ZWQ80/L

A190-01-01/L-F

SPECIFICATIONS (CONVECTION COOLING)

	MODEL / ITEMS			ZWQ80-5225/L				ZWQ80-5222/L				ZWQ80-5224/L			
				V1	V2	V3	V4	V1	V2	V3	V4	V1	V2	V3	V4
1	Nominal Output Voltage		V	+5	+12	-12	+5	+5	+12	-12	+12	+5	+12	-12	+24
2	Minimum Output Current (Convection)	(*1)	A	0.9	0	0	0	0.9	0	0	0	0.9	0	0	0
3	Minimum Output Current (Peak Application)	(*1)	A	1.4	0	0	0	1.4	0	0	0	1.4	0	0	0
4	Maximum Output Current		A	8.0	2.0	2.0	7.0	8.0	2.0	2.0	3.0	8.0	2.0	2.0	1.5
5	Total Allowable Output Power	(*16)	W	80				80				80			
6	Maximum Peak Output Current	(*17)	A	10.0	2.5	2.5	9.0	10.0	2.5	2.5	4.0	10.0	2.5	2.5	2.0
7	Total Allowable Peak Output Power	(*16)	W	104				104				104			
8	Efficiency (Typ)	(*2)	-	72%											
9	Input Voltage Range	(*3)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC											
10	Input Current (100/200VAC) (Typ)	(*2)	A	1.2 / 0.6											
11	Inrush Current (Typ)	(*4)	-	14A at 100VAC, 28A at 200VAC, Ta=25°C, Cold Start											
12	PFHC		-	Designed to meet IEC61000-3-2											
13	Power Factor (100/200VAC) (Typ)	(*2)	-	0.99 / 0.93											
14	Output Voltage Range		V	5.0-5.25	+12/+15	-12/-15	2.0-5.25	5.0-5.25	+12/+15	-12/-15	11.4-12.6	5.0-5.25	+12/+15	-12/-15	22.8-25.2
15	Output Voltage Accuracy		-	-	±5%	±5%	-	-	±5%	±5%	-	-	±5%	±5%	-
16	Maximum Ripple & Noise	0 ≤ Ta ≤ +60°C	mV	120	150	150	120	120	150	150	150	120	150	150	200
		(*5) -10 ≤ Ta < 0°C	mV	160	180	180	160	160	180	180	180	160	180	180	200
17	Maximum Line Regulation	(*5,6)	mV	20	48	48	20	20	48	48	48	20	48	48	96
18	Maximum Load Regulation	(*5,7)	mV	100	300	300	100	100	300	300	300	100	300	300	400
19	Temperature Coefficient		-	Less than 0.02% /°C											
20	Over Current Protection	(*8)	-	More than 109.2W of Total Output Power											
21	Over Voltage Protection	(*9)	V	5.7 - 7.0	16.5-22.5	16.5-22.5	5.7 - 7.0	5.7 - 7.0	16.5-22.5	16.5-22.5	13.8-16.2	5.7 - 7.0	16.5-22.5	16.5-22.5	27.6-32.4
22	Hold-Up Time (Typ)	(*10)	-	20 ms											
23	Leakage Current	(*11)	-	0.75mA MAX,0.2mA(Typ) at 100VAC / 0.44mA(Typ) at 230VAC											
24	Remote ON/OFF Control	(*14)		Possible											
25	Parallel Operation		-	-											
26	Series Operation		-	-											
27	Operating Temperature	(*12)	-	-10 - +60°C (-10 - +40°C : 100%, +60°C : 50%)											
28	Operating Humidity		-	30 - 90%RH (No Dewdrop)											
29	Storage Temperature		-	-30 - +85°C											
30	Storage Humidity		-	10 - 95%RH (No Dewdrop)											
31	Cooling		-	Convection Cooling											
32	Withstand Voltage			Input - FG : 2kVAC(20mA), Input - Output : 3kVAC (20mA) Output - FG : 500VAC(100mA), for 1min.											
33	Isolation Resistance		-	More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC											
34	Vibration		-	At no operating, 10-55Hz (Sweep for 1min) 19.6 m/s^2 Constant, X, Y, Z 1h each.											
35	Shock (In package)		-	Less than 196.1 m/s^2											
36	Safety	(*13)	-	Approved by UL62368-1, CSA C22.2 No.62368-1, EN62368-1,UL60950-1, CSA C22.2 No.60950-1 & EN60950-1. (Expire date of 60950-1 : 20/12/2020). Designed to meet DENAN											
37	EMI		-	Designed to meet EN55011/EN55032-B, FCC-ClassB, VCCI-B											
38	Immunity	(*15)	-	Designed to meet EN61000-4-2, -3, -4, -5, -6, -8, -11											
39	Weight (Typ)		-	750g											
40	Size (W x H x D)		mm	97 x 38 x 225 (Refer to Outline Drawing)											

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

=NOTES=

*1. For V2, V3,V4 stability, require minimum output current of V1.

*2. At 100/200VAC, Ta=25°C and total allowable 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. Refer to output measuring (A190-01-05_) for line & load regulation and ripple voltage.

*6. 85 - 265VAC , constant load.

*7. Minimum load - Full load, constant input voltage.

*8. Constant current limit with automatic recovery. Refer to test data (A190-53-01_). Not operate at over load or dead short condition for more than 30 seconds.

*9. OVP circuit will shut down all outputs, manual reset (Line recycle).

*10. At 100/200VAC, nominal output voltage and total allowable output power.

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

*12. At standard mounting.
- Load (%) is percent of total allowable output power or each maximum output current, whichever is greater.
For other mountings, refer to derating curve (A190-01-03_).

*13. As for DENAN, designed to meet at 100VAC.

*14. For using, refer to note (A190-01-05_).

*15. Refer to test data (A190-58-01_).

*16. Allowable output power is changed according to V4 voltage(Only ZWQ-5225/L), refer to derating table(A190-01-03_).

*17. Operating period at peak current is less than 10sec.. (Duty≤0.35)

ZWQ80/L

A190-01-02/L-A

SPECIFICATIONS (FORCED AIR COOLING)

	MODEL / ITEMS			ZWQ80-5225/L				ZWQ80-5222/L				ZWQ80-5224/L			
				V1	V2	V3	V4	V1	V2	V3	V4	V1	V2	V3	V4
1	Nominal Output Voltage		V	+5	+12	-12	+5	+5	+12	-12	+12	+5	+12	-12	+24
2	Minimum Output Current	(*1)	A	1.4	0	0	0	1.4	0	0	0	1.4	0	0	0
3	Maximum Output Current		A	10.0	2.5	2.5	9.0	10.0	2.5	2.5	4.0	10.0	2.5	2.5	2.0
4	Total Allowable Output Power	(*2)	W	104				104				104			
5	Input Current (100/200VAC) (Typ	(*3)	A	1.6 / 0.8											
6	Operating Temperature	(*4)	-	-10 ~ +70°C (-10 ~+50°C : 100%, +70°C : 50%)											
7	Cooling	(*5)	-	Forced Air Cooling											

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

=NOTES=

*For other items, refer to convection cooling specifications (A190-01-01/L-_).

*1. For V2, V3,V4 stability, require minimum output current and above of V1.
When it is using under condition of forced air cooling, V1 minimum output current is same as convection cooling.

*2. Allowable output power is changed according to V4 voltage(Only ZWQ-5225/L), refer to derating table (A190-01-04_).

*3. At 100/200VAC, Ta=25ºC total allowable output power.

*4. At standard mounting.
- Load (%) is percent of total allowable output power or each maximum output current, whichever is greater.
For other mountings, refer to derating curve (A190-01-04_).

*5. Air flow $\geq$ 0.85m^3/min(30cfm)

ZWQ80/L

A190-01-06/L-E

SPECIFICATIONS (CONVECTION COOLING)

	MODEL / ITEMS			ZWQ80-5223/L			
				V1	V2	V3	V4
1	Nominal Output Voltage		V	+5	+12	-12	+3.3
2	Minimum Output Current (Convection)	(*1)	A	0.9	0	0	0
3	Minimum Output Current (Peak Application)	(*1	A	1.4	0	0	0
4	Maximum Output Current		A	8.0	2.0	2.0	7.0
5	Total Allowable Output Power	(*16)	-	80W			
6	Maximum Peak Output Current	(*17)	A	10.0	2.5	2.5	9.0
7	Total Allowable Peak Output Power	(*16)	-	88.7W			
8	Efficiency (Typ)	(*2)	-	72%			
9	Input Voltage Range	(*3)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC			
10	Input Current (100/200VAC) (Typ)	(*2)	A	1.2 / 0.6			
11	Inrush Current (Typ)	(*4)	-	14A at 100VAC, 28A at 200VAC, Ta=25°C, Cold Start			
12	PFHC		-	Designed to meet IEC61000-3-2			
13	Power Factor (100/200VAC) (Typ)	(*2)	-	0.99 / 0.93			
14	Output Voltage Range		V	5.0-5.25	+12/+15	-12/-15	2.0-3.63
15	Output Voltage Accuracy		-	-	±5%	±5%	-
16	Maximum Ripple & Noise	0 ≤ Ta ≤ +60°C	mV	120	150	150	120
	(*5)	-10 ≤ Ta < 0°C	mV	160	180	180	160
17	Maximum Line Regulation	(*5,6)	mV	20	48	48	20
18	Maximum Load Regulation	(*5,7)	mV	100	300	300	100
19	Temperature Coefficient		-	Less than 0.02% /°C			
20	Over Current Protection	(*8)	-	More than 93.1W of Total Output Power			
21	Over Voltage Protection	(*9)	V	5.7 - 7.0	16.5-22.5	16.5-22.5	3.79 - 4.95
22	Hold-Up Time (Typ)	(*10)	-	20 ms			
23	Leakage Current	(*11)	-	0.75mA MAX,0.2mA(Typ) at 100VAC / 0.44mA(Typ) at 230VAC			
24	Remote ON/OFF Control	(*14)		Possible			
25	Parallel Operation		-	-			
26	Series Operation		-	-			
27	Operating Temperature	(*12)	-	-10 - +60°C (-10 - +40°C : 100%, +60°C : 50%)			
28	Operating Humidity		-	30 - 90%RH (No Dewdrop)			
29	Storage Temperature		-	-30 - +85°C			
30	Storage Humidity		-	10 - 95%RH (No Dewdrop)			
31	Cooling		-	Convection Cooling			
32	Withstand Voltage			Input - FG : 2kVAC(20mA), Input - Output : 3kVAC (20mA) Output - FG : 500VAC(100mA), for 1min.			
33	Isolation Resistance		-	More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC			
34	Vibration		-	At no operating, 10-55Hz (Sweep for 1min) 19.6 m/s^2 Constant, X, Y, Z 1h each.			
35	Shock (In package)		-	Less than 196.1 m/s^2			
36	Safety	(*13)	-	Approved by UL62368-1, CSA C22.2 No.62368-1, EN62368-1,UL60950-1, CSA C22.2 No.60950-1 & EN60950-1. (Expire date of 60950-1 : 20/12/2020). Designed to meet DENAN			
37	EMI		-	Designed to meet EN55011/EN55032-B, FCC-ClassB, VCCI-B			
38	Immunity	(*15)	-	Designed to meet EN61000-4-2, -3, -4, -5, -6, -8, -11			
39	Weight (Typ)		-	750g			
40	Size (W x H x D)		mm	97 x 38 x 225 (Refer to Outline Drawing)			

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

=NOTES=

*1. For V2, V3,V4 stability, require minimum output current of V1.

*2. At 100/200VAC, Ta=25°C and total allowable 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. Refer to output measuring (A190-01-05_) for line & load regulation and ripple voltage.

*6. 85 - 265VAC , constant load.

*7. Minimum load - Full load, constant input voltage.

*8. Constant current limit with automatic recovery. Refer to test data (A190-53-01_). Not operate at over load or dead short condition for more than 30 seconds.

*9. OVP circuit will shut down all outputs, manual reset (Line recycle).

*10. At 100/200VAC, nominal output voltage and total allowable output power.

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

*12. At standard mounting.
- Load (%) is percent of total allowable output power or each maximum output current, whichever is greater.
For other mountings, refer to derating curve (A190-01-03_).

*13. As for DENAN, designed to meet at 100VAC.

*14. For using, refer to note (A190-01-05_).

*15. Refer to test data (A190-58-01_).

*16. Allowable output power is changed according to V4 voltage, refer to derating table (A190-01-03_).

*17. Operating period at peak current is less than 10sec.. (Duty≤0.35)

ZWQ80/L

A190-01-07/L-A

SPECIFICATIONS (FORCED AIR COOLING)

	MODEL / ITEMS			ZWQ80-5223/L			
				V1	V2	V3	V4
1	Nominal Output Voltage		V	+5	+12	-12	+3.3
2	Minimum Output Current	(*1)	A	1.4	0	0	0
3	Maximum Output Current		A	10.0	2.5	2.5	9.0
4	Total Allowable Output Power	(*2)	W	88.7			
5	Input Current (100/200VAC) (Typ	(*3)	A	1.6 / 0.8			
6	Operating Temperature	(*4)	-	-10 ~ +70°C (-10 ~+50°C : 100%, +70°C : 50%)			
7	Cooling	(*5)	-	Forced Air Cooling			

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

=NOTES=

*For other items, refer to convection cooling specifications (A190-01-01/L-_).

*1. For V2, V3,V4 stability, require minimum output current and above of V1.
When it is using under condition of forced air cooling, V1 minimum output current is same as convection cooling.

*2. Allowable output power is changed according to V4 voltage, refer to derating table (A190-01-04_).

*3. At 100/200VAC, Ta=25ºC total allowable output power.

*4. At standard mounting.
- Load (%) is percent of total allowable output power or each maximum output current, whichever is greater.
For other mountings, refer to derating curve (A190-01-04_).

*5. Air flow $\geq$ 0.85m^3/min(30cfm)