

ZWS15C/A

SPECIFICATIONS (1/2)

FA012-01-01/A

ITEMS		MODEL	ZWS15C-5/A	ZWS15C-12/A	ZWS15C-15/A	ZWS15C-24/A
INPUT						
Input Voltage Range	(*2)	-	85 - 265VAC (47 ~ 63Hz)			
Efficiency (Typ.)	(*1)	%	76 / 78	80 / 83	81 / 84	82 / 85
Input Current (Typ.)	(*1)	A	0.34 / 0.17	0.34 / 0.24		
Inrush Current (Typ.)	(*1)(*3)	-	30A / 60A at Cold Start			
PFHC		-	-			
Power Factor (Typ.)		-	-			
OUTPUT						
Nominal Output Voltage		V	5	12	15	24
Output Voltage Range		-	Fixed (Shipment condition : 5V : ±2% ; 12V,15V : ±2.5% ; 24V : ±3%)			
Maximum Output Current	100VAC	A	3.00	1.30	1.00	0.70
	200VAC			1.70	1.35	0.85
Maximum Output Power	100VAC	W	15.0	15.6	15.0	16.8
	200VAC			20.4	20.3	20.4
Maximum Line Regulation	(*4)(*5)	%	0.40	0.40	0.40	0.40
Maximum Load Regulation	(*4)(*6)	%	0.80	0.80	0.80	0.63
Temperature Coefficient	(*4)	-	Less than 0.02% / °C			
Maximum Ripple & Noise (*4)	0 ≤ Ta ≤ 70°C, 35 ~ 100% Load	mV	120	150	150	150
	-10 ≤ Ta < 0°C, 35 ~ 100% Load	mV	160	180	180	180
	-10 ≤ Ta ≤ 70°C, 0 ~ 35% Load	mV	200	240	240	240
Hold-up Time (Typ.)	(*10)	-	20ms			
Leakage Current	(*9)	-	Less than 0.15/0.30mA. (100VAC/230VAC, 60Hz)			
Over Current Protection	(*7)	-	> 105%			
Over Voltage Protection	(*8)	-	> 115%			> 112%
FUNCTION						
Remote ON/OFF Control		-	None			
Remote Sensing		-	None			
Parallel Operation		-	Not Possible			
Series Operation		-	Possible			
ENVIRONMENT						
Operating Temperature	(*11)	-	-10 to +60°C (-10 to +40°C : 100% ; +60°C : 40%)			
Storage Temperature		-	-30 to +75°C			
Operating Humidity		-	30 to 90%RH (No Condensing)			
Storage Humidity		-	10 to 95%RH (No Condensing)			
Vibration	(*12)	-	At no operating, 10 to 55Hz (Sweep for 1min) 19.6m/s ² Constant, X,Y,Z 1hour each.			
Shock	(*12)	-	At no operating, Less than 196.1m/s ²			
Cooling		-	Convection Cooling / Forced Air Cooling			
ISOLATION						
Isolation Class / Class of Protection		-	Class I (L,N,FG) or Class II (L,N)			
Withstand Voltage		-	Input - Output : 3kVAC (10mA), Input - FG : 2kVAC (10mA), Output - FG : 750VAC (20mA) for 1min			
Isolation Resistance		-	More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC			
STANDARD AND COMPLIANCE						
Safety		-	Approved by EN60335-1, IEC/UL/CSA/EN62368-1 (Attitude ≤ 4,000m) Approved by IEC/EN61558-1, IEC/EN61558-2-16 (Attitude ≤ 2,000m) Design to meet IEC60335-1, Den-an appendix 12 (J62368-1, J61558-1, J61558-2-16, J60335-1)			
Conducted Emission	(*12)	-	Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B			
Radiated Emission	(*12)	-	Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B			
Immunity	(*12)	-	Designed to meet IEC61000-6-2, IEC61000-4-2, -3, -4, -5, -6, -8, -11			
MECHANICAL						
Weight (Typ.)		g	120			
Size (W x H x D)		mm	59.0 x 33.5 x 81.3 (Refer to Outline Drawing)			

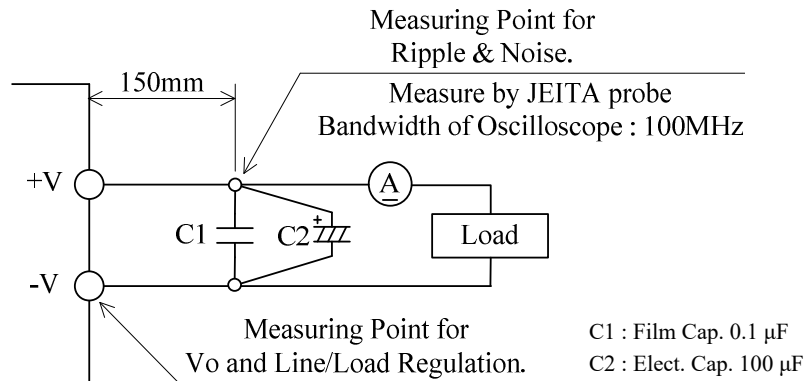
SPECIFICATIONS (2/2)

*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. Not applicable for the inrush current to noise filter for less than 0.2ms.
- *4. Please refer to Fig.A for measurement of Vo, Line&Load regulation and ripple voltage.
- *5. 85 - 265VAC, constant load.
- *6. No load to full load, constant input voltage.
- *7. Current limiting (Hiccup) with automatic recovery.
Avoid to operate at over load or short circuit condition.
- *8. Over voltage clamping by zener diode.
- *9. Measured by the each measuring method of UL, CSA, EN and DENAN (at 60Hz), Ta=25°C.
- *10. At 100VAC, Ta=25°C, nominal output voltage and 80% output power.
- *11. Output Deratings,
 - Convection cooling output derating. Refer to OUTPUT DERATING vs. AMBIENT TEMPERATURE (FA012-01-02/A_).
 - Forced air cooling output derating. Refer to OUTPUT DERATING vs. AMBIENT TEMPERATURE (FA012-01-03/A_).
 Load (%) is percent of maximum output power or maximum output current, whichever is greater.
It must not exceed its specification and derating.
- *12. The result is evaluated by TDK-Lambda standard measurement condition.
The power supply is considered a component which will be installed into a final equipment.
The final equipment should be re-evaluated that it meets EMC, Vibration and Shock directives.

Fig. A



OUTPUT DERATING (1/2)

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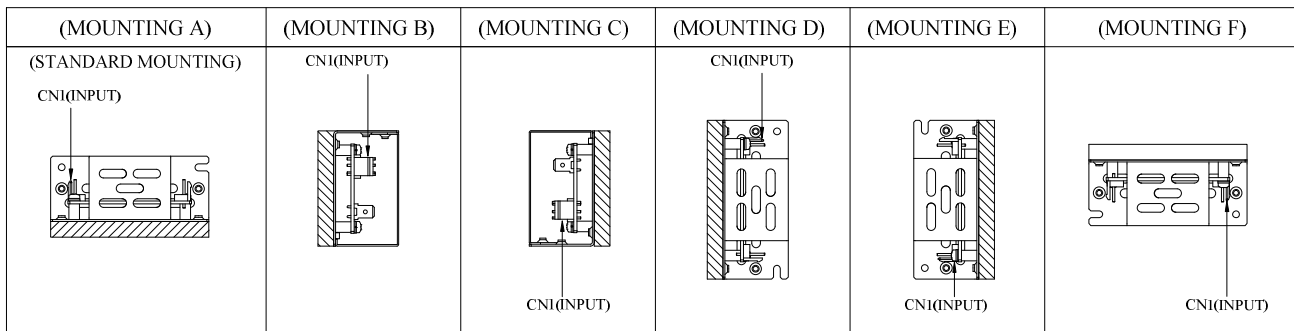
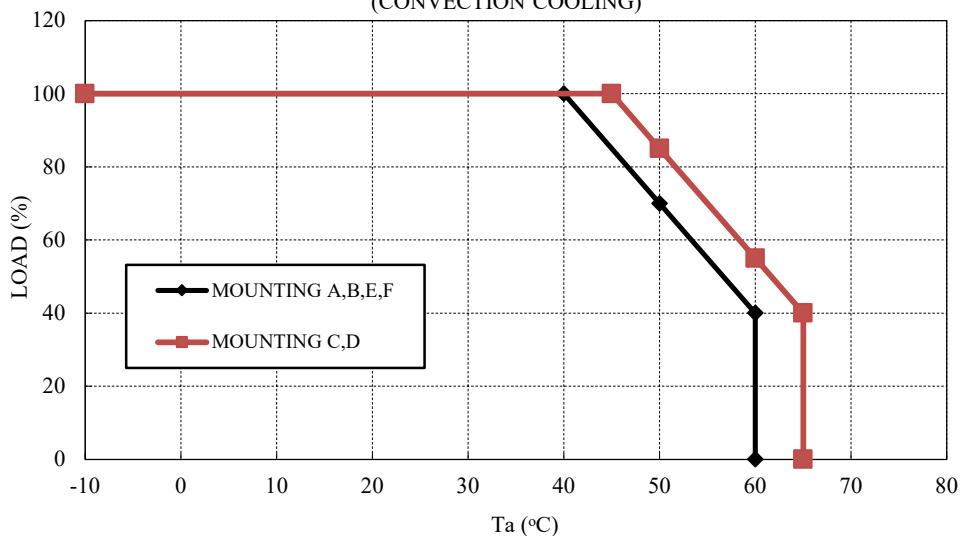
OUTPUT DERATING vs. AMBIENT TEMPERATURE

*COOLING : CONVECTION COOLING

Load (%) is percent of maximum output power or maximum output current, whichever is greater.
It must not exceed its specification and derating.

Ta (°C)	LOAD (%)	
	MOUNTING A,B,E,F	MOUNTING C,D
-10 - +40	100	100
45	85	100
50	70	85
60	40	55
65	-	40

LOAD vs. AMBIENT TEMPERATURE
(CONVECTION COOLING)



OUTPUT DERATING (2/2)

FA012-01-03/A

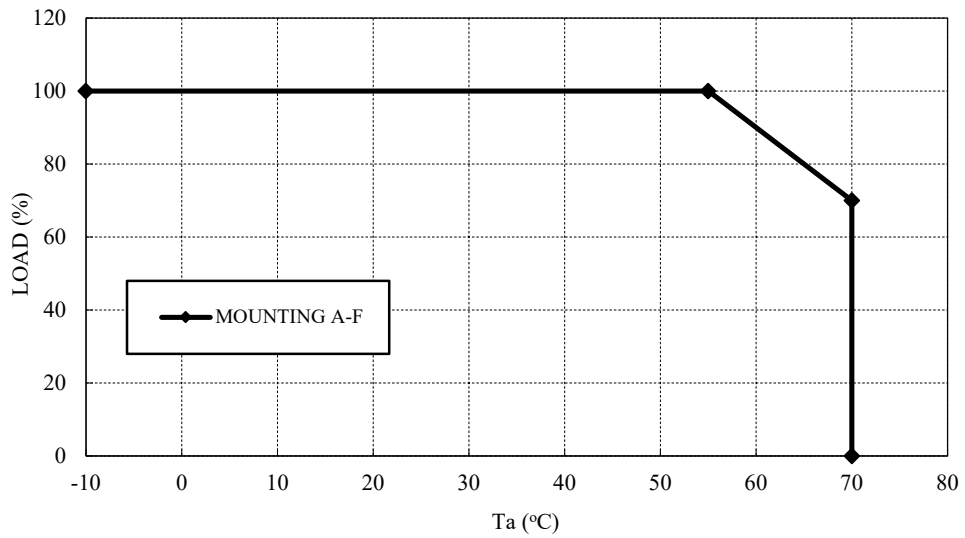
OUTPUT DERATING vs. AMBIENT TEMPERATURE

*COOLING : FORCED AIR COOLING

Load (%) is percent of maximum output power or maximum output current, whichever is greater.
It must not exceed its specification and derating.

Ta (°C)	LOAD (%)
	MOUNTING A,B,E,F
-10 - +55	100
70	70

Air velocity > 0.8m/s : Air must flow through components side.



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