

HWS600L/RF

SPECIFICATIONS

CA771-01-01/RF-B

ITEMS		MODEL	HWS600L -3/RF	HWS600L -5/RF	HWS600L -12/RF	HWS600L -15/RF	HWS600L -24/RF	HWS600L -36/RF	HWS600L -48/RF	HWS600L -60/RF	
1	Nominal Output Voltage	V	3.3	5	12	15	24	36	48	60	
2	Maximum Output Current (Peak Output Current) (*1)	A	120	120	53	43	27 (31)	18	13 (15)	10	
3	Maximum Output Power (Peak Output Power) (*1)	W	396	600	636	645	648 (744)	648	624 (720)	600	
4	Efficiency (Typ) (115/230VAC) (*2)	%	70 / 72	75 / 77	79 / 82	79 / 82	81 / 84	82 / 84	82 / 84	82 / 84	
5	Input Voltage Range (*3)	-	85 ~ 265VAC (47-63Hz) or 120 ~ 350VDC								
6	Input Current (Typ) (115/230VAC) (*2)	A	5.0 / 2.5	7.1 / 3.6							
7	Inrush Current (Typ) (*4)	-	20A/40A at 115VAC, 40A/40A at 230VAC, Ta=25°C (first inrush / second inrush)								
8	PFHC	-	Designed to meet IEC61000-3-2								
9	Power Factor (Typ) (115/230VAC) (*2)	-	0.98 / 0.95								
10	Output Voltage Range	V	2.64~3.96	4.0~6.0	9.6~14.4	12.0~19.5	19.2~28.8	28.8~43.2	38.4~56.0	48.0~66.0	
11	Ripple and Noise (115/230VAC) (*5)	0≤Ta≤60°C	mV	120	120	150	150	150	200	200	200
		-20≤Ta≤0°C	mV	160	160	180	180	180	240	240	240
12	Line Regulation (*5,6)	mV	20	20	48	60	96	144	192	240	
13	Load Regulation (*5,7)	mV	30	30	72	90	144	216	288	360	
14	Temperature Coefficient	-	Less than 0.02% / °C								
15	Over Current Protection (*8)	A	126~	126~	55.7~	45.1~	31.3~	18.9~	15.2~	10.5~	
16	Over Voltage Protection (*9)	V	4.12~5.61	6.25~7.25	15.0~17.4	20.2~23.4	30.0~34.8	45.0~52.2	58.5~68.2	69.0~81.0	
17	Hold-Up Time (Typ) (115/230VAC) (*2)	-	20ms								
18	Leakage current (*10)	-	Less than 0.75mA. 0.3mA (Typ) at 115VAC / 0.5mA (Typ) at 230VAC.								
19	Remote Sensing	-	Possible								
20	Remote ON/OFF control	-	Possible								
21	Monitoring Signal	-	ALM (Open Collector Output)								
22	Parallel Operation	-	Possible								
23	Series Operation	-	Possible								
24	Operating Temperature (*11)	-	- 20 ~ + 60°C (-20°C ~ +30°C: 100%, +40°C: 90%, +50°C: 75%, +60°C: 60%) 100% load start up at -40°C								
25	Operating Humidity	-	20 ~ 90 %RH (No dewdrop)								
26	Storage Temperature	-	- 40 ~ +85°C								
27	Storage Humidity	-	10 ~ 95%RH (No dewdrop)								
28	Cooling	-	Forced air by build-in fan (Exhaust mode)								
29	Withstand Voltage	-	Input - Output : 3.0kVAC (20mA), Input - FG : 2.0kVAC (20mA) Output - FG : 500VAC (100mA) (60V model: 651VAC, 130mA) Output - CNT/ALM/AUX : 100VAC (100mA) for 1min.								
30	Isolation Resistance	-	Input - FG, Input - Output and Output - FG: More than 50MΩ (500VDC) Output - CNT/ALM/AUX: More than 50MΩ (100VDC) at Ta=25°C and 70%RH								
31	Vibration (*12)	-	Designed to meet MIL-STD-810F 514.5 Category 4, 10								
32	Shock (In package)	-	Designed to meet MIL-STD-810F 516.5 Procedure I,VI								
33	Safety (*13)	-	Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020), EN50178, EN61010-1; Designed to meet DENAN								
34	Line Dip	-	Designed to meet SEMI-F47 (200VAC line only)								
35	EMI	-	Designed to meet VCCI-B, FCC-B, EN55011/EN55032-B								
36	Immunity	-	Designed to meet EN61000-4-2 (Level 2,3), -3 (Level 3), -4 (Level 3), -5 (Level 3,4), -6 (Level 3), -8 (Level 4), -11								
37	Weight (Typ)	-	1.6kg								
38	Dimension (W x H x D)	mm	120 x 61 x 190 (Refer to Outline Drawing)								

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

= NOTES=

*1: (): Peak Output Current is possible at 170~265VAC input range, operating period at Peak Output Current is less than 10sec, duty less than 35%. Average output power and current is less than Maximum Output Power and Maximum Output Current.

*2: At Maximum Output Power, nominal input voltage, Ta = 25°C.

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

*4: First/second inrush current, not applicable for the inrush current to Noise Filter for less than 0.2ms.

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

Ripple & noise are measured at 20MHz by using a twisted pair of load wires terminated with a 0.1uF and 47uF capacitor.

*6: 85 - 265VAC, constant load.

*7: No load - Full load (Maximum power), constant input voltage.

*8: Constant current limit with automatic recovery.

Avoid to operate at overload or dead short for more than 30 seconds.

*9: OVP circuit will shutdown output, manual reset (Remote ON/OFF control reset or Re-power on).

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

*11: Refer to Output Derating Curve (CA771-01-02/RF-) for details of output derating versus ambient temperature.

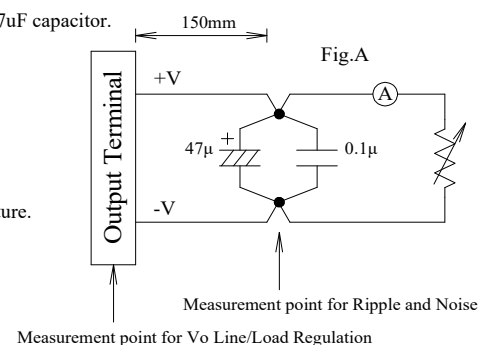
- Load (%) is percent of Maximum Output Power and Maximum Output Current (Item 2 and 3).

Do not exceed derating of Maximum Output Power and Maximum Output Current.

- 100% load start up at -40°C is possible. However, it may not fulfil all the specifications.

*12: Category 4 exposure levels: Trunk transportation over U.S. highways, Composite two-wheeled trailer.

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

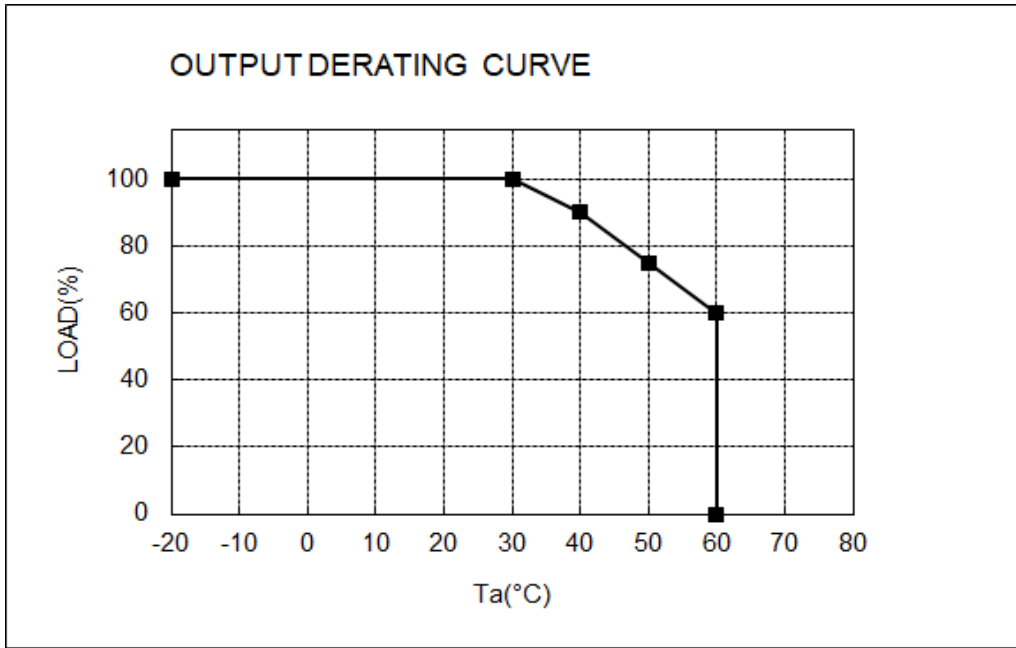


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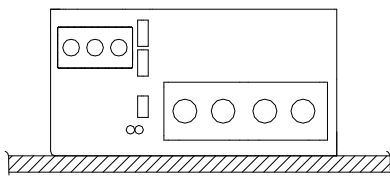
OUTPUT DERATING

CA771-01-02/RF

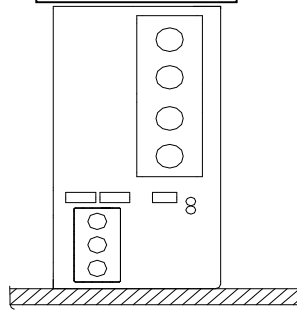
Ta(°C)	LOAD(%)
	Mounting A, B, C
-20~30	100%
40	90%
50	75%
60	60%



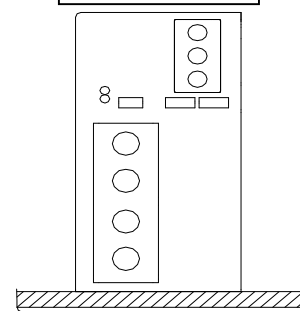
Mounting A



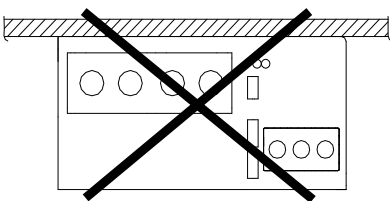
Mounting B



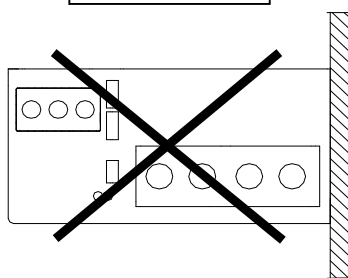
Mounting C



Don't Use



Don't Use



Don't Use

