

SPA Series

Switching Mode Power Supply With Minimized Noise And Ripple

■ Features

- Built-in over-current protection, output short-circuit protection, overheating and over-voltage protection circuits (SPA-075/100)
- Standard on safety EN60950, EN50178
- EMS (Electromagnetic susceptibility) EN61000-6-2
- EMI (Electromagnetic interference) EN61000-6-4
- Output voltage: 5VDC, 12VDC, 24VDC
- Output current: 30W, 50W, 75W, 100W



⚠ Please read "Caution for your safety" in operation manual before using.



(except for output voltage 5VDC)

■ Ordering Information

SPA	—	030	—	24	
				Output voltage	
				Output power	
				Item	
					05 5VDC
					12 12VDC
					24 24VDC
					030 30W
					050 50W
					075 75W
					100 100W
					SPA Switching Mode Power Supply

■ Specifications

Model	SPA-030-05	SPA-050-05	SPA-030-12	SPA-050-12	SPA-030-24	SPA-050-24	SPA-075-05	SPA-100-05	SPA-075-12	SPA-100-12	SPA-075-24	SPA-100-24											
Output power	30W	50W	30W	50W	30W	50W	75W	100W	75W	100W	75W	100W											
Input	Voltage*5																						
	100-240VAC (permissible voltage: 85-264VAC)																						
	switching type																						
Input	Frequency																						
	50/60Hz																						
	Efficiency*1																						
Input	Min. 60%	Min. 67%	Min. 74%		Min. 80%		Min. 70%		Min. 78%	Min. 72%	Min. 78%	Min. 80%											
	Current consumption*1																						
	Max. 1.2A	Max. 1.6A	Max. 1.0A	Max. 1.4A	Max. 0.8A	Max. 1.1A	Max. 3.0A		Max. 2.0A	Max. 3.0A	Max. 2.0A	Max. 2.5A											
Output	Voltage																						
	5VDC		12VDC		24VDC		5VDC		12VDC		24VDC												
	6A		10A		2.5A		4.2A		1.5A		2.1A		15A		20A		6.3A		8.5A		3.2A		4.2A
Output	Voltage adjustment range*4																						
	±5%																						
	Input fluctuation ratio*2																						
Output	Max. ±0.5%																						
	Load fluctuation ratio*1																						
	Max. ±2%		Max. ±1%				Max. ±2%		Max. ±1%														
Output	Ripple*1																						
	Max. ±1%																						
	Starting time*1																						
Output	Max. 200ms		Max. 150ms				Max. 250ms																
	Holding time*1																						
	Min. 10ms						Min. 5ms		Min. 10ms		Min. 5ms		Min. 10ms										
Protection	Inrush current protection																						
	Max. 30A (100VAC)		/Max. 40A (200VAC)		Max. 20A (100VAC)				Max. 45A (100VAC)		/Max. 50A (240VAC)		Max. 35A (100VAC)		/Max. 40A (100VAC)		/Max. 50A (240VAC)		/Max. 40A (240VAC)				
	Over-current protection*3																						
Protection	Min. 110%																						
	Over-voltage protection																						
							6.5V ±10%		16V ±10%		30V ±10%												
Protection	Output short-circuit protection																						
	Max. 5ms						Max. 10ms		Max. 5ms		Min. 10ms		Max. 5ms										
	Indicator																						
Output indicator: Green LED																							
Insulation resistance																							
Over 100MΩ (between all input and output terminals with 500VDC)																							
Dielectric strength																							
3,000VAC 50/60Hz for 1 min (between all input and output terminals)																							
1,500VAC 50/60Hz for 1 min (between all input terminals F.G.)																							
Vibration																							
0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours																							
Shock																							
300m/s ² (approx. 30G) in each X, Y, Z direction for 3 times																							
EMS																							
Conforms to EN61000-6-2																							
EMI																							
Conforms to EN61000-6-4																							
Safety standards																							
EN60950, EN50178																							
Environment	Ambient temperature																						
	-10 to 50°C		-10 to 40°C				-10 to 50°C																
	Storage temperature																						
Environment	-25 to 65°C																						
	Ambient humidity																						
	25 to 85%RH, storage: 25 to 90%RH																						
Approval																							
CE (except for output voltage 5VDC)																							
Unit weight																							
Approx. 350g												Approx. 400g											

※1: 100% load for rated input voltage (100VAC).

※2: Rated input voltage [SPA-030/050 Series: 100-240VAC (85-264VAC)] under 100% of load.

[SPA-075/100 Series: 100-120/200-240 (85-132/170-264VAC)]

SPA-100-05 is under 100% of load for [100-120/200-240VAC (100-132/190-264VAC)].

※3: Rated input voltage (100VAC). ※4: Vary voltage by output voltage adjuster, it is changed over voltage variation range (±5%).

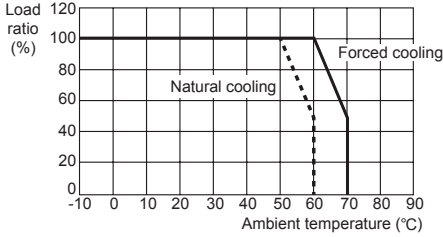
※5: The rated input voltage of SPA-100-05 is 100-120/200-240VAC (100-132/190-264VAC).

※Environment resistance is rated at no freezing or condensation.

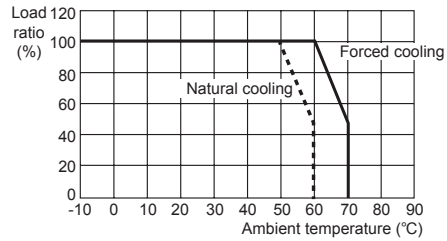
General-Purpose Switching Mode Power Supply

Output Derating Curve By Ambient Temperature

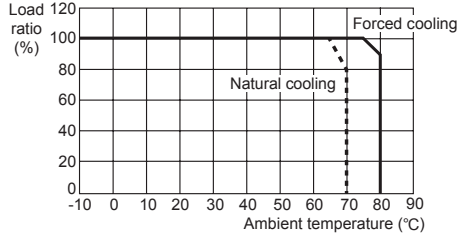
SPA-030-05



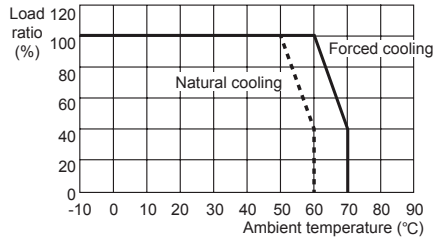
SPA-075-05 • SPA-100-05 • SPA-100-12



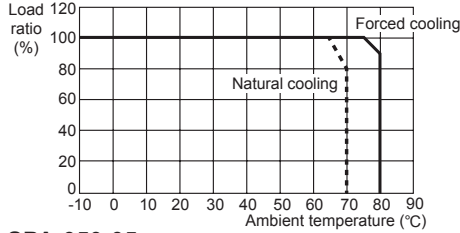
SPA-030-12 • SPA-050-12



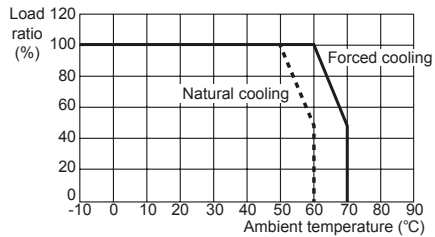
SPA-075-12



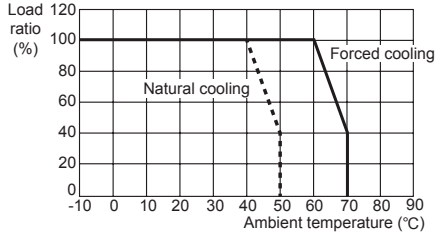
SPA-030-24 • SPA-050-24



SPA-075-24 • SPA-100-24

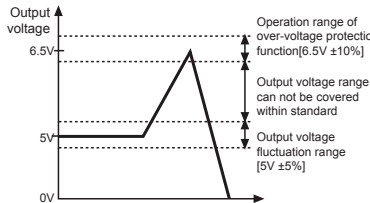


SPA-050-05

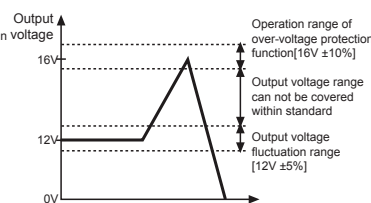


Feature Data Of Over-Voltage Protection

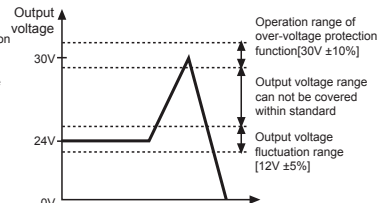
SPA-075-05 / SPA-100-05



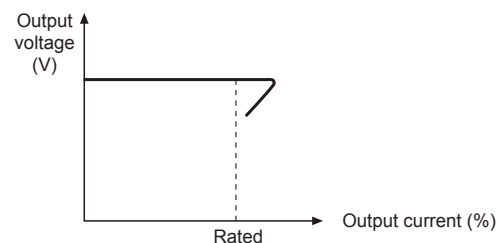
SPA-075-12 / SPA-100-12



SPA-075-24 / SPA-100-24



Feature Data Of Over-Current Protection



- It is when the rated input voltage is 100VAC, 100%.
- It is able to protect overcurrent by load with built-in over-current protection circuit. When the over rated current is flowed, the circuit is operated (output voltage is fallen) and it is cancelled when the load current is under the rated current. (it is returned to the rated output voltage)

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Connector Cables/ Sensor Distribution Boxes/Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies

(Q) Stepper Motors & Drivers & Controllers

(R) Graphic/ Logic Panels

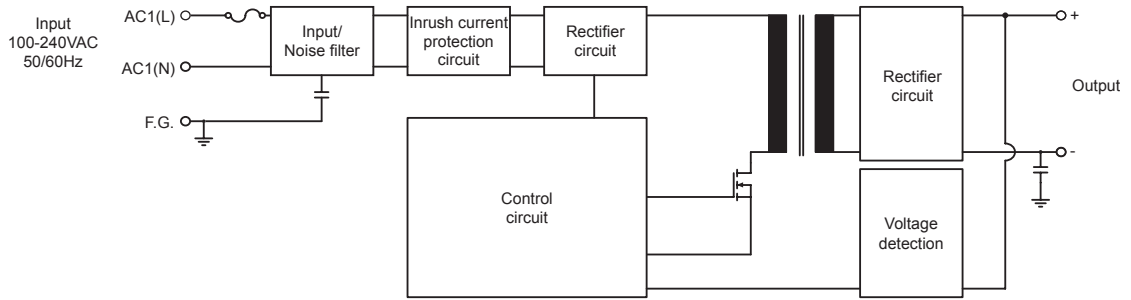
(S) Field Network Devices

(T) Software

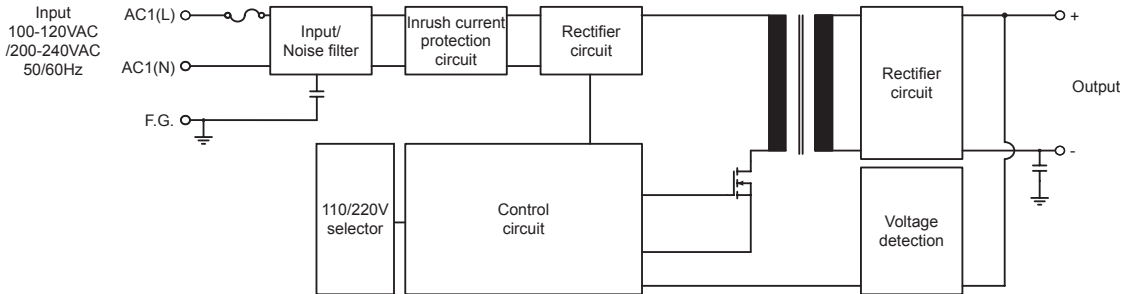
SPA Series

Block Diagram

SPA-030/050 Series



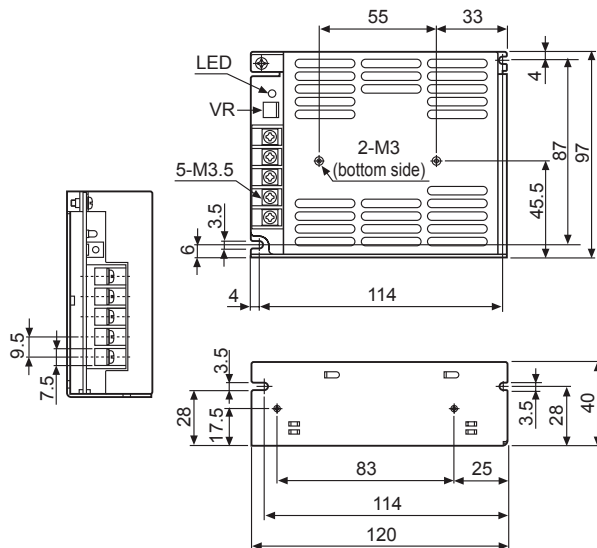
SPA-075/100 Series



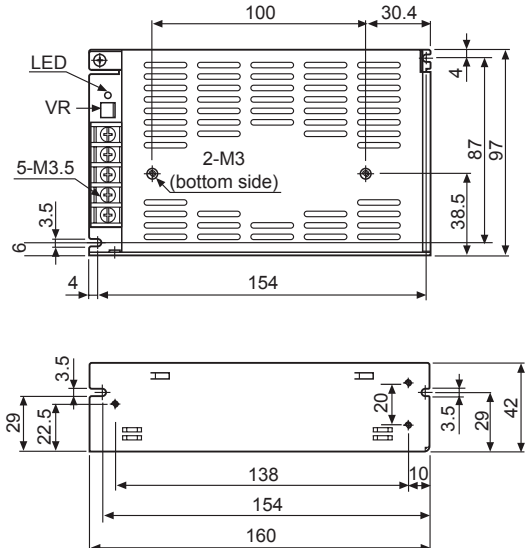
Dimensions

(unit: mm)

SPA-030/050 Series

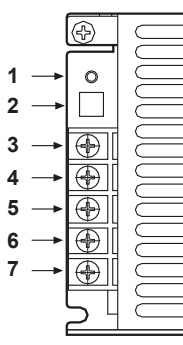


SPA-075/100 Series



General-Purpose Switching Mode Power Supply

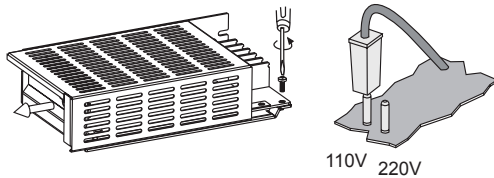
Unit Description



1. Output indicator (green)
2. Output voltage adjuster (V.ADJ)
3. Output power [+] terminal
4. Output power [-] terminal
5. Frame ground [F.G.] terminal
6. Input power [N] terminal
7. Input power [L] terminal

Proper Usage

- For switch input voltage type, input voltage is 220V as factory default. To switch input voltage for 110V, remove the cover then select proper jumper switch as below figures.



- Technical information of operation
- This product is not available to operate of output voltage as parallel and series.
- The output current should be used within the rated range. When it is operated in overcurrent status, the life span of product can be shortened.
- The output voltage should be used within the rated range. When the over-voltage protection function is operated, the product operated normally with cancellation of input power for few minutes.
- The over-voltage protection function is operated when it is exceeded the rated output voltage range with an output voltage adjuster.
- This product has overheating protection function. It is operated normally when releasing the load connection for few minutes.
- The power factor is within 0.5 to 0.7 using condenser rectified method. Please use the below formula and check the input power capacity when using a cabinet panel or transformer.

$$\text{Apparent power[VA]} = \frac{\text{Active Power [W]}}{\text{Power factor} \times \text{Efficiency}}$$

- This product does not have harmonics suppression and power factor correction circuit. Please mount the device for it.
- This product has a noise filter, it can be changed with the mounting place and connection.
- Please change as a same rated fuse when the inner fuse is broken.

- Caution for mounting
- Please mount the device on metal panel for the reliability.
- Please mount the device in a ventilate place for high radiation of heat.
- Please use the power line as below specification.

Input power line specification	AWG21 to 19	AWG18 to 16
Model	SPA-030-05 SPA-030-12 SPA-050-12 SPA-075-12 SPA-030-24 SPA-050-24 SPA-075-24 SPA-100-24	SPA-050-05 SPA-075-05 SPA-100-05 SPA-100-12

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/
Connector Cables/
Sensor Distribution
Boxes/Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho /
Speed / Pulse
Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching
Mode Power
Supplies

(Q) Stepper Motors
& Drivers
& Controllers

(R) Graphic/
Logic
Panels

(S) Field
Network
Devices

(T) Software