

Scope

This specification applies to built-in DC Stabilized power supply, mFZP-075 series.
All items in this specification shall be provided at nominal temp., 25 deg C, and humidity unless otherwise specified.

Model Name Coding

Example: mFZP-075-12-JB0-□
① ② ③ ④ ⑤ ⑥ ⑦

- ①Series Name ②Output power: 075⇒75W ③Output voltage: 5⇒5V, 12⇒12V, 15⇒15V, 24⇒24V
- ④Input / Output connector type: J⇒Nylon connector
- ⑤Backup function (w/ or w/o CN3) : 0⇒ w/o Backup function, B ⇒ w/ Backup function (Standard) (*CN3 : Connector for Optional Capacitor unit, CB03A-EC400/801F) (Refer to Block Diagram in far below)
- ⑥Modification 「0-9」 or 「A-Z」: 0 ⇒ Standard, 1 ⇒ Moisture-proof coating (Solder surface), the other modification within Safety Standards
- ⑦Chassis: Blank⇒Without Chassis and Cover, -C⇒With Chassis, -K⇒With Chassis and Cover

Model name (basic code)	mFZP-075-5	mFZP-075-12	mFZP-075-15	mFZP-075-24
DC Output	5V 10A (Peak 15A)	12V 6.25A (Peak 12.5A)	15V 5A (Peak 10A)	24V 3.13A (Peak 6.25A)

General Specification

Items		Specification / Standards				Measurement conditions, etc.
		mFZP-075-5	mFZP-075-12	mFZP-075-15	mFZP-075-24	
Input	Rated voltage	100-240VAC				Voltage range: 85 to 264V (Note 1)
	Rated current	1.2-0.8A	1.5-0.9A			At rated output (typical)
	Rated frequency	50-60 Hz				Frequency range:47 to 63Hz
	Inrush current	30A typical at 100 VAC / 60A typical at 200 VAC (Note 2)				At cold start with power thermistor / At rated output
	Efficiency (AC100/200V) [%]	80/82	84/86	85/87	86/88	At rated output (typical) (Note 3)
Environment	Operating Temp. Humidity	-10 to 70°C (Note 1) / 20 to 90% RH				No condensation
	Storage Temp. Humidity	-20 to 75°C / 10 to 95% RH				No condensation
	Vibration	To endure the vibration acceleration of 2g _a with vibration frequency of 10 to 55Hz for 10 sweep cycles in each X, Y, Z direction.				Follow JIS-C 60068-2-6 Measured with Chassis and Cover
	Mechanical Shock	Lift one bottom edge up to 50mm and left it fall. Number of bumps: 1 each of 4 edges.				Follow JIS-C 60068-2-31/At no operation Measured with Chassis and Cover
	Height	2000m max.				

(Note 1) Use within the range of the attached input voltage derating diagram and temperature derating diagram by installation conditions.
(Note 2) The inrush current shall be the primary inrush current. Charging current equal to or less than 200μs into X-capacitor in input filter circuit shall not be defined as inrush current.
(Note 3) The measurement is performed 30 minutes after the input is turned on, and the input/output voltage measurement point is the printed wiring board soldering part of the input/output terminals.



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Shirai	Hanano	Takeda	mFZP-075 series			5163-01-4-520			(1/8)

Output Specification

(Measurement points shall be at the output terminals) .

Items		mFZP-075-5	mFZP-075-12	mFZP-075-15	mFZP-075-24	Measurements conditions, etc.
Output Rating	Rated Voltage (V)	5	12	15	24	
	Continuous rated current (A)	10	6.25	5	3.13	Refer to "derating diagram"
	Peak current (A)	15	12.5	10	6.25	Peak current is within 5 seconds or less. Average power when passing repetitive peak current is within continuous rated power
	Continuous rated Power (W)	50	75	75	75	
	Min. current (A)	0	0	0	0	
Output Characteristics	Voltage adjustable range (%)	±10				
	Set-up voltage accuracy (V)	5±0.1	12±0.24	15±0.3	24±0.48	At rated input with 50% load
	Total voltage accuracy (1) (mV)	±225 max.	±540 max.	±675 max.	±1080 max.	Total accuracy including a static input/load fluctuation, and temperature fluctuation.
	Total voltage accuracy (2) (%)	±5 max.	±5max.	±5 max.	±5 max.	Total accuracy including temperature and time drift.
	Ripple Noise ① (Note 1) (mV)	120 max.	150 max.	180 max.	200 max.	Measure on the measurement board with a 20MHz oscilloscope. Connect a capacitor (47µF) to the measurement board, separate it from the load wire, and install it within 150mm from the output terminal.
	Ripple Noise ② (Note 2) (mV)	240 max.	280 max.	280 max.	280 max.	
	Startup time (mS)	800 max.				Time to reach 90% of rated output voltage with rated load (resistor) after rated input 100Vac is applied
	Rise time (mS)	50 max. (Note 3)				Time to reach 90% from 10% of rated output voltage with rated load (resistor) after rated input 100Vac is applied
Holding time (mS)	10min. at 100VAC / 60min. at 200VAC				Time to reach 90% of rated output voltage with rated load (resistor) after input voltage is turned off.	

(Note 1) In case of from 35 to 100 % of Continuous Rated Current

(Note 2) In case of light load (Below 35% of Continuous Rated Current) * Please be requested to use this power supply after verification of real machine due to increased Ripple Noise Voltage after transition to intermittent operation mode in case of light load

(Note 3) Please be requested to use this power supply after verification of real machine including rising curve of Output Voltage



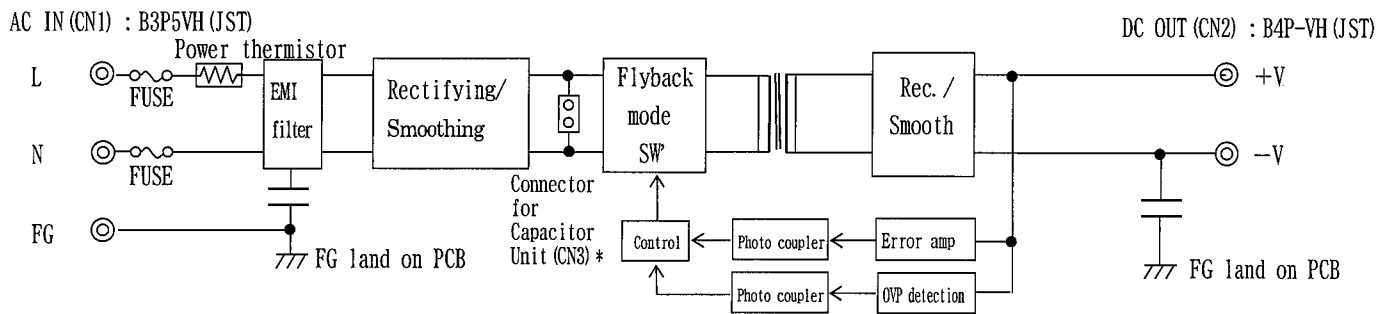
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Output Specification

(Measurement points shall be at the output terminals) .

Items		mFZP-075-5	mFZP-075-12	mFZP-075-15	mFZP-075-24	Measurements conditions, etc.	
Protection, and others	Over Current	Method				Blocking oscillation	Rapid shortage, longtime over current or shortage shall be avoided as it may shorten lifetime.
		OCP point (A)				101%min. of peak rated current	Current value when output voltage goes down by 10%.
		Recovery				Automatic recovery	
	Over Voltage	Method				Output latch lock	
		OCP point (V)				5.75~7.25 13.8~16.8 17.25~21.0 27.6~33.6	
		Recovery				Reclosing of input	Input reclosing cycle shall be 60 seconds or longer.

Block Diagram



* Connected with Optional Capacitor Unit (Model. No. CB03A-EC400/801F) for Back Up of Instantaneous interruption.



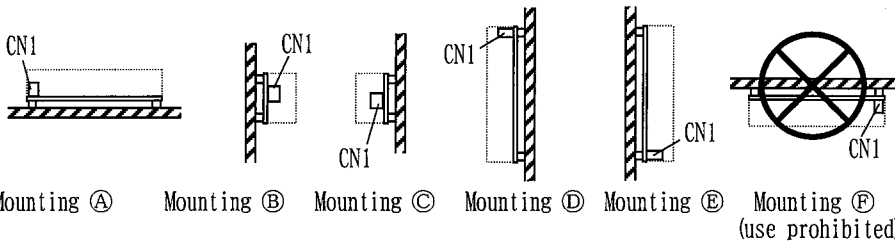
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Installation conditions and output derating

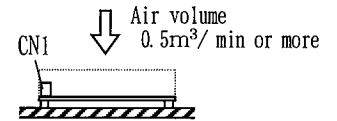
Depending on the installation conditions (mounting direction, cooling method, presence / absence of cover, input voltage, output voltage), reduce the load factor according to the temperature derating diagram for each output voltage model described on the following pages. However, the load factor is 100% with the continuous rated current / continuous rated power value specified in the output specifications. Applicable when the input voltage is 100VAC or more and 240VAC or less.

When using an input voltage of less than 100VAC or more than 240VAC, apply the value obtained by multiplying the load factor shown in the temperature derating diagram by the load factor shown in the input voltage derating diagram below.

Mounting direction/forced air cooling conditions



Wind direction during forced air cooling



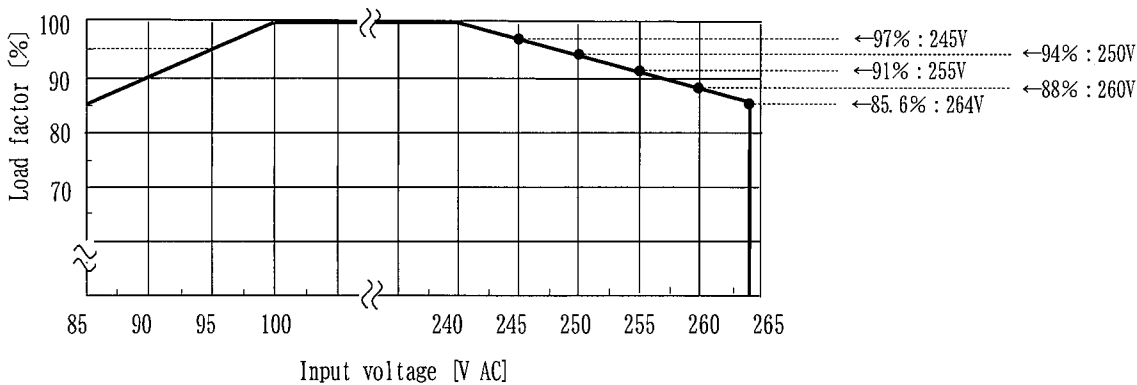
Input voltage derating diagram

When using with a low input voltage of less than 100VAC or a high input voltage of more than 240VAC, the following input voltage derating diagram and the temperature derating Apply the value multiplied by the load factor shown in the figure.

(Application example 1: 24V/board type/natural cooling/mounting ①/ambient temperature 40°C/input voltage 85V AC, load factor is 100% × 85% = 85%)

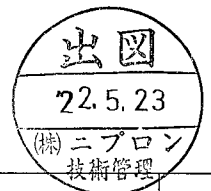
(Application example 2: 24V/board type/natural cooling/mounting ①/ambient temperature 60°C/input voltage 264V AC, load factor is 70% × 85.6% = 59.9%)

Input voltage derating diagram



(Note) The power thermistor for suppressing the input inrush current becomes high resistance (= input voltage insufficient state) when left with no load or left with light load in a low input voltage of less than 100VAC and a low temperature environment of less than 10°C.

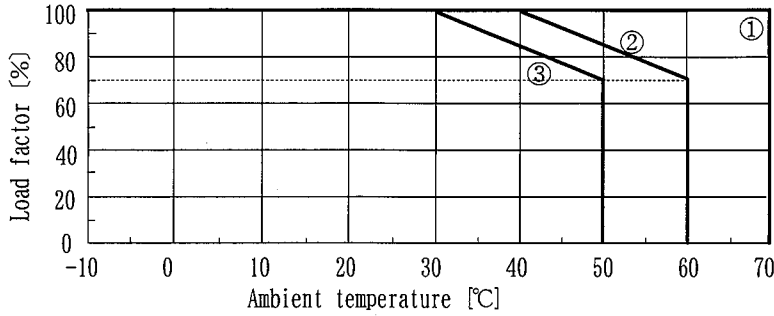
If the input is turned on in this state, or if the load is suddenly changed from a light load to a heavy load, the output may start / stop repeatedly due to insufficient input voltage, so please use it after verifying the actual machine.



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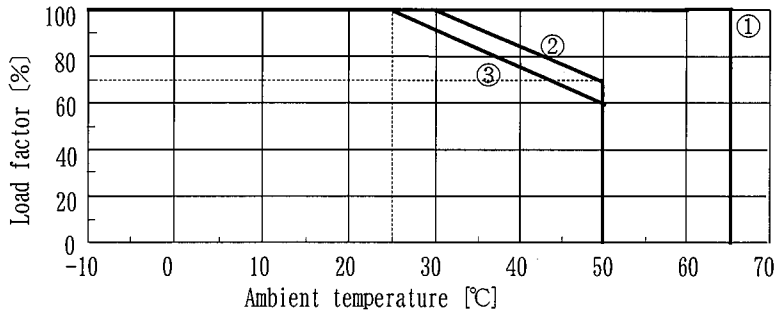
5V model temperature derating diagram

[5V model : board type temperature derating diagram] (when 100VAC ≤ input voltage ≤ 240VAC)



- ① Forced air cooling (70°C 100%)
- ② Natural cooling/mounting ④, ⑤, ⑥ (40°C 100%, 60°C 70%)
- ③ Natural cooling/mounting ⑦, ⑧ (30°C 100%, 50°C 70%)

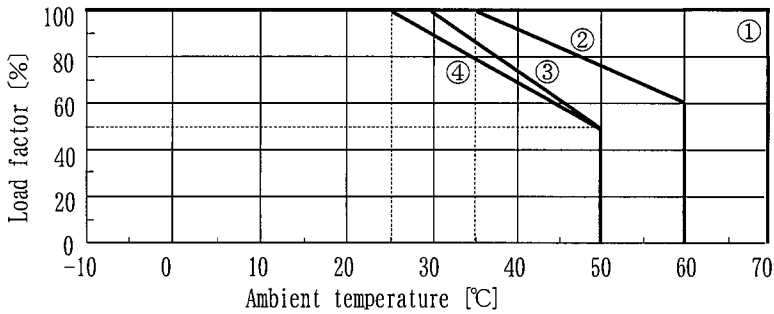
[5V model : chassis + cover type temperature derating diagram] (when 100VAC ≤ input voltage ≤ 240VAC)



- ① Forced air cooling (65°C 100%)
- ② Natural cooling/mounting ④, ⑤, ⑥, ⑦ (30°C 100%, 50°C 70%)
- ③ Natural cooling/mounting ⑧ (25°C 100%, 50°C 60%)

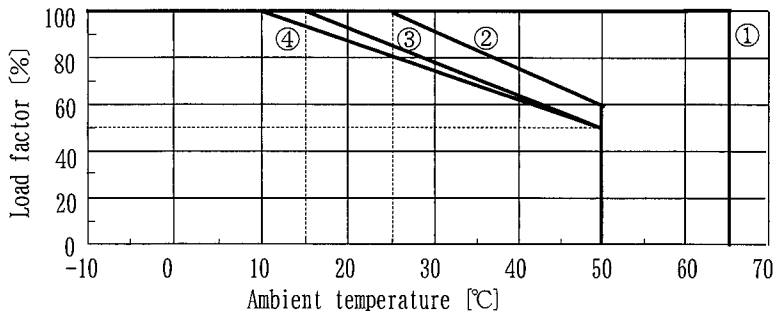
12V model temperature derating diagram

[12V model : board type temperature derating diagram] (when 100VAC ≤ input voltage ≤ 240VAC)

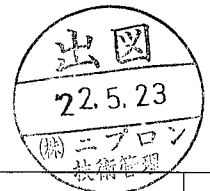


- ① Forced air cooling (70°C 100%)
- ② Natural cooling/mounting ④, ⑤, ⑥ (35°C 100%, 60°C 60%)
- ③ Natural cooling/mounting ⑦ (30°C 100%, 50°C 50%)
- ④ Natural cooling/mounting ⑧ (25°C 100%, 50°C 50%)

[12V model : chassis + cover type temperature derating diagram] (when 100VAC ≤ input voltage ≤ 240VAC)



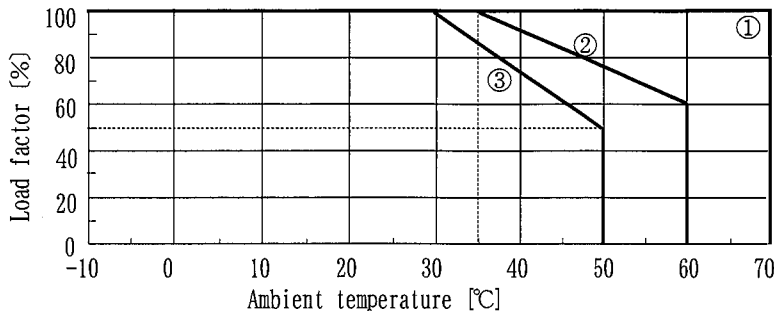
- ① Forced air cooling (65°C 100%)
- ② Natural cooling/mounting ④, ⑤, ⑥ (25°C 100%, 50°C 60%)
- ③ Natural cooling/mounting ⑦ (15°C 100%, 50°C 50%)
- ④ Natural cooling/mounting ⑧ (10°C 100%, 50°C 50%)



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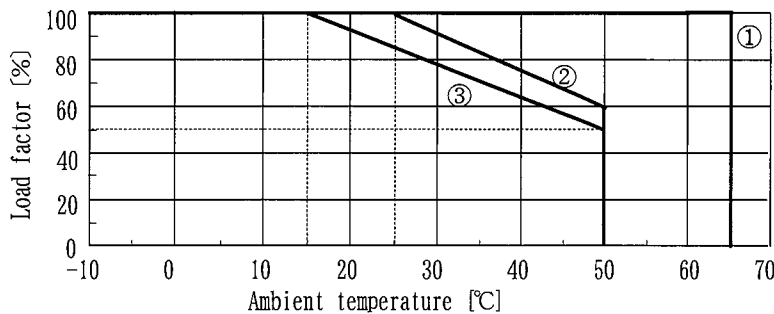
15V model temperature derating diagram

[15V model : board type temperature derating diagram] (when 100VAC ≤ input voltage ≤ 240VAC)



- ① Forced air cooling (70°C 100%)
- ② Natural cooling/mounting ④, ⑤, ⑥ (35°C 100%, 60°C 60%)
- ③ Natural cooling/mounting ④, ⑤ (30°C 100%, 50°C 50%)

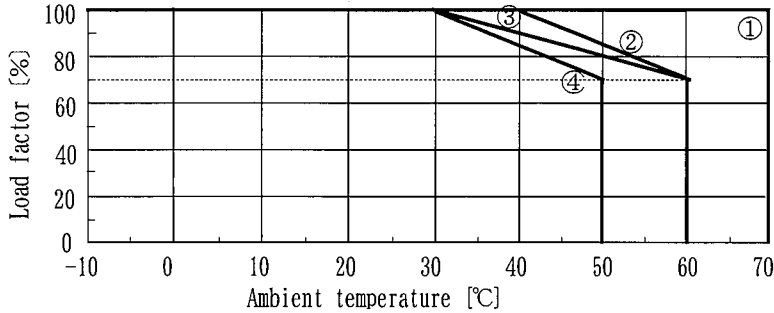
[15V model : chassis + cover type temperature derating diagram] (when 100VAC ≤ input voltage ≤ 240VAC)



- ① Forced air cooling (65°C 100%)
- ② Natural cooling/mounting ④, ⑤, ⑥ (25°C 100%, 50°C 60%)
- ③ Natural cooling/mounting ④, ⑤ (15°C 100%, 50°C 50%)

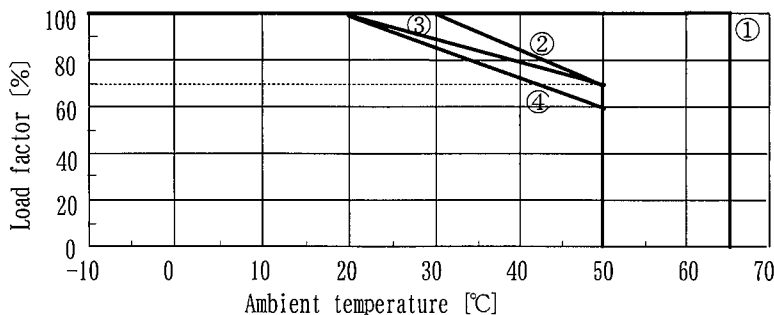
24V model temperature derating diagram

[24V model : board type temperature derating diagram] (when 100VAC ≤ input voltage ≤ 240VAC)



- ① Forced air cooling (70°C 100%)
- ② Natural cooling/mounting ④, ⑤ (40°C 100%, 60°C 70%)
- ③ Natural cooling/mounting ⑥ (30°C 100%, 60°C 70%)
- ④ Natural cooling/mounting ④, ⑤ (30°C 100%, 50°C 70%)

[24V model : chassis + cover type temperature derating diagram] (when 100VAC ≤ input voltage ≤ 240VAC)









- ① Forced air cooling (65°C 100%)
- ② Natural cooling/mounting ⑥ (30°C 100%, 50°C 70%)
- ③ Natural cooling/mounting ④, ⑤, ⑥ (20°C 100%, 50°C 70%)
- ④ Natural cooling/mounting ⑥ (20°C 100%, 50°C 60%)

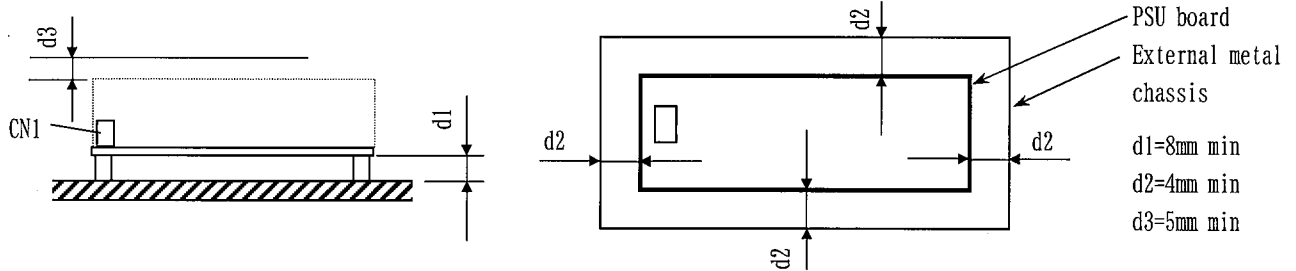



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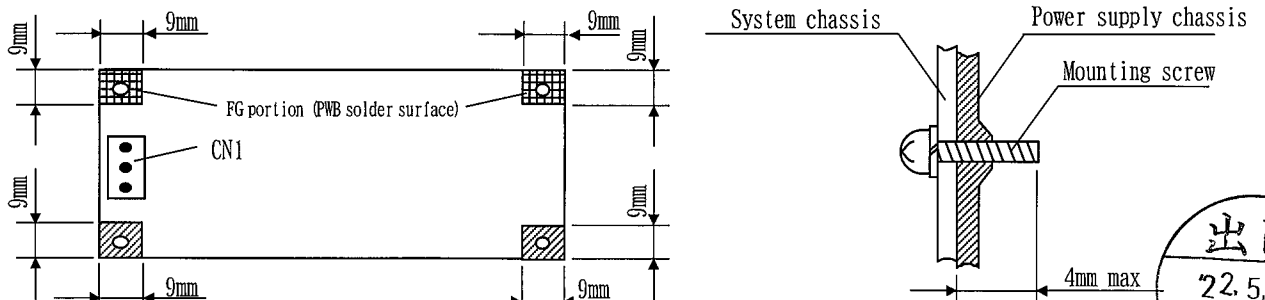
Product Specification

Precautions before use

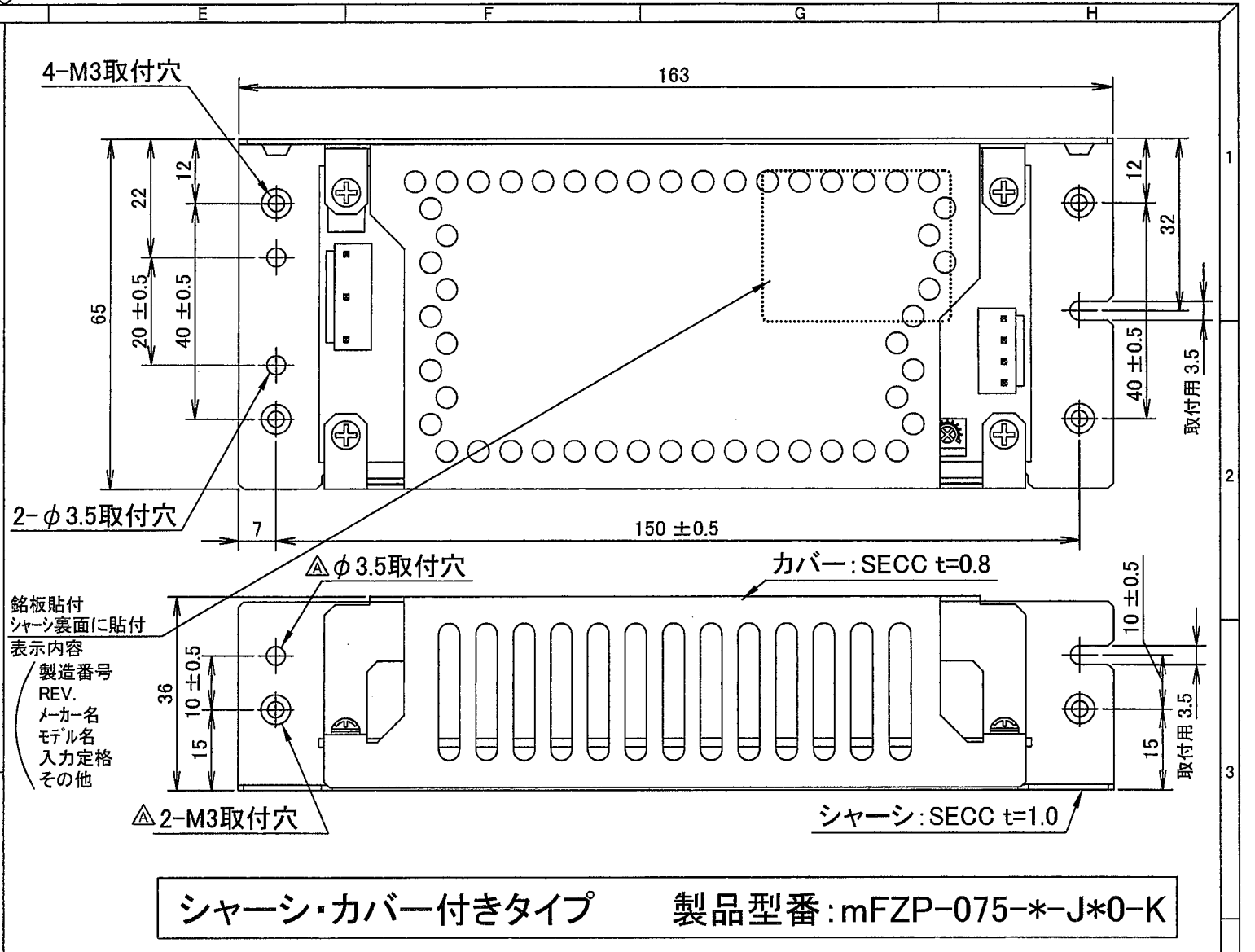
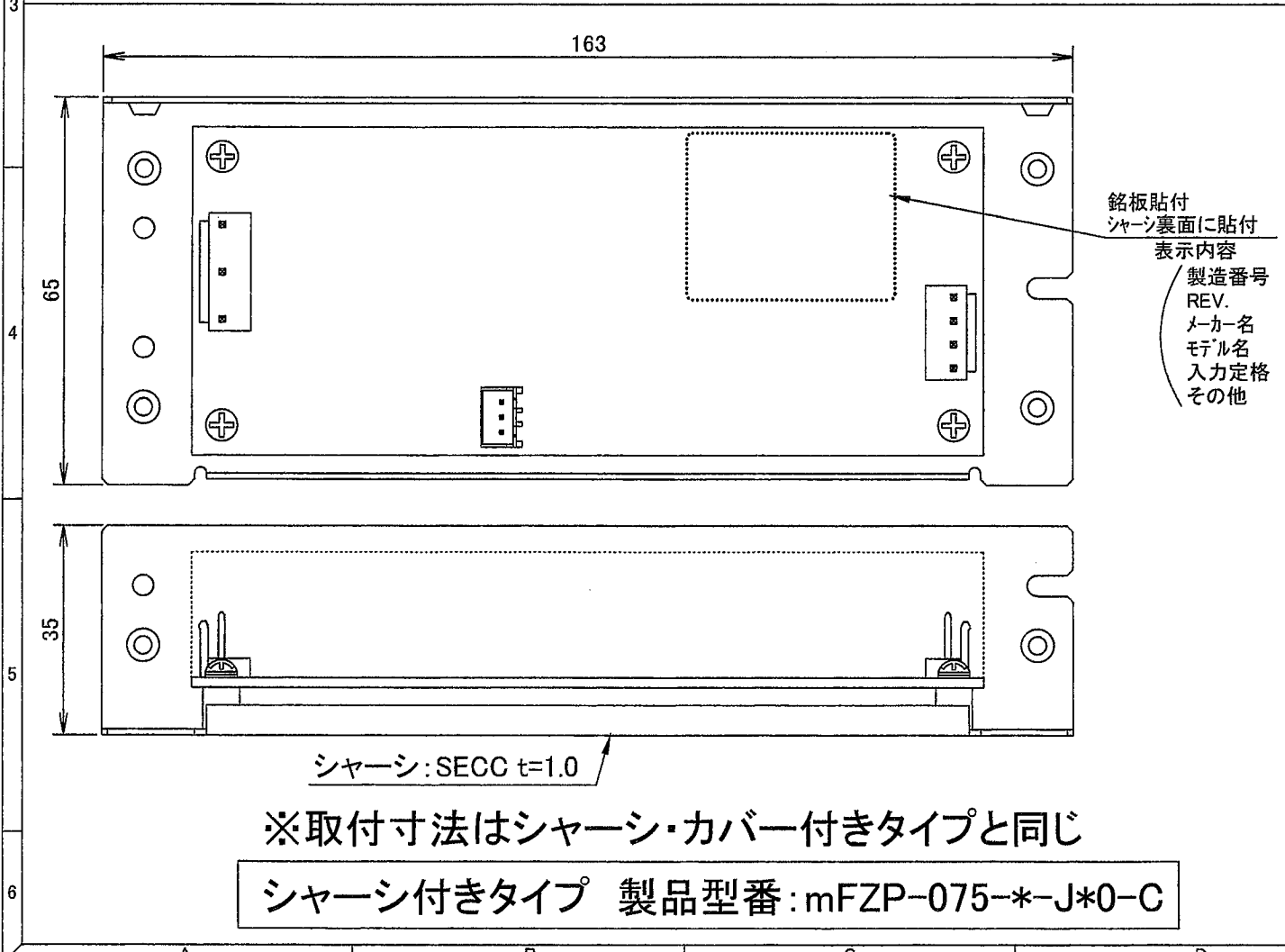
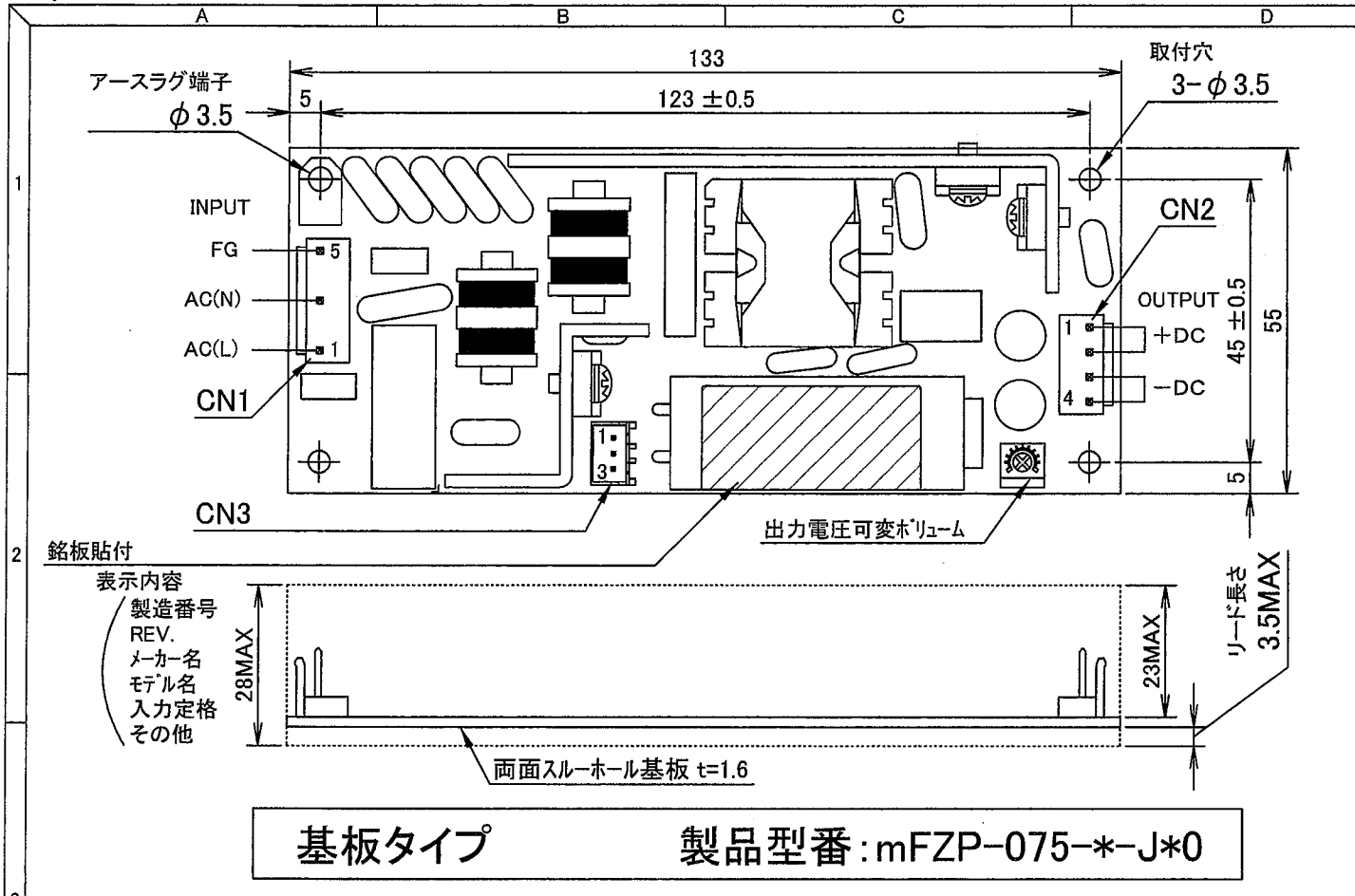
1. Grounding  Warning
This unit is designed and produced to meet Class 1 equipment. Make sure to connect the grounding terminal of the unit to grounding in a proper way for safety.
2. Electric shock  Warning
This unit is designed and produced as built-in equipment and has high-voltage part inside. Make sure to securely install in the equipment in a proper way to prevent electric shock.
3. Output short circuit  Caution
When the output is shorted, capacitors inside the power supply may rapidly discharge, and fire and/or spark may cause a serious accident.
4. Inrush current control circuit  Caution
A power thermistor is used to prevent inrush current into rectifying capacitors when AC input is turned on.
If input voltage is applied again in a short period of time after power-off, excessive surge current may occur to melt contacts of power switch causing damage of the power supply. Make sure to turn on the power with cold starting of the power thermistor.
5. PWB board handling  Caution
When handling, use the edge of the board and be careful not to touch the component side/solder side. Float the board with a spacer or the like and attach it to the equipment.
Also, since surface mount components are used, handle the printed circuit board so that it is not twisted or bent.
6. Power supply installation  Caution
To meet the standard of insulation and dielectric strength, the space (d1, d2, and d3) shown below is necessary around the power supply.
Sufficient convection and ventilation are required to prevent the ambient temperature of the power supply from rising.



7. Installation and Earthing  Caution
When a single open frame unit is used, fix all four holes firmly with the screws whose diameter shall be 3mm. Metal parts to fix power supply shall not exceed the hatched area shown below.
In case of chassis cover attached, the screws to fix the power supply shall not exceed the dimension shown below. Make sure to connect FG terminal of CN1 or FG portion of PWB solder surface with metal spacers to the Safety Earthing of the equipment. Make sure to connect FG terminal of CN1 to Safety Earthing of the system in making application to safety standard.



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コネクタのピンアサイン詳細

※別売のコンデンサユニットCB03A-EC400/801F接続用コネクタCN3を使用するには、「CN3有りタイプ」および、カバーの無い「基板タイプ」「シャーシ付きタイプ」を選択してください。

CN1: INPUT			CN2: OUTPUT			CN3: Capacitor package Input/Output		
PIN No.	FUNCTION	CONNECTOR TYPE	PIN No.	FUNCTION	CONNECTOR TYPE	PIN No.	FUNCTION	CONNECTOR TYPE
1	AC(L)	B3P5-VH (JST)	1	+DC	B4P-VH (JST)	1	CAP+	BH3B-XH-2 (JST)
2	AC(N)		2	-DC		2	CAP-	
3	AC(N)		3			3		
4	AC(N)		4					
5	FG							

※適合ハウジング VHR-5N (JST) ※適合ターミナル リール:SVH-21T-P1.1 パルク:BVH-21T-P1.1

※適合ハウジング VHR-4N (JST) ※適合ターミナル リール:SVH-21T-P1.1 パルク:BVH-21T-P1.1

※適合ハウジング XHP-3 (JST) ※適合ターミナル リール: SXH-001T-P0.6 パルク: BXH-001T-P0.6

※CN2は1ピンあたり連続5A以下で使用してください

指定なき寸法公差は±1とする
電源取付穴締付トルク: 0.6N・m Max (使用ねじ径3mm)

製品型番 CN3
mFZP-075-***J**B0* 有り
mFZP-075-***J**00* 無し

発行 22.7.25

A版 △×3: 2022.07.01 花野 I-340701 誤記訂正、CN3注記追加

DROWN BY	CHECK BY	APPROVED BY	SCALE	MATERIALS	TITLE
花野	白井	武田	UNITS $\frac{mm}{m}$	FINISH	
ISSUED	2021.06.29		3RD ANGLE PROJECTION	DRAWING NO.	5163-01-3-050 A