Wide input voltage range with automatic voltage selection.

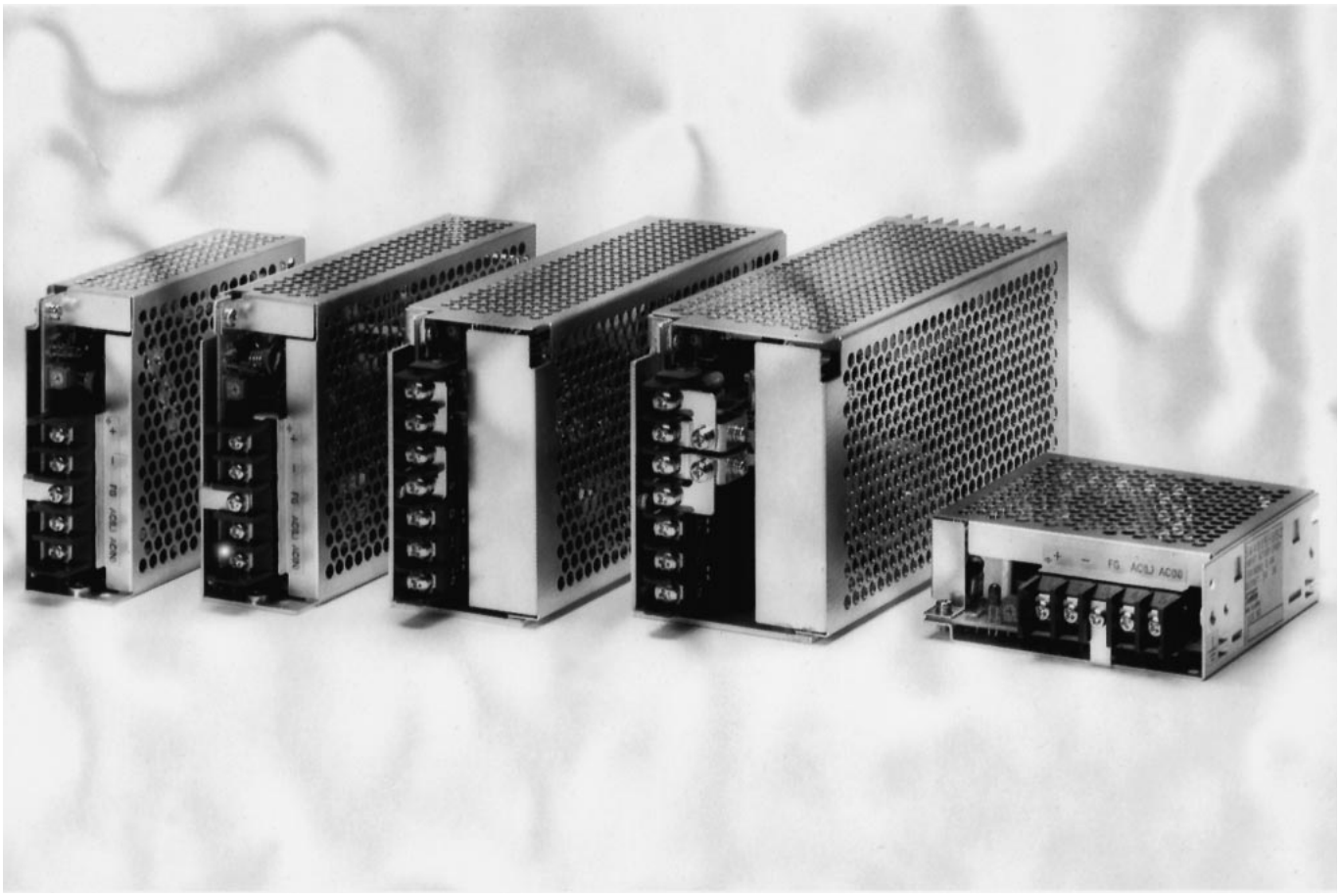
SWA Series

15W, 30W, 50W, 100W, 150W

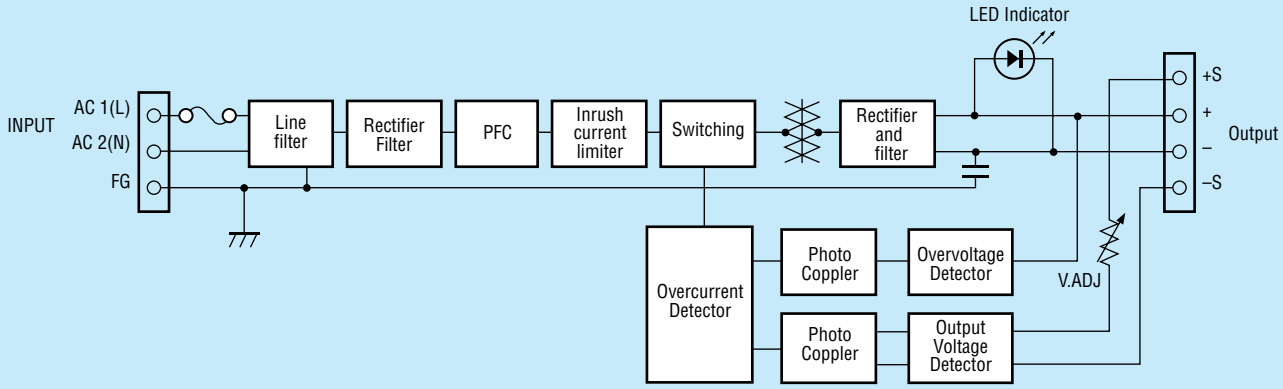
The SWA series is made up of general-purpose, single-output power supply units for world-wide use. Input voltages from 85 to 264 V may be used with no manual voltage selection required. The series has five advanced-design models ranging from 15 to 150 W. The 100 W and 150 W models are equipped with Power Factor Correction circuits, and take into account the IEC 555 Part 2 regulations on harmonic currents.

FEATURES

- Wide input voltage range
- High power factor of 0.95 achieved using a Power Factor Correction IC (100 W, 150 W)
- New Barrierless Transformer technology for reduced size
- MOSFET-based main switching circuit for high efficiency
- Designed to meet UL, CSA, and VDE safety standards
- The 100 W and 150 W models are equipped with Power Factor Correction circuits.



SWA Series circuit diagram



* No power correction on 15 to 50 W models.
+S and + are connected with a short bar, as are -S and -.

	Item		Rating	15W			
			Conditions	SWA 015-05	SWA 015-12	SWA 015-15	SWA 015-24
Input	Rated Input Voltage			100-240V AC			
	Input Voltage Range			85 to 264V AC			
	Rated Frequency			50/60 Hz			
	Frequency Range			47 to 440 Hz			
	Input Current (see Note 1)			0.4/0.23A (typ)			
	Inrush Current (see Note 1, 2)			25/50 A (max)			
	Efficiency (typ) (see Note 1)			72%	75%	75%	77%
Output (see Note 3)	Rated Output Voltage			+5V	+12V	+15V	+24V
	Adjustable Output Voltage Range			Rated voltage ±10%			
	Rated Output Current			3.0A	1.3A	1.07A	0.7A
	Adjustable Output Current Range			0 to 100%			
	Maximum Output Power			15W	15.6W	15W	16.8W
	Ripple (mVp-p) (see Note 1, 4)			120mVp-p	180mVp-p	180mVp-p	240mVp-p
	Constant Voltage Accuracy	Static Input Range	85 to 264V AC	±3%			
		Static Load Range	0 to 100%				
		Time Driftt	10min. to 8 hours				
		Ambient Temperature Range	0 to +50°C				
Other	Output Holdup Time (see Note 1)			10ms (min)			
	Startup Time (see Note 1)			20ms (typ)			
	Leakage Current (see Note 1)			0.5mA (max)			
	Switching Method, Transformer Frequency			RCC topology, approx. 70 kHz (under rated input/output conditions)			
Additional Functions	Over Current Protection			Detection above 105% of rated current (output cutoff)			
	Over Voltage Protection			Detection above 115% to 145% of rated voltage (output cutoff)			
	Remote Sensing			Not provided			
	Remote On/Off Control			Not provided			
	Display			LED operation indicator			
Environmental	Temperature	Operating Temperature		0 to 50°C (no cover)			
		Storage Temperature		-25 to +85°C			
	Relative Humidity	Operating Humidity		30 to 90% (no condensation)			
		Storage Humidity		30 to 90% (no condensation)			
Insulation	Insulation Withstand Voltage (see Note 5)	Between Input and Output		2000 V AC for 1 minute, 2400 V AC for 1 second (Leakage current of 15 mA or less)			
		Between Input and Frame					
		Between Output and Frame		500 V AC for 1 minute, 600 V AC for 1 second (Leakage current of 15 mA or less)			
	Insulation Resistance	Between Input and Output		100 MΩ (measured with 500 V DC Megger)			
		Between Input and Frame					
		Between Output and Frame					
Structural Specifications	Vibration Resistance			10 to 55 Hz, 2 G, 1 hour (in X, Y, and Z directions)			
	Cooling Requirements			Natural air cooling			
	External Appearance			Open frame (with optional cover)			
	Size (dimensions in mm)			35 x 99 x 97 (W x D x H) (without cover)			
	Weight			265 g (open frame)			
Applicable Standards	Safety Standards			Designed to meet UL 1950 Designed to meet CSA C22.2 No. 234 Designed to meet EN 60950			
	EMI Standards			Designed to meet VDE 0871 Class A (200 to 240 V AC) Designed to meet FCC Class B (100 to 120 V AC)			

Note 1: Rated input/output conditions means that the switching power supply is operated under the rated input voltage, rated frequency, rated output voltage, rated output current, and at an ambient temperature of 25°C and 60% humidity.
Note 2: At cold start. (More current may flow at restart.)
Note 3: All output characteristics are measured at a point 5 cm from the output connector, with a 63 V 47 µF electrolytic capacitor attached at that point.
Note 4: Ripple noise is measured with a 100 MHz oscilloscope, using a 1:1 probe.
Note 5: At room temperature and normal humidity.

	Item		Rating	30W			
			Conditions	SWA 030-05	SWA 030-12	SWA 030-15	SWA 030-24
Input	Rated Input Voltage			100-240V AC			
	Input Voltage Range			85 to 264V AC			
	Rated Frequency			50/60 Hz			
	Frequency Range			47 to 440 Hz			
	Input Current (see Note 1)			0.7/0.46A (typ)			
	Inrush Current (see Note 1, 2)			25/50 A (max)			
	Efficiency (typ) (see Note 1)			72%	75%	75%	77%
Output (see Note 3)	Rated Output Voltage			+5V	+12V	+15V	+24V
	Adjustable Output Voltage Range			Rated voltage ±10%			
	Rated Output Current			6.0A	2.5A	2.0A	1.3A
	Adjustable Output Current Range			0 to 100%			
	Maximum Output Power			30W	30W	30W	31.2W
	Ripple (mVp-p) (see Note 1, 4)			120mVp-p	180mVp-p	180mVp-p	240mVp-p
	Constant Voltage Accuracy	Static Input Range	85 to 264V AC	±3%			
		Static Load Range	0 to 100%				
		Time Driftt	10min. to 8 hours				
		Ambient Temperature Range	0 to +50°C				
Other	Output Holdup Time (see Note 1)			10ms (min)			
	Startup Time (see Note 1)			20ms (typ)			
	Leakage Current (see Note 1)			0.5mA (max) (V_{in}=100VAC)/0.75mA (V_{in}=240VAC)			
	Switching Method, Transformer Frequency			RCC topology, approx. 70 kHz (under rated input/output conditions)			
Additional Functions	Over Current Protection			Detection above 105% of rated current (output cutoff)			
	Over Voltage Protection			Over Voltage Protection Detection above approx. 115 to 145% of rated voltage			
	Remote Sensing			Not provided			
	Remote On/Off Control			Not provided			
	Display			LED operation indicator			
Environmental	Temperature	Operating Temperature		0 to 50°C (no cover)			
		Storage Temperature		-25 to +85°C			
	Relative Humidity	Operating Humidity		30 to 90% (no condensation)			
		Storage Humidity		30 to 90% (no condensation)			
Insulation	Insulation Withstand Voltage (see Note 5)	Between Input and Output		2000 V AC for 1 minute, 2400 V AC for 1 second (Leakage current of 15 mA or less)			
		Between Input and Frame					
		Between Output and Frame		500 V AC for 1 minute, 600 V AC for 1 second (Leakage current of 15 mA or less)			
	Insulation Resistance	Between Input and Output		100 MΩ (measured with 500 V DC Megger)			
		Between Input and Frame					
		Between Output and Frame					
Structural Specifications	Vibration Resistance			10 to 55 Hz, 2 G, 1 hour (in X, Y, and Z directions)			
	Cooling Requirements			Natural air cooling			
	External Appearance			Open frame (with optional cover)			
	Size (dimensions in mm)			35 x 116 x 97 (W x D x H) (without cover)			
	Weight			320 g (open frame)			
Applicable Standards	Safety Standards			Designed to meet UL 1950 Designed to meet CSA C22.2 No. 234 Designed to meet EN 60950			
	EMI Standards			Designed to meet VDE 0871 Class A (200 to 240 V AC) Designed to meet FCC Class B (100 to 120 V AC)			

Note 1: Rated input/output conditions means that the switching power supply is operated under the rated input voltage, rated frequency, rated output voltage, rated output current, and at an ambient temperature of 25°C and 60% humidity.
Note 2: At cold start. (More current may flow at restart.)
Note 3: All output characteristics are measured at a point 5 cm from the output connector, with a 63 V 47 µF electrolytic capacitor attached at that point.
Note 4: Ripple noise is measured with a 100 MHz oscilloscope, using a 1:1 probe.
Note 5: At room temperature and normal humidity.

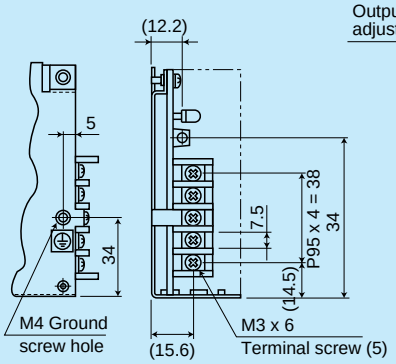
50W				100W			
SWA 050-05	SWA 050-12	SWA 050-15	SWA 050-24	SWA 100-05	SWA 100-12	SWA 100-15	SWA 100-24
100-240V AC				100-240V AC			
85 to 264V AC				85 to 264V AC			
50/60 Hz				50/60 Hz			
47 to 440 Hz				47 to 440 Hz			
1.2/0.7A (typ)				1.6/0.7A (typ)			
25/50 A (max)				20/40 A (max)			
72%	75%	75%	77%	77%	78%	80%	80%
+5V	+12V	+15V	+24V	+5V	+12V	+15V	+24V
Rated voltage ±10%				Rated voltage ±10%			
10.0A	4.2A	3.4A	2.1A	20.0A	8.5A	7.0A	4.5A
0 to 100%				0 to 100%			
50.0W	50.4W	51.0W	50.4W	100.0W	102.0W	105.0W	108.0W
120mVp-p	180mVp-p	180mVp-p	240mVp-p	120mVp-p	180mVp-p	180mVp-p	240mVp-p
±3%				±3%			
10ms (min)				20ms (min)			
20ms (typ)				1000/500 ms (typ)			
0.5mA (max) (V_{in}=100VAC)/0.75mA (V_{in}=240VAC)				0.5mA (max) (V_{in}=100VAC)/0.75mA (V_{in}=240VAC)			
RCC topology, approx. 70 kHz (under rated input/output conditions)				FCC topology, approx. 150 kHz (under rated input/output conditions)			
Detection above 105% of rated current (output cutoff)				Detection above 120% of rated current (output cutoff)			
Over Voltage Protection Detection above approx. 115 to 145% of rated voltage				Over Voltage Protection Detection above approx. 115 to 145% of rated voltage			
Not provided				Provided			
Not provided				Not provided			
LED operation indicator				LED operation indicator			
0 to 50°C (no cover)				0 to 50°C (no cover)			
-25 to +85°C				-25 to +85°C			
30 to 90% (no condensation)				30 to 90% (no condensation)			
30 to 90% (no condensation)				30 to 90% (no condensation)			
2000 V AC for 1 minute, 2400 V AC for 1 second (Leakage current of 15 mA or less)							
500 V AC for 1 minute, 600 V AC for 1 second (Leakage current of 15 mA or less)							
100 MΩ (measured with 500 V DC Megger)							
10 to 55 Hz, 2 G, 1 hour (in X, Y, and Z directions)							
Natural air cooling							
Open frame (with optional cover)							
37 x 159 x 97 (W x D x H) (without cover)				50 x 180 x 93 (W x D x H) (without cover)			
380 g (open frame)				700 g (open frame)			
Designed to meet UL 1950							
Designed to meet CSA C22.2 No. 234							
Designed to meet EN 60950							
Designed to meet VDE 0871 Class A (200 to 240 V AC) Designed to meet FCC Class B (100 to 120 V AC)							

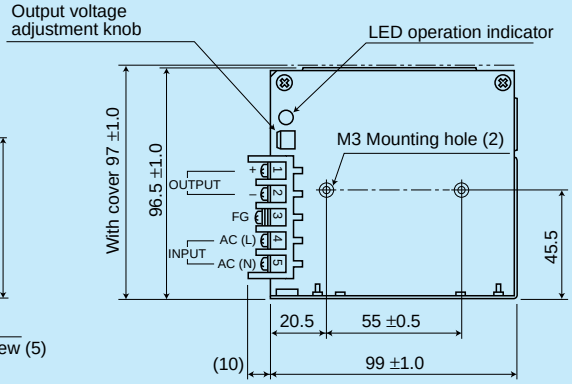
	Item		Rating / Conditions	150W			
				SWA 150-05	SWA 150-12	SWA 150-15	SWA 150-24
Input	Rated Input Voltage			100-240V AC			
	Input Voltage Range			85 to 264V AC			
	Rated Frequency			50/60 Hz			
	Frequency Range			47 to 63 Hz			
	Input Current (see Note 1)			2.4/1.2A (typ)			
	Inrush Current (see Note 1, 2)			20/40 A (max)			
	Efficiency (typ) (see Note 1)			79%	81%	82%	83%
Output (see Note 3)	Rated Output Voltage			+5V	+12V	+15V	+24V
	Adjustable Output Voltage Range			Rated voltage ±10%			
	Rated Output Current			30.0A	13.0A	10.0A	6.5A
	Adjustable Output Current Range			0 to 100%			
	Maximum Output Power			150.0W	156.0W	150.0W	156.0W
	Ripple (mVp-p) (see Note 1, 4)			120mVp-p	180mVp-p	180mVp-p	240mVp-p
	Constant Voltage Accuracy	Static Input Range	85 to 264V AC	±3%			
		Static Load Range	0 to 100%				
		Time Driftt	10min. to 8 hours				
		Ambient Temperature Range	0 to +50°C				
Other	Output Holdup Time (see Note 1)			20ms (min)			
	Startup Time (see Note 1)			1000/500 ms (typ)			
	Leakage Current (see Note 1)			0.5mA (max) (V_{in}=100VAC)/0.75mA (V_{in}=240VAC)			
	Switching Method, Transformer Frequency			FCC topology, approx. 150 kHz (under rated input/output conditions)			
Additional Functions	Over Current Protection			Detection above 120% of rated current (output cutoff)			
	Over Voltage Protection			Over Voltage Protection Detection above approx. 115 to 145% of rated voltage			
	Remote Sensing			Provided			
	Remote On/Off Control			Not provided			
	Display			LED operation indicator			
Environmental	Temperature	Operating Temperature		0 to 50°C (no cover)			
		Storage Temperature		-25 to +85°C			
	Relative Humidity	Operating Humidity		30 to 90% (no condensation)			
		Storage Humidity		30 to 90% (no condensation)			
Insulation	Insulation Withstand Voltage (see Note 5)	Between Input and Output		2000 V AC for 1 minute, 2400 V AC for 1 second (Leakage current of 15 mA or less)			
		Between Input and Frame					
		Between Output and Frame		500 V AC for 1 minute, 600 V AC for 1 second (Leakage current of 15 mA or less)			
	Insulation Resistance	Between Input and Output		100 MΩ (measured with 500 V DC Megger)			
		Between Input and Frame					
		Between Output and Frame					
Structural Specifications	Vibration Resistance			10 to 55 Hz, 2 G, 1 hour (in X, Y, and Z directions)			
	Cooling Requirements			Natural air cooling			
	External Appearance			Open frame (with optional cover)			
	Size (dimensions in mm)			65 x 200 x 93 (W x D x H) (without cover)			
	Weight			900 g (open frame)			
Applicable Standards	Safety Standards			Designed to meet UL 1950 Designed to meet CSA C22.2 No. 234 Designed to meet EN 60950			
	EMI Standards			Designed to meet VDE 0871 Class A (200 to 240 V AC) Designed to meet FCC Class B (100 to 120 V AC)			

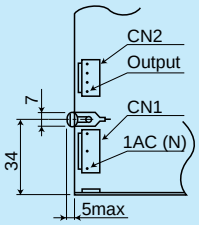
Note 1: Rated input/output conditions means that the switching power supply is operated under the rated input voltage, rated frequency, rated output voltage, rated output current, and at an ambient temperature of 25°C and 60% humidity.
Note 2: At cold start. (More current may flow at restart.)
Note 3: All output characteristics are measured at a point 5 cm from the output connector, with a 63 V 47 µF electrolytic capacitor attached at that point.
Note 4: Ripple noise is measured with a 100 MHz oscilloscope, using a 1:1 probe.
Note 5: At room temperature and normal humidity.

15 W (weight: 265 g)

Model
SWA015-05
SWA015-12
SWA015-15
SWA015-24

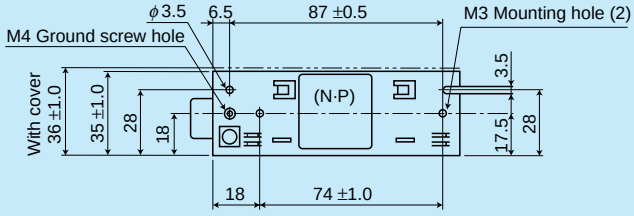






Details of Pin Terminals

CN No.	Pin Assignment		Corresponding housing	Corresponding connector
CN1	1	AC (N)	VHR-5N (JST)	SVH-21T-P1.1 (JST)
	2	N.C.		
	3	AC (L)		
	4	N.C.		
	5	FG		
CN2	1.2	OUTPUT−	VHR-4N (JST)	
	3.4	OUTPUT+		

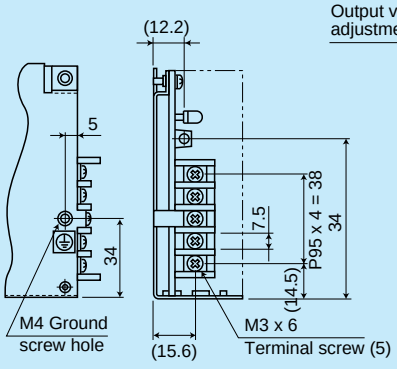


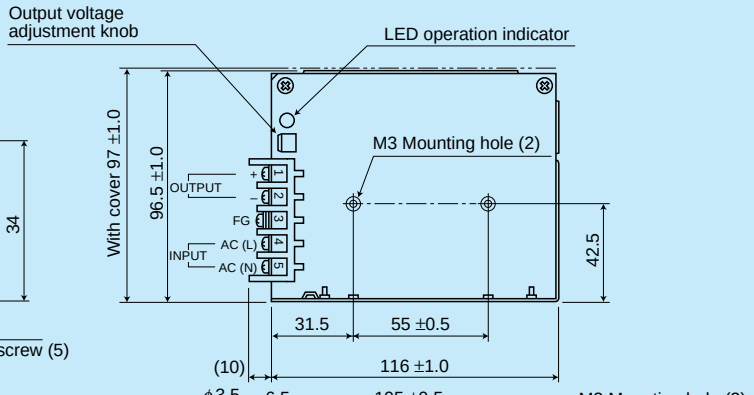
1. Material
   Cover : SPCC MFZnPII-a3, t0.5.
   (Mountable to screw type terminal model only).
   Chassis : SPCC MFZnPII-a3, t1.0.
   P.C.B. : CEM-3, t1.6 single-sided (UL94V-0).

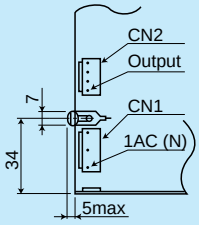
2. Length of screws (Including thickness of the chassis).
   Installation screw : Less than 6mm.
   Ground screw : Less than 4mm.
   (For connector type terminal model only).
3. Tolerance of dimensions : ±0.5mm if not indicated

30 W (weight: 320 g)

Model
SWA030-05
SWA030-12
SWA030-15
SWA030-24

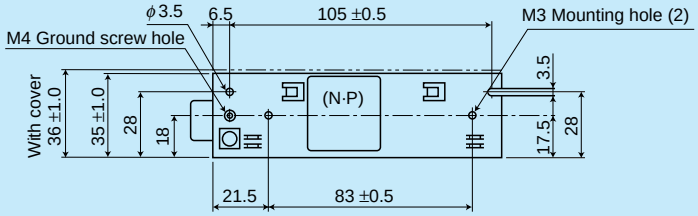






Details of Pin Terminals

CN No.	Pin Assignment		Corresponding housing	Corresponding connector
CN1	1	AC (N)	VHR-5N (JST)	SVH-21T-P1.1 (JST)
	2	N.C.		
	3	AC (L)		
	4	N.C.		
	5	FG		
CN2	1.2	OUTPUT−	VHR-4N (JST)	
	3.4	OUTPUT+		

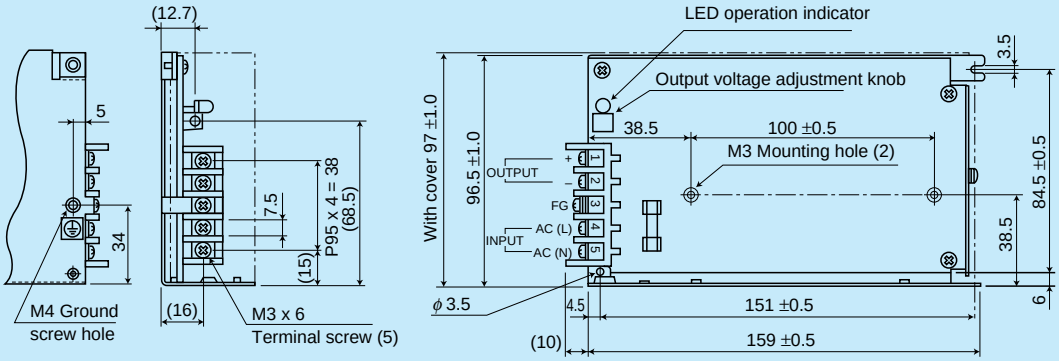


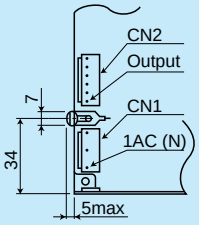
1. Material
   Cover : SPCC MFZnPII-a3, t0.5.
   (Mountable to screw type terminal model only).
   Chassis : SPCC MFZnPII-a3, t1.0.
   P.C.B. : CEM-3, t1.6 single-sided (UL94V-0).

2. Length of screws (Including thickness of the chassis).
   Installation screw : Less than 6mm.
   Ground screw : Less than 4mm.
   (For connector type terminal model only).
3. Tolerance of dimensions : ±0.5mm if not indicated

50 W (weight: 380 g)

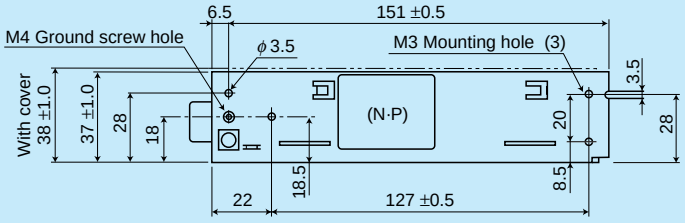
Model
SWA050-05
SWA050-12
SWA050-15
SWA050-24





Details of Pin Terminals

CN No.	Pin Assignment		Corresponding housing	Corresponding connector
CN1	1	AC (N)	VHR-5N (JST)	SVH-21T-P1.1 (JST)
	2	N.C.		
	3	AC (L)		
	4	N.C.		
	5	FG		
CN2	1.2.3	OUTPUT−	VHR-6N (JST)	
	4.5.6	OUTPUT+		

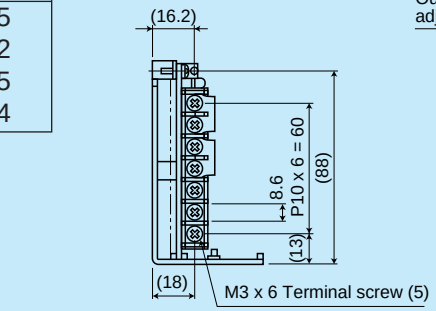


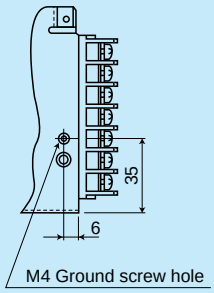
1. Material
   Cover : SPCC MFZnPII-a3, t0.5.
   (Mountable to screw type terminal model only).
   Chassis : SPCC MFZnPII-a3, t1.0.
   P.C.B. : CEM-3, t1.6 single-sided (UL94V-0).

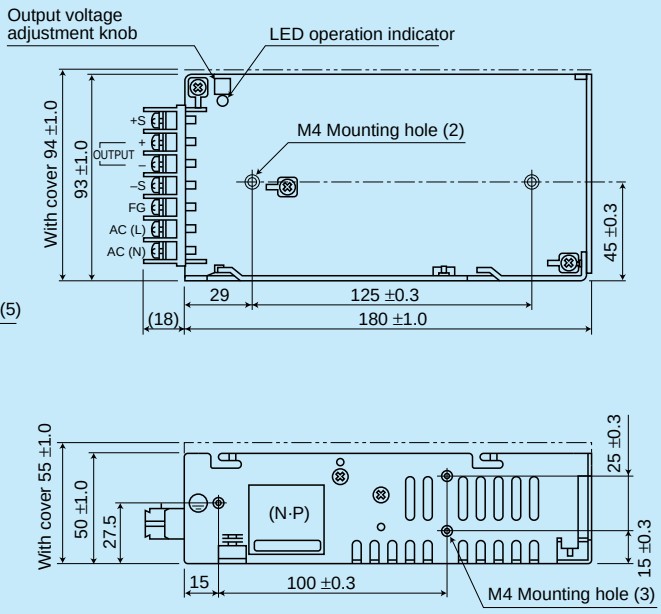
2. Length of screws (Including thickness of the chassis).
   Installation screw : Less than 6mm.
   Ground screw : Less than 4mm.
   (For connector type terminal model only).
3. Tolerance of dimensions : ±0.5mm if not indicated

100 W (weight: 700 g)

Model
SWA100-05
SWA100-12
SWA100-15
SWA100-24





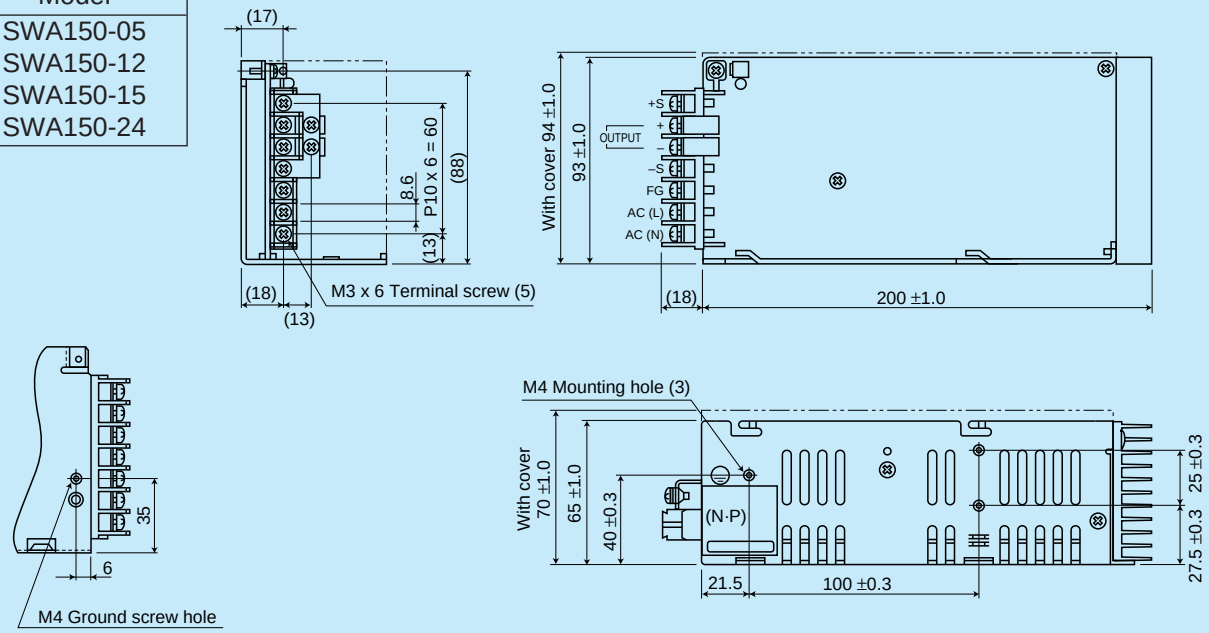


1. Material
   Cover : SPCC MFZnPII-a3, t0.5.
   (Mountable to screw type terminal model only).
   Chassis : SPCC MFZnPII-a3, t1.0.
   P.C.B. : CEM-3, t1.6 single-sided (UL94V-0).

2. Length of screws (Including thickness of the chassis).
   Installation screw : Less than 6mm.
   Ground screw : Less than 4mm.
   (For connector type terminal model only).
3. Tolerance of dimensions : ±0.5mm if not indicated

150 W (weight: 900 g)

Model
SWA150-05
SWA150-12
SWA150-15
SWA150-24



1. Material
   Cover : SPCC MFZnPII-a3, t0.5.
   (Mountable to screw type terminal model only).
   Chassis : SPCC MFZnPII-a3, t1.0.
   P.C.B. : CEM-3, t1.6 single-sided (UL94V-0).

2. Length of screws (Including thickness of the chassis).
   Installation screw : Less than 6mm.
   Ground screw : Less than 4mm.
   (For connector type terminal model only).
3. Tolerance of dimensions : ±0.5mm if not indicated