PRODUCT SPECIFICATION

MPA1948 Series

Power Supply for LED

PS E UL Japan

muRata

Ordering Guide	Constant current power supply	
Model Name	Max current(±5%)	Output voltage range
MPA1948A	700mA	30～50V
MPA1948B	600mA	30～50V
MPA1948C	500mA	30～50V
MPA1948D	425mA	30～50V
MPA1948E	540mA	30～50V

CE RoHS-Y(B)

Input Characteristics:(Ta=25℃)

		Min	Typ	Max	Units
Input Voltage Operating Range		90	100/242	267	Vac
Input Frequency		47	50/60	63	Hz
Inrush Current	AC100V(25℃ Cold start)			10	A
	AC242V(25℃ Cold start)			20	A

Model Name	Input current(Typ) At max current Output Voltage:50V		Power Factor (Typ) At max current Output Voltage:50V		Input Power(Typ) At max current Output Voltage:50V		Input rated capacity Output Voltage:50V
	AC90V	AC267V	AC100V	AC242V	AC100V	AC242V	
MPA1948A	0.49A	0.18A	0.994	0.939	43.2W	42.2W	40VA
MPA1948B	0.42A	0.16A	0.991	0.916	37.0W	36.4W	38VA
MPA1948C	0.35A	0.14A	0.989	0.887	31.1W	31.0W	33VA
MPA1948D	0.30A	0.13A	0.983	0.853	26.5W	26.8W	31VA
MPA1948E	0.39A	0.15A	0.988	0.894	33.2W	32.9W	35VA
Stand-by Power		Non-communication state			AC100V:0.13Wtyp, AC242V:0.23Wtyp		

Output Characteristics(*1): (Ta=25℃)

Model Name	Output current(±5%)			Efficiency(Typ) At max current			
	Average current(Typ)		Ripple current(p-p)	Output voltage:30V		Output voltage:50V	
	Min(*2)	Max	Typ(At max current)	AC100V	AC242V	AC100V	AC242V
MPA1948A	7～35mA	700mA	108mA	77.9%	77.3%	81.8%	83.8%
MPA1948B	6～30mA	600mA	102mA	76.8%	76.2%	80.9%	82.5%
MPA1948C	5～25mA	500mA	81mA	76.2%	75.1%	81.1%	81.4%
MPA1948D	4.2～21mA	425mA	79mA	75.3%	72.6%	80.7%	79.6%
MPA1948E	5.4～27mA	540mA	100mA	76.8%	76.1%	81.3%	82.1%

(*1)Output characteristics are measured by LE-5150-2(KEISOKUGIKEN) as a LED-load .

(*2)Depend on Dimming method. Max current value×(1～5%)

Environmental Characteristics:

	Condition	Min	Typ	Max	Units
Operating Temp. Range		-10 (*)		50	℃
Operating Humidity	Non-condensing	5		95	%
Storage Temp. Range		-20		55	℃
Cooling condition	Natural air cooling				
MTBF	EIAJ RCR-9102B	10			year
Estimated life	Ta=50℃, Max Voltage/Max load	50000			hour
Weight			480		g
Sinusoidal Vibration	Vibration frequency:10～55Hz、Vibration acceleration:2G				
Shock	10G				
RoHS	compliant				
Warranty	1 Year				
Manufacturing Country	China				

(*) Start-up at -20℃

Safety:

Safety standards	Electrical Appliance Safety Low (1st clause) EN61347-1, EN61347-2-13(CB REPORT)
Harmonics	EN61000-3-2 class C
Conducted emission	PSE(1st clause)、EN55015 CLASS B, EN55022 CLASS B
Insulation resistance	30MΩ or more (Input to Output-Reinforced、Input to Chassis-Basic)
Withstand voltage	AC4000V (60Hz Primary-Secondary)、Leak current:10mA or less AC1600V (60Hz Primary-FG)、Leak current:10mA or less
Leakage current	1 rms or less (AC242V 60Hz normal temperature/normal humidity)

Protection Characteristics:

	Operating	Conditions	Return method
Over Current Protection	0.8A or more	Latching	AC re-input(*)
Over Voltage Protection	60V or more	ON/OFF Repeat	Auto recovery(**)
Output Open Protection	—	ON/OFF Repeat	Auto recovery(**)

(*)Input AC again 10 seconds later.

(**)When LED is connected, be careful to be possible to flow rush current to LED.

Immunity:

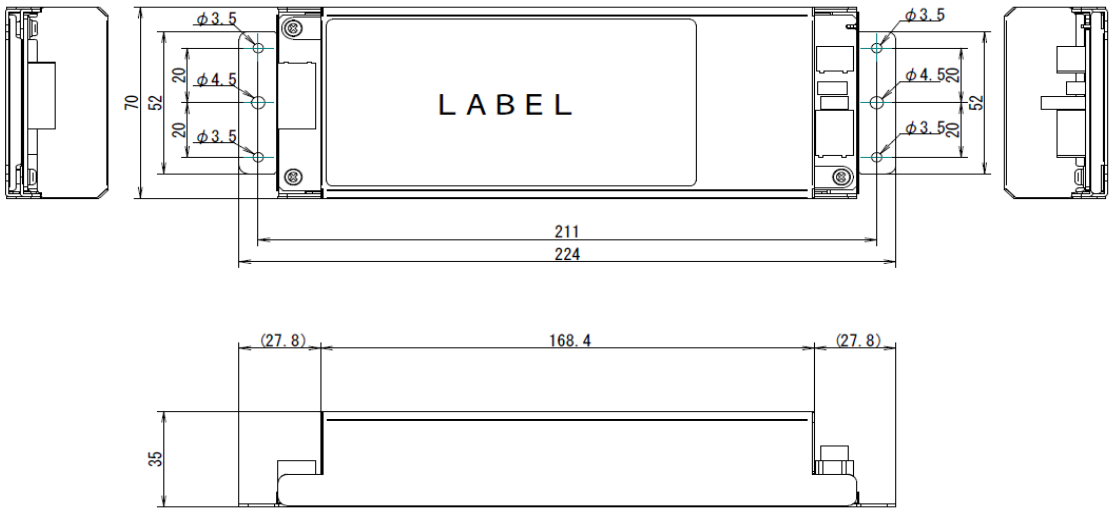
Electrostatic discharge	IEC61000-4-2	Level 3
Electrical fast transient burst	IEC61000-4-4	Level 3
Surge	IEC61000-4-5	Level 3

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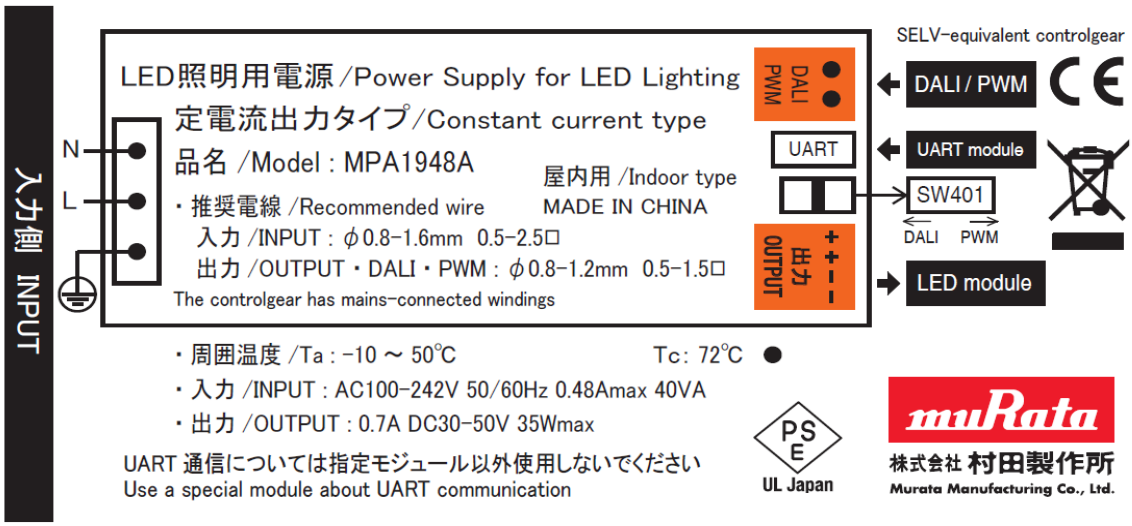
Mechanical Dimensions・Label



Tolerance of outline	
Range of dimension	Tolerance
0.5 ＜ L ≦ 6	± 0.3
6 ＜ L ≦ 10	± 0.4
10 ＜ L ≦ 50	± 0.7
50 ＜ L ≦ 180	± 1.0
180 ＜ L ≦ 500	± 1.5
500 ＜ L ≦ 1000	± 2.0

L:Dimension
Unit:mm

LABEL1　　(Ex. MPA1948A)



Input/Output Terminal

AC Input wire

Parts Name	Maker Type Name	Terminal No.	Description
CN1	235−503/342−325 (WAGO)	1 2 3	AC Neutral AC LIVE FG

Output Connector

Connector No.	Maker Type Name	Terminal No.	Description
CN101	235−104/330−000 (WAGO)	1 2 3 4	LED Output− (Cathode) LED Output− (Cathode) LED Output+ (Anode) LED Output+ (Anode)

＊ Terminal 1 and 2 are same voltage. Terminal 3 and 4 are same voltage.

Signal Connector

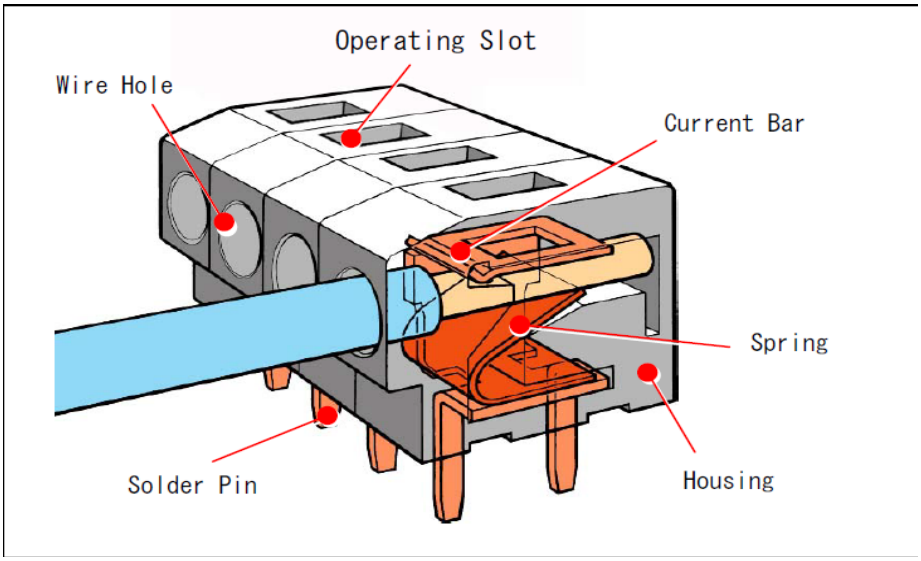
Connector No.	Maker Type Name	Terminal No.	Description
CN201	B4B-PH-K-S (JST)	1 2 3 4	3.3V UART_RX(Reception) UART_TX(Transmission) GND
CN301	235−102/330−000 (WAGO)	1 2	DALI or PWM SIGNAL DALI or PWM SIGNAL

＊CN301 No polarity

Instruction for Connecting Conductor

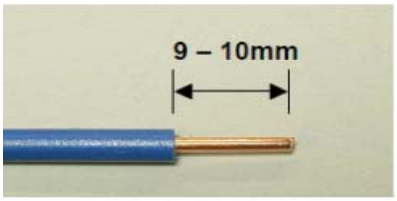


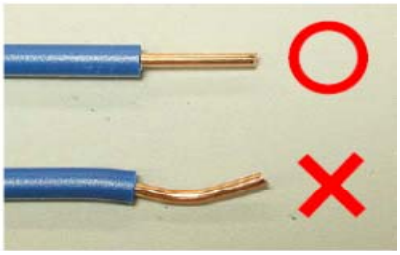
■ Structure : Part name and structure of terminal block.



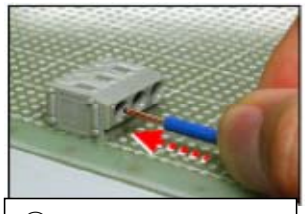
■ Stripping of Wire

Please strip a conductor's stripped length related as drawings.
Please fix splayed, bent or twisted wire.

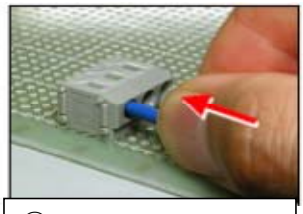




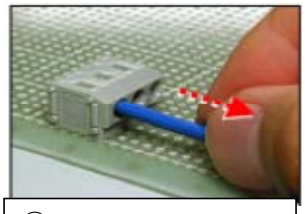
■ Connecting Please follow the instructions



① Insert a wire to the wire hole.

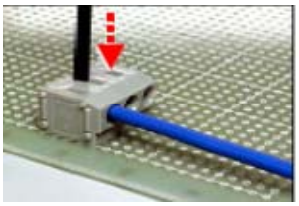


② A wire must be inserted to a stop position.

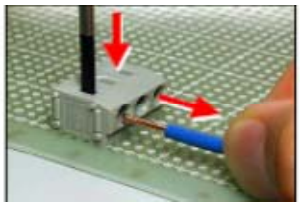


③ Pull a wire slightly to check if connecting has been done completely.

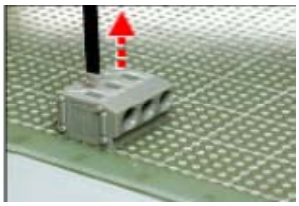
■ Removal Please follow the instructions



① Put a screwdriver to the operating slot.



② Hold down a screwdriver, a conductor can be releaase



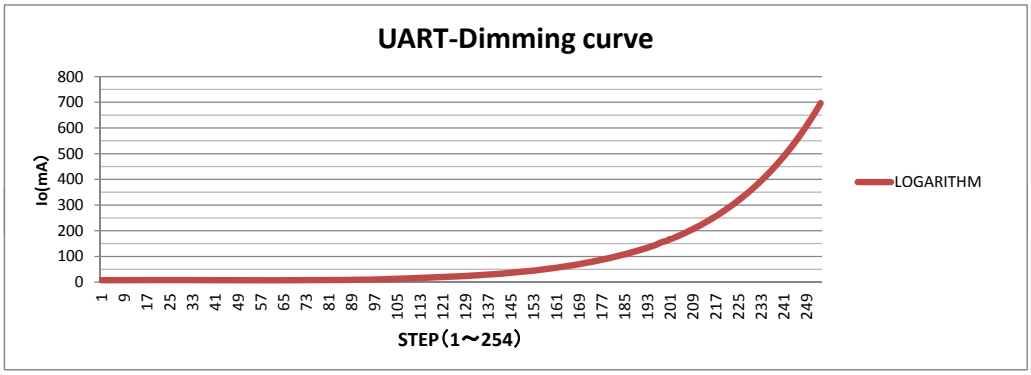
③ Put off a screwdriver.

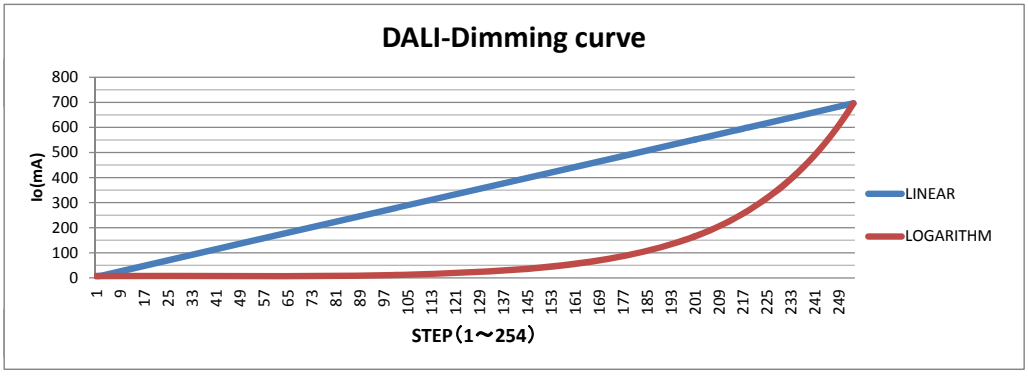
【Dimming Specifications】

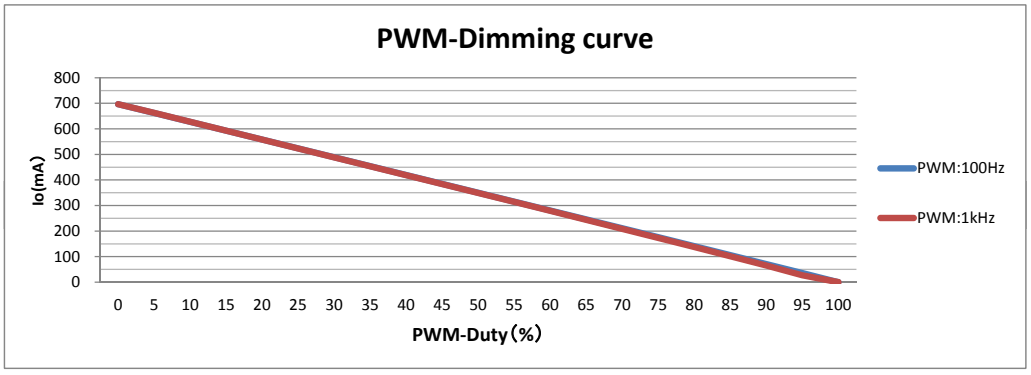
This product supports UART, DALI and PWM mode.
In the case of UART, DALI and PWM Dimming mode, change a dip switch (SW401) to each mode before AC input. (Refer as follows)

Dimming	Input Connector	Communication standard・Dimming Specifications
UART	CN201	IEEE802.15.4Product Description SW401 posision：DALI side (Use a Murata special module about UART.)
DALI	CN301	IEC62386 SW401 posision：DALI side
PWM	CN301	Input pulse 10-16Vo-p Frequency 100Hz－1KHz DUTY 0－95%typ Ex.) Output current：Duty 0%・・・700mA、95%・・・OFF、f:1KHz Output current：Duty 0%・・・700mA、 98%・・・OFF、f:100Hz SW401 posision：PWM side

Dimming characteristics（Masterpiece）







【Instruction Manual】

Before using the Power Supply Unit
Pay attention to all warnings and cautions before using the PSU.
Incorrect usage could lead to an electrical shock, damage to the PSU or a fire hazard.

★Warning & Caution

・Do not modify and remove the cover.
・If any failure or trouble occurs because of utilizing the power supply unit without reflecting the described contents on this specification, Murata cannot assure such trouble.
・Do not touch the internal components, they may have high voltage or high temperature. You may get electrical shock or burned.
・Definitely avoid to use the power supply unit by the excessive input voltage, output voltage, output current and ambient temperature as defined on this specification.
The excessive current, voltage and temperature will cause the deterioration of the components or abnormal heat, both of which may affect not only to shorten the unit's life-long but also to damage and break the unit.
In a case of LED VF 30V or less because of LED chip dispersion, please make sure to evaluate and confirm the quality upon mounting the power supply unit to your product.
But don't use it under the LED VF 25V or less.
・Use the PSU after confirm the correct connection of input and output.
・Be sure not to scratch and damage the input leads. Never transfer the unit by holding and pulling any lead wire.
・If PSU is dropped, absolutely not to use it any more.
・Make sure not to install and/or store the unit under the environment as stated below because such will cause the insulation deterioration.

① Make sure to avoid storing the unit under the condition of high temperature, high humidity or direct sunlight which are out of the standard on this specification.
② Ambient air containing the corrosive gas. (Cl2, H2S, NH3, SO2, NOX, etc.)
③ Places which have the fear to be splashed with water, oil, organic solvent, etc.
④ Places with a high concentration of dusty places.
⑤ Other environment correspondingly mentioned above.

・Make sure not to install and/or store the unit under the environment as stated below because such will cause the insulation deterioration.

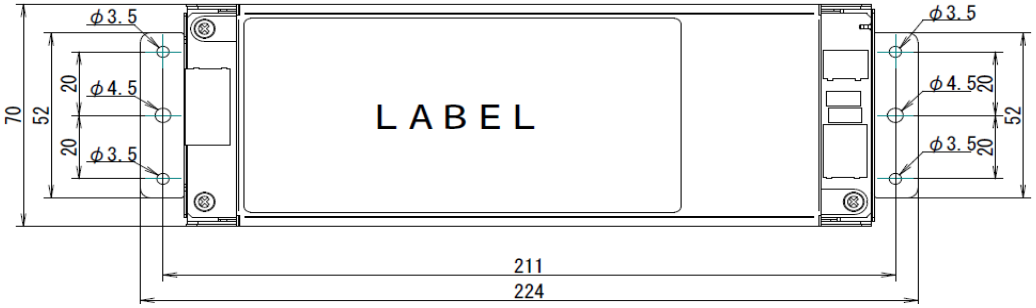
① If any alien substance attached on terminals, it may cause the contact failure or insertion deterioration.
② The use of the silicon rubber or silicon bond which contain a high percentage of dimethylpolysiloxane may cause to trigger the contact failure of volume, potentiometer volume or switch. Make sure to use such rubber or bond with the percentage of dimethylpolysiloxane 0.1% or less.

・PSU can not be used under the condition of the series operation.
・Rust may occur in the chassis because of use environment.
・This specification regulates the quality of the power unit, if nothing specially defined. When using the power supply unit, make sure to evaluate and confirm the quality upon mounting the power supply unit to your product.

【Mounting】

Mounting method

・Please use the place at 50℃ or less around the PSU ambient.
・Please connect the thick and short wire to the FG terminal for safety and EMI.
・Please separate Input wire and Output wire surely.
・Please refer as follows about the recommended Wire for input, output and dimming.
AC-intput wire: φ0.8-1.6mm, 0.5-2.5mm² single wire (Strip length 9-10mm)
LED Output wire/Dimming wire for DALI and PWM:
φ0.8-1.2mm, 0.5-1.5mm² single wire (Strip length 9-10mm)
・Please fix a screw about the installation of the power supply more than one place of one side. (more than two places in total) (Screw hole: φ3.5×4、Φ4.5×2)

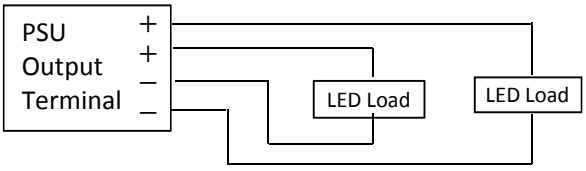


【Parallel Operation】

・Series Operation is not possible.
・For parallel operation, either method (1) or (2) is possible. But please caution as follows.
*)PSU output [+] and [+] are connected in PSU. [−] are the same.
Therefore this PSU are not 2 output.

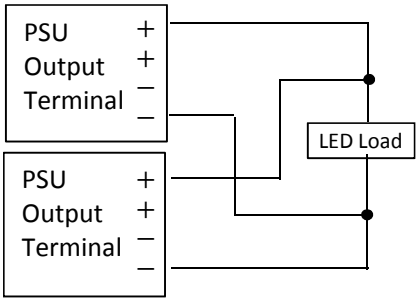
Parallel 1:In a case of operating the plural LEDs for one power supply.

If LED Vf voltage are different, the current may be partial.
Please add a balance circuit not to become so.



Parallel 2:In a case of operating twe Power supplies for one LED.

The total current of two power supplies pass through in the LED.
And please confirm the leakage current as the system.



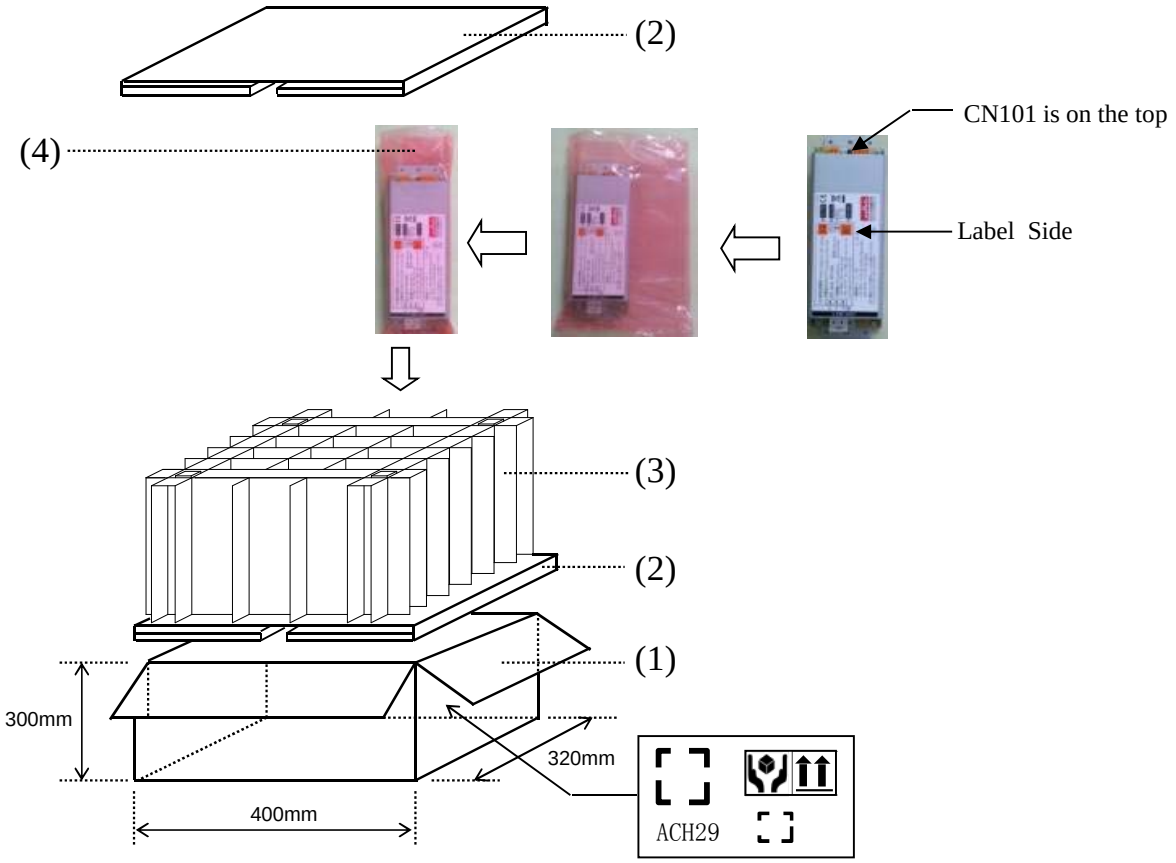
PACKING SPECIFICATION

Use for the Model MPA1948 series.

NO.	PARTS NAME	Q'TY
1	PACKING BOX	1/12
2	BASE PAD	2/12
3	PARTITION BOARD	1/12
4	Small PE Bag	12/12

PACKING PROCESS :

Note: 1. It contains 12 pieces of product in every box.



Figture.1