

HWS150A/EHA

SPECIFICATIONS (1/2)

A288-01-01/EHA

ITEMS		MODEL	HWS150A -12/EHA	HWS150A -15/EHA	HWS150A -24/EHA	HWS150A -48/EHA
INPUT						
Input Voltage Range	(*)(*3)	-	85 - 265VAC (47 - 63Hz) or 120 - 370VDC			
Efficiency(Typ.)	(*)100/200VAC	%	85 / 88	86 / 89	88 / 90	89 / 91
Input Current(Typ.)	(*)100/200VAC	A	1.9 / 0.95			
Inrush Current (Typ.)	(*)(*4)100/200VAC	A	14 / 28 (Cold Start)			
Power Factor (Typ.)	(*)100/200VAC	-	0.98 / 0.93			
OUTPUT						
Nominal Output Voltage		V	12	15	24	48
Output Voltage Initial set Accuracy	(*)13	-	±1%			
Maximum Output Current		A	13	10	6.5	3.3
Maximum Output Power		W	156	150	156	158.4
Maximum Line Regulation	(*)6	mV	48	60	96	192
Maximum Load Regulation	(*)7	mV	96	120	150	240
Temperature Coefficient		-	Less than 0.02% / °C			
Maximum Ripple & Noise	0<Ta<70°C	mV	150	150	150	200
	(*)5 -10<Ta<0°C	mV	180	180	180	240
Output Voltage Range		V	9.6 - 14.4	12.0 - 18.0	19.2 - 28.8	38.4 - 52.8
Hold-up Time (Typ.)	(*)1	ms	20			
Leakage Current	(*)10	-	Less than 0.5mA. 0.2mA (Typ) at 100VAC / 0.4mA (Typ) at 230VAC			
Over Current Protection	(*)8	A	13.6 ≤	10.5 ≤	6.82 ≤	3.46 ≤
Over Voltage Protection	(*)9	V	15.0 - 17.4	18.8 - 21.8	30.0 - 34.8	55.2 - 64.8
FUNCTION						
Remote ON/OFF Control		-	-			
Remote Sensing		-	-			
Parallel Operation		-	-			
Series Operation		-	Possible			
ENVIRONMENT						
Operating Temperature	(*)11	-	-10 to +70°C (-10 to +50°C:100%, +60°C:60%, +70°C:20%)			
Storage Temperature		-	-30 to +85°C			
Operating Humidity		-	30 to 90%RH (No Condensing)			
Storage Humidity		-	10 to 95%RH (No Condensing)			
Vibration	(*)12	-	At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s ² Constant, X,Y,Z 1hour each.			
Shock	(*)12	-	Less than 196.1m/s ²			
Cooling		-	Convection Cooling			
ISOLATION						
Withstand Voltage		-	Input - FG : 2kVAC (20mA), Input - Output : 3kVAC (20mA) Output - FG : 500VAC (20mA) for 1min			
Isolation Resistance		-	More than 100MΩ at 25°C and 70%RH Output - FG : 500VDC			
STANDARD AND COMPLIANCE						
Safety		-	Approved by IEC/UL/CSA/EN62368-1 (Altitude ≤ 4,000m) Approved by IEC/EN62477-1 (OVCI) (Altitude ≤ 2,000m) Approved by UL508, CSA C22.2 No.107.1-01. Designed to meet Den-an Appendix 8 at 100VAC (creepage distance and clearance only)			
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			
Harmonic Current		-	Designed to meet IEC61000-3-2			
Immunity	(*)12	-	Designed to meet IEC61000-6-2 IEC61000-4-2, -3, -4, -5, -6, -8, -11			
Line DIP		-	Designed to meet SEMI-F47 (200VAC Line only)			
MECHANICAL						
Weight (Typ.)		g	520			
Size (W x H x D)		mm	42 x 82 x 175.5			

SPECIFICATIONS (2/2)

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*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 is required to meet various safety specs (UL, CSA, EN), Input voltage range shall be from 100 - 240VAC (50-60Hz).
- *3. Output derating needed when input voltage less than 90VAC. Refer to OUTPUT DERATING CURVE (A288-01-02/EHA-).
- *4. Not applicable for the inrush current to Noise Filter for less than 0.2ms.
- *5. Refer to instruction manual (A286-04-01) for measurement of ripple voltage.
- *6. 85 - 265VAC, constant load.
- *7. No load-Full load, constant input voltage.
- *8. Constant current limit and Hiccup 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 Den-an (at 60Hz), Ta=25°C.
- *11. Output Derating
 - Derating at standard mounting. Refer to OUTPUT DERATING CURVE (A288-01-02/EHA-).
 - Load (%) is percent of maximum output power or maximum output current, do not exceed its derating of maximum load.
- *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.
- *13. Output voltage setting at the time of shipment. At 100VAC, nominal output voltage and maximum output current.

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OUTPUT DERATING

A288-01-02/EHA

Ta (°C)	LOAD (%)	
	MOUNTING A	MOUNTING B, C, D
-10 - +30	100	100
50	100	60
60	60	35
70	20	10

*Refer to dotted line for output derating curve, when input voltage range is " $85 \leq V_{in} < 90$ " for the MOUNTING A.

