

## HPA65A/C series

V1.6

## 65W Medical / ITE Power Supply

### GENERAL DESCRIPTION:

The series provides a voltage range from 8V to 48V, delivering up to 65 watts of power, suitable for various applications and devices.

HPA65A  
C14 Type AC Inlet



Dimensions (L x W x H):  
115 x 50 x 31mm

HPA65C  
C6 Type AC Inlet

### SAFETY STANDARDS:



### ELECTRICAL CHARACTERISTICS:

Characteristic	Condition	Min.	Typ.	Max.	Unit
Nominal Input Voltage	100 / 240VAC, Single Phase	100		240	VAC
Input Voltage Range	Derate Linearly from 100% load at 90VAC to 70% load at 70VAC	70		264	VAC
Input Frequency Range	Sine Wave	47		63	Hz
Output Power	See Rating Chart			65	W
Low Line Input Current	Full Load, Vin=115VAC			1.5	A
High Line Input Current	Full Load, Vin=230VAC			0.75	A
Low Line Input Inrush Current	Full Load, 25°C, Cool Start, Vin=115VAC			50	A
High Line Input Inrush Current	Full Load, 25°C, Cool Start, Vin=230VAC			100	A
Earth Leakage Current	0.1mA @264VAC Normal Condition, 0.3mA @264VAC Single Fault Condition			0.1	mA
Average Efficiency	CoC v5 (Tier2), See Rating Chart		89		%
Line Regulation	Full Load, Vin=100~120VAC			0.5	%
Load Regulation	Vin=100~240VAC		3	5	%
Hold-Up Time	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.		12		ms
Start-Up Time	Full Load, Vin=100~240VAC			3	s
Rise Time	At 115VAC & 230VAC			50	ms
Isolation	Input to Output			4000	VAC
	Input to PE			1500	VAC
	Output to PE [Standard version only (RTN≠GND)]			1500	VAC

### PROTECTION:

Characteristic	Condition	Min.	Typ.	Max.	Unit
Short Circuit	Hiccup Mode, (Non-Latching, Auto-Recovery)				
Over Temperature	Hiccup Mode, (Non-Latching, Auto-Recovery)				
Overvoltage	Latch Mode	105		150	%
Overload / Overcurrent	Hiccup Mode, (Non-Latching, Auto-Recovery)	110		154	%

### ENVIRONMENTAL:

Characteristic	Condition	Min.	Typ.	Max.	Unit
Operating Temperature	Derate Linearly From 100% Load at 40°C to 50% Load at 70°C	-40		70	°C
Storage Temperature	Surrounding Air Temperature	-40		85	°C
Temperature Coefficient	All Condition			±0.04	%/°C
Operating Humidity	10-95% RH (Non-Condensing)	10		95%	RH
Storage Humidity		0		95%	RH
Operating Altitude	Up to 5,000 meters	5000			m
Vibration	Non-Operating, 5-500 Hz, 2.09 Grms, 20 minute for Each Three Axis			2.09	G

### FEATURES:

- \* Input Voltage Range 70-264VAC (70VAC input is suitable for countries with low input voltage)
- \* Operating Temperature: -40~70°C (with derating from 50°C)
- \* Suitable for BF Application
- \* Protection: OVP, OLP, OTP, SCP
- \* 2MOPP
- \* Extremely Low Leakage Current <0.1mA
- \* Operating Altitude: 5000M
- \* Built-In EMI Filter
- \* High Surge Immunity
- \* IP22
- \* Pass LPS
- \* Designed to Meet ISN, 60335 & 61558
- \* 3-Year Warranty



### OPTIONAL FEATURES:

- \* OVC III
- \* IP54
- \* Withstand 297VAC Surge Input for 2 Minutes

### APPLICATIONS:

- \* Medical Devices
- \* Telecommunication Devices
- \* Household Devices
- \* Consumer Electronics
- \* Office Electronics
- \* Industrial Equipment

### GENERAL SPECIFICATION:

- \* Waterproof and Dustproof Degree: IP22, IP54
- \* Protection Classes: Class I
- \* Safety: IEC 62368-1 Edition 2.0, IEC 62368-1 Edition 3.0, EN 62368-1, UL62368-1, CAN/CSA-C22.2 NO.62368-1-14, IEC 60601-1 Edition 3.2, EN60601-1, ANSI/AAMI ES60601-1: 2005 (R2012), CSA C22.2 NO. 60601-1:14

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## 65W Medical / ITE Power Supply

### PRODUCT CODING:



Series Name

Max. Wattage  
in the Product

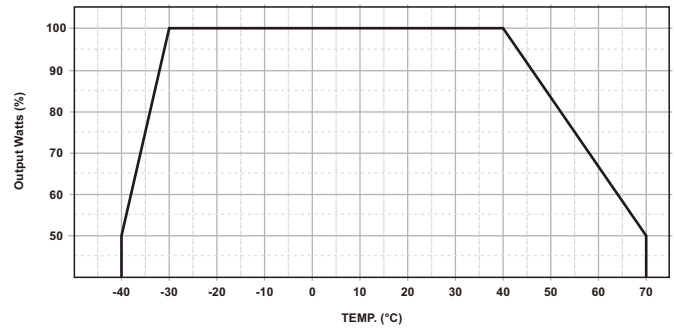
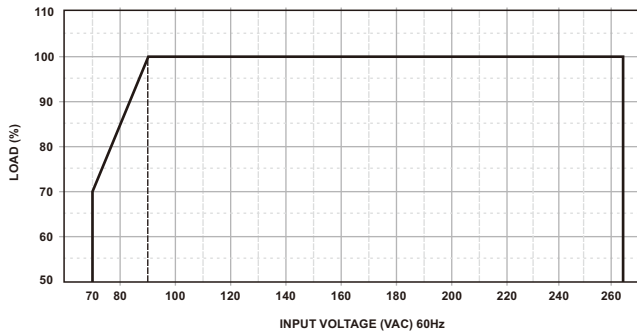
AC Inlet

A: C14 Type AC Inlet  
C: C6 Type AC Inlet

Output Voltage

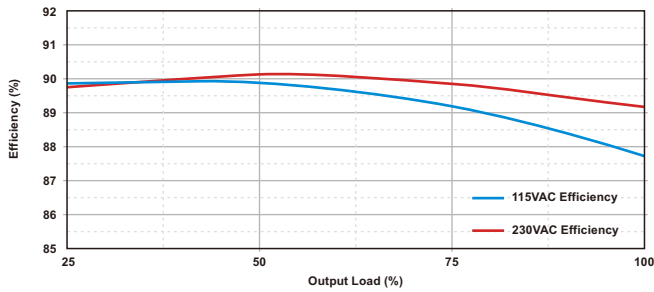
120: 12V 150: 15V  
240: 24V 480: 48V

### STATIC CHARACTERISTICS & POWER DE-RATING CURVE:

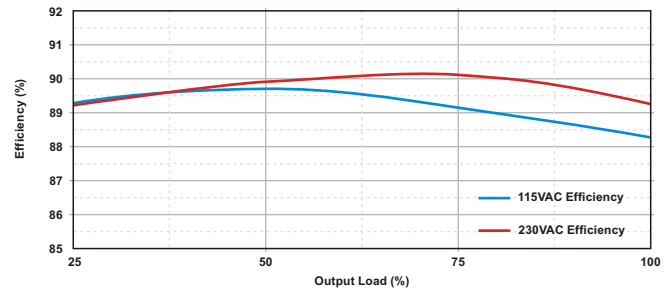


### EFFICIENCY VERSUS OUTPUT LOAD :

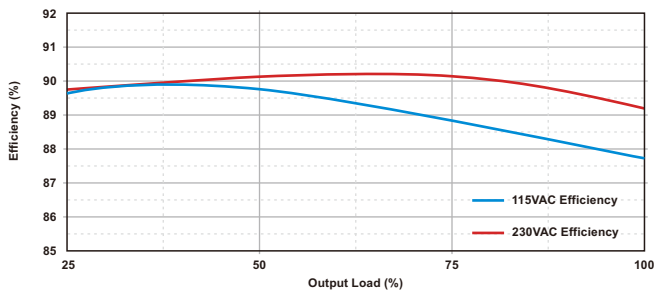
■ HPA65A-080



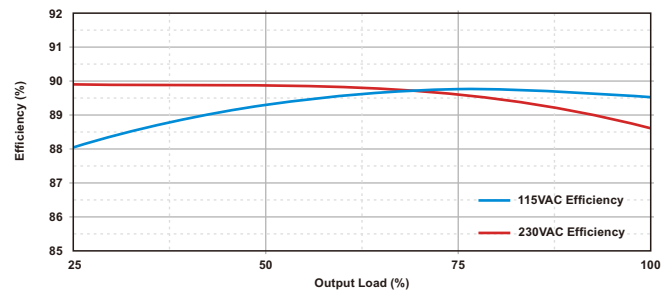
■ HPA65A-090



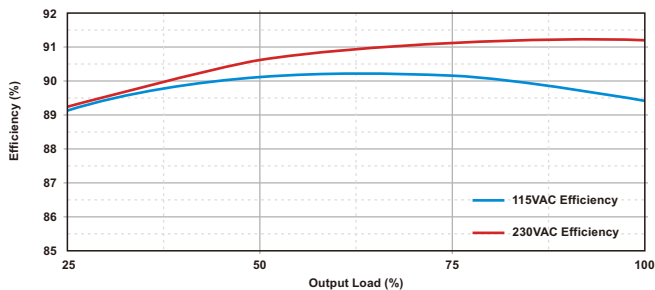
■ HPA65A-120



■ HPA65A-240



■ HPA65A-480



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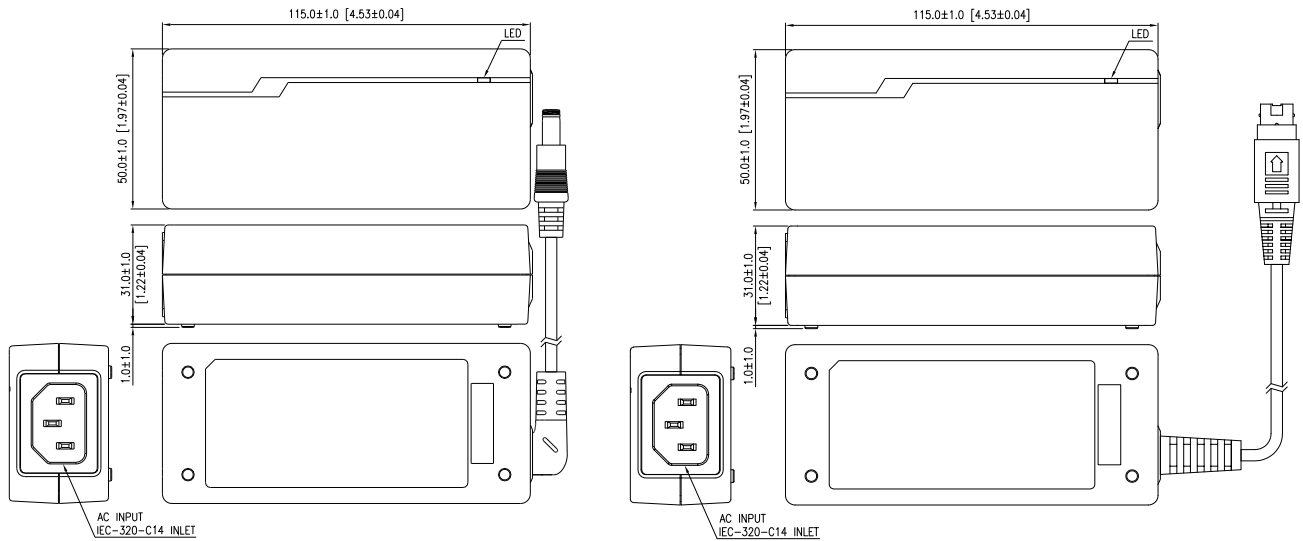
## 65W Medical / ITE Power Supply

### RATING CHART:

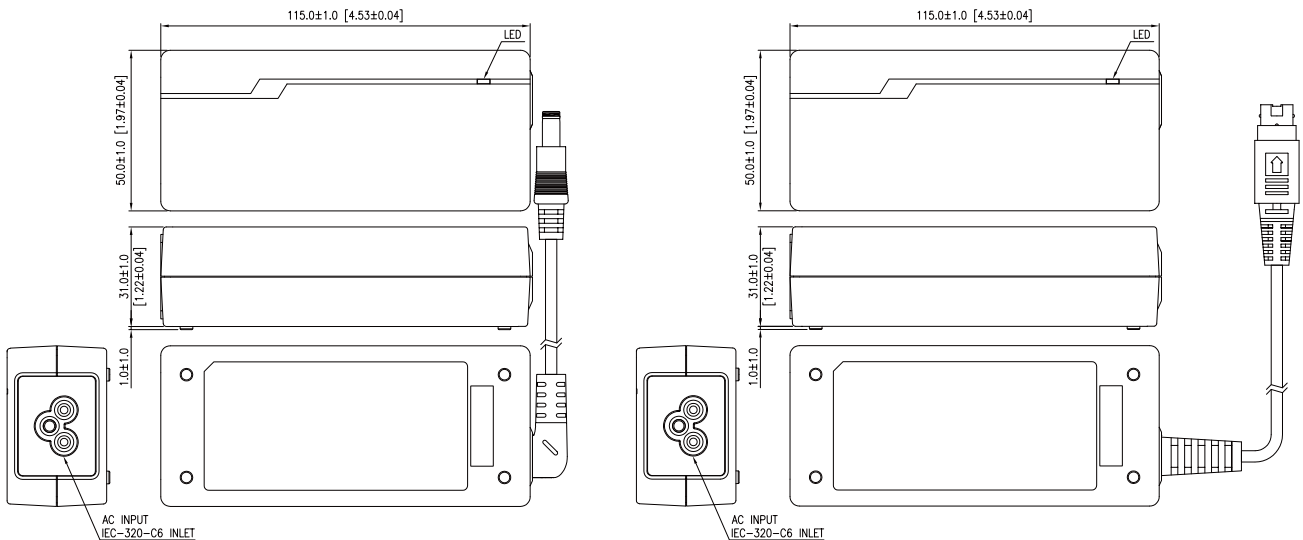
MODEL NO.	Rated Output Voltage	Rated Output Current	Maximum Output Power	Ripple & Noise	Total Regulation	Load Efficiency 10%	AVG. Efficiency	Max. No Load Consumption	Hold-Up Time (typ.)	Limited Power Source
	(VDC)	(A)	(W)	(mVp-p)	(%)	(%)	(%)	(W)	(ms)	(LPS)
HPA65A-080	8	6.75	54	80	±5	79.0	89.0	0.15	12	×
HPA65A-090	9	6.00	54	100	±5	79.0	89.0	0.15	12	×
HPA65A-120	12	5.42	65	100	±3	79.0	89.0	0.15	12	✓
HPA65A-150	15	4.33	65	100	±3	79.0	89.0	0.15	12	✓
HPA65A-160	16	4.06	65	120	±3	79.0	89.0	0.15	12	✓
HPA65A-180	18	3.61	65	120	±3	79.0	89.0	0.15	12	✓
HPA65A-190	19	3.42	65	120	±3	79.0	89.0	0.15	12	✓
HPA65A-200	20	3.25	65	130	±3	79.0	89.0	0.15	12	✓
HPA65A-240	24	2.70	65	150	±2.5	79.0	89.0	0.15	12	✓
HPA65A-280	28	2.32	65	180	±2.5	79.0	89.0	0.15	12	✓
HPA65A-300	30	2.16	65	200	±2.5	79.0	89.0	0.15	12	✓
HPA65A-480	48	1.36	65	200	±2.5	79.0	89.0	0.15	12	✓

### MECHANICAL DIMENSIONS: ( UNIT: mm )

#### HPA65A



#### HPA65C



### EMC EMISSION:

MEDICAL / ITE	Parameter	Standard	Test Level
MEDICAL	Conducted	EN55011	Class B
	Radiated	EN55011	Class B
	Harmonics	EN61000-3-2	-
	Flicker	EN61000-3-3	-
ITE	Conducted	EN55032	Class B
	Radiated	EN55032	Class B
	Harmonics	EN61000-3-2	N/A
	Flicker	EN61000-3-3	-

\* The EMC test requires the integration of the switching power supply with the load of an end system. Consequently, variations in the application or assembly of the end system will influence the test results.

### EMC IMMUNITY:

MEDICAL / ITE	Parameter	Standard	Test Level	Criteria
MEDICAL	ESD	EN61000-4-2	15KV air discharge, 8KV discharge coupling plane	A
	RS	EN61000-4-3	-	A
	EFT	EN61000-4-4	2KV	A
	Surge	EN61000-4-5	line to line $\pm 2$ kV, line to ground $\pm 4$ kV	A
	CS	EN61000-4-6	0.15 – 80(MHz)	A
	PFMF	EN61000-4-8	-	A
	Voltage Dips (230V & 100V)	EN61000-4-11	0% Ut, 0.5 cycle (10 ms) @ full load 0°/45°/90°/135°/180°/225°/270°/315°/360°	A
			0% Ut, 1 cycle (20 ms), 0° @ full load	B
			70% Ut, 25 cycle (500 ms), 0° @ full load	A
	Voltage Interruptions (230V & 100V)	EN61000-4-11	0% Ut, 250 cycle (5 s) @ full load 0°/45°/90°/135°/180°/225°/270°/315°/360°	B
Radiated Fields In Close Proximity	EN61000-4-39	-	A	
ITE	ESD	EN61000-4-2	8KV air discharge, 4KV contact discharge	A
	RS	EN61000-4-3	80 – 1000(MHZ) 1800, 2600, 3500, 5000 (MHZ) ( $\pm 1\%$ )	A
	EFT	EN61000-4-4	2KV	A
	Surge	EN61000-4-5	line to line $\pm 2$ kV, line to ground $\pm 4$ kV	A
	CS	EN61000-4-6	0.15 – 80(MHz)	A
	PFMF	EN61000-4-8	-	A
	Voltage Dips (230V & 100V)	EN61000-4-11	0% Ut, 0.5 cycle (10 ms) @ full load 0°/45°/90°/135°/180°/225°/270°/315°/360°	A
			0% Ut, 1 cycle (20 ms), 0° @ full load	B
			70% Ut, 25 cycle (500 ms), 0° @ full load	A
	Voltage Interruptions (230V & 100V)	EN61000-4-11	0% Ut, 250 cycle (5 s) @ full load 0°/45°/90°/135°/180°/225°/270°/315°/360°	B

\* The EMC test requires the integration of the switching power supply with the load of an end system. Consequently, variations in the application or assembly of the end system will influence the test results.

### OTHERS:

MEDICAL / ITE	Condition	Min.	Typ.	Max.	Unit
MTBF(typ.)	1 million hours based on Telcord ia SR-332(at 115 Vac, MAX. load and 25°C ambient)		1000k		h
Net Weight	HPA65A-120 with a 16AWG, 4ft standard cable		225		g

### OUTPUT CABLE RECOMMENDATION :

1. Selected output connectors and wire, please refer to the Appendix.
2. 8V~9V are required to use AWG#14, 2FT, UL11353, 80°C output cable.
3. 12V are required to use AWG#16, 4FT, UL1571, 80°C output cable.
4. 15V~16V are required to use AWG#16, 4FT, UL1571, 80°C output cable.
5. 18V~24V are required to use AWG#18, 4FT, UL1571, 80°C output cable.
6. 28V~48V are required to use AWG#20, 4FT, UL1185, 80°C output cable.

### STANDARD CONNECTOR:

Barrel Female Plug	Plug PN	OD	ID	L	Standard Connection	Wire Material	Wire Type
	P01N	5.5	2.5	11	Center=OUT(+) Sleeve=RTN(-) (Tuning Fork Type)	UL1571	12V, 15V~16V: 16AWG/4FT 18V~24V: 18AWG/4FT
	P01K	5.5	2.1	11	Center=OUT(+) Sleeve=RTN(-) (Tuning Fork Type)	UL1571	12V, 15V~16V: 16AWG/4FT 18V~24V: 18AWG/4FT
	P09B				P1,P2=OUT P3,P4=RTN	UL11353	8V~9V: 14AWG*2C/2FT

### OPTINONAL CONNECTOR:

Barrel Female Plug	Plug PN	OD	ID	L	Standard Connection	Wire Material	Wire Type
	P01M	5.5	2.5	9.5	Center=OUT(+) Sleeve=RTN(-) (Tuning Fork Type)	UL1571	12V, 15V~16V: 16AWG/4FT 18V~24V: 18AWG/4FT
	P01S	5.5	2.5	12	Center=OUT(+) Sleeve=RTN(-) (Tuning Fork Type)	UL1571	12V, 15V~16V: 16AWG/4FT 18V~24V: 18AWG/4FT
	P02M	5.5	2.5	9.5	Center=OUT(+) Sleeve=RTN(-) (Tuning Fork Type)	UL1571	12V, 15V~16V: 16AWG/4FT 18V~24V: 18AWG/4FT
	P02N	5.5	2.5	11	Center=OUT(+) Sleeve=RTN(-) (Tuning Fork Type)	UL1571	12V, 15V~16V: 16AWG/4FT 18V~24V: 18AWG/4FT
	P05B				P1,P2,P4=RTN P3,P5=OUT SHIELD=GND	UL2464	12V, 15V~16V: 16AWG/4FT 18V~24V: 18AWG/4FT 28V~48V: 20AWG/4FT

\* Please contact our sales team for detailed information regarding optional output connectors.