

ZWS300BAF

SPECIFICATIONS

A254-01-01

MODEL			ZWS300BAF	ZWS300BAF	ZWS300BAF
ITEMS			-24	-36	-48
1	Nominal Output Voltage	V	24	36	48
2	Maximum Output Current	A	12.5	8.4	6.3
3	Maximum Output Power	W	300.0	302.4	302.4
4	Efficiency (Typ)	100VAC	88		
		(*)200VAC	91		
5	Input Voltage Range	(*)2(*)3	85 - 265VAC (47 - 63Hz) or 120 - 370VDC		
6	Input Current (Typ)	(*)1	3.6/1.8		
7	Inrush Current (Typ)	(*)1(*)4	15A at 100VAC, 30A at 200VAC, Ta=25°C, Cold Start		
8	PFHC	-	Designed to meet IEC61000-3-2		
9	Power Factor (Typ)	(*)1	0.97/0.93		
10	Output Voltage Range	V	21.6 - 27.5	32.4 - 39.6	39.5 - 52.8
11	Maximum Ripple & Noise	0≤Ta≤70°C	150	250	250
		(*)5-10≤Ta<0°C	180	300	300
12	Maximum Line Regulation	(*)5(*)6	96	144	192
13	Maximum Load Regulation	(*)5(*)7	150	240	240
14	Temperature Coefficient	(*)5	Less than 0.02% / °C		
15	Over Current Protection	(*)8	14.7 -	9.87 -	7.35 -
16	Over Voltage Protection	(*)9	28.8 - 33.6	41.4 - 48.6	55.2 - 64.8
17	Hold-up Time (Typ)	(*)1	18ms(typ) at 100VAC & Rated O/P Power, 20ms(typ) at 100VAC & 80% Load		
18	Leakage Current	(*)10	Less than 0.5mA. 0.2mA (Typ) at 100VAC / 0.4mA (Typ) at 230VAC		
19	Remote Control	-	Option		
20	Parallel Operation	-	-		
21	Series Operation	-	Possible		
22	Operating Temperature	(*)11	-10 - +70°C (-10 - +45°C:100%, +50°C:88%, +60°C:64%, 70°C:40%)		
23	Operating Humidity	-	30 - 90%RH (No Condensing)		
24	Storage Temperature	-	-30 - +75°C		
25	Storage Humidity	-	10 - 90%RH (No Condensing)		
26	Cooling	-	Convection Cooling		
27	Withstand Voltage	-	Input - FG : 2kVAC (10mA), Input - Output : 3kVAC (10mA) Output - FG : 500VAC (20mA) for 1min		
28	Isolation Resistance	-	More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC		
29	Vibration	-	At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s ² Constant, X,Y,Z 1hour each.		
30	Shock	-	Less than 196.1m/s ²		
31	Safety	-	Approved by UL60950-1, CSA60950-1, EN60950-1, EN50178 (OV II), Designed to meet DENAN at 100VAC only.		
32	Conducted Emission	-	Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B		
33	Radiated Emission	-	Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B		
34	Immunity	-	Designed to meet IEC61000-6-2 IEC61000-4-2, -3, -4, -5, -6, -8, -11		
35	Weight (Typ)	g	540		
36	Size (W x H x D)	mm	84 x 42 x 180 (Refer to Outline Drawing)		

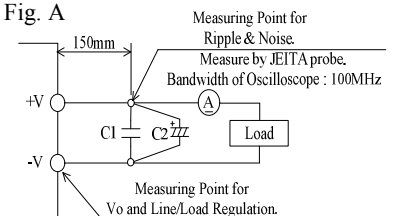
*Read instruction manual carefully, before using the power supply unit.

=NOTES=

- *1. At 100VAC/200VAC, Ta=25°C, nominal output voltage and maximum output power.
- *2. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 240VAC (50-60Hz).
- *3. Output derating needed when input voltage less than 90VAC. Refer to LOAD vs. INPUT VOLTAGE (A254-01-02_).
- *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-Full 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 LOAD vs. AMBIENT TEMPERATURE (A254-01-02_).
- When forced air cooling, refer to forced air cooling specifications (A254-01-03_, A254-01-04_).
- Load (%) is percent of maximum output power or maximum output current, do not exceed its derating of maximum load.

Fig. A



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

ZWS300BAF

OUTPUT DERATING

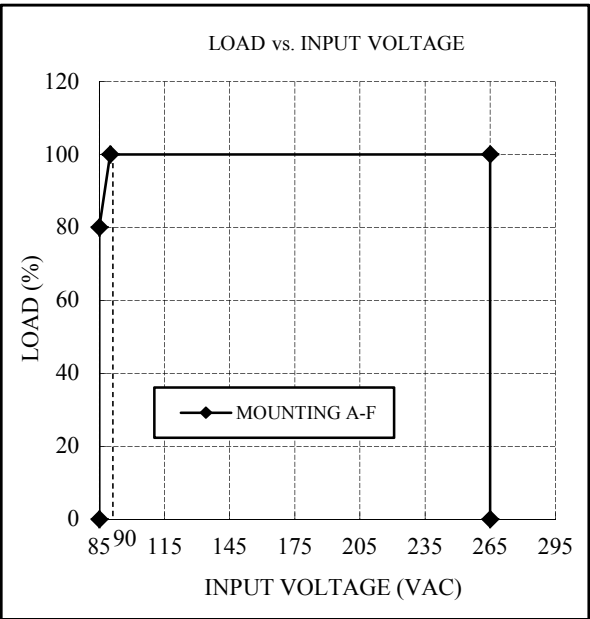
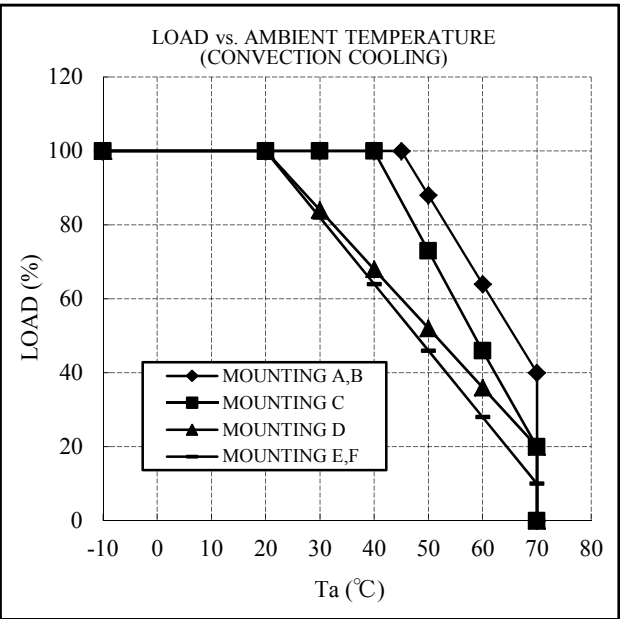
A254-01-02

*COOLING : CONVECTION COOLING

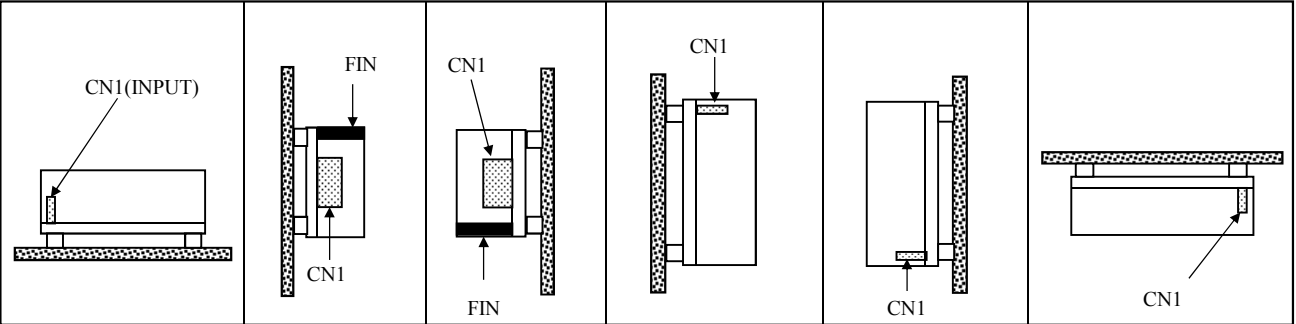
Ta (°C)	LOAD (%)	
	MOUNTING A,B	MOUNTING C
-10 - +40	100	100
45	100	86
50	88	73
60	64	46
70	40	20

Ta (°C)	LOAD (%)	
	MOUNTING D	MOUNTING E,F
-10 - +20	100	100
30	84	82
40	68	64
50	52	46
60	36	28
70	20	10

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)



ZWS300BAF

SPECIFICATIONS (FORCED AIR COOLING)

A254-01-03

MODEL			ZWS300BAF	ZWS300BAF	ZWS300BAF
ITEMS			-24	-36	-48
1	Nominal Output Voltage	V	24	36	48
2	Maximum Output Current (*1)	A	14.0	9.4	7.0
3	Maximum Output Power (*1)	W	336.0	338.4	336.0
4	Efficiency (Typ)	100VAC	87		
		(*2) 200VAC	90		
5	Input Voltage Range (*3)(*4)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC		
6	Input Current (Typ) (*2)	A	4.0/2.0		
7	Hold-up Time (Typ) (*2)	-	16ms(typ) at 100VAC & Rated O/P Power, 20ms(typ) at 100VAC & 70% Load		
8	Operating Temperature (*5)	-	-10 - +70°C (-10 - +50°C:100%, +60°C:80%, +70°C:60%) (Air velocity ≥ 0.7m/s)		
9	Cooling (*1)	-	-10 - +70°C (-10 - +60°C:100%, +70°C:70%) (Air velocity ≥ 1.4m/s)		
10	Radiated Emission	-	Forced Air Cooling		
		-	Designed to meet EN55011/EN55022-A, FCC-A, VCCI-A		

*For other specification items, refer to standard specifications.

=NOTES=

- *1. Forced air cooling with air velocity more than 0.7m/s or 1.4m/s.
(Measured at component side of PCB, air must flow through component side).
- *2. At 100VAC/200VAC, Ta=25°C, nominal output voltage and maximum 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 LOAD vs. INPUT VOLTAGE (A254-01-02_).
- *5. Output Derating
 - When forced air cooling, refer to LOAD vs. AMBIENT TEMPERATURE (A254-01-04_).
 - Load (%) is percent of maximum output power or maximum output current, do not exceed its derating of maximum load.

ZWS300BAF

OUTPUT DERATING

A254-01-04

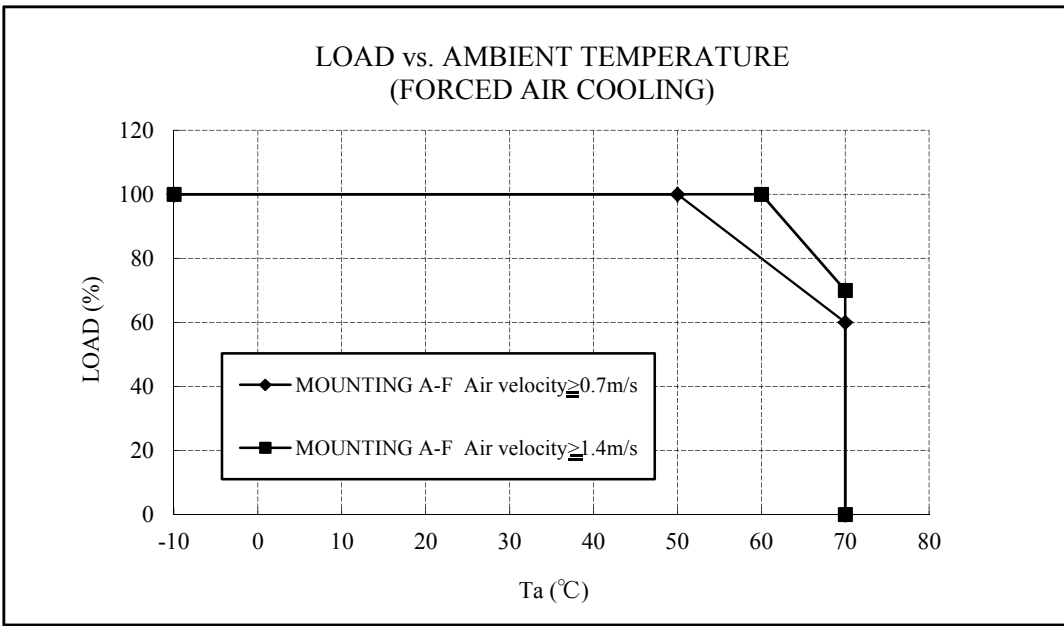
***COOLING : FORCED AIR COOLING**

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

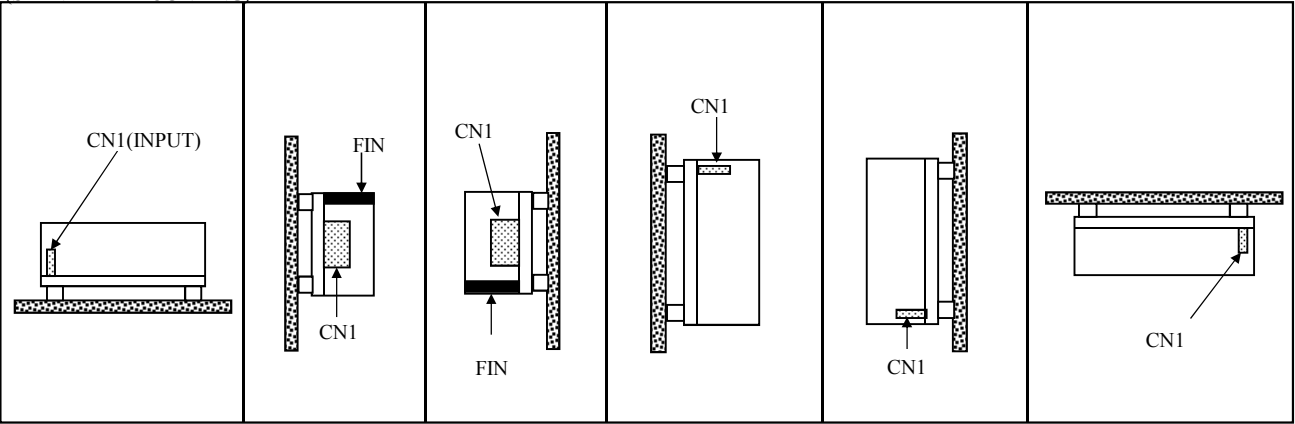
Air velocity $\geq 0.7\text{m/s}$:
Air must flow through component side.

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

Air velocity $\geq 1.4\text{m/s}$:
Air must flow through component side.



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



ZWS300BAF

SPECIFICATIONS

A254-01-05

MODEL			ZWS300BAF	ZWS300BAF
ITEMS			-12	-15
1	Nominal Output Voltage	V	12	15
2	Maximum Output Current	A	25.0	20.0
3	Maximum Output Power	W	300.0	300.0
4	Efficiency (Typ)	100VAC	86	
		(*)200VAC	89	
5	Input Voltage Range	(*)2(*)3	85 - 265VAC (47 - 63Hz) or 120 - 370VDC	
6	Input Current (Typ)	(*)1	3.7/1.9	
7	Inrush Current (Typ)	(*)1(*)4	15A at 100VAC, 30A at 200VAC, Ta=25°C, Cold Start	
8	PFHC	-	Designed to meet IEC61000-3-2	
9	Power Factor (Typ)	(*)1	0.97/0.93	
10	Output Voltage Range	V	9.6 - 13.2	13.5 - 16.5
11	Maximum Ripple & Noise	0≤Ta≤70°C	150	150
		(*)5-10≤Ta<0°C	180	180
12	Maximum Line Regulation	(*)5(*)6	48	60
13	Maximum Load Regulation	(*)5(*)7	100	120
14	Temperature Coefficient	(*)5	Less than 0.02% / °C	
15	Over Current Protection	(*)8	26.25 -	23.1 -
16	Over Voltage Protection	(*)9	13.8 - 16.2	17.3 - 20.3
17	Hold-up Time (Typ)	(*)1	18ms(typ) at 100VAC & Rated O/P Power, 20ms(typ) at 100VAC & 80% Load	
18	Leakage Current	(*)10	Less than 0.5mA. 0.2mA (Typ) at 100VAC / 0.4mA (Typ) at 230VAC	
19	Remote Control	-	Option	
20	Parallel Operation	-	-	
21	Series Operation	-	Possible	
22	Operating Temperature	(*)11	-10 - +70°C (-10 - +40°C:100%, +50°C:80%, +60°C:60%, 70°C:40%)	
23	Operating Humidity	-	30 - 90%RH (No Condensing)	
24	Storage Temperature	-	-30 - +75°C	
25	Storage Humidity	-	10 - 90%RH (No Condensing)	
26	Cooling	-	Convection Cooling	
27	Withstand Voltage	-	Input - FG : 2kVAC (10mA), Input - Output : 3kVAC (10mA) Output - FG : 500VAC (20mA) for 1min	
28	Isolation Resistance	-	More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC	
29	Vibration	-	At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s ² Constant, X,Y,Z 1hour each.	
30	Shock	-	Less than 196.1m/s ²	
31	Safety	-	Approved by UL60950-1, CSA60950-1, EN60950-1, EN50178 (OV II), Designed to meet DENAN at 100VAC only.	
32	Conducted Emission	-	Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B	
33	Radiated Emission	-	Designed to meet EN55011/EN55022-B, FCC-B, VCCI-B	
34	Immunity	-	Designed to meet IEC61000-6-2 IEC61000-4-2, -3, -4, -5, -6, -8, -11	
35	Weight (Typ)	g	540	
36	Size (W x H x D)	mm	84 x 42 x 180 (Refer to Outline Drawing)	

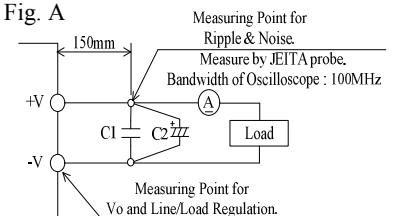
*Read instruction manual carefully, before using the power supply unit.

=NOTES=

- *1. At 100VAC/200VAC, Ta=25°C, nominal output voltage and maximum output power.
- *2. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 240VAC (50-60Hz).
- *3. Output derating needed when input voltage less than 90VAC. Refer to LOAD vs. INPUT VOLTAGE (A254-01-06_).
- *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-Full 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 LOAD vs. AMBIENT TEMPERATURE (A254-01-06_).
- When forced air cooling, refer to forced air cooling specifications (A254-01-07_, A254-01-08_).
- Load (%) is percent of maximum output power or maximum output current, do not exceed its derating of maximum load.

Fig. A



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

ZWS300BAF

OUTPUT DERATING (12V, 15V)

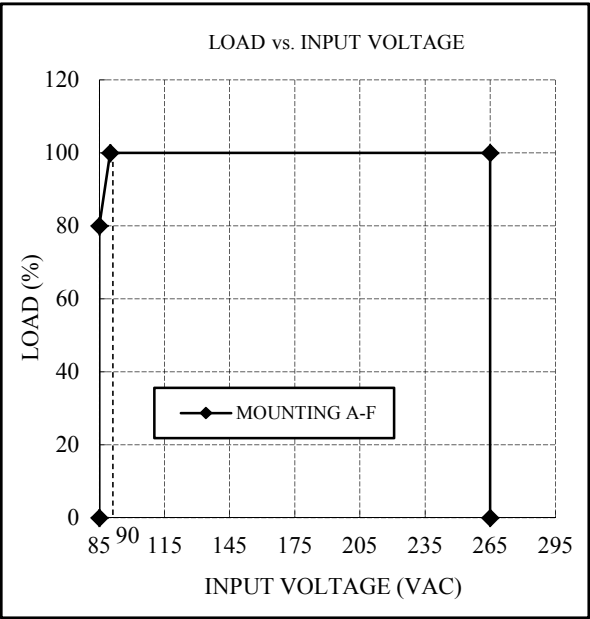
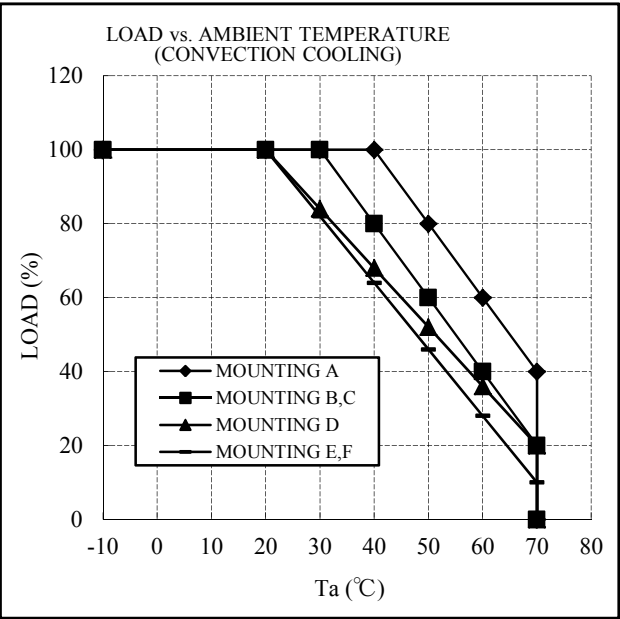
A254-01-06

*COOLING : CONVECTION COOLING

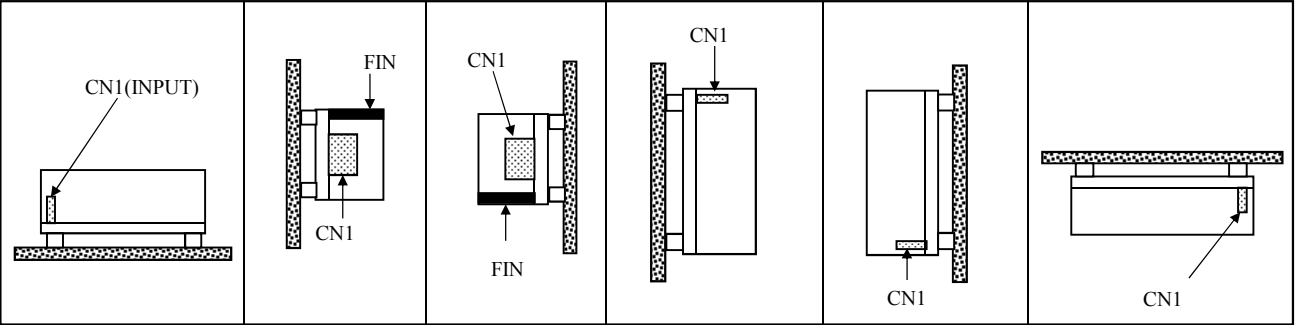
Ta (°C)	LOAD (%)	
	MOUNTING A	MOUNTING B,C
-10 - +30	100	100
40	100	80
50	80	60
60	60	40
70	40	20

Ta (°C)	LOAD (%)	
	MOUNTING D	MOUNTING E,F
-10 - +20	100	100
30	84	82
40	68	64
50	52	46
60	36	28
70	20	10

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)



ZWS300BAF

SPECIFICATIONS (FORCED AIR COOLING)

A254-01-07

MODEL			ZWS300BAF	ZWS300BAF
ITEMS			-12	-15
1	Nominal Output Voltage	V	12	15
2	Maximum Output Current (*1)	A	25.0	22.0
3	Maximum Output Power (*1)	W	300.0	330.0
4	Efficiency (Typ)	100VAC	86	
		200VAC	89	
5	Input Voltage Range (*3)(*4)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC	
6	Input Current (Typ) (*2)	A	3.7/1.9	4.0/2.0
7	Hold-up Time (Typ) (*2)	-	18ms(typ) at 100VAC & Rated O/P Power,	16ms(typ) at 100VAC & Rated O/P Power,
		-	20ms(typ) at 100VAC & 80% Load	20ms(typ) at 100VAC & 70% Load
8	Operating Temperature (*5)	-	-10 - +70°C (-10 - +50°C:100%, +70°C:60%) (Air velocity $\geq$ 1.4m/s)	
9	Cooling (*1)	-	Forced Air Cooling	
10	Radiated Emission	-	Designed to meet EN55011/EN55022-A, FCC-A, VCCI-A	

*For other specification items, refer to standard specifications.

=NOTES=

- *1. Forced air cooling with air velocity more than 1.4m/s.
(Measured at component side of PCB, air must flow through component side).
- *2. At 100VAC/200VAC, Ta=25°C, nominal output voltage and maximum 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 LOAD vs. INPUT VOLTAGE (A254-01-06_).
- *5. Output Derating
 - When forced air cooling, refer to LOAD vs. AMBIENT TEMPERATURE (A254-01-08_).
 - Load (%) is percent of maximum output power or maximum output current, do not exceed its derating of maximum load.

ZWS300BAF

OUTPUT DERATING (12V, 15V)

A254-01-08

*COOLING : FORCED AIR COOLING

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

Air velocity $\geq 1.4\text{m/s}$:
Air must flow through component side.

