

CLASS I & II (VI)

Product Features

- Medical & I.T.E. safety approvals
- 2 MOPP input to output isolation
- Leakage current: $\leq 100\mu\text{A}$
- Energy Efficiency Level VI
- $\leq 0.5\text{W}$ standby power
- Up to 5,000m operating altitude
- 320W convection cool, 500W force air provided by user



Models & Ratings

Model Number	Voltage ^(*1) (V)	Current at convection (A)	Current at 25 CFM (A)	Rated Power (W)	Ripple & Noise (max)(*2)	Voltage Tolerance	Line & Load Regulation	Efficiency (Average)	Start Up Delay
UES320-XXXYYYSPA-OP	11.0-12.0	0.01-26.60	0.01-41.60	319.2/499.2	150mVpk-pk	±5%	Line: ±1% Load: ±5%	92.0%	≤3s
	12.1-13.0	0.01-24.60	0.01-38.40	319.8/499.2	150mVpk-pk	±5%		92.0%	≤3s
	13.1-14.0	0.01-22.80	0.01-35.70	319.2/499.8	150mVpk-pk	±5%		92.0%	≤3s
	14.1-15.0	0.01-21.30	0.01-33.30	319.5/499.5	150mVpk-pk	±5%		92.0%	≤3s
	18.0-19.0	0.01-16.80	0.01-26.30	319.2/499.7	150mVpk-pk	±5%		92.0%	≤3s
	19.1-20.0	0.01-16.00	0.01-25.00	320.0/500.0	200mVpk-pk	±5%		93.0%	≤3s
	20.1-21.0	0.01-15.20	0.01-23.80	319.2/499.8	200mVpk-pk	±5%		93.0%	≤3s
	21.1-22.0	0.01-14.50	0.01-22.70	319.0/499.4	200mVpk-pk	±5%		93.0%	≤3s
	22.1-23.0	0.01-13.90	0.01-21.70	319.7/499.1	200mVpk-pk	±5%		93.0%	≤3s
	23.1-24.0	0.01-13.30	0.01-20.80	319.2/499.2	200mVpk-pk	±5%		93.0%	≤3s
	24.1-25.0	0.01-12.80	0.01-20.00	320.0/500.0	200mVpk-pk	±5%		93.0%	≤3s
	25.1-26.0	0.01-12.30	0.01-19.20	319.8/499.2	200mVpk-pk	±5%		93.0%	≤3s
	36.0-37.0	0.01-8.60	0.01-13.50	318.2/499.5	300mVpk-pk	±5%		93.0%	≤3s
	37.1-38.0	0.01-8.40	0.01-13.15	319.2/499.7	300mVpk-pk	±5%		93.5%	≤3s
	38.1-39.0	0.01-8.20	0.01-12.80	319.8/499.2	300mVpk-pk	±5%		93.5%	≤3s
	39.1-40.0	0.01-8.00	0.01-12.50	320.0/500.0	300mVpk-pk	±5%		93.5%	≤3s
	47.1-48.0	0.01-6.65	0.01-10.40	319.2/499.2	300mVpk-pk	±5%		93.5%	≤3s
	48.1-49.0	0.01-6.50	0.01-10.20	318.5/499.8	300mVpk-pk	±5%		94.0%	≤3s
	49.1-50.0	0.01-6.40	0.01-10.00	320.0/500.0	300mVpk-pk	±5%		94.0%	≤3s
	50.1-51.0	0.01-6.20	0.01-9.80	316.2/499.8	300mVpk-pk	±5%		94.0%	≤3s
	51.1-52.0	0.01-6.15	0.01-9.60	319.8/499.2	300mVpk-pk	±5%		94.0%	≤3s
	52.1-53.0	0.01-6.00	0.01-9.40	318.0/498.2	300mVpk-pk	±5%		94.0%	≤3s
	53.1-54.0	0.01-5.90	0.01-9.25	318.6/499.5	300mVpk-pk	±5%		94.0%	≤3s
Standby Power	5.0	0.01-1.00		5.0	120mVpk-pk				
FAN	12.0	0.01-0.50		6.0					

Notes

(*1) Other options are available, please contact our sales representative for details.

(*2) Measured at output connector with 20MHz bandwidth and 0.1uF ceramic in parallel with 47uF electrolytic capacitors

Input

Input Voltage Range	80-264VAC(80-115VAC refer to derating curve)
Frequency Range	47-63Hz
Input Current	6.3A max
Inrush Current	120A max at 240VAC cold start
Touch Leakage Current ^(max)	≤100μA at 264VAC

Environmental

Operating Temperature	-30°C to 70°C(30°C to 70°C refer to derating curve)
Storage Temperature	-40°C to 80°C
Operating Humidity	5% to 90% RH, non-condensing
Storage Humidity	5% to 95% RH
Operating Altitude	5,000m

General

Dimensions	127.0(L)x76.2(W)x41.0(H)mm 5x3"
Power supply power density	0.806W/cm ³
Weight	480g
MTBF	>100,000hrs MIL-HDBK-217 at 25°C

Protection

Overload	120-160% rated output power, auto recovery
Over Voltage	110-130% rated output voltage input to reset
Short Circuit	Trip and restart (hiccup mode)

Safety Approvals

Safety Agency / Mark	Medical(meet)	ITE(meet)
CB	IEC60601-1	IEC62368-1
TUV-Mark	EN60601-1	-
NRTL	ANSI/AAMI ES60601-1 CAN/CSA-C22.2 NO. 60601-1	UL62368-1

EMC

Emission	Medical	ITE
Conduction	IEC/EN60601-1-2,CISPR 11(*1)	EN55032, CISPR 32
Radiation	IEC/EN60601-1-2,CISPR 11(*2)	EN55032, CISPR 32
Harmonic Currents	EN61000-3-2, Class A	EN61000-3-2, Class A
Voltage Flicker	EN61000-3-3	EN61000-3-3
Immunity	IEC/EN60601-1-2	EN55035, CISPR 35
ESD	IEC61000-4-2 ±15KV air, ±8KV contact	
Radiated Immunity	IEC61000-4-3 10V/m ,3V/m 80MHz - 2.7GMHz	
EFT/Burst	IEC61000-4-4 ±2KV on AC port, ±1KV on signal ports	
Surge	IEC61000-4-5 ±2KV line - line ,±4KV line - earth	
Conducted Immunity	IEC61000-4-6 3Vrms, 6Vrms (0.15MHz-80MHz)	
Magnetic Field	IEC61000-4-8 30 A/m	
Dips & Interruptions	IEC61000-4-11 0%, 70%, 0% of UT	

NOTE:

The power supply is considered a component which will be installed into a final equipment. All EMC tests are executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives.

Others

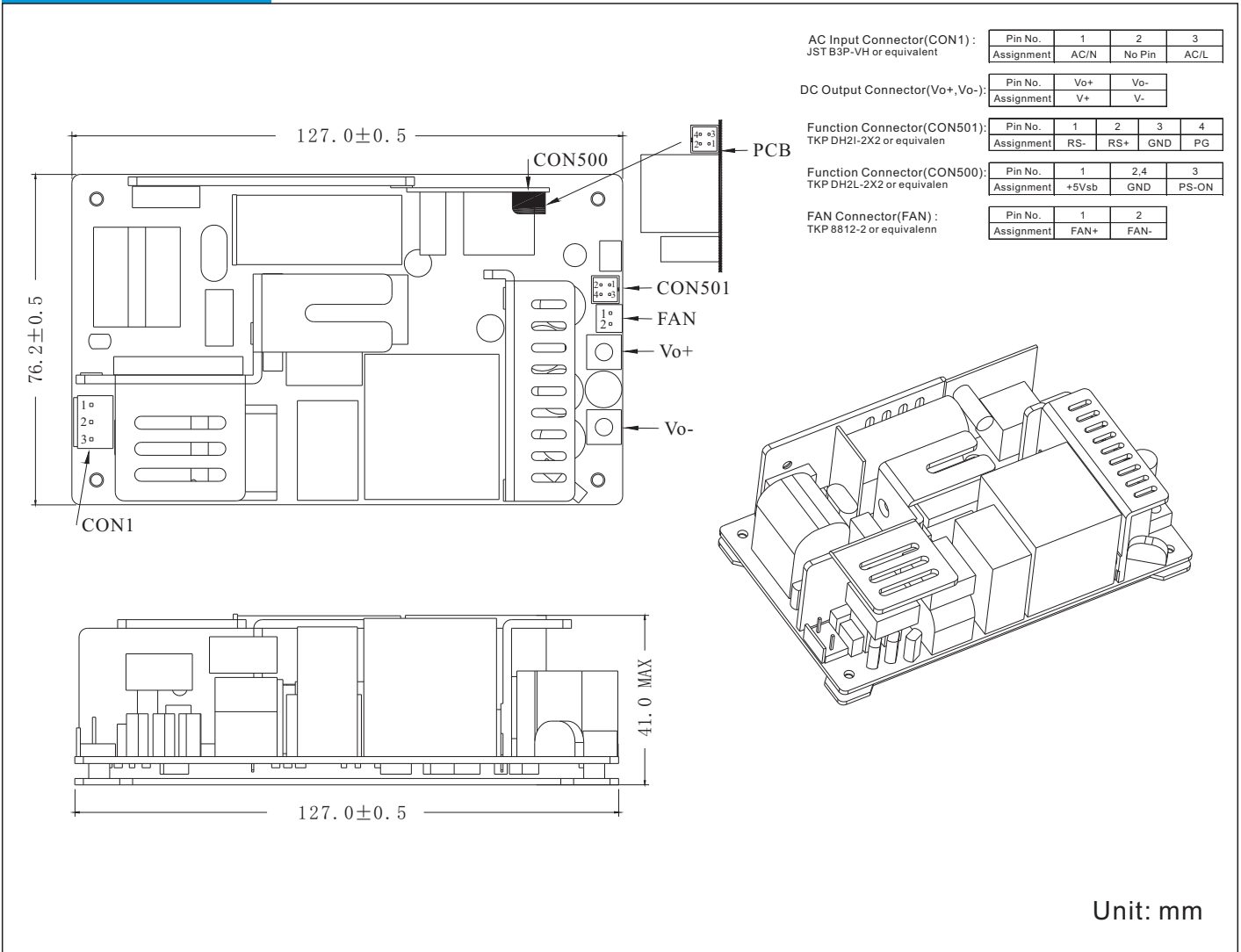
Dielectric Withstand Voltage	4000VAC input to output
Insulation Resistance	100M Ohms, 500VDC input to output

Notes

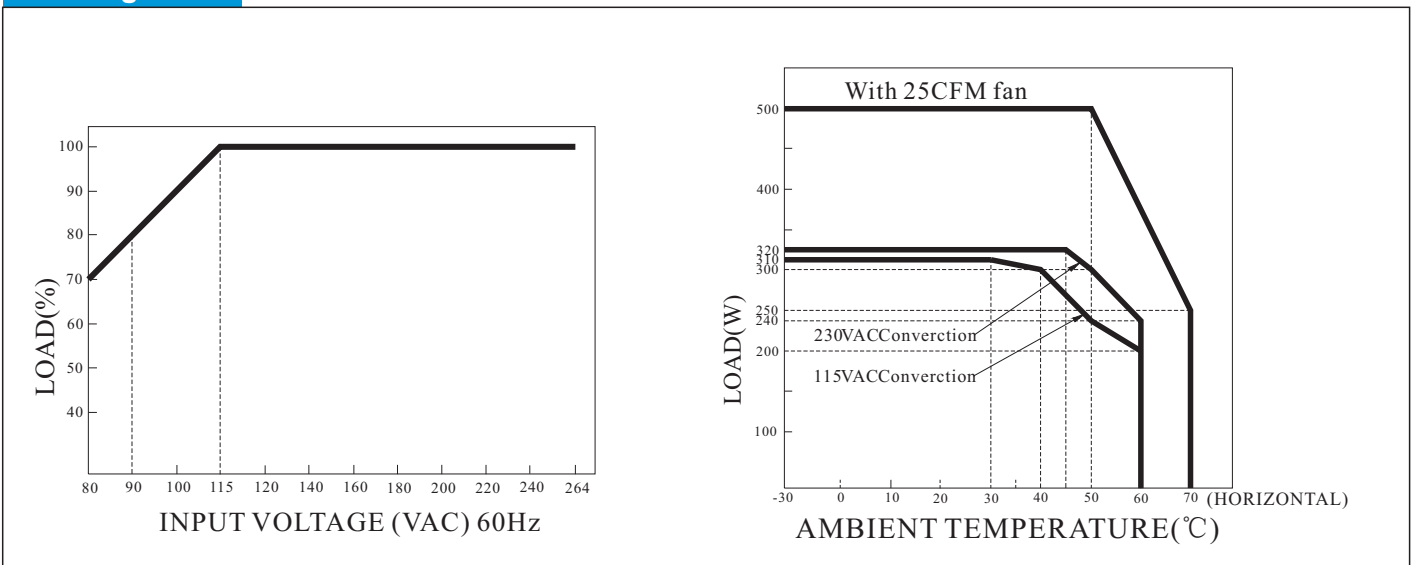
(*1) Class I meets Class B,Class II meets Class A.

(*2) Class I meets Class A,Class II meets Class A.

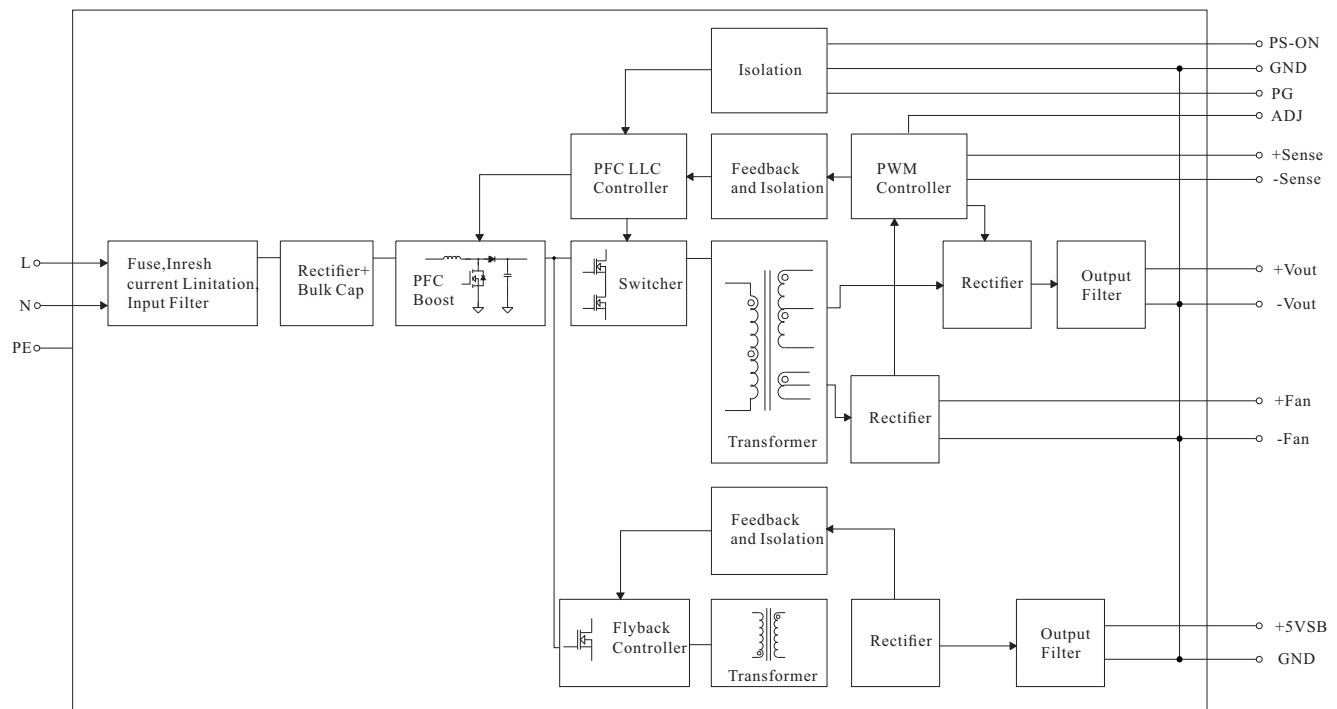
Mechanical Details



Derating Curve



Block Diagram



PS-ON INPUT SIGNAL:

Power ON: PS-ON = "Hi" or " $> 2 \sim 5V$ "; Power OFF: PS-ON = "Low" or " $< 0 \sim 0.5V$ ".

POWER GOOD / POWER FAIL:

$500ms > PG > 10ms$; The TTL signal goes high with 10ms to 500ms delay after power set up;

The TTL signal goes low at least 1ms before V_o below 90% of rated value.

12V FAN SUPPLY:

$12V @ 0.5A$ for driving fan;

Tolerance $-15\% \sim +10\%$ at main output 20% rated current (25CFM).

5V STANDBY:

$5V_{sb}$: $5V @ 0.6A$ without fan, $1A$ with fan 25CFM;

Tolerance $\pm 2\%$, ripple: $120mV_{p-p}(\text{max.})$.