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Find the *Cosel LDA30F-5* at our website: ***Click HERE***

Basic Characteristics Data

Model	Circuit method	Switching frequency [kHz]	Input current [A]	Rated input fuse	Inrush current protection circuit	PCB/Pattern			Series/Parallel operation availability	
						Material	Single sided	Double sided	Series operation	Parallel operation
LDA10F	Flyback converter	45 - 400	0.25	250V 2A	Thermistor	CEM-3	Yes		✻1	✻1
LDA15F	Flyback converter	60 - 500	0.37	250V 2A	Thermistor	CEM-3	Yes		✻1	✻1
LDA30F	Forward converter	140	0.8	250V 3A	Thermistor	CEM-3	Yes		Yes	✻1
LDA50F	Forward converter	140	1.3	250V 3A	Thermistor	CEM-3	Yes		Yes	✻1
LDA75F	Forward converter	140	1.8	250V 5A	Thermistor	CEM-3	Yes		Yes	✻1
LDA100W	Forward converter	140	2.4	250V 5A	Thermistor	CEM-3	Yes		Yes	✻1
LDA150W	Forward converter	140	3.6	250V 6.3A	Thermistor	CEM-3	Yes		Yes	✻1
LDA300W	Forward converter	140	7.5	250V 15A	Triac	CEM-3	Yes		Yes	✻1

✻1 Refer to instruction manual.
✻ The value of input current is at ACIN 100V and rated load.
✻ Switching freguency of flyback converter depends on input voltage and load factor.

1 Terminal Block LDA-20

2 Function LDA-21

2.1 Input voltage range ---- LDA-21
2.2 Inrush current limiting ---- LDA-21
2.3 Overcurrent protection ---- LDA-21
2.4 Overvoltage protection ---- LDA-21
2.5 Output voltage adjustment range ---- LDA-22
2.6 Isolation ---- LDA-22
2.7 Remote ON/OFF ---- LDA-22
2.8 Remote sensing ---- LDA-22

3 Series Operation and Parallel Operation LDA-23

4 Assembling and Installation Method LDA-24

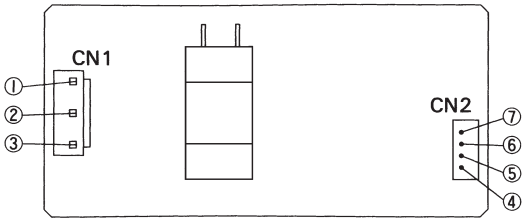
4.1 Installation method ---- LDA-24
4.2 Derating ---- LDA-24
4.3 Mounting screw ---- LDA-25

5 Ground LDA-26

6 Others LDA-26

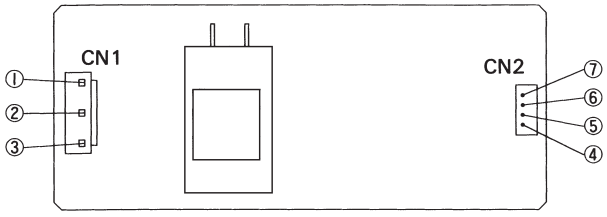
1 Terminal Block

●LDA10F



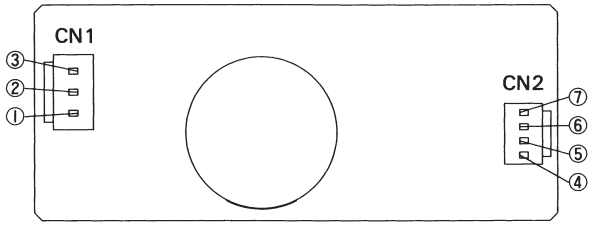
①AC(L)
②AC(N)
③Frame ground
④ ⑤ -Output
⑥ ⑦ +Output

●LDA15F



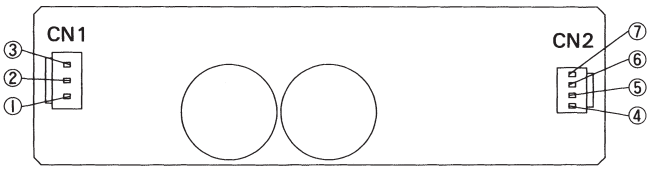
①AC(L)
②AC(N)
③Frame ground
④ ⑤ -Output
⑥ ⑦ +Output

●LDA30F



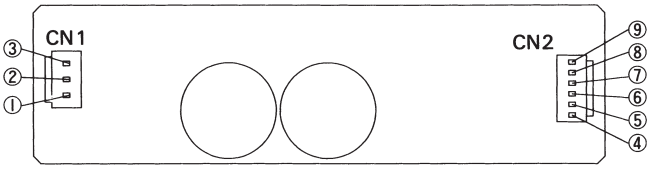
①AC(L)
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③Frame ground
④ ⑤ -Output
⑥ ⑦ +Output

●LDA50F



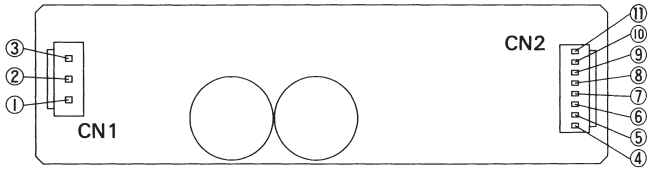
①AC(L)
②AC(N)
③Frame ground
④ ⑤ -Output
⑥ ⑦ +Output

●LDA75F



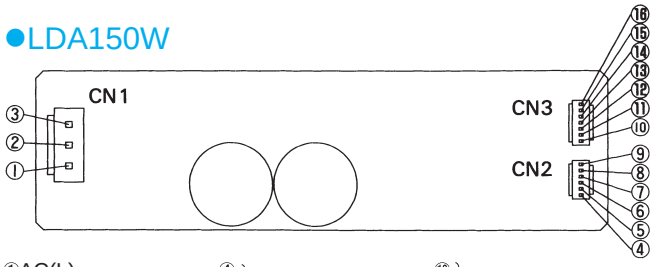
①AC(L)
②AC(N)
③Frame ground
④ ⑤ ⑥ +Output
⑦ ⑧ ⑨ -Output

●LDA100W



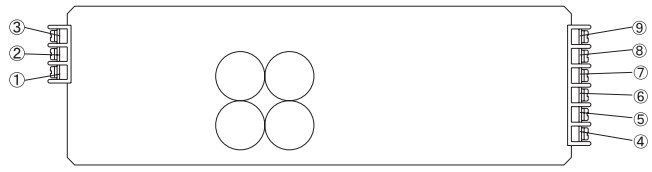
①AC(L)
②AC(N)
③Frame ground
④ ⑤ ⑥ ⑦ +Output
⑧ ⑨ ⑩ ⑪ -Output

●LDA150W



①AC(L)
②AC(N)
③Frame ground
④ ⑤ ⑥ ⑦ ⑧ ⑨ +Output
⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ -Output

●LDA300W



①AC(N)
②AC(L)
③Frame ground
④ ⑤ ⑥ +Output
⑦ ⑧ ⑨ -Output

2 Function

2.1 Input voltage range

●LDA10F - LDA75F

■The range is from AC85V to AC264V or DC110V to DC370V.

■AC input voltage must have a range from AC85V to AC264V for normal operation. If the wrong input is applied, the unit will not operate properly and/or may be damaged.

■In cases that conform with safety standard, input voltage range is AC100-AC240V(50/60Hz).

●LDA100W - LDA300W

■The range is from AC85V to AC132V/AC170V to AC264V which is automatically selected internally. But after the input voltage is applied, avoid changing AC100V ⟷ AC200V.

■AC input voltage must have a range from AC85V to AC132V/AC170V to AC264V for normal operation. If the wrong input is applied, the unit will not operate properly and or may be damaged.

■In cases that conform with safety standard, input voltage range is AC100-AC120V, AC200-AC240V(50/60Hz).

2.2 Inrush current limiting

■Inrush current limiting is built-in.

■If a switch on the input side is installed, it has to be the one handling the input inrush current.

●LDA10F - LDA150W

■The thermistor is used for protection from inrush current. When power is turned ON/OFF repeatedly within a short period of time, it is necessary to have enough time for power supply to cool down.

●LDA300W

■The thyristor technique is used for protection from inrush current. When power is turned ON/OFF repeatedly within a short period of time, it is necessary to have enough time between power ON and OFF to operate resistance circuit for inrush current.

Table 2.1 Inrush current Unit:[A typ]

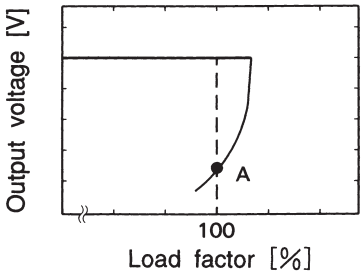
No.	Model	AC100V	AC200V
1	LDA 10F	15	30
2	LDA 15F	15	30
3	LDA 30F	15	30
4	LDA 50F	15	30
5	LDA 75F	15	30
6	LDA100W	30	30
7	LDA150W	30	30
8	LDA300W	30	30

2.3 Overcurrent protection

■Overcurrent protection is built-in and comes into effect at over 105% of the rated current. Overcurrent protection prevents the unit from short circuit and overcurrent condition. The unit automatically recovers when the fault condition is cleared.

●LDA10F・LDA15F

■The power supply which has a current foldback characteristics may not start up when connected to nonlinear load such as lamp, motor or constant current load. See the characteristics below.



——: Load characteristics of power supply.

---------- : Characteristics of load (lamp, motor, constant current load, etc.)

Note: In case of nonlinear load, the output is locked out at A point.

Fig.2.1 Current foldback characteristics

2.4 Overvoltage protection

●LDA10F・LDA15F

■Overvoltage protection circuit, clamping the output voltage by zener diode, is built-in and comes into effect at over 115% of the rated voltage (For 3V type, overvoltage protection kicks in at over 4V). The unit in an overvoltage protection mode cannot be recovered by a user; it must be repaired at the factory. Overvoltage protection (diode) also comes into effect if the voltage is externally applied to the output side. Avoid applying voltage to the output side.

●LDA30F - LDA300W

■The overvoltage protection circuit is built-in and comes into effect at 115 - 140% of the rated voltage (except 3V output voltage type : it operates at 4.00 - 5.25V). The AC input should be shut down if overvoltage protection is in operation. The minimum interval of AC recycling for recovery is 2 to 3 minutes (✱).

✱ The recovery time varies depending on input voltage.

Remarks:

Please avoid applying the over-rated voltage to the output terminal. Power supply may operate incorrectly or fail.In case of operating a motor etc. , please install an external diode on the output terminal to protect the unit.

2.5 Output voltage adjustment range

●LDA10F - LDA75F

■Adjustment of output voltage is possible by using potentiometer (only available to 3V output voltage type).

■Output voltage is increased by turning potentiometer clockwise and is decreased by turning potentiometer counterclockwise.

■Option "-Y" is recommended which can adjust the output voltage.

●LDA100W・LDA150W

■Adjustment of output voltage is possible by using potentiometer (only available to 3 and 5V output voltage type).

■Output voltage is increased by turning potentiometer clockwise and is decreased by turning potentiometer counterclockwise.

■Option unit "-Y" is recommended which can adjust the output voltage.

●LDA300W

■Adjustment of output voltage is possible by using potentiometer.

■Output voltage is increased by turning potentiometer clockwise and is decreased by turning potentiometer counterclockwise.

LDA

2.6 Isolation

■For a receiving inspection, such as Hi-Pot test, gradually increase (decrease) the voltage for the start (shut down). Avoid using Hi-Pot tester with the timer because it may generate voltage a few times higher than the applied voltage, at ON/OFF of a timer.

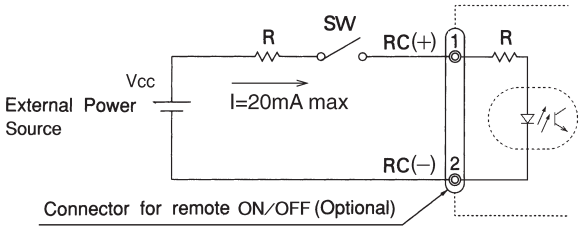
If the unit is tested on the isolation between input & output and output & FG, remote ON/OFF must be shorted to output .

2.7 Remote ON/OFF ("-R")

●LDA50F - LDA300W

■Option "-R" is available for remote ON/OFF.

Between RC(+) and RC(-)	Output
SW ON (4.5 - 12V) (LDA300W : 4.5 - 12.5V)	ON
SW OFF (0 - 0.5V)	OFF



■When external power source is in the range of 4.5 - 12V (LDA300W : 4.5 - 12.5V), current limit resistance R is not required. However, when external power source exceeds 12V (LDA300W : 12.5V), current limit resistance R must be connected.

To calculate the current limit resistance use following equation:

$$R[\Omega]=\frac{Vcc-(1.1+Ri\times 0.005)}{0.005}$$

where:

Vcc = External power source

Ri = The internal resistance (see table)

Model	Ri[Ω]
LDA50F - 150W	680
LDA300W	780

■A wrong connection may damage the internal components of the unit.

■Remote ON/OFF circuit (RC(+), RC(-)) is isolated from input, output and FG.

2.8 Remote sensing

●LDA300W

■When not using this function, confirm that terminals are shorted between +S and +M, and between -S and -M with short pieces.

■When using this function, wiring should be done without short pieces.

■Devices inside the power supply might be damaged when poor connection on load lines occurs, e.g. because of loose connector screws.

■Thick wire should be used for wiring between power supply and load, and line voltage drop should be less than 0.3V.

■When long sensing wire is required, use C.

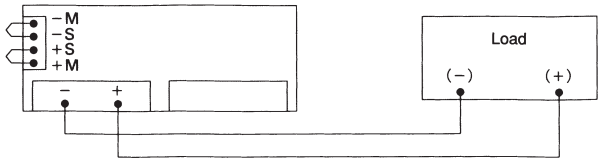
■Twisted-pair wire or shield wire should be used for sensing wire.

■When remote sensing function is used, output voltage might become unstable because of a impedance of wiring and load condition. And the power supply should be evaluated enough. Following are examples to improve it.

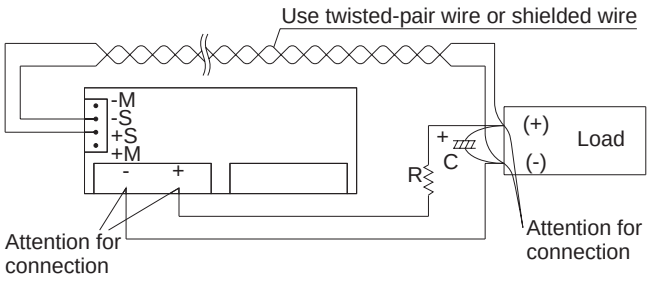
・-S sensing wire is removed and terminals between -M and -S are shorted.

・C and R are connected as above figure.

(1) When not using remote sensing function



(2) When using remote sensing function

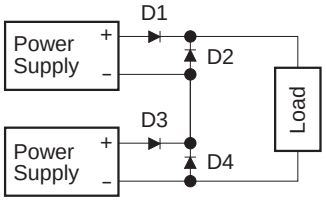


3 Series Operation and Parallel Operation

●LDA10F・LDA15F

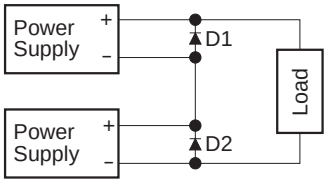
■Series operation is available by connecting the outputs of two or more power supplies, as shown below. Output current in series connection should be lower than the lowest rated current in each unit.

When the output voltage is less than 5V



D1 - D4: Please use schottky Barrier Diode.

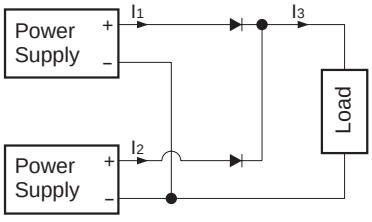
When the output voltage is more than 12V



D1・D2: Please use schottky Barrier Diode.

■Parallel operation is not possible.

■Redundancy operation is available by wiring as shown below.



■Even a slight difference in output voltage can affect the balance between the values of I_1 and I_2.

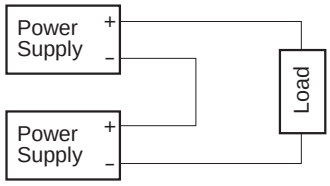
Please make sure that the value of I_3 does not exceed the rated current of a power supply.

$I_3 \leqq$ the rated current value

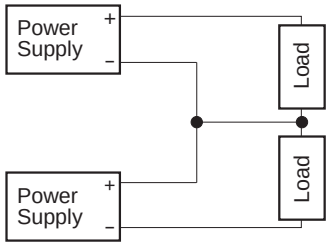
●LDA30F - LDA300W

■Series operation is available by connecting the outputs of two or more power supplies, as shown below. Output current in series connection should be lower than the lowest rated current in each unit.

(a)

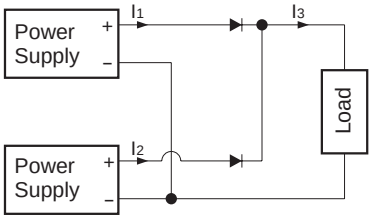


(b)



■Parallel operation is not possible.

■Redundancy operation is available by wiring as shown below.



■Even a slight difference in output voltage can affect the balance between the values of I_1 and I_2.

Please make sure that the value of I_3 does not exceed the rated current of a power supply.

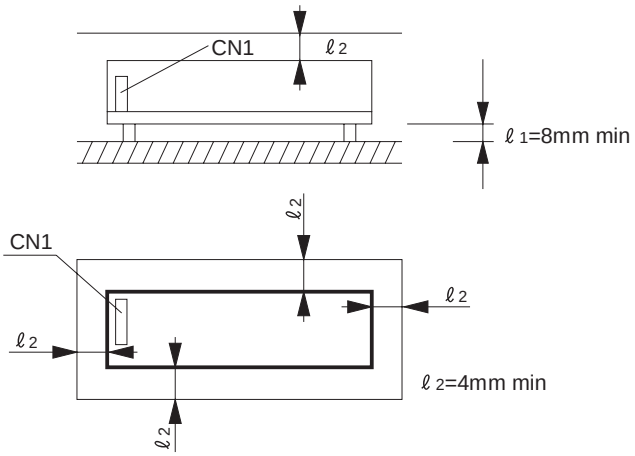
$I_3 \leqq$ the rated current value

4 Assembling and Installation Method

4.1 Installation method

■When two or more power supplies are used side by side, position them with proper intervals to allow enough air ventilation. Ambient temperature around each power supply should not exceed the temperature range shown in derating curve.

■In case of metal chassis, keep the distance between l_1 & l_2 for to insulate between lead of component and metal chassis. If it is less than l_1 & l_2, insert the insulation sheet between power supply and metal chassis.

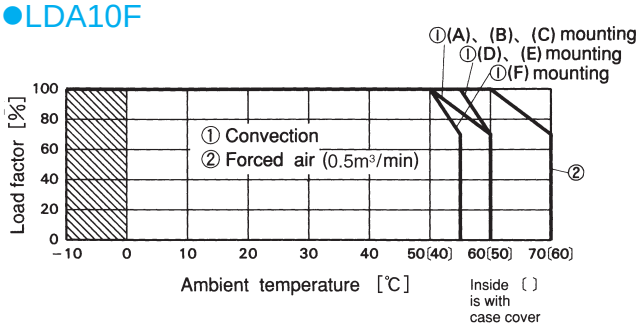


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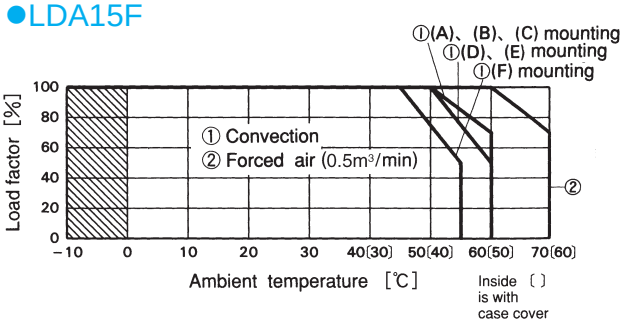
4.2 Derating

■The operative ambient temperature is different by with/without case cover or mounting position. Please refer drawings as below.

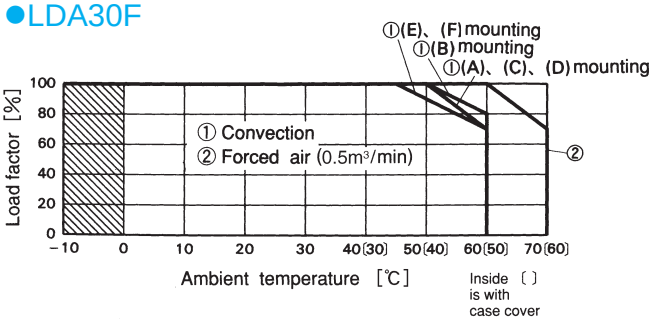
●LDA10F



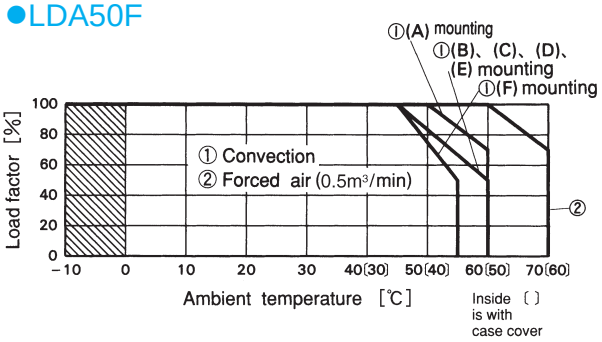
●LDA15F



●LDA30F



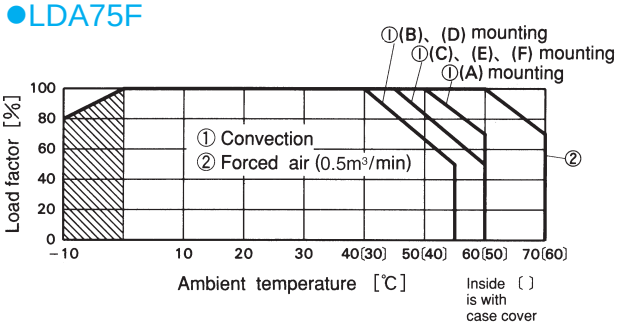
●LDA50F



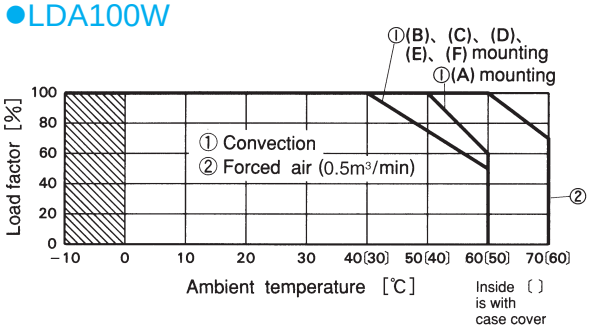
Note:

In the hatched area, the specification of Ripple, Ripple Noise is different from other area.

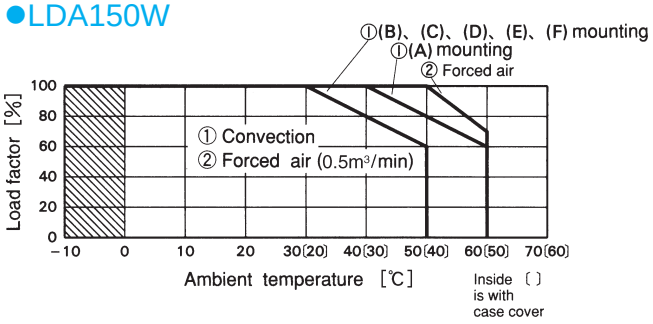
●LDA75F



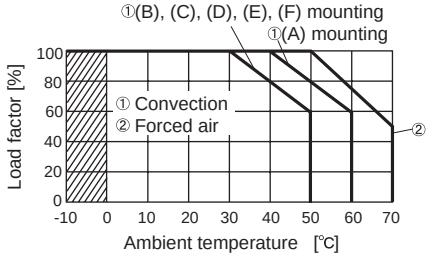
●LDA100W



●LDA150W



●LDA300W



Output voltage	①Convection	②Forced air
-3	120W	180W
-5	200W	300W
-9	207W	306W
-12	204W	324W
-15	210W	330W
-18	216W	306W
-24	216W	336W
-30	210W	300W
-48	201.6W	302.4W

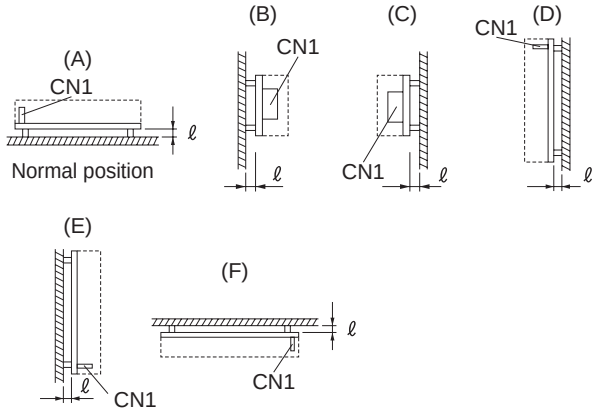
The rated power is different depend on Forced Air/Convection cooling (Please refer Chart in right hand side).

Note:

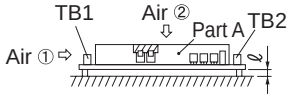
In the slanted area, the specification of Ripple, Ripple Noise is different from other area.

■When unit mounted except below drawings, it is required to consider ventilated environment by forced air cooling for temperature/load derating. For details, please consult our sales or engineering departments.

Mounting method



●LDA300W



Note:

Ventilation is required so that part A of heat sink is below 85℃ in any case. Please flow air to the components to the direction of Air① or Air②.

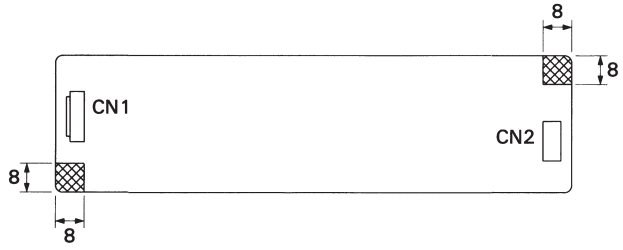
■(F) mounting is not possible when unit is with case cover, but if need to operate unit by (F) positioning with case cover, temperature / load derating is necessary. For more details, please consult our sales or engineering departments.

4.3 Mounting screw

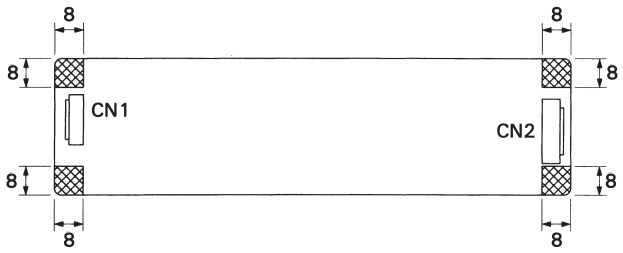
■The mounting screw should be M3. The hatched area shows the allowance of metal parts for mounting.

■Please be carefull with that metal parts do not touch mounted parts at front side, where major components are mounted, when a power supply is installed with them.

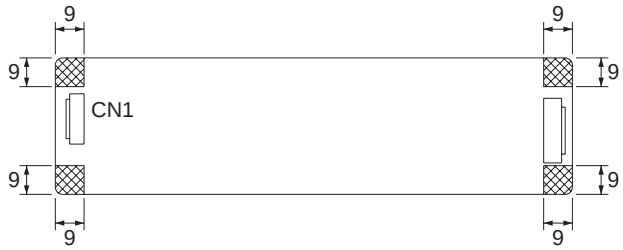
●LDA10F



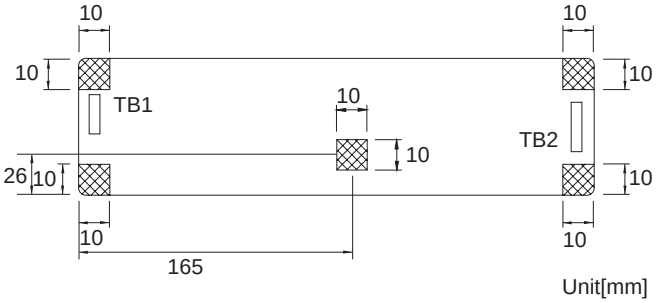
●LDA15F - LDA50F



●LDA75F - LDA150W

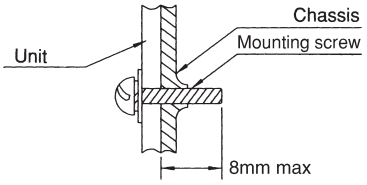


●LDA300W



Unit[mm]

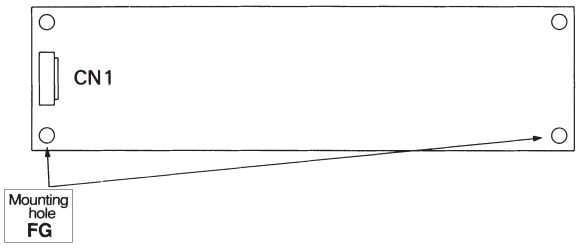
■Keep isolation distance between screw and internal components in case of option "-S", "-SN", as below chart.



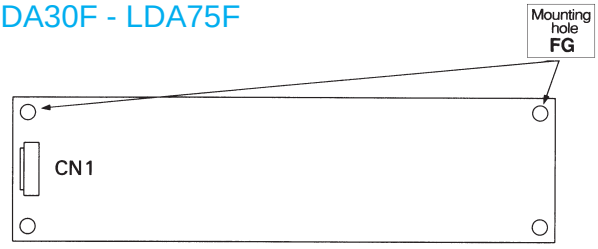
5 Ground

■When installing the power supply with your unit, ensure that the input FG terminal or mounting hole FG is connected to safety ground of the unit. However when applying the safety agency, connect the input FG terminal to safety ground of the unit.

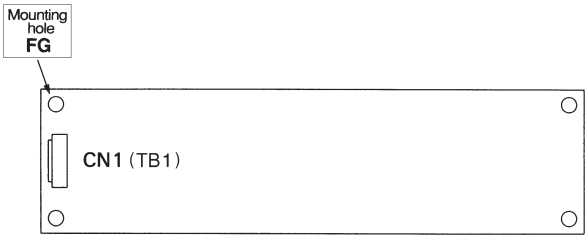
●LDA10F・LDA15F



●LDA30F - LDA75F



●LDA100W - LDA300W



6 Others

■This power supply is the rugged PCB type. Do not drop conductive objects in the power supply.

■At light load, there remains high voltage inside the power supply for a few minutes after power OFF. So, at maintenance, take care about electric shock.

■This power supply is manufactured by SMD technology. The stress to PCB like twisting or bending causes the defect of the unit, so handle the unit with care.

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