Basic Characteristics Data

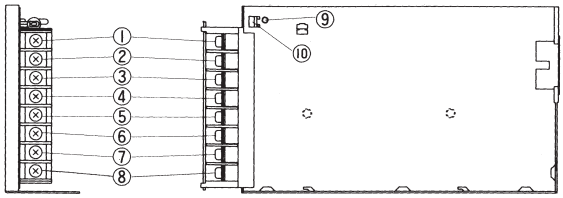
Model	Circuit method	Switching frequency [kHz]	Input current [A]	Rated input fuse	Inrush current protection	PCB/Pattern			Series/Parallel operation availability	
						Material	Single sided	Double sided	Series operation	Parallel operation
MMB50A	Flyback converter	80 - 400	1.2	125V 3A	Thermistor	CEM-3	Yes		✻1	No
MMB75A	Flyback converter	80 - 400	1.7	125V 5A	SCR	FR-4		Yes	✻1	No

✻1 Refer to Instruction Manual.
✻ Switching frequecy of flyback converter depends on input voltage and load factor.
✻ The value of input current is at AC IN 100V and rated load.

1 Terminal Block

MMB

●MMB50A・MMB75A



①V1 Output
②G1(V1) GND
③V2 Output
④G1(V2) GND
⑤NC
⑥Frame ground
⑦AC(L)
⑧AC(N)
⑨LED(V1)
⑩Output voltage adjustable potentiometer(V1)

2 Function

2.1 Input voltage range

■The range is from AC85V to AC132V or DC110V to DC170V.

■AC input voltage must have a range from AC85V to AC132V 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(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.

●MMB50A

■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.

●MMB75A

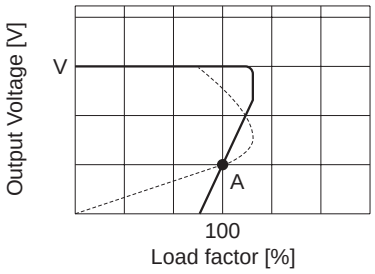
■The thyristor technique is used for protection from inrush current. When power is turned ON/OFF repeatedly within a short period of time, it is necessary to have enough time between power ON and OFF to operate resistance circuit for inrush current.

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 of less than 20 sec. The unit automatically recovers when the fault condition is cleared.

■When the overcurrent/short circuit condition continues more than 20 seconds, it may damage devices inside the power supply.

■The power supply which has a current foldback characteristics may not start up when connected to a nonlinear load such as a 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

■In V1 & V2, The overvoltage protection circuit is built-in and comes into effect at 115 - 140% of the rated voltage. The AC input should be shut down if overvoltage protection is in operation. The minimum interval of AC recycling for recovery is 2 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

■Adjustment of output voltage for V1 is possible by using potentiometer.

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

■When potentiometer is over-turned clockwise, overvoltage protection function activates. To set up output voltage, first turn potentiometer counterclockwise to the end, then turn back clockwise gradually until reaching the level of required voltage.

2.6 Isolation

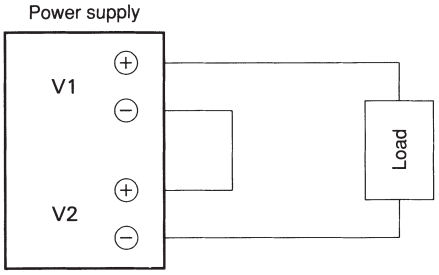
■For a receiving inspection, such as Hi-Pot test, gradually increase(decrease)the voltage for the start(shut down). Avoid using Hi-Pot tester with the timer because it may generate voltage a few times higher than applied voltage, at ON/OFF of a timer.

If the unit is tested on the isolation between input & output and output & FG, output terminals must be shorted.

3 Series Operation and Parallel Operation

■Series operation with V1 and V2 is available by connecting the outputs of the unit as shown below. Output current in series connection should be lower than the lowest output current of the unit.

■Series operation with other model is not possible.



■Parallel operation is not possible.

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.

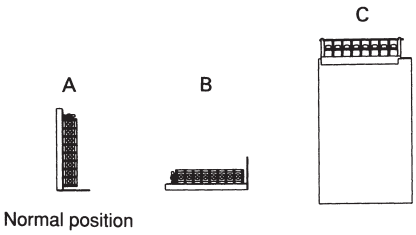
4.2 Derating

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

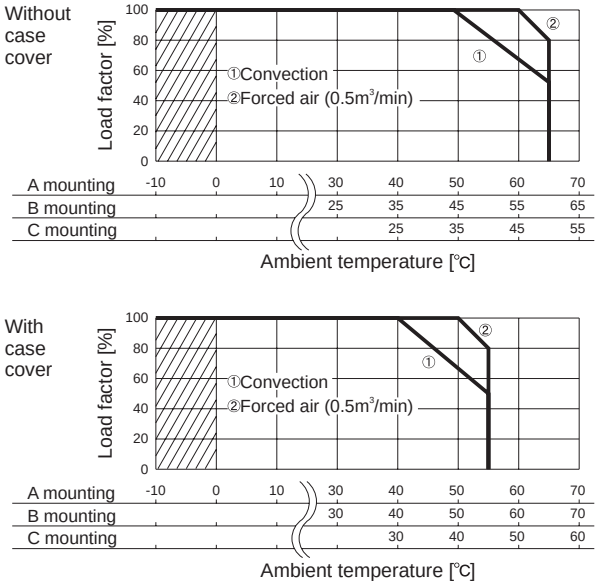
■When unit mounted except below drawings, it is required to consider ventilated environment by forced air cooling or temperature/load derating. For details, please consult our sales or engineering departments.

●MMB50A

(1)Mounting method



(2)Derating curve

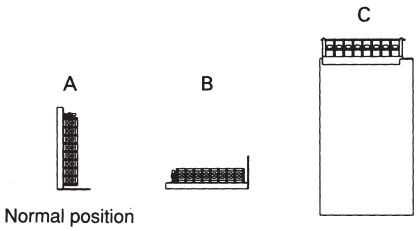


Note:

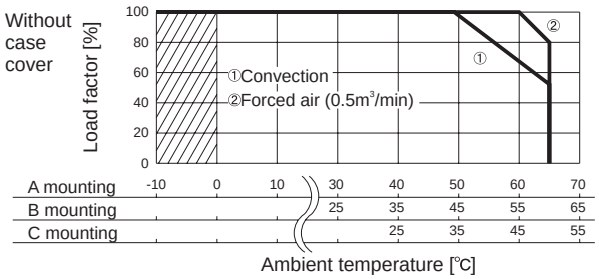
In the hatched area, the specification of Ripple, Ripple Noise is different from other area.

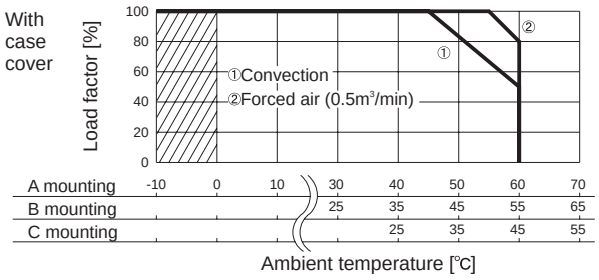
●MMB75A

(1)Mounting method



(2)Derating curve



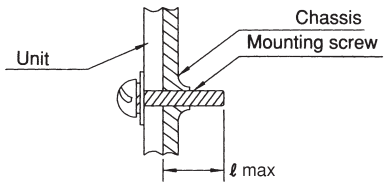


Note:

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

4.3 Mounting screw

■Keep isolation distance between screw and internal components as below chart.



Unit:[mm]

Model	ℓ max
MMB50A	8
MMB75A	8

5 Peak Loading

●MMB50A

■Peak load current is possible to draw 30 seconds. It will damage devices inside the power supply when the peak load current continues more than 30 seconds.