

ZWS240BP/A

SPECIFICATIONS

A253-01-01/A-C

ITEMS		MODEL	ZWS240BP -24/A	ZWS240BP -36/A	ZWS240BP -48/A
1	Nominal Output Voltage	V	24	36	48
2	Average Output Current	A	10	6.7	5.0
3	Peak Output Current (*1)	A	20.0	13.4	10.0
4	Average Output Power	W	240.0	241.2	240.0
5	Peak Output Power (*1)	W	480.0	482.4	480.0
6	Efficiency (Typ)	100VAC	88		
		(*2) 200VAC	91		
7	Input Voltage Range (*3)(*13)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC		
8	Input Current (Typ) (*2)	A	2.8/1.5		
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≤70°C	240	360	480
		(*5) -10≤Ta<0°C	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	20.10 -	13.47 -	10.05 -
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:65%, +60°C:30%)		
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 ² Constant, X,Y,Z 1hour each.		
31	Shock	-	Less than 196.1m/s ²		
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	780		
37	Size (W x H x D)	mm	95 x 53 x 212 (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 (A253-01-03_).

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 in-rush 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 (A253-01-02/A-).

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

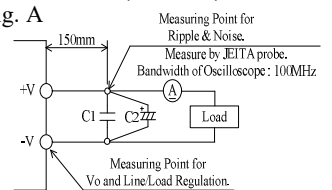
(A253-01-04/A- , A253-01-05/A- , A253-01-06/A-).

- 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 (A253-01-02/A-).

Fig. A



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

ZWS240BP/A

OUTPUT DERATING

A253-01-02/A-A

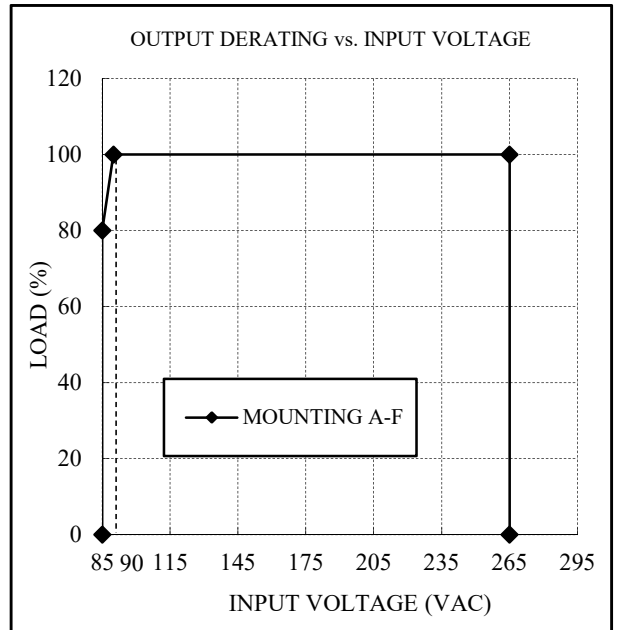
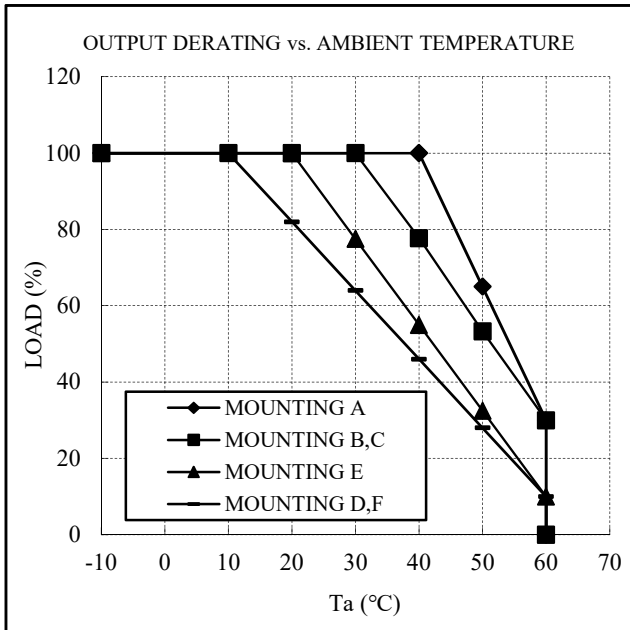
*COOLING : CONVECTION COOLING

Ta (°C)	LOAD (%)	
	MOUNTING A	MOUNTING B,C
-10 - +10	100	100
20	100	100
30	100	100
40	100	77
50	65	53
60	30	30

Ta (°C)	LOAD (%)	
	MOUNTING E	MOUNTING D,F
-10 - +10	100	100
20	100	82
30	78	64
40	55	46
50	32	28
60	10	10

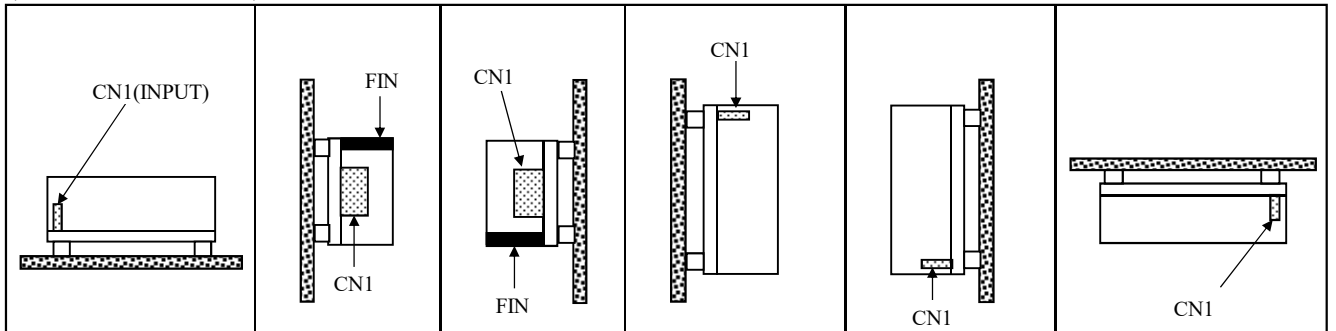
*COOLING : CONVECTION / FORCED AIR COOLING

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)



ZWS240BP/A

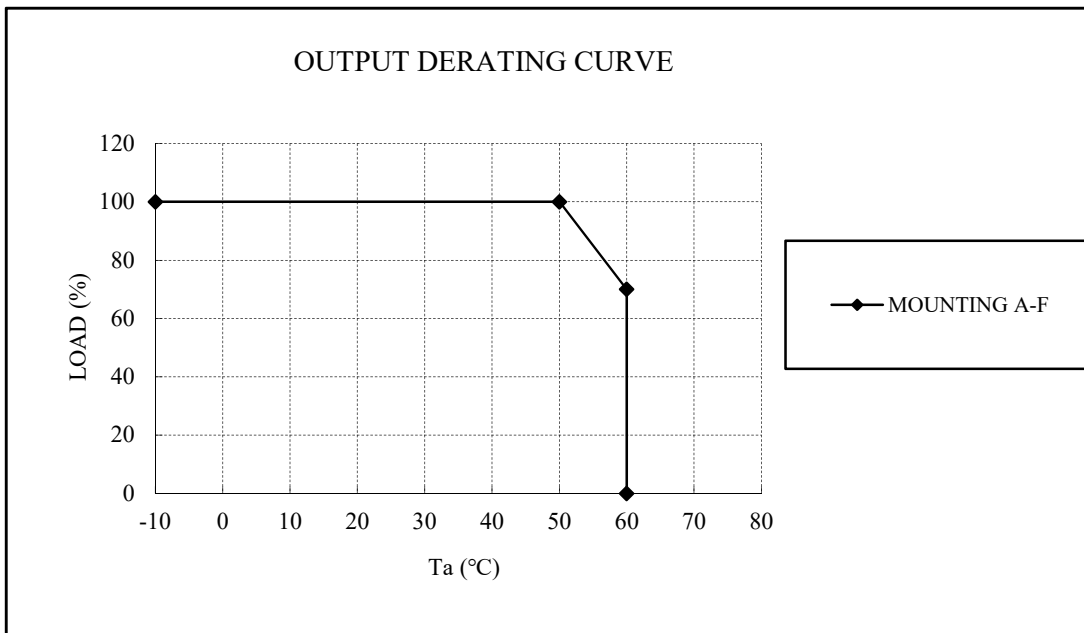
OUTPUT DERATING

A253-01-04/A

*COOLING : FORCED AIR COOLING

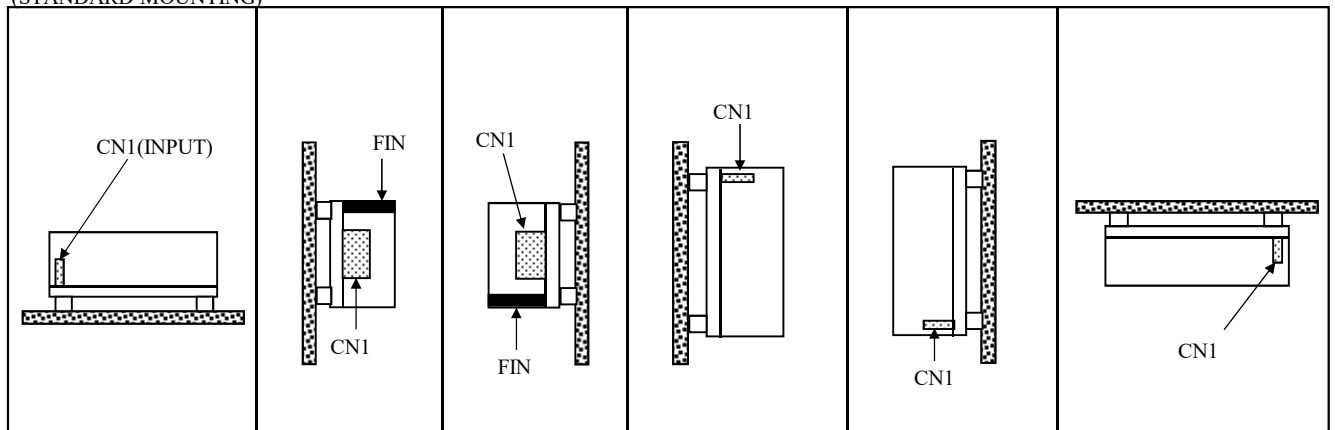
Ta (°C)	LOAD (%)
	MOUNTING A-F
-10 - +50	100
60	70

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)



ZWS240BP/A

SPECIFICATIONS (FORCED AIR COOLING)

A253-01-05/A-A

ITEMS		MODEL	ZWS240BP -24/A	ZWS240BP -36/A	ZWS240BP -48/A
1	Nominal Output Voltage	V	24	36	48
2	Average Output Current	A	12.5	8.4	6.3
3	Peak Output Current (*1)	A	20.0	13.4	10.0
4	Average Output Power	W	300.0	302.4	302.4
5	Peak Output Power (*1)	W	480.0	482.4	480.0
6	Efficiency (Typ)	100VAC	%		
		(*)200VAC	%		
7	Input Voltage Range (*3)(*4)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC		
8	Input Current (Typ) (*5)	A	3.6/1.8		
9	Hold-up Time (Typ) (*5)	-	16ms(typ) at 100VAC & Rated O/P Power, 20ms(typ) at 100VAC & 75% Load		
10	Operating Temperature (*6)	-	-10 - +60°C (-10 - +50°C:100%, +60°C:70%)		
11	Cooling (*7)	-	Forced Air Cooling		
12	Conducted Emission (*8)	-	Designed to meet EN55011/EN55032-A, FCC-A, VCCI-A		
13	Radiated Emission (*8)	-	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(A253-01-01/A_).

=NOTES=

- *1. Operating time at peak output is less than 5sec, duty is less than 40%. For details, refer to peak output condition (A253-01-03_).
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 (A253-01-02/A_).
- *5. At 100VAC/200VAC, Ta=25°C, nominal output voltage and average output power.
- *6. Output Derating - Derating at standard mounting. Refer to output derating curve (A253-01-06/A-).
- Load (%) is percent of average output power or average output current, do not exceed its derating of average load.
- *7. Forced air cooling with air velocity more than 1.5m/s (measured at component side of PCB, air must flow through component side)
- *8. At Ta=25°C and average output power.

ZWS240BP/A

OUTPUT DERATING

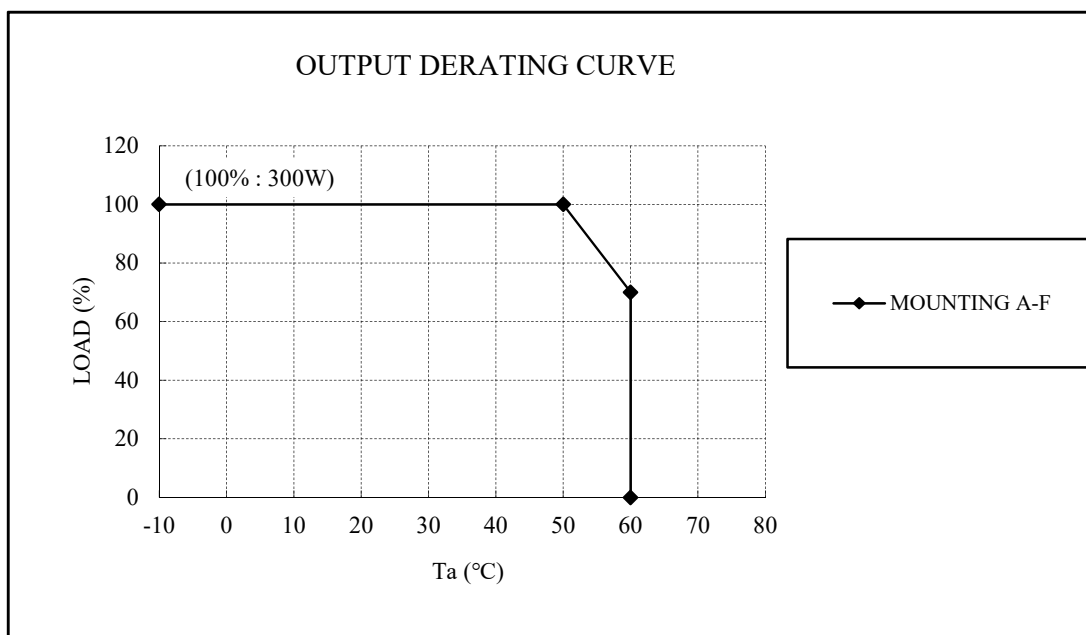
A253-01-06/A

*AVERAGE OUTPUT POWER : 300W

*COOLING : FORCED AIR COOLING

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

Air velocity \geq 1.5m/s : Air must flow through component side.



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

(STANDARD MOUNTING)

