

**Scope**

This specification applies to embedded dual output DC power supply OZM-030 series.  
All items in this specification shall be provided normal temperature(25°C) and normal humidity environment unless otherwise specified.

**Model name coding**

Ex : OZM-030-12N12-J00-□  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ④ Series name ②Output power...030⇒30W ③Output voltage...12N12⇒±12V,15N15⇒±15V
- ④Input/Output terminal...J⇒Nylon connector⑤Backup function...0⇒No backup function equipped
- ⑥Option...0⇒No option equipped ⑦Chassis...Blank⇒Open frame,-C⇒with Chassis,-K⇒with Chassis and Cover

Model name(basic code)	OZM-030-12N12	OZM-030-15N15
DC Output	V1	+12V 2.4A (peak 3A)
	V2	-12V 0.6A (peak 1A)
		+15V 1.8A (peak 2.4A)
		-15V 0.6A (peak 1A)

**General specification**

Items		Specification and Standard	Measurement conditions, etc.
Input	Rated voltage/current	100 to 240V AC/0.8 to 0.44A	Voltage range 85-264V AC
	Rated frequency	50 to 60 Hz	Frequency range 47 to 63Hz
	Inrush current	20A typ. at 100V AC input/40A typ. at 200V AC input	at cold start with power thermistor and rated load (Note1)
	Efficiency	82% typ. at 100V AC input/85% typ. at 200V AC input	at rated load
	Standby power	1.1W typ. at 100V AC input/1.5W typ. at 200V AC input	at all outputs without load
Environment	Operating Temp./Humidity	-10 to 65°C(convection cooling), 70°C(forced air cooling)(Note2)/20 to 90% RH	There shall be no condensation
	Storage Temp./Humidity	-20 to 75°C / 10 to 95% RH	There shall be no condensation
	Vibration	To endure the vibration acceleration of 2G with vibration frequency of 10 to 55Hz for 10 sweep cycles in each X-Y-Z direction.	JIS C 60068-2-6 compliant (under the condition Note3 below)
	Impact (surface dropping)	Lifting one bottom edge of the unit up to 50mm high with the opposite edge placed on the test bench, and let it fall. Repeat for each of four bottom edges, and no malfunction shall be observed.	JIS C 60068-2-31 compliant at no operation (under the condition Note3 below)
Others	Insulation resistance	50MΩ or more between input and FG, input and output, output and FG in each	at 500V DC and normal temp./humidity
	Dielectric strength	1.5kV AC for 1 minute between input and FG, input and output	For 1 second at product line. Cut-off current 20mA or less at normal temp./humidity.
	Leakage current	0.2mA max at 100V AC input 0.5mA max. at 240V AC input	To be measured TYPE 3226, at normal temperature and humidity
	Line noise immunity	±1000V min. (pulse width of 100/1000nS, cycle period of 30 to 100Hz, Normal/Common mode with Positive/Negative polarity for one minute for each)	To be measured with INS-410. There shall be no DC-component output voltage fluctuation or malfunction.
	Surge immunity	IEC61000-4-5 Installation environment Class 3 compliant (Normal mode 1kV, Common mode 2kV with Positive/Negative polarity 5 times for each)	There shall be no malfunction or failure that prevents automatic recovery. (at 100/240V AC input)
	Conducted emission	VCCI/FCC part15, CISPR 22 and EN55022 class B compliant	To be measured with single power supply under the condition(Note3)below.
	Safety standard	UL/CSA60950(UL/cUL),IEC60950(CE marking)	Embedded power supply, Class I
	Cooling system	Convection cooling, or Forced air cooling by external fan.	
	Dimensions	55 (W)×28 (H:including lead length on the solder side) ×133 (D)	Open frame standard dimensions (see drawing on another page)
	Weight	160g typical	Open frame standard weight
	Lifetime expectancy	50,000 hours or longer (Limited lifetime components: Electrolytic capacitors)	Estimated life time of continuous operation under the following condition: 100V AC input, rated load, ambient temperature 25°C, no cover, convection cooling in the standard installation direction.
	M.T.B.F.	250,000 hours	Calculated based on EIAJ RCR-9102
Warranty	3 years after delivery, if any faults belong to us, the defective unit shall be repaired or replaced at our cost.	Except wrong operation out of specification	
Hazardous Substances	RoHS Directive compliant		

Note1. The inrush current shall be the primary inrush current. Any inrush current in microsecond order of 100μs or less across capacitor in input filter shall not be specified.

Note2. Follow the Temperature-derating curve against installation condition in another page.

Note3. Measurement condition: Place an 8mm metal spacer in height between FG part of solder side mounting hole of power supply and metal plate before measurement. The metal plate shall be the same dimensions of power supply PCB in size, and thickness 1 mm.

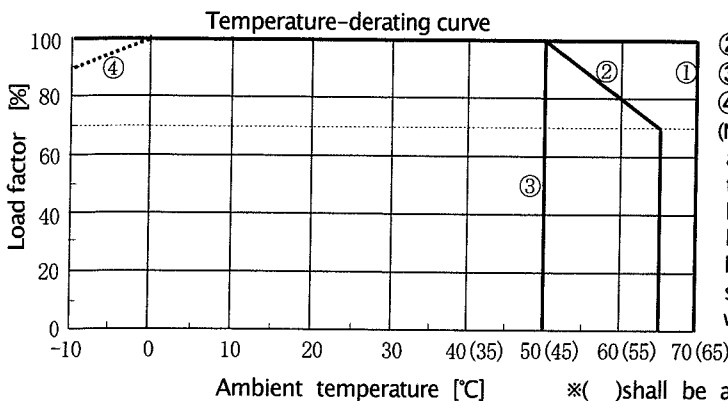
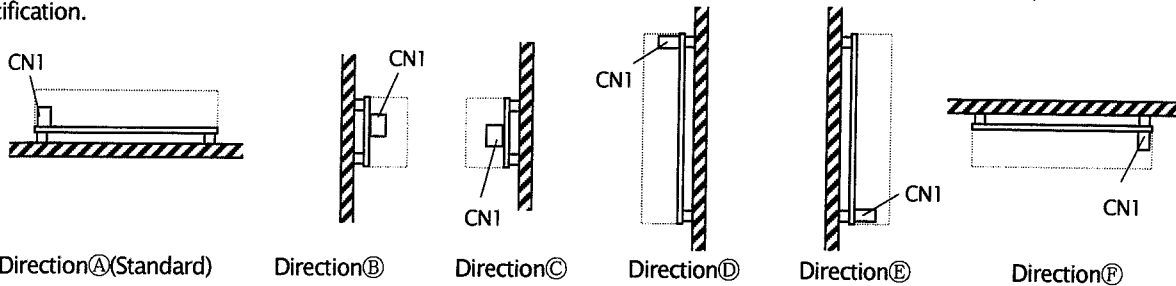


Drawn by	Checked by	Approved by	Type. No.	Drawing No.
T.Hanano	A.Shirai	A.Takeda	OZM-030 series	5141-01-4-520

Output specification		(Measurement point shall be at the output terminals)					
		OZM-030-12N12		OZM-030-15N15			
Items		V1	V2	V1	V2	Measurement conditions, etc.	
Output rating	Voltage [V]	+12	-12	+15	-15	Continuous rating(standard value at measurement of input/output characteristics) Peak current is within 10 seconds or less.(Ave. current is within rating current/Total power is within rating power/Load of V1 is used at 0.1A or more.) ※at V1 load 0A, Peak current of V2 is 70% or less ※When the dynamic load(pulse load)use for V1, min. load required is 0.3A.	
	Load [A]	2.4	0.6	1.8	0.6		
	Peak load [A]	3	1	2.4	1		
	Power [W]	36		36			
	Min. load required [A]	0 (※)	0	0 (※)	0		
Output characteristics	Adjustable voltage range [%]	Fixed(without adjustable function)				at rated input with rated load	
	Set-up voltage accuracy [V]	12±0.6	-12±0.6	15±0.75	-15±0.75	at rated input with rated load	
	Total regulation (1) [mV]	±540max.	±540max.	±675max.	±675max.	Sum of input regulation, load regulation and setting variation against rated output voltage value.	
	Total regulation (2) [mV]	±600max.	±600max.	±750max.	±750max.	Total voltage regulation including drift caused by temp. and time-lapse in addition to total regulation(1).	
	Ripple [mV p-p]	0to50°C	80max.	20max.	80max.	20max.	Connected wires of 150mm max. in length between output terminals and the measurement board with capacitors(47µF) placed on it and conduct the measurement at the board with 20MHz oscilloscope. The board shall be away from load lines.
		-10to0°C	130max.	30max.	130max.	30max.	
	Ripple Noise [mV p-p]	0to50°C	110max.	50max.	110max.	50max.	
		-10to0°C	160max.	60max.	160max.	60max.	
	Startup time [mS]		500max.				Time to reach 90% of rated output voltage with rated load(resistor) after rated input 100V AC is applied.
	Rise time [mS]		50max.				Time to reach 90% from 10% of rated output voltage with rated load(resistor) after rated input 100V AC is applied.
Hold-up time [mS]		20min. at 100V AC input / 100min. at 200V AC input				Time to reach 90% of rated output voltage with rated load(resistor) after input voltage is turned off.	
Protection and others	OCP	Method	V1:Blocking oscillation,V2:Hold down current limiting			When measured V1: V2 output without load When measured V2: V1 output 0.1A	
		OCP point [A]	3.15min.	1.05min.	2.52min.		1.05min.
		Recovery	Automatic recovery				
	OVP	Method	All outputs shut down				
		OVP point [V]	13.8min.	-	17.3min.	-	
		Recovery	Input reclosing				Input reclosing cycle shall be 60 seconds or longer.
Optional function		Without operation sign, remote-sensing, remote-on/off					

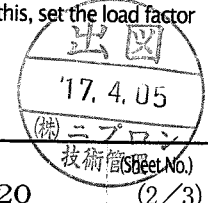
**Temperature-derating curve against installation condition**

Follow the temperature-derating curve below to decrease load factor according to installation condition such as installation direction, cooling system. However, load factor shall be 100% at rated load, peak load and rated power specified in the output specification.



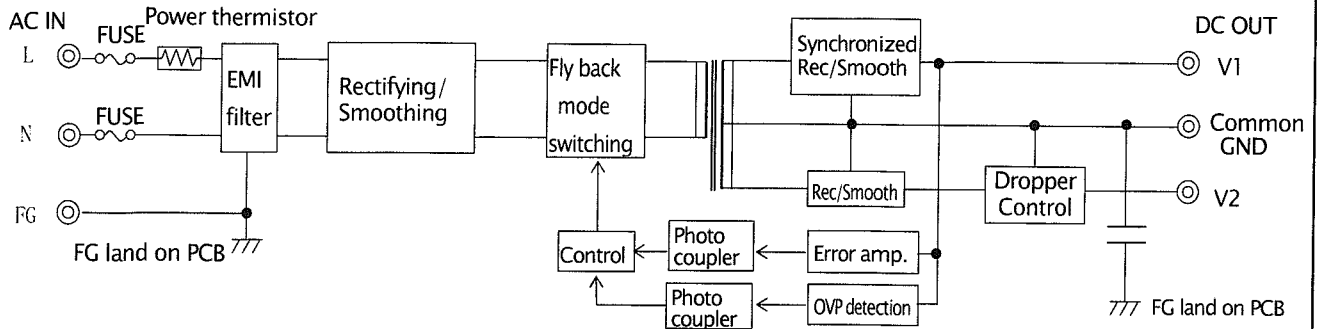
- ① Forced air cooling(Air flow 0.5m<sup>3</sup>/minute minimum to the component side)
- ② Convection cooling for A, B, C, D, and E direction.
- ③ Convection cooling for F
- ④ At input voltage of 85V min. and less than 90V(Note)  
(Note)When the unit is left not energized or operated with light load at low input voltage or low temp. environment, the power thermistor to prevent inrush current becomes high resistance(=too low input voltage). If input is turned on at this condition, or if the load changes rapidly from light load to heavy load, blocking operation or high ripple voltage may be caused due to short of input voltage. In order to prevent this, set the load factor within the broken lines.

※ ( ) shall be applied to the unit with cover



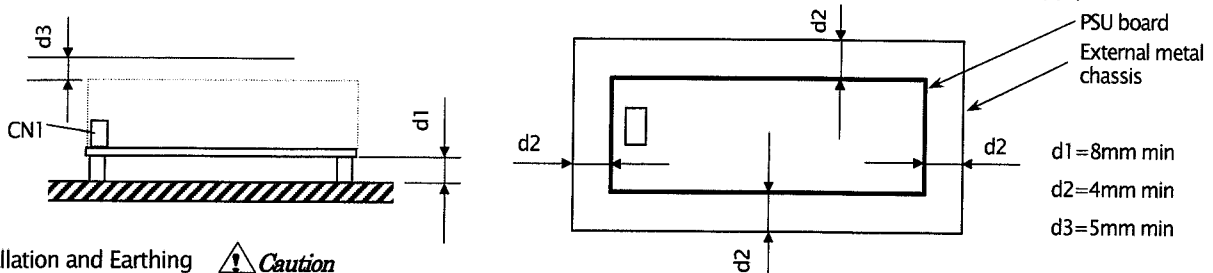
Drawn by T.Hanano	Checked by A.Shirai	Approved by A.Takeda	Type. No. OZM-030 series	Drawing No. 5141-01-4-520
----------------------	------------------------	-------------------------	-----------------------------	------------------------------

**Block Diagram**



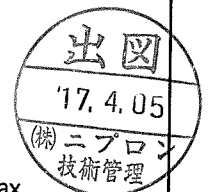
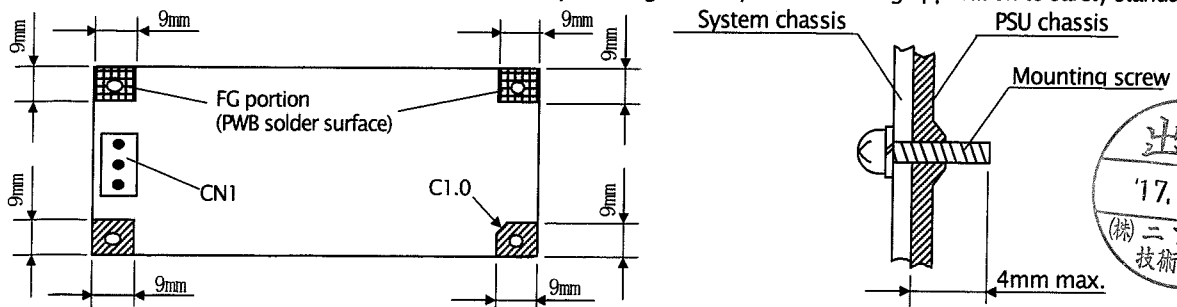
**Precaution before use**

1. Earthing **Warning**  
This power supply is designed and produced as Class I equipment. Make sure to securely connect earthing terminal(FG)to the ground in a proper way.
2. Electric shock **Warning**  
This power supply is designed and produced as build-in equipment and has high-voltage part inside. Make sure to securely install in the equipment in a way to prevent electric shock before use.
3. Output short-circuit **Caution**  
Prevent shorting of outputs. When output is shorted, capacitors inside the power supply rapidly discharge leading to fire and/or spark resulting in serious accident. It also shortens the lifetime of the power supply.
4. Inrush current limit circuit **Caution**  
Power thermistor is used to limit the inrush current into smoothing capacitors at turn-on of input voltage. 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**  
Use the edge of the board so as not to touch the component side surface in handling. Lift the board with spacers from the equipment in installation. Besides, handle it with care to prevent twisting or bending of the board as it has SMT components on it.
6. Power supply installation **Caution**  
Keep the dimensions, d1, d2, and d3 shown in the drawing below to meet the safety standard for insulation and dielectric withstand voltage.  
Install the power supply so that air convection and ventilation keeps the temperature rise around the power supply low.

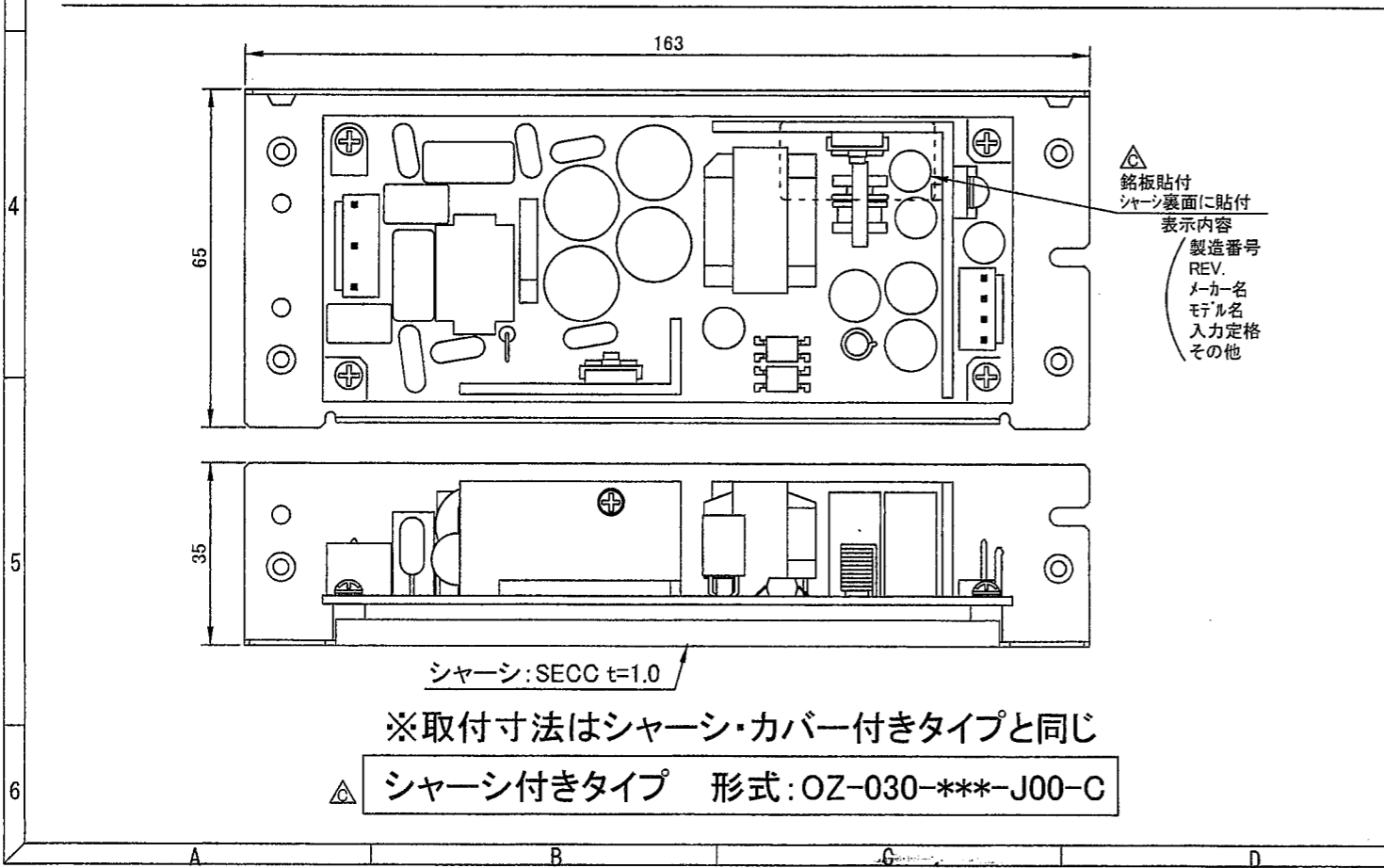
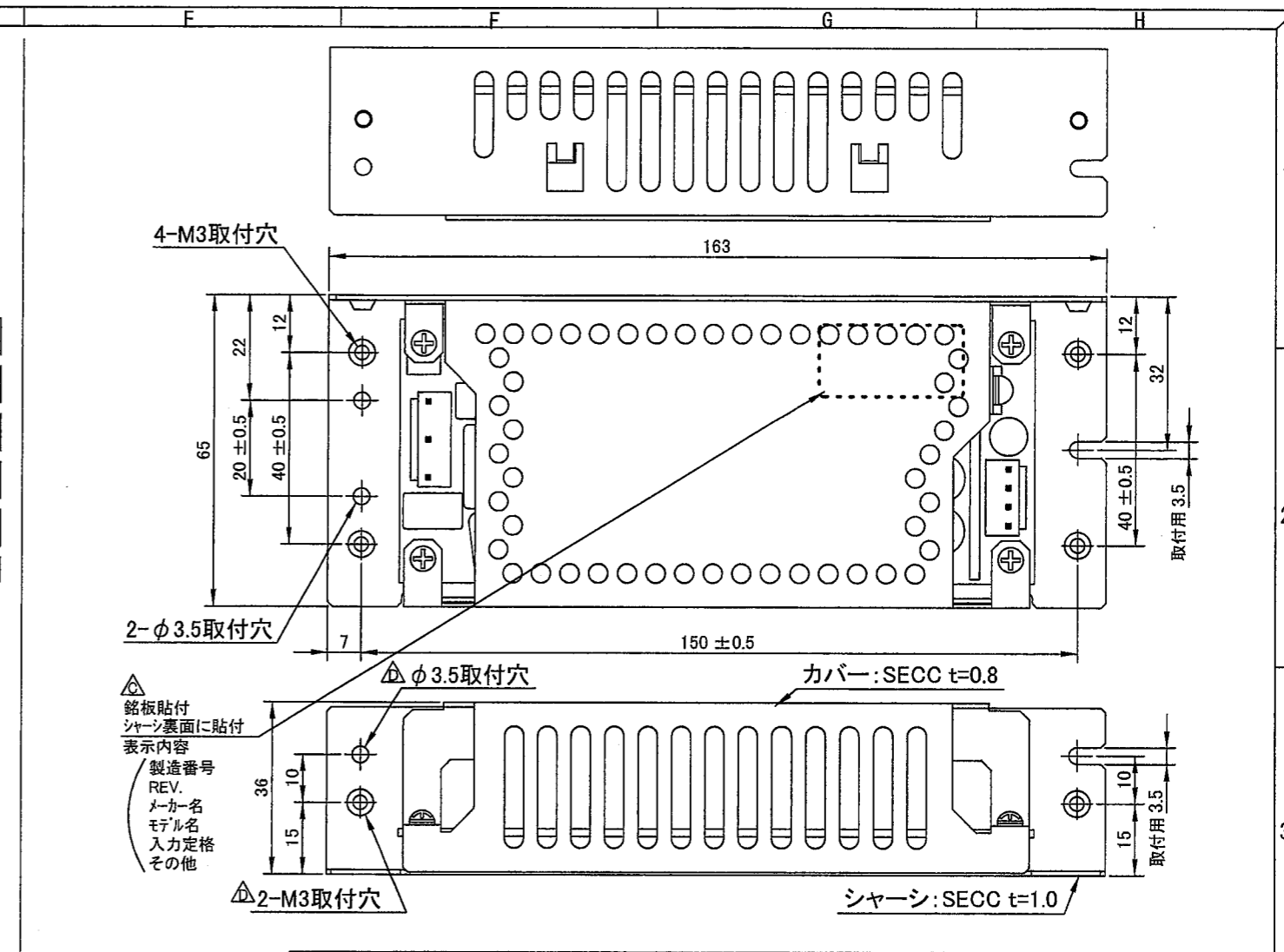
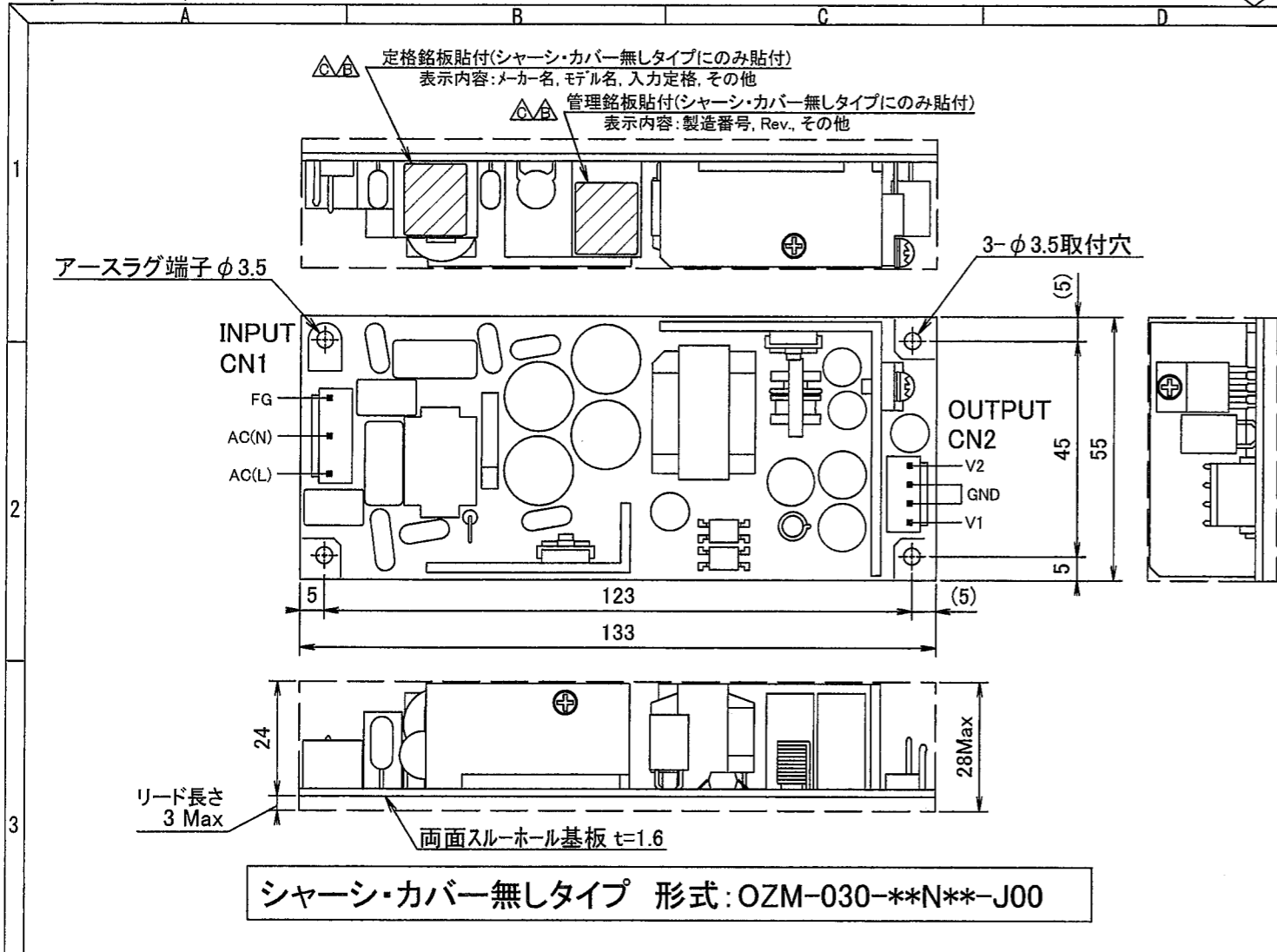


**7. Installation and Earthing Caution**

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 the power supply shall not exceed the hatched area shown below. In case of chassis or 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.



Drawn by	Checked by	Approved by	Type. No.	Drawing No.	(Sheet No.)
T.Hanano	A.Shirai	A.Takeda	OZM-O30 series	5141-01-4-520	(3/3)



※コネクタのピンアサイン詳細

CN1: INPUT		
PIN No.	FUNCTION	CONNECTOR TYPE
1	AC(L)	B3P5-VH (JST) or 相当品
2	AC(N)	
3	AC(N)	or 相当品
4	FG	
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  
バルク: BVH-21T-P1.1

CN2: OUTPUT		
PIN No.	FUNCTION	CONNECTOR TYPE
1	V2	B4P-VH (JST) or 相当品
2	GND	
3	GND	or 相当品
4	V1	

※適合ハウジング VHR-4N (JST)

※適合ターミナル  
リール: SVH-21T-P1.1  
バルク: BVH-21T-P1.1

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)



C版 △×5: 2015.10.06 花野 I-271010  
B版 △×2: 2013.01.08 花野 I-241047A  
A版 シャーシ・カバー外形図追加、尺度変更 2012.12.06 花野 I-241047 D版 △×2: 2022.07.01 花野 I-340701 誤記訂正

DROWN BY	CHECK BY	APPROVED BY	SCALE	3/4	MATERIALS	OZM-030 2出カタイプ
花野	白井	武田	UNITS	mm	TITLE	
ISSUED	2012.01.31		3RD ANGLE PROJECTION		FINISH	DRAWING NO.
						5141-01-3-050