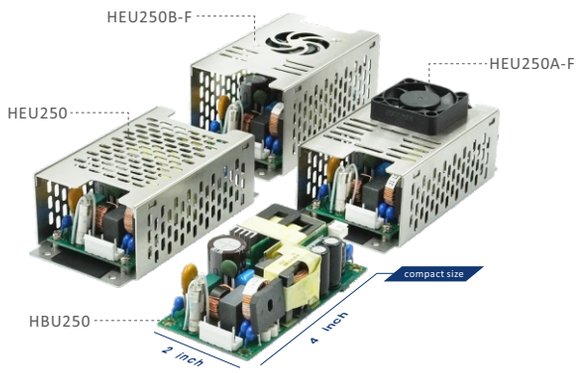
Volgen

Medical & ITE Dual Safety Standards

HBU250 / HEU250 series V1.15

250W Medical Power Supply

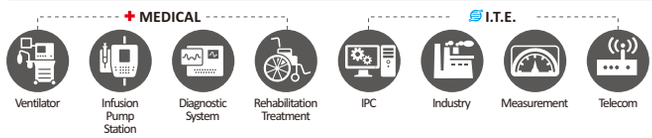
HBU250 / HEU250 series is a power supply with medical and ITE safety approvals that provides 250 Watts output power and is available in 12V-48V output with options for open-frame (2”x4”x1.28”) and cover with fan. The series features a wide operating temperature of -40°C to +70°C. All units pass burn-in test at full load condition.



FEATURES:

* Wide Operating Voltage, 85 to 264VAC, 47 to 63 Hz
* Single Output from 12V to 48V
* Protection: OVP, OLP, OTP, SCP
* Size: 2”x4”x1.28”, 24.41W/in^3
* Input to Output:2MOPP
* High Surge Immunity
* Efficiency Up to 93%
* Peak 300W(90 to 264 VAC)(See FIG.3 On Page 2)
* 3-Year Warranty for Power Supply

APPLICATIONS:



GENERAL SPECIFICATION:

* 150W Full Load at Free Air Convection, 250W with 8CFM Forced Air.
* Protection Classes: Class I (Meet Class II, See Specification Note 9. at Page 2)
* Safety: IEC 62368-1 Edition 2.0, IEC 62368-1 Edition 3.0,
  EN 62368-1, UL62368-1, CAN/CSA-C22.2 NO.62368-1,
  IEC 60601-1 Edition 3.1, IEC 60601-1 Edition 3.2,
  EN60601-1, ANSI/AAMI ES60601-1,
  CAN/CSA-C22.2 NO. 60601-1

APPROVALS:

Electrical Characteristics:

Characteristic	Condition	Min.	Typ.	Max.	Unit
Safety Approval Input Voltage Range	Safety Approval & Specification in Label	100		240	VAC
Input Operate Voltage Range	See Fig.1 for Detail	85		264	VAC
Input Frequency	Sine Wave	47		63	Hz
Power Factor Correction	Io=Full Load, Vin=Vins	0.9		1	
Output Power Range	See Rating Chart			250	W
Low Line Input Current	Full Load, Vin=100VAC		3.1		A
High Line Input Current	Full Load, Vin=240VAC		1.3		A
Low Line Input Inrush Current	Full Load, 25°C, Cool Start, Vin=100VAC			20	A
High Line Input Inrush Current	Full Load, 25°C, Cool Start, Vin=240VAC			40	A
Safety Ground Leakage Current	Vin=240VAC, Fi=60Hz		0.25		mA
Efficiency	Full Load, Vin=230VAC, See Rating Chart for Detail	See Rating Chart			
Line Regulation	Full Load, Vin=100~120VAC or 200~240VAC			1	%
Over Temperature Protection	Main Nominal Output, Recovers Automatically when the Fault Condition is Removed				
Over Voltage Protection	Main Nominal Output, Latch Protection	112		132	%
Over Load Protection	Recovers Automatically when the Fault Condition is Removed @250W	120		150	%
Time of Transient Response	Io=Full Load to Half Load, Vin=110VAC			4	ms
Hold-Up Time	Full Load, Vin=110VAC@250W			10	ms
Start-Up Time	Full Load, Vin=100~240VAC		1		s
Insulation Resistance		50			MΩ
Temperature Coefficient	All Condition			±0.04	%/°C
Dielectric Withstanding Voltage (P-S)	Primary to Secondary, Limit Current <10mA			4000	VAC
Dielectric Withstanding Voltage (P-G)	Primary to PE, Limit Current <10mA			1500	VAC
EMC Emission	Compliant with EN55011 (CISPR11), EN60601-1-2, EN55032(CISPR 32)	B			Class

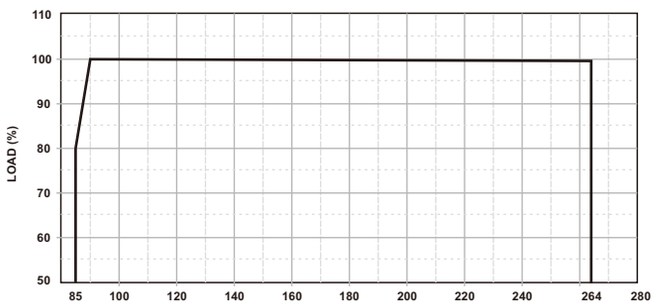
Environmental:

Characteristic	Condition	Min.	Typ.	Max.	Unit
Operating Temperature	See Fig.2 for Detail (Derate Linearly from 100% Load at 50°C to 50% Load at 70°C)	-40		70	°C
Storage Temperature	10 ~ 95% RH	-40		85	°C
Operating Humidity	Non-Condensing	0		95%	RH
Storage Humidity		0		95%	RH
Electro Static Discharge	Air Discharge, IEC61000-4-2			15	kV
Electro Static Discharge	Contact Discharge, IEC61000-4-2			8	Kv
Mean Time Between Failure	Operating Temperature at 25°C, Nominal Line, Calculated per MIL-HDBK-217F	300k			h
Operating Altitude (Elevation)				5000	m
Vibration	10 ~ 500Hz, 10min./1Cycle, 60min. Each Along X, Y, Z Axes			5	G
Surge Voltage	Line-Neutral			1	kV
Surge Voltage	Line-PE & Neutral-PE			2	kV

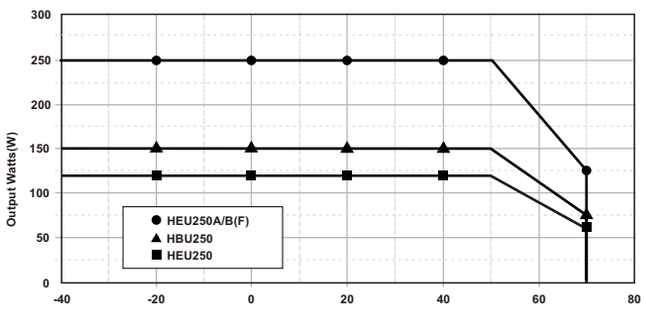
2023.10

SPECIFICATION NOTE :

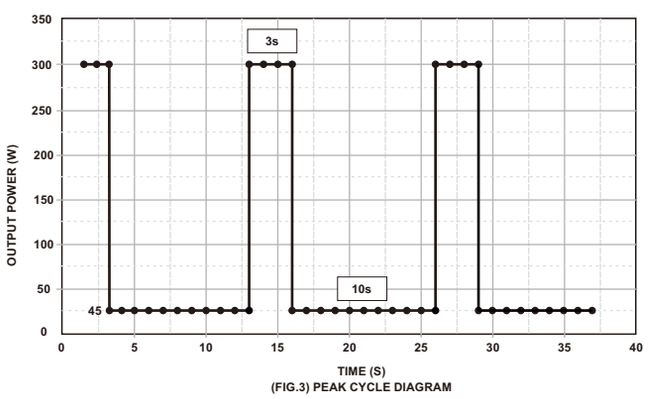
1. HEU250A-F and HEU250B-F series support a peak load 3 sec. max of 300 W for 3 seconds in every 13 seconds.(Refer FIG 3.)
2. HBU250 and HEU250 series support a peak load 3 sec. max of 300 W for 3 seconds in every 30 seconds.(Refer FIG 4.)
3. At factory, in 60% rated load condition, each output is checked to be within voltage accuracy.
4. Line regulation is defined by changing ±10% of input voltage from nominal line at rated load.
5. Load regulation is defined by changing ±40% of measured output load from 60% rated load.
6. The ripple is measured from peak to peak with a bandwidth-limit of 20MHz (Measured at the output connector with a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor).
7. Hold up time is measured from the end of the last charging pulse to the time which the main output drops down to low limit of main output at rated load and nominal line.
8. Efficiency is measured at rated load, and nominal line.
9. Compliance with the requirement of EMC (Class II equipment) shall be insert appropriate ferrite core, please contact us for more information.



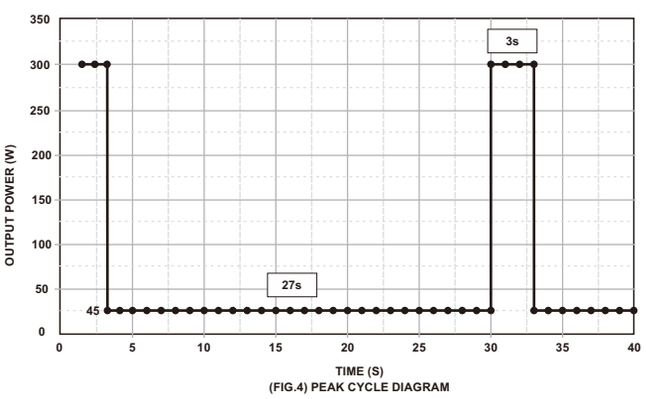
(FIG.1) INPUT VOLTAGE DERATING CURVE



(FIG.2) TEMPERATURE DERATING CURVE



(FIG.3) PEAK CYCLE DIAGRAM



(FIG.4) PEAK CYCLE DIAGRAM

EMC SPECIFICATIONS:

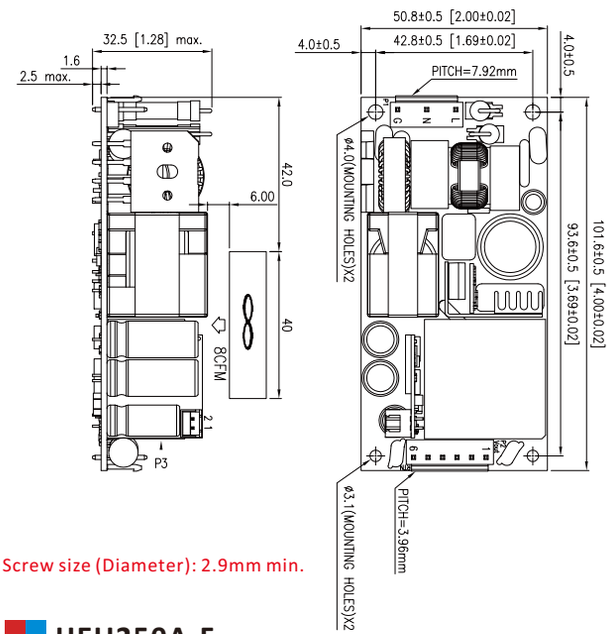
EMISSION		
ITEM	STANDARD	RESULT
Conducted	EN 55011, EN 55032	CLASS B
Radiated	EN 55011, EN 55032	CLASS B
Harmonics	EN 61000-3-2	CLASS A, CLASS D
Flicker	EN 61000-3-3	PASS

	ITEM	STANDARD	RESULT	CRITERION
IMMUNITY	ESD	IEC 61000-4-2	15KV air discharge, 8KV contact discharge	A
	RS	IEC 61000-4-3	PASS	A
	EFT	IEC 61000-4-4	Power line 2KV, 5 or 100KHz	A
	SURGE	IEC 61000-4-5	1KV line to line 2KV line to PE	A
	CS	IEC 61000-4-6	3Vrms, 6Vrms	A
	PFMF	IEC 61000-4-8	30A/m,50Hz	A
	Voltage dips	IEC 61000-4-11	I) 100% reduction for 0.5 cycle at 50Hz	A
			ii) 100% reduction for 1 cycle at 50Hz	A
			iii) 30% reduction for 25/30 cycles at 50/60Hz	A
	Voltage interruptions	IEC 61000-4-11	100% reduction for 250/300 cycles at 50/60Hz	B

MECHANICAL DIMENSIONS: (UNIT: mm [inch])

HBU250

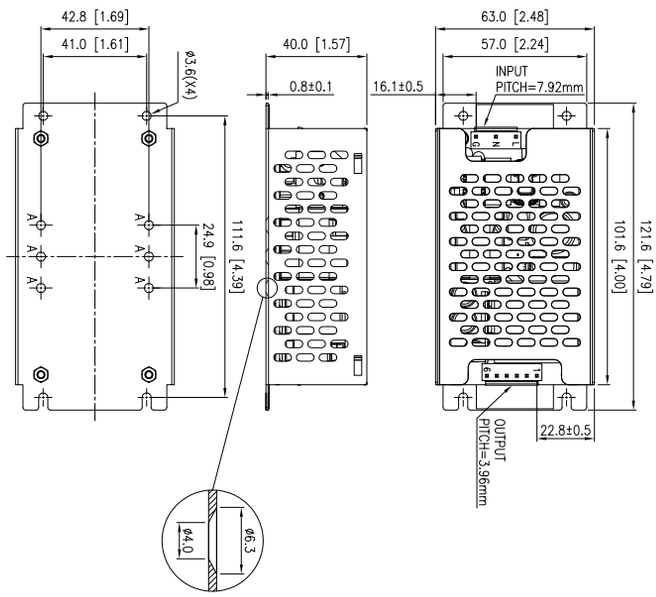
NET WEIGHT: 200g approx.



*Screw size (Diameter): 2.9mm min.

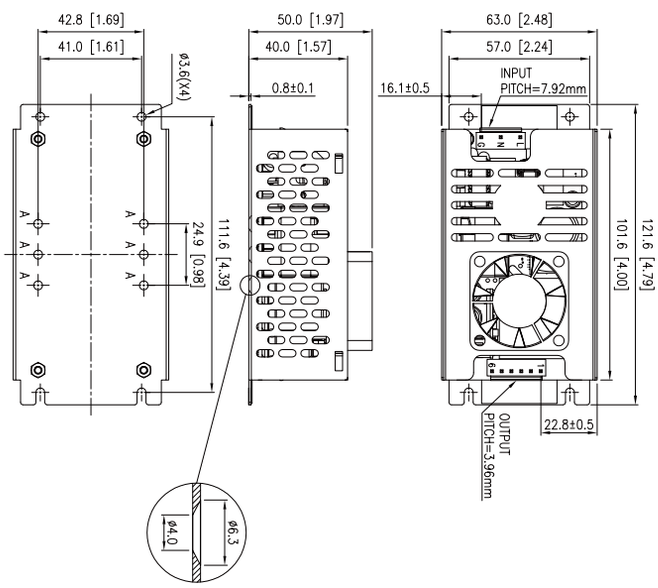
HEU250

NET WEIGHT: 325g approx.



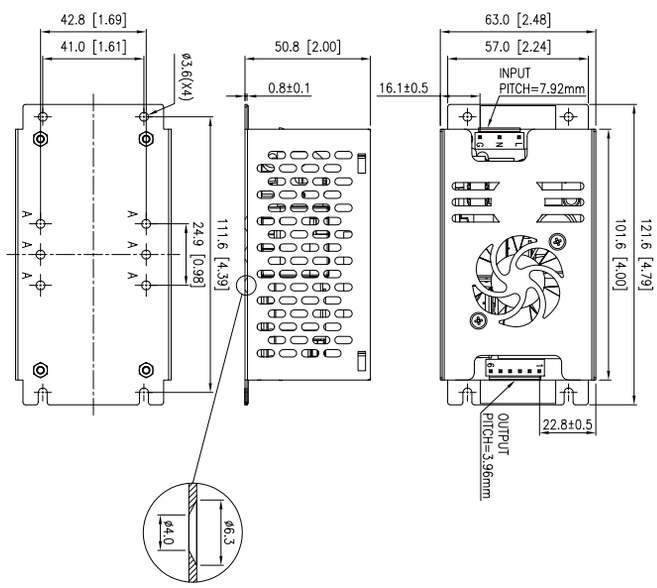
HEU250A-F

NET WEIGHT: 330g approx.



HEU250B-F

NET WEIGHT: 340g approx.



* For the rail mount option, contact our sales.

PIN CHART

MODEL	Connector Definition	PIN					
		1	2	3	4	5	6
HBU250 HEU250	P2 Single Output	OUT	OUT	OUT	RTN	RTN	RTN
	P3 Fan Output	OUT	RTN				
HEU250A-F HEU250B-F	P2 Single Output	OUT	OUT	OUT	RTN	RTN	RTN

OUTPUT CABLE REMARK :

1. Input connector mates with JST housing VHR-5N and JST SVH series crimp terminal.
2. Output connector mates with JST housing VHR-6N and JST SVH series crimp terminal.
3. Fan connector mates with JOINT_TECH housing A2501H-02P-N and JOINT A2501-XX-A series crimp terminal.
4. Fan comes with a 1-year warranty. The specifications of the fan are: (1) DC FAN, YEN_SUN, #FD124010EB (2) DC FAN, SUNON, MF40101V1-10000-A99

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Rating Chart - HBU250 :

MODEL NO.	Voltage Range		Output Current			Maximum Output Power	Ripple & Noise (Vo)	Load Regulation (Vo)	Typ. No Load Consumption	Typ. Efficiency
	Vo	Fan Output	Vo		Fan Output					
			Max1	Max2						
	(VDC)	(VDC)	(A)	(A)	(A)	(W)	(mVp-p max.)	(%)	(W)	(%)
HBU250-105	12.0	12.0	12.50	20.83	0.5	250	108	±3	0.21	91
HBU250-106	15.0	12.0	10.00	16.66	0.5	250	135	±3	0.21	91
HBU250-107	19.0	12.0	7.89	13.15	0.5	250	170	±3	0.21	91
HBU250-108	24.0	12.0	6.25	10.41	0.5	250	210	±3	0.21	92
HBU250-109	30.0	12.0	5.00	8.32	0.5	250	270	±3	0.21	92
HBU250-110	36.0	12.0	4.16	6.94	0.5	250	300	±3	0.21	93
HBU250-111	48.0	12.0	3.12	5.20	0.5	250	300	±3	0.21	93

* With 8 CFM Forced Air to max load
* Max.1: Convection cool, Max.2: Forced Air
* 0~2% Max.2 Load ripple≤2% Vo
* Under convection cool, fan output cannot be used.
* Temperature controlled fan output voltage: 7V-12V.

Rating Chart - HEU250 :

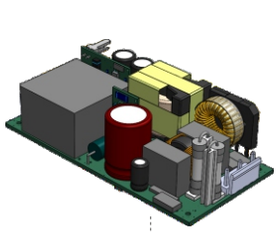
MODEL NO.	Voltage Range (Vo)	Output Current (Vo)	Maximum Output Power	Ripple & Noise	Load regulation	Typ. No Load Consumption	Typ. Efficiency
	(VDC)	(A)	(W)	(mVp-p max.)	(%)	(W)	(%)
HEU250-105	12.0	10.00	120	108	±3	0.21	91
HEU250-106	15.0	8.00	120	135	±3	0.21	91
HEU250-107	19.0	6.31	120	170	±3	0.21	91
HEU250-108	24.0	5.00	120	210	±3	0.21	92
HEU250-109	30.0	4.00	120	270	±3	0.21	92
HEU250-110	36.0	3.33	120	300	±3	0.21	93
HEU250-111	48.0	2.50	120	300	±3	0.21	93

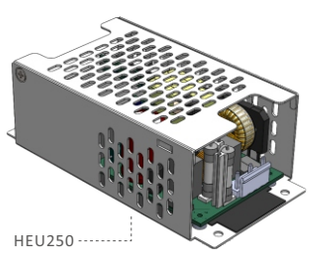
* HEU250 series output for fan cannot be used.
* 0~4% Load ripple≤2% Vo

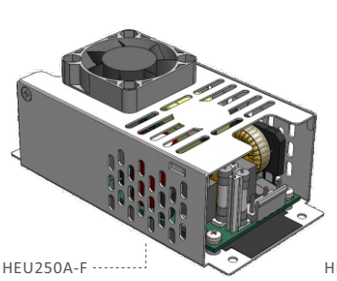
Rating Chart - HEU250A-F / HEU250B-F :

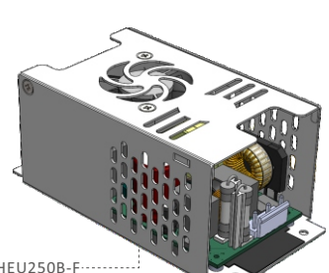
MODEL NO.	Voltage Range (Vo)	Output Current (Vo)	Maximum Output Power	Ripple & Noise	Load regulation	Typ. No Load Consumption	Typ. Efficiency
	(VDC)	(A)	(W)	(mVp-p max.)	(%)	(W)	(%)
HEU250A-105F HEU250B-105F	12.0	20.83	250	108	±3	3	91
HEU250A-106F HEU250B-106F	15.0	16.66	250	135	±3	3	91
HEU250A-107F HEU250B-107F	19.0	13.15	250	170	±3	3	91
HEU250A-108F HEU250B-108F	24.0	10.41	250	210	±3	3	92
HEU250A-109F HEU250B-109F	30.0	8.32	250	270	±3	3	92
HEU250A-110F HEU250B-110F	36.0	6.94	250	300	±3	3	93
HEU250A-111F HEU250B-111F	48.0	5.20	250	300	±3	3	93

* With 8 CFM Forced Air
* 0~2% Load ripple≤2% Vo


HBU250

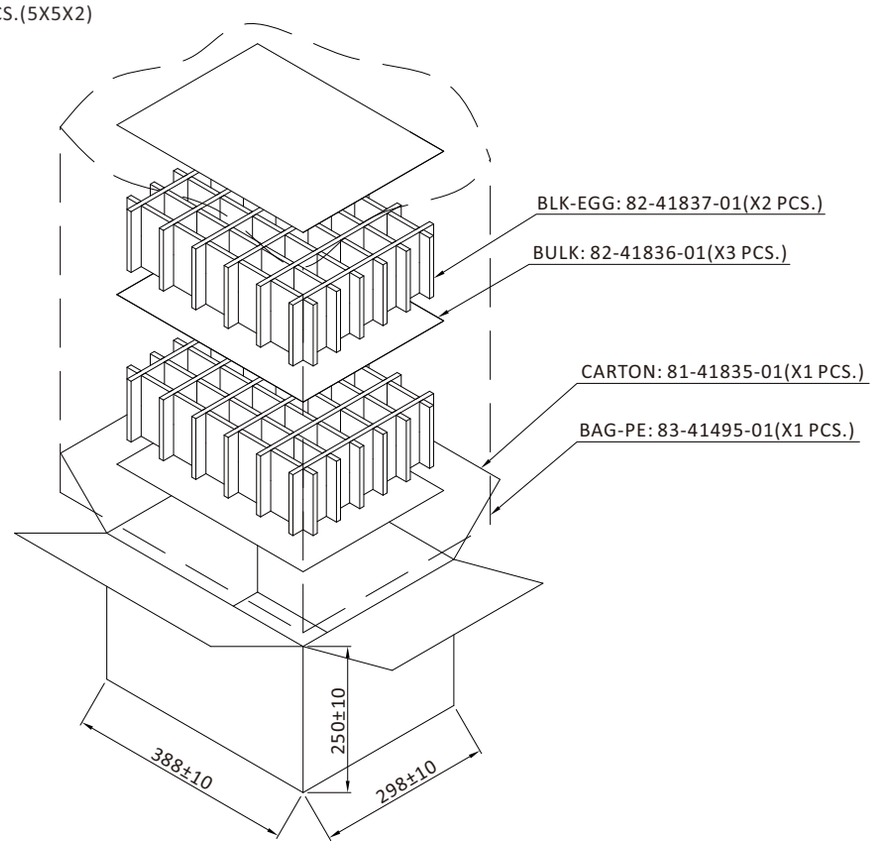

HEU250


HEU250A-F


HEU250B-F

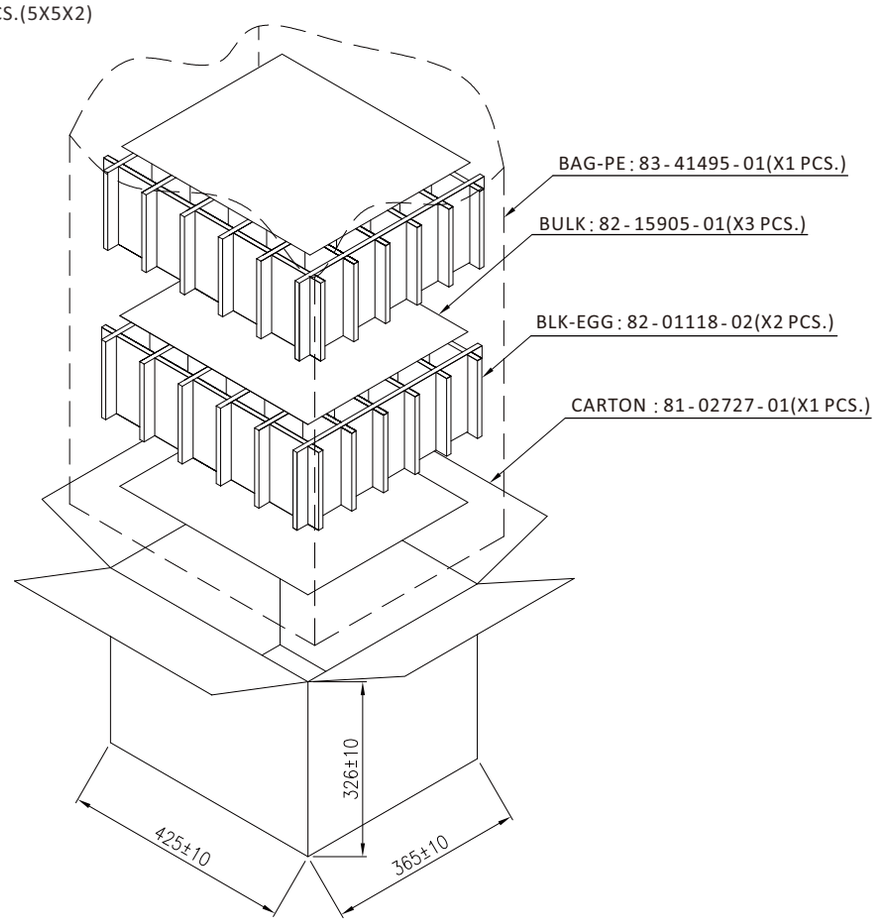
STANDARD PACKAGING - HBU250 : (UNIT: mm)

* **Power Supplies per Box (full box)**: 50 PCS.(5X5X2)
* **Box Dimensions**: L38.8*W29.8*H25cm
* **Gross Weight (full box)**: 11 KG
* **Packaging Part No**: 84-40619-01



STANDARD PACKAGING - HEU250 / HEU250A-F / HEU250B-F : (UNIT: mm)

* **Power Supplies per Box (full box)**: 50 PCS.(5X5X2)
* **Box Dimensions**: L43*W37*H33 cm
* **Gross Weight (full box)**:
  HEU250: 17.2 KG
  HEU250A-F: 17.8 KG
  HEU250B-F: 18.3 KG
* **Packaging Part No**: 84-40676-01



Note: The above packing is for reference only.
Please contact sales for confirmation.