

HWS30A/HD

SPECIFICATIONS

A256-01-01/HD-A

ITEMS		MODEL	HWS30A -3/HD	HWS30A -5/HD	HWS30A -12/HD	HWS30A -15/HD	HWS30A -24/HD	HWS30A -48/HD	
1	Nominal Output Voltage	V	3.3	5	12	15	24	48	
2	Maximum Output Current	A	6	6	2.5	2	1.3	0.65	
3	Maximum Output Power	W	20.0	30.0	30.0	30.0	31.2	31.2	
4	Efficiency (Typ.) (*1)	100VAC	%	75	80	84	85	86	86
		200VAC	%	77	82	86	87	88	87
5	Input Voltage Range (*2)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC						
6	Input Current (Typ.) (*1)	A	0.5/0.3	0.65/0.4					
7	Inrush Current (Typ.) (*1)(*3)	-	14A at 100VAC, 28A at 200VAC, Ta=25°C, Cold Start						
8	PFHC	-	Designed to meet IEC61000-3-2						
9	Output Voltage Range	V	2.97 - 3.96	4.0 - 6.0	9.6 - 14.4	12.0 - 18.0	19.2 - 28.8	38.4 - 52.8	
10	Maximum Ripple & Noise (*4)	0≤Ta<71°C	mV	120	120	150	150	150	200
		-10≤Ta<0°C	mV	160	160	180	180	180	240
11	Maximum Line Regulation (*5)	mV	20	20	48	60	96	192	
12	Maximum Load Regulation (*6)	mV	40	40	96	120	150	240	
13	Temperature Coefficient	-	Less than 0.02% / °C						
14	Over Current Protection (*7)	A	6.3 ≤	6.3 ≤	2.62 ≤	2.1 ≤	1.36 ≤	0.68 ≤	
15	Over Voltage Protection (*8)	V	4.13 - 4.95	6.25 - 7.25	15.0 - 17.4	18.8 - 21.8	30.0 - 34.8	55.2 - 64.8	
16	Hold-up Time (Typ.) (*1)	-	20ms						
17	Leakage Current (*9)	-	Less than 0.5mA. 0.2mA (Typ) at 100VAC / 0.4mA (Typ) at 230VAC						
18	Remote Sensing	-	-						
19	Parallel Operation	-	-						
20	Series Operation	-	Possible						
21	Operating Temperature (*10)	-	-10 to +71°C (-10 to +50°C:100%, +60°C:60%, +71°C:40%) Guarantee Start up at -40 to -10°C						
22	Operating Humidity	-	30 to 90%RH (No Condensing)						
23	Storage Temperature	-	-40 to +85°C						
24	Storage Humidity	-	10 to 95%RH (No Condensing)						
25	Cooling	-	Convection Cooling						
26	Withstand Voltage	-	Input - FG : 2kVAC (20mA), Input - Output : 3kVAC (20mA) Output - FG : 500VAC (20mA) for 1min						
27	Isolation Resistance	-	More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC						
28	Vibration (*11)	-	At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s ² Constant, X,Y,Z 1hour each. Designed to meet MIL-STD-810F 514.5 Category 4, 10						
29	Shock	-	Less than 196.1m/s ² Designed to meet MIL-STD-810F 516.5 Procedure I, VI						
30	Safety	-	Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1 (Expire date of 60950-1 : 20/12/2020) Designed to meet Den-an Appendix 8 at 100VAC only.						
31	Line DIP	-	Designed to meet SEMI-F47 (200VAC Line only)						
32	Conducted Emission (*12)	-	Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B						
33	Radiated Emission (*12)	-	Designed to meet EN55011/EN55032-B, FCC-B, VCCI-B						
34	Immunity (*12)	-	Designed to meet IEC61000-6-2 IEC61000-4-2, -3, -4, -5, -6, -8, -11						
35	Weight (Typ.)	-	200g						
36	Size (W x H x D)	mm	26.5 x 82 x 95 (Refer to Outline Drawing)						

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

=NOTES=

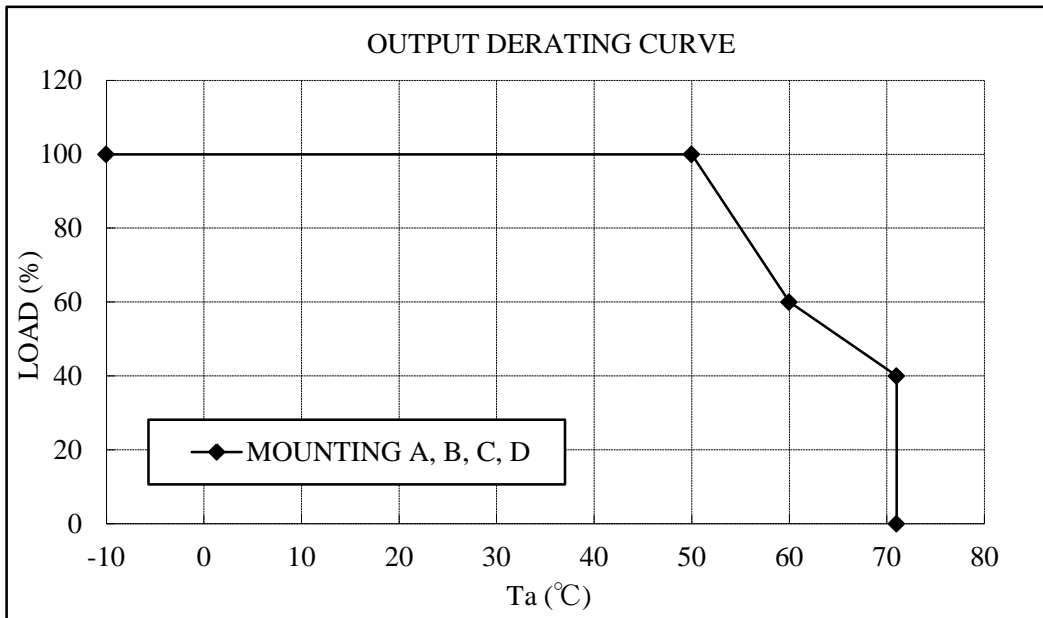
- *1. At 100VAC/200VAC, Ta=25°C, nominal output voltage and maximum output power.
- *2. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 240VAC(50 - 60Hz).
- *3. Not applicable for the inrush current to Noise Filter for less than 0.2ms.
- *4. Measure with JEITA RC-9131B probe, Bandwidth of scope :100MHz.
For start up at low ambient temperature and low input voltage, output ripple noise might not meet specification.
However, specification can be met after one second.
- *5. 85 - 265VAC, constant load.
- *6. No load-Full load, constant input voltage.
- *7. Hiccup with automatic recovery. Avoid to operate at over load or short circuit condition.
- *8. OVP circuit will shut down output, manual reset (Re power on).
- *9. Measured by the each measuring method of UL, CSA, EN and Den-an (at 60Hz), Ta=25°C.
- *10. Output Derating
 - Derating at standard mounting. Refer to OUTPUT DERATING CURVE (A256-01-02/HD-).
 - Load (%) is percent of maximum output power or maximum output current, do not exceed its derating of maximum load.
 - For conditions of start up at -40°C to -10°C, refer to derating curve (A256-01-03/HD-).
- *11. Category 4 exposure levels : Track transportation over U.S. highways, Composite two-wheeled trailer.
- *12. 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 directives.

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OUTPUT DERATING

A256-01-02/HD

Ta (°C)	LOAD (%)
	MOUNTING A, B, C, D
-10 - +50	100
60	60
71	40



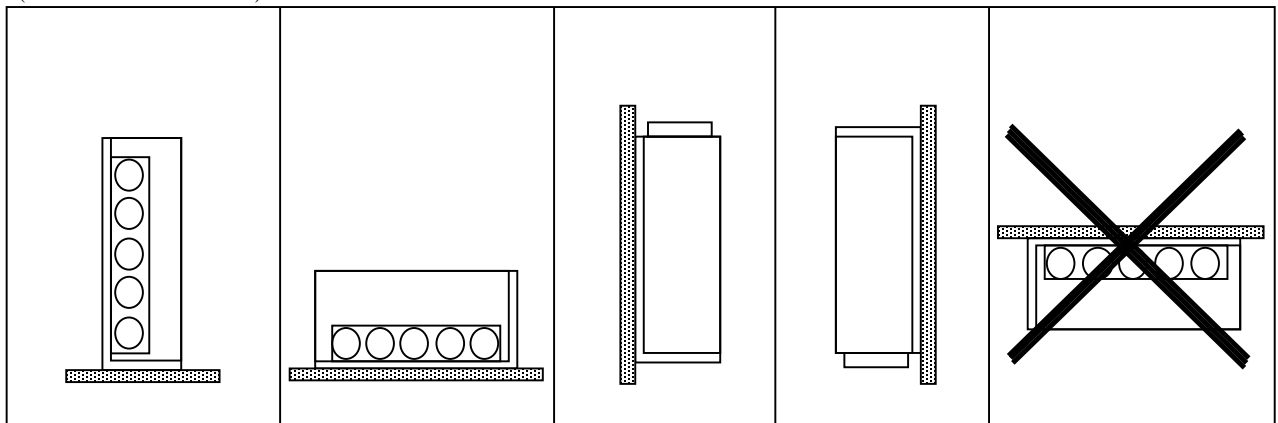
MOUNTING A
(STANDARD MOUNTING)

MOUNTING B

MOUNTING C

MOUNTING D

DON'T USE

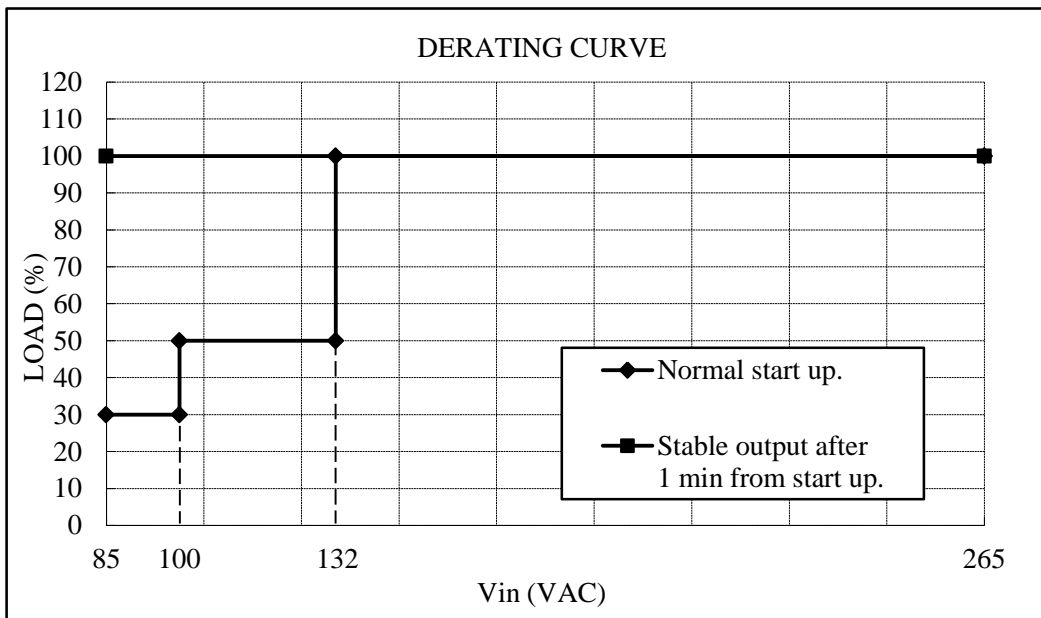


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DERATING TO START UP AT Ta : -40 to -10°C

A256-01-03/HD

Input Voltage : Vin (VAC)	LOAD (%)	
	Normal start up.	Stable output after 1 min from start up.
$85 \leq V_{in} < 100$	30	100
$100 \leq V_{in} < 132$	50	100
$132 \leq V_{in} \leq 265$	100	100



=NOTES=

- *At Ta : -40 to -10°C.
- *Input voltage : Not gradual start up.
- *Do not use the load that is constant current mode.
- *Avoid forced air cooling. It is assumed that inside of power supply is heated by self-heating within 1 minutes.
- *No condensing.
- *Pay attention to above items before using the unit. Incorrect usage could lead to unstable output voltage.