

**ZWS150BP/A**

SPECIFICATIONS

A252-01-01/A-B

ITEMS		MODEL	ZWS150BP -24/A	ZWS150BP -36/A	ZWS150BP -48/A	
1	Nominal Output Voltage	V	24	36	48	
2	Average Output Current	A	6.3	4.2	3.2	
3	Peak Output Current (*1)	A	12.6	8.4	6.4	
4	Average Output Power	W	151.2	151.2	153.6	
5	Peak Output Power (*1)	W	302.4	302.4	307.2	
6	Efficiency (Typ)	100VAC	%			
		(*2) 200VAC	%			
7	Input Voltage Range (*3)(*13)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC			
8	Input Current (Typ) (*2)	A	1.9/0.95			
9	Inrush Current (Typ) (*2)(*4)	-	15A at 100VAC, 30A at 200VAC, Ta=25°C, Cold Start			
10	PFHC	-	Designed to meet IEC61000-3-2			
11	Power Factor (Typ) (*2)	-	0.98/0.93			
12	Output Voltage Range	V	21.6 - 27.5	32.4 - 39.6	39.6 - 52.8	
13	Maximum Ripple & Noise	0≤Ta<60°C	mV	240	360	480
		(*5) -10≤Ta<0°C	mV	360	540	720
14	Maximum Line Regulation (*5)(*6)	mV	96	144	192	
15	Maximum Load Regulation (*5)(*7)	mV	192	288	384	
16	Temperature Coefficient (*5)	-	Less than 0.02% / °C			
17	Over Current Protection (*8)	A	12.66 -	8.44 -	6.43 -	
18	Over Voltage Protection (*9)	V	28.8 - 33.6	41.4 - 48.6	55.2 - 64.8	
19	Hold-up Time (Typ) (*2)	-	20ms			
20	Leakage Current (*10)	-	Less than 0.5mA. 0.2mA(Typ) at 100VAC / 0.4mA(Typ) at 230VAC			
21	Parallel Operation	-	-			
22	Series Operation	-	Possible			
23	Operating Temperature (*11)	-	Convection : -10 - +60°C (-10 - +40°C:100%, +50°C:75%, +60°C:50%)			
24	Operating Humidity	-	30 - 90%RH (No Condensing)			
25	Storage Temperature	-	-30 - +75°C			
26	Storage Humidity	-	10 - 90%RH (No Condensing)			
27	Cooling	-	Convection Cooling			
28	Withstand Voltage	-	Input - FG : 2kVAC (10mA), Input - Output : 3kVAC (10mA) Output - FG : 500VAC (20mA) for 1min			
29	Isolation Resistance	-	More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC			
30	Vibration	-	At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s <sup>2</sup> Constant, X,Y,Z 1hour each.			
31	Shock	-	Less than 196.1m/s <sup>2</sup>			
32	Safety	-	Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020), EN50178(OV II) Designed to meet DENAN at 100VAC Only.			
33	Conducted Emission (*12)	-	Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B			
34	Radiated Emission (*12)	-	Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B			
35	Immunity	-	Designed to meet IEC61000-6-2 IEC61000-4-2, -3, -4, -5, -6, -8, -11			
36	Weight (Typ)	g	570			
37	Size (W x H x D)	mm	85 x 47 x 188 ( Refer to Outline Drawing )			

\*Read instruction manual carefully, before using the power supply unit.

=NOTES=

\*1. Operating time at peak output is less than 5sec, duty is less than 40%. For details, refer to peak output condition (A252-01-03\_).

When the peak output more than 5 sec is continued, the output is shut down, manual reset.

\*2. At 100VAC/200VAC, Ta=25°C, nominal output voltage and average output power.

\*3. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 240VAC (50-60Hz).

\*4. Not applicable for the inrush current to Noise Filter for less than 0.2ms.

\*5. Please refer to Fig. A for measurement of Vo, line & load regulation and ripple voltage.

\*6. 90 - 265VAC, constant load.

\*7. No load-Average load, constant input voltage.

\*8. Constant current limit with automatic recovery. Avoid to operate at over load or short circuit condition.

\*9. OVP circuit will shut down output, manual reset (Re power on).

\*10. Measured by the each measuring method of UL, CSA, EN and DENAN (at 60Hz), Ta=25°C.

\*11. Output Derating - Derating at standard mounting. Refer to output derating curve (A252-01-02/A- ).

- When forced air cooling, refer to forced air cooling specifications

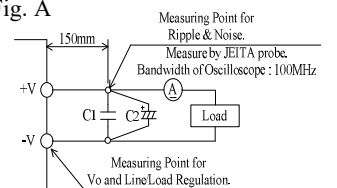
(A252-01-04/A-\_, A252-01-05/A-\_, A252-01-06/A-\_).

- Load (%) is percent of average output power or average output current, do not exceed its derating of average load.

\*12. At Ta=25°C and average output power.

\*13. Output derating needed when input voltage less than 90VAC. Refer to output derating vs. input voltage (A252-01-02/A- ).

Fig. A



C1 : Film Cap. 0.1μF  
C2 : Elect. Cap. 100μF

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OUTPUT DERATING

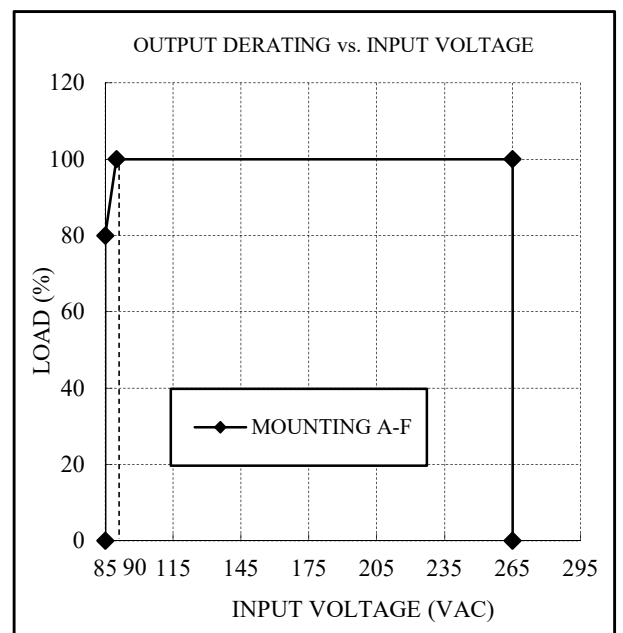
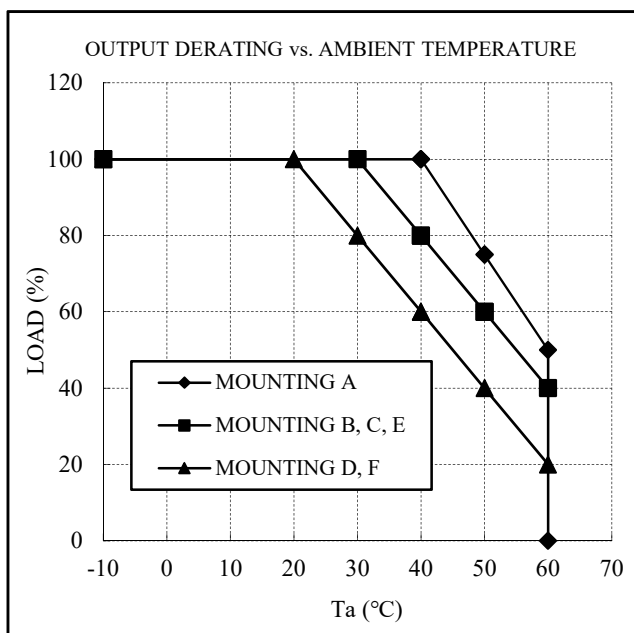
A252-01-02/A-A

\*COOLING : CONVECTION COOLING

Ta (°C)	LOAD (%)		
	MOUNTING A	MOUNTING B,C,E	MOUNTING D,F
-10 - +20	100	100	100
30	100	100	80
40	100	80	60
50	75	60	40
60	50	40	20

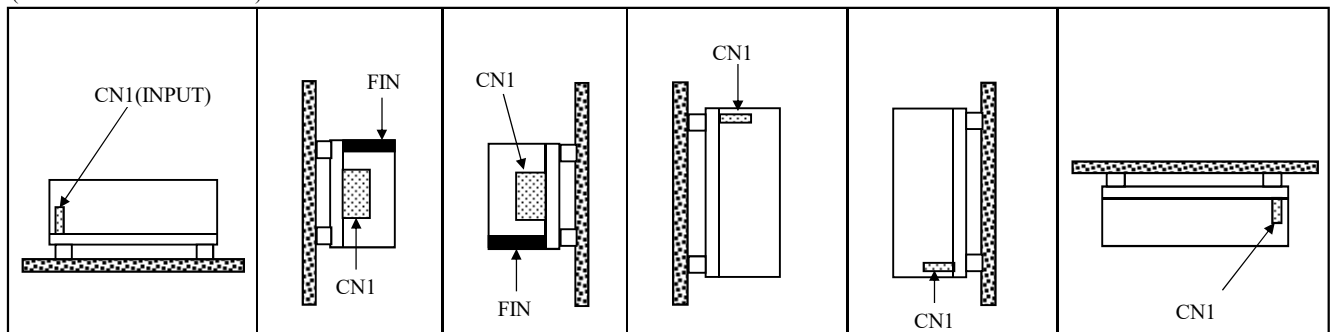
\*COOLING : CONVECTION / FORCED AIR COOLING

INPUT VOLTAGE (VAC)	LOAD (%)
	MOUNTING A-F
85	80
90 - 265	100



- MOUNTING A    MOUNTING B    MOUNTING C    MOUNTING D    MOUNTING E    MOUNTING F

(STANDARD MOUNTING)



**ZWS150BP/A**

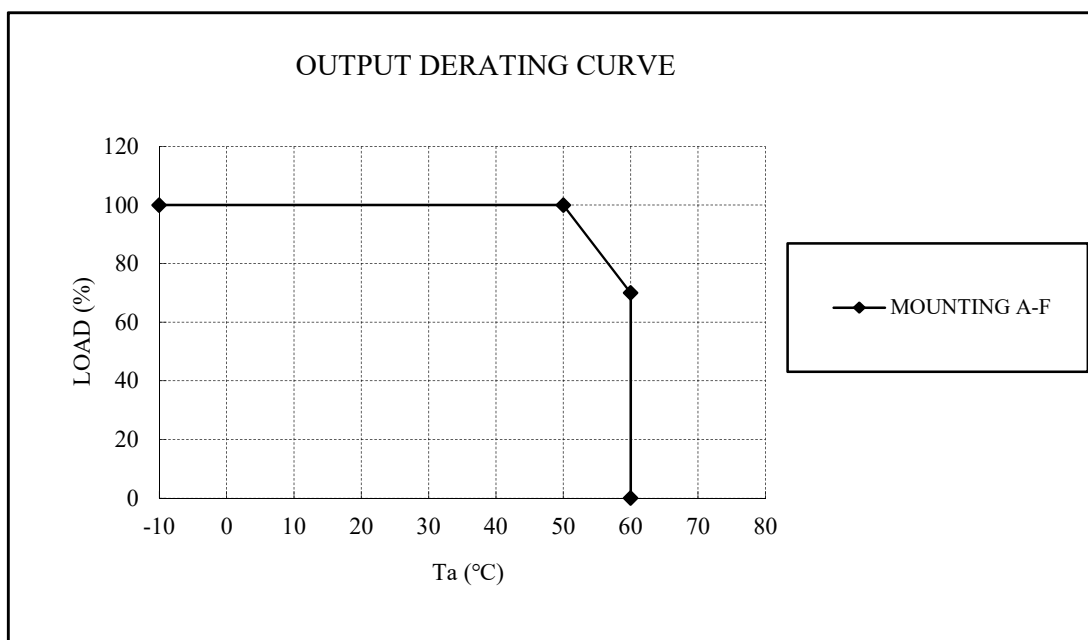
OUTPUT DERATING

A252-01-04/A

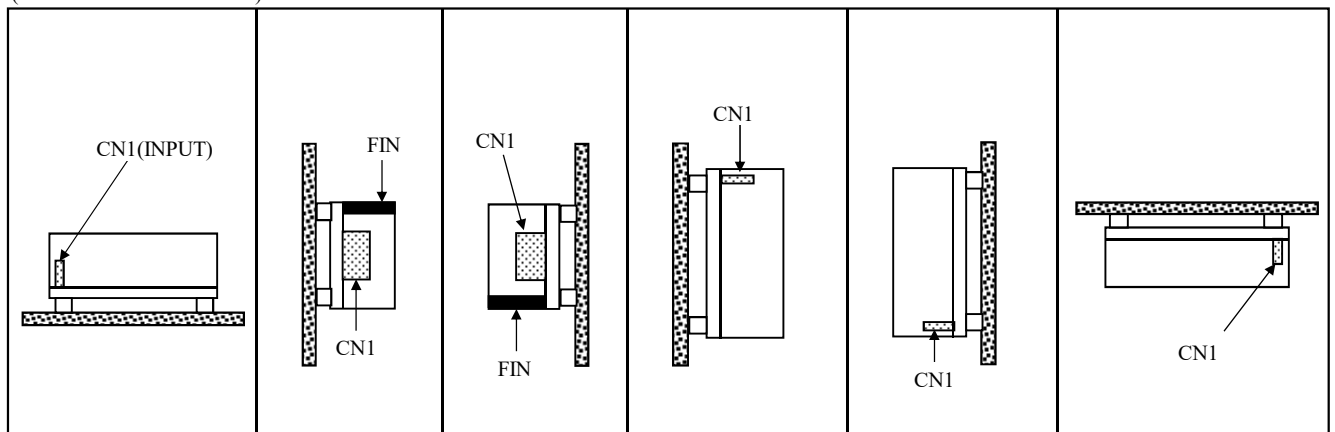
\*COOLING : FORCED AIR COOLING

Ta (°C)	LOAD (%)
	MOUNTING A-F
-10 - +50	100
60	70

Air velocity  $\geq 0.7\text{m/s}$  : Air must flow through component side.



MOUNTING A MOUNTING B MOUNTING C MOUNTING D MOUNTING E MOUNTING F  
(STANDARD MOUNTING)



**ZWS150BP/A**

SPECIFICATIONS (FORCED AIR COOLING)

A252-01-05/A-A

ITEMS		MODEL	ZWS150BP -24/A	ZWS150BP -36/A	ZWS150BP -48/A
1	Nominal Output Voltage	V	24	36	48
2	Average Output Current	A	8.4	5.6	4.3
3	Peak Output Current (*1)	A	12.6	8.4	6.4
4	Average Output Power	W	201.6	201.6	206.4
5	Peak Output Power (*1)	W	302.4	302.4	307.2
6	Efficiency (Typ)	100VAC	%		
		(*2) 200VAC	%		
7	Input Voltage Range (*3)(*4)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC		
8	Input Current (Typ) (*2)	A	2.5/1.3		
9	Hold-up Time (Typ) (*2)	-	16ms(typ) at 100VAC & Rated O/P Power, 20ms(typ) at 100VAC & 75% Load		
10	Operating Temperature (*5)	-	-10 - +60°C (-10 - +50°C:100%, +60°C:70%)		
11	Cooling (*6)	-	Forced Air Cooling		
12	Conducted Emission (*7)	-	Designed to meet EN55011/EN55032-A, FCC-A, VCCI-A		
13	Radiated Emission (*7)	-	Designed to meet EN55011/EN55032-A, FCC-A, VCCI-A		

\*Read instruction manual carefully, before using the power supply unit.

\*For other specification items, refer to specifications(A252-01-01/A- ).

=NOTES=

- \*1. Operating time at peak output is less than 5sec, duty is less than 40%. For details, refer to peak output condition (A252-01-03 ).  
When the peak output more than 5 sec is continued, the output is shut down, manual reset.
- \*2. At 100VAC/200VAC, Ta=25°C, nominal output voltage and average output power.
- \*3. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 240VAC (50-60Hz).
- \*4. Output derating needed when input voltage less than 90VAC. Refer to output derating vs. input voltage (A252-01-02/A- ).
- \*5. Output Derating - Derating at standard mounting. Refer to output derating curve (A252-01-06/A- ).  
- Load (%) is percent of average output power or average output current, do not exceed its derating of average load.
- \*6. Forced air cooling with air velocity more than 1.5m/s (measured at component side of PCB, air must flow through component side)
- \*7. At Ta=25°C and average output power.

**ZWS150BP/A**

OUTPUT DERATING

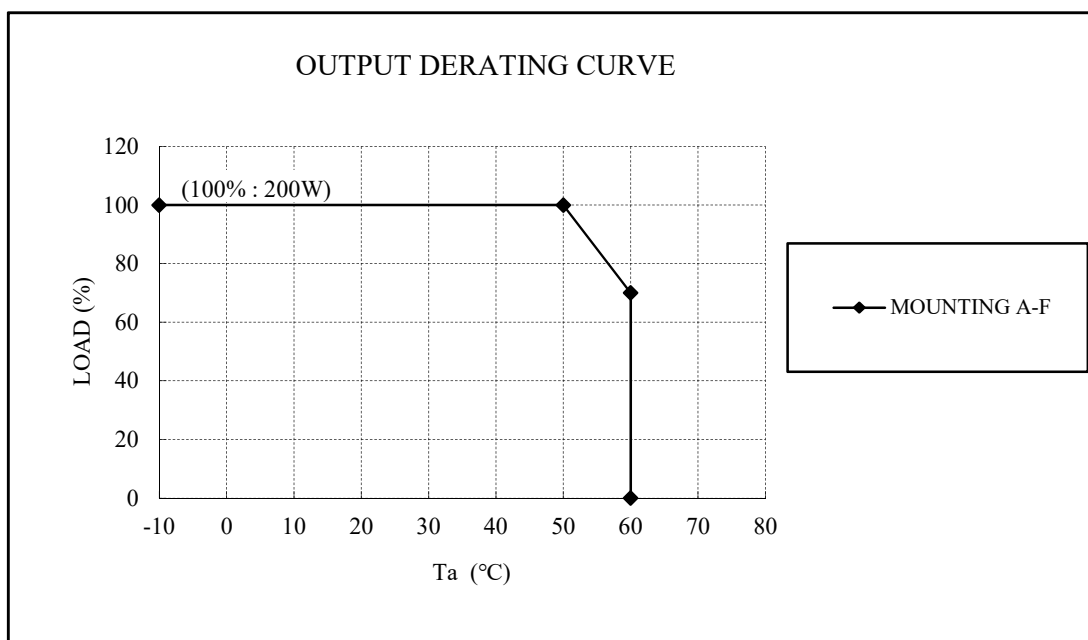
A252-01-06/A

\*AVERAGE OUTPUT POWER : 200W

\*COOLING : FORCED AIR COOLING

Ta (°C)	LOAD (%)
	MOUNTING A-F
-10 - +50	100
60	70

Air velocity  $\geq 1.5\text{m/s}$  : Air must flow through component side.



MOUNTING A    MOUNTING B    MOUNTING C    MOUNTING D    MOUNTING E    MOUNTING F  
 (STANDARD MOUNTING)

