 230VAC input,rated load and 25℃ 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.



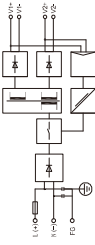




USP-150MHN-24S12

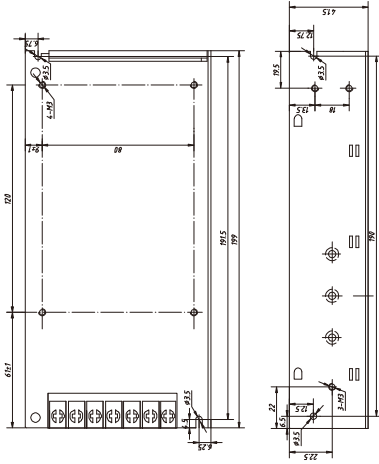


Electrical schematic



<b>Ordering data</b>	Type	USP-150MHN-24S12	Order no.	462197
<b>Output data</b>	Input data	200VAC~240VAC	Related input voltage	170-264VAC
	Input voltage range	24/230V	Input current (typical)	47-63Hz
	Frequency range	83%	Efficiency (typical)	
<b>Output data</b>	Related output voltage	V1	V2	12V
	Related output voltage	6A	5A	
	Setting range of the output voltage	±10.0%	±10.0%	
	Output current range	0-5A	0-5A	
<b>Power</b>		150W		
	Ripple and noise(Max)	240mVp	120mVp	
	Voltage tolerance notes <sup>3)</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		

Installation dimensions

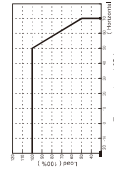


- Note :
- All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
  - Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.
  - Tolerance is a sum of voltage set-up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

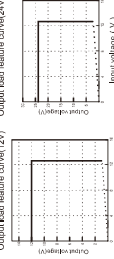
<b>Others</b>	Dimensions(L*W*H mm)(see installation dimensions)	189 / 96 / 42
<b>Quality</b>		

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

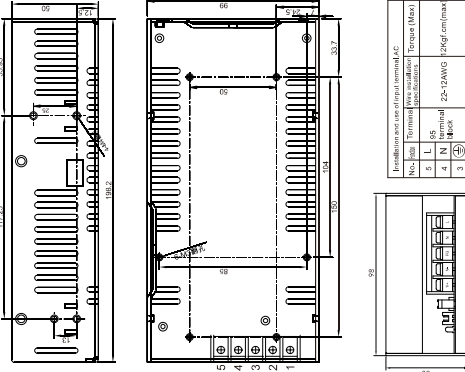
Derating curve



Static feature curve



Installation dimensions



No.	1	Terminal	Function	Terminal	Function
	2	Output voltage	12V	Output voltage	12V
	3	Output voltage	24V	Output voltage	24V
	4	Output voltage	24V	Output voltage	24V

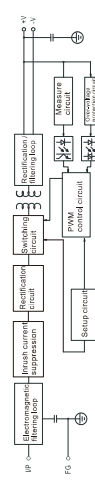
- Note :
- When used for shock load industries such as industrial control output power and output current of peak up to 288W and 12.5A 1A.
  - Ripple & noise is connected by 12" twisted pair. The oscilloscope bandwidth is set to 20MHz,use Tektronix P3010100M polypropylene capacitor and 10uF electrolytic capacitor, and applies Sample sampling mode.
  - 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)
  - 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.
  - Take derate when low output voltage or high temperature of working
  - Temperature range: -20°C~70°C for working
  - Test spare parts: 500VDC test voltage,25°C of test temperature ,and 65% RH of relative humidity.

<b>Others</b>	Dimensions(L*W*H mm)(see installation dimensions)	189 / 96 / 50
<b>Quality</b>		0.86Kg

USP-250MHN-24R12G



Electrical schematic



<b>Ordering data</b>	Type	USP-250MHN-24R12G	Order no.	462239
<b>Output data</b>	Input data	180C-264VAC , 47-63Hz	Related input voltage	<65A/(220VAc Cold start)
	Input voltage range	180C-264VAC , 47-63Hz	Input current (typical)	3A/180-264VAC
	Frequency range	87%	Efficiency (typical)	
<b>Output data</b>	Related output voltage	12V(Default output)	24V ( STB short circuit)	
	Related output voltage	11.8~12.3V		
	Related output voltage	10V		
	Setting range of the output voltage	0~10A		
	Output current range	12V Output 120W	24V Output 240W	
<b>Power</b>		0~70°C ≤210mV, >20~0°C ≤480mV		
	Ripple and noise(Max)	10%~100%Load: Vpp≤2400mV 10%~50%Load: Vpp≤1800mV 50%~100%Load: Vpp≤1800mV		
	Voltage tolerance notes <sup>3)</sup>	±3% ( Full load)		
	Setup/rise time(Max)	±3% ±1%		
	Hold up time(Min)	±3%		

Ambient conditions

- Working temperature(see load derating curve)
- Working humidity(non condensing)
- Storage temp/humidity(non condensing)

Safety and EMC

- Safety standards: -20°C ~ 70°C ; 20%~90%RH
- Withstand voltage: -40~+85°C ; 10~95%RH
- Insulation Impedance: Meet GB4943.1EN60950

EMI conduction and radiation

- Input/output:3V/2/10mA ; Output:shall 1.5V/2/10mA ; Output:shall 0.5V/0.05A Test time 1min
- Input to grounds:3.5mA/Output:shall 0.25mA
- Input:shall 100M ohms ; Output:shall 100M ohms ; Output:shall 100M ohms

<b>Others</b>	Dimensions(L*W*H mm)(see installation dimensions)	189 / 96 / 50
<b>Quality</b>		0.86Kg