



A. Features

IP 20

- High Efficiency (Up to 89%).
- Active Power Factor Correction (Typical 0.95).
- Isolation Class II
- All-Round Protection: OVP/SCP/OTP/OPP.]
- Fully isolated plastic case with IP20 and dry location.
- 1-10V, PWM, and resistance dimming function.
- Class 2 and SELV.



B. Description

The **HEC-40LTB-PSAH** Series operate from a 200 ~ 305Vac input range. They are designed to be highly efficient and highly reliable. Features include over voltage protection, short circuit protection, and over temperature protection.

C. Models

Output Current	Input Voltage Range <small>Note 1</small>	Output Voltage Range <small>Note 4</small>	Max. Output Power	Efficiency <small>Note 2</small>	Power Factor <small>Note 2</small>	Model Number
350mA	220 ~ 305Vac	18V~54V	40 W	89%	0.95	HEC-40LTB-PSAH
500mA	220 ~ 305Vac	18V~54V				
550mA	220 ~ 305Vac	18V~54V				
700mA	220 ~ 305Vac	18V~54V				
900mA	220 ~ 305Vac	18V~42V				
1050mA	220 ~ 305Vac	18V~36V				
1200mA	220 ~ 305Vac	18V~32V				
1400mA	220 ~ 305Vac	18V~28V				

Voltage	Current	1	2	3	4	5	6	7	8	9	10
54 Vdc	350mA	ON	ON	-	ON	ON	ON	ON	ON	ON	ON
	500mA	ON	ON	-	ON	ON	ON	ON	ON	ON	-
	550mA	ON	ON	-	ON	ON	ON	ON	ON	-	-
	700mA	ON	-	-	ON	ON	ON	ON	-	-	-
42 Vdc	900mA	ON	-	-	ON	ON	ON	-	-	-	-
36 Vdc	1050mA	ON	-	-	ON	ON	-	-	-	-	-
32 Vdc	1200mA	-	-	-	ON	-	-	-	-	-	-
28 Vdc	1400mA	-	-	-	-	-	-	-	-	-	-





D. Electronic Specifications

- Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage (V)	200	-	305	
Input Frequency (Hz)	47		63	
Input AC Current (A)	-	-	0.25	Measured at full load and 277Vac input.
Leakage Current (mA)	-	-	0.7	At 277Vac 60Hz input.
Inrush Current (A)	-	-	40	At 220Vac input 25°C Cold Start. Duration=100μs, 10%Ipk-10%Ipk.
Inrush Current (I2t)		-	0.16 A2s	At 220Vac input 25°C Cold Start. Duration=100μs, 10%Ipk-10%Ipk.
Power Factor	0.9	-	-	At 277Vac input, full load.
THD (%)	-	20	25	

- Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current (mA)				
Io = 350 mA	332		367	
Io = 500 mA	475		525	
Io = 550 mA	522		577	
Io = 700 mA	665		735	
Io = 900 mA	855		945	
Io = 1050 mA	997		1102	
Io = 1200 mA	1140		1260	
Io = 1400 mA	1330		1470	
No Load Output Voltage (V)				
Io = 350 mA				There will be no damage or hazardous conditions occurred with no loading.
Io = 500 mA				
Io = 550 mA				
Io = 700 mA	----	----	63	
Io = 900 mA				
Io = 1050 mA				
Io = 1200 mA				
Io = 1400 mA				





Output Ripple Voltage (V)	----	----	10% Vomax	Measured by 20 MHz bandwidth oscilloscopes and the output paralleled a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor.
Output Voltage Overshoot (%)	-	-	110	At full load condition.
Line Regulation (%)	-	-	±3	
Load Regulation (%)	-	-	±5	
Turn-on Delay Time (s)	-	0.5	1.0	Measured at 220Vac input.

- General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency (%)				
Io = 350 mA			83	
Io = 500 mA			86	
Io = 550 mA			87	
Io = 700 mA	-	-	88	Measured at full load and 277Vac input.
Io = 900 mA			89	
Io = 1050 mA			89	
Io = 1200 mA			89	
Io = 1400 mA			89	
MTBF (hours)	320,000	-	-	Measured at full load 50°C ambient temperature (MIL-HDBK-217F).
Life Time (hours)		100,000	-	Measured at rated input voltage with full load, Case temperature=60°C @ Tc point. See life time vs. Tc curve for the details.
Case Temperature (°C)	-	-	85	
Dimensions Millimeters(L × W × H)	200 × 44 × 30.5			

- Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Voltage Protection			1.50 Vo	Hiccup mode. The power supply shall be self-recovery when the fault condition is removed.
Over Temperature Protection-Tc	Hiccup mode. When the case temperature is higher than 110°C, the power supply output will turn off automatically; when the case temperature is lower than 75°C, the power supply output will be auto recovery.			
Short Circuit Protection	No damage shall occur when any output operating in a short circuit condition. The power supply shall be self-recovery when the fault condition is removed.			





- Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes
Operating Temperature (°C)	-40	-	+60	Humidity: 20% RH to 80% RH; See Derating Curve for more details.
Storage Temperature (°C)	-40	-	+80	Humidity: 10% RH to 90% RH.

- Safety and EMC Compliance

Safety Category	Standard
UL/CUL	UL8750, UL1310 Class 2, CSA C22.2 NO. 223-M91 Class 2.
CE	EN 61347-1, EN61347-2-13.
EMI Standards <small>Note 6</small>	Notes
EN 55015	Conducted emission Test & Radiated emission Test.
EN 61000-3-2	Harmonic current emissions.
EN 61000-3-3	Voltage fluctuations & flicker.
FCC Part 15	FCC 47 CFR Part 15 Subpart B, ICES-003 Issue 4 ANSI C63.4-2003
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 KV air discharge, 4 KV contact discharge.
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS.
EN 61000-4-4	Electrical Fast Transient / Burst-EFT: Level 2, Criteria A.
EN 61000-4-5	Surge Immunity Test: AC Power Line: line to line 1 KV.
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS.
EN 61000-4-8	Power Frequency Magnetic Field Test.
EN 61000-4-11	Voltage Dips.
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment.

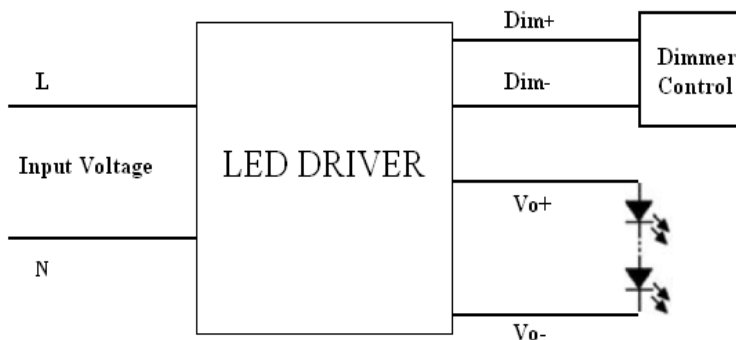
Notes:

1. Normal input voltage range 220~277Vac.
2. Measured at input 220V with a full load.
3. All specifications are typical at 25 °C unless otherwise stated.
4. Constant current operation region is preferably 75%~100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.
5. Derating may be needed under low input voltages. Please check the static curve for more details.
6. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.



E. Dimming Control

The dimmer control is operated from an input signal (DC voltage / PWM signal / Variable Resistor). Please refer to the diagram.



Notes:

1. If the dimming pin is not used, Dimming pin can be open.

Parameter	Min.	Typ.	Max.	Notes
1-10V Dimming Voltage (V)	1	-	+ 10.8	
PWM Signal	5	10	+ 10.8	
0~10K Ω Variable Resistor (Ω)	-0	-	+10K	

- Dimming Model Output Voltage Range

Parameter	Min.	Typ.	Max.	Notes
Io = 350 mA	35	-	54	Measured at 220Vac input.
Io = 500 mA	30	-	54	
Io = 550 mA	30	-	54	
Io = 700 mA	21	-	54	
Io = 900 mA	21	-	42	
Io = 1050 mA	21	-	36	
Io = 1200 mA	21	-	32	
Io = 1400 mA	21	-	28	





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HEC-40LTB-PSAH Rev A1.0

Parameter	Min.	Typ.	Max.	Notes
Io = 350 mA	46	-	54	Measured at 277Vac input.
Io = 500 mA	40	-	54	
Io = 550 mA	40	-	54	
Io = 700 mA	31	-	54	
Io = 900 mA	21	-	42	
Io = 1050 mA	21	-	36	
Io = 1200 mA	21	-	32	
Io = 1400 mA	21	-	28	



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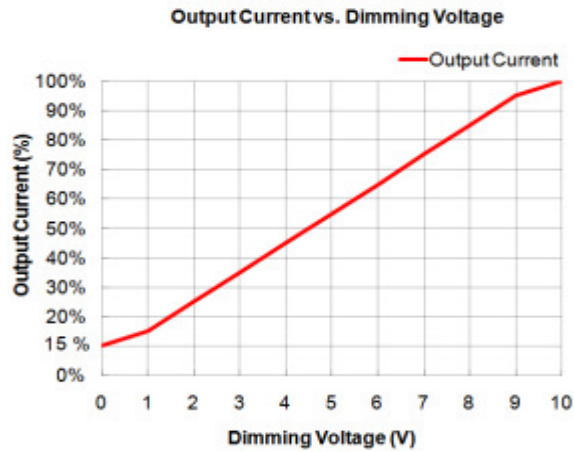


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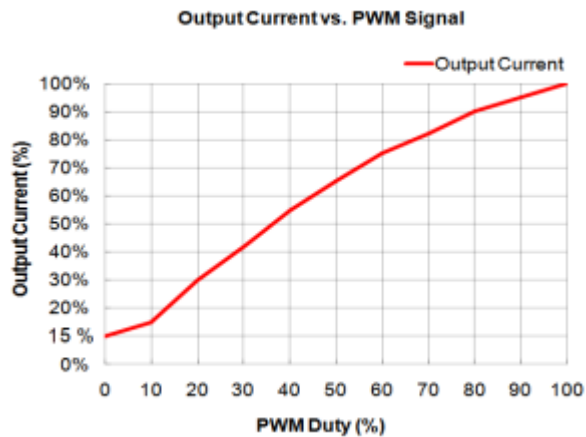


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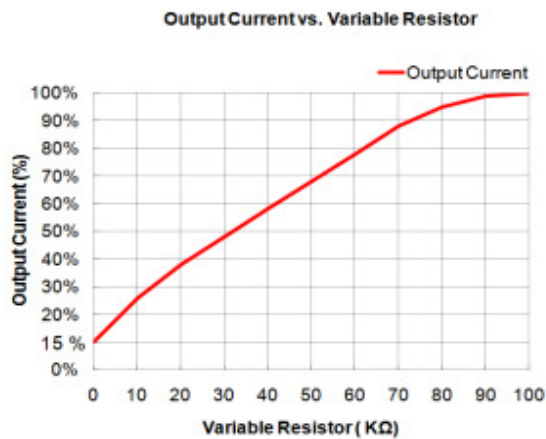
- DC Voltage Dimming Curve



- PWM Signal Dimming Curve



- Variable Resistor Curve



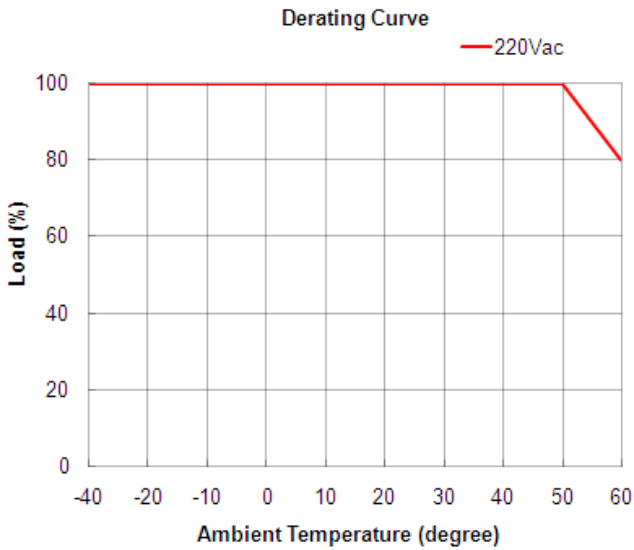
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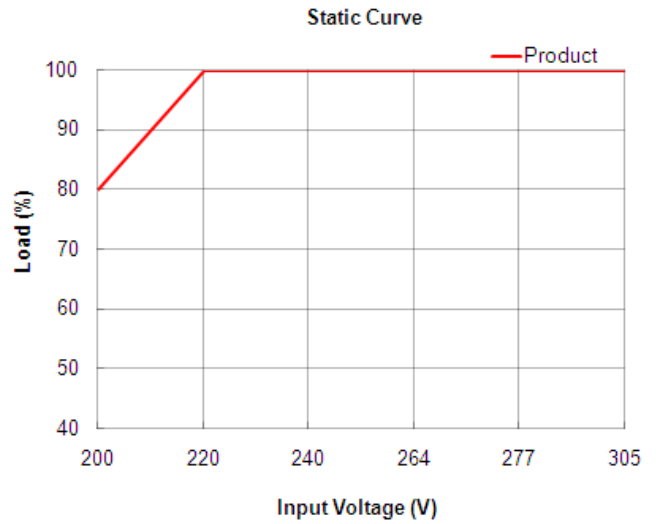


F. Electronic Curve

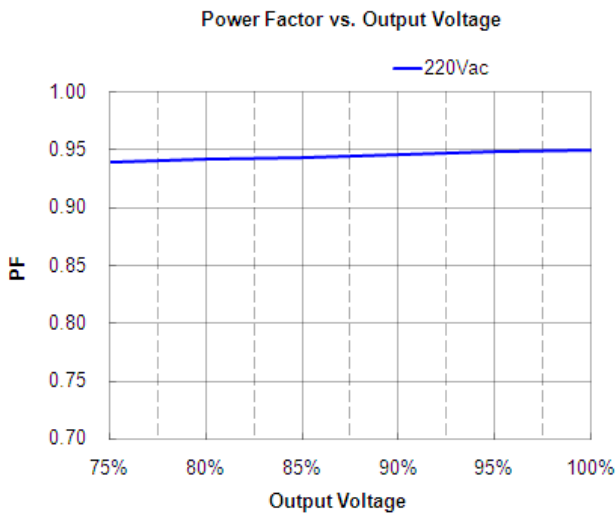
- Derating Curve



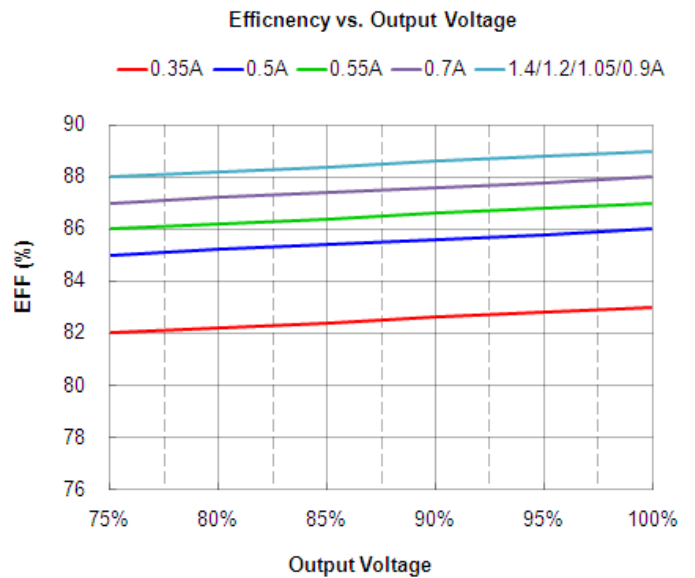
- Static Curve



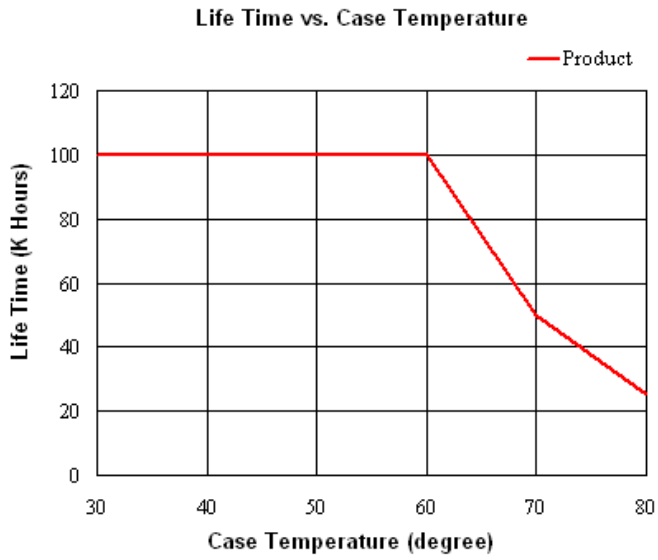
- Power Factor Characteristics Curve



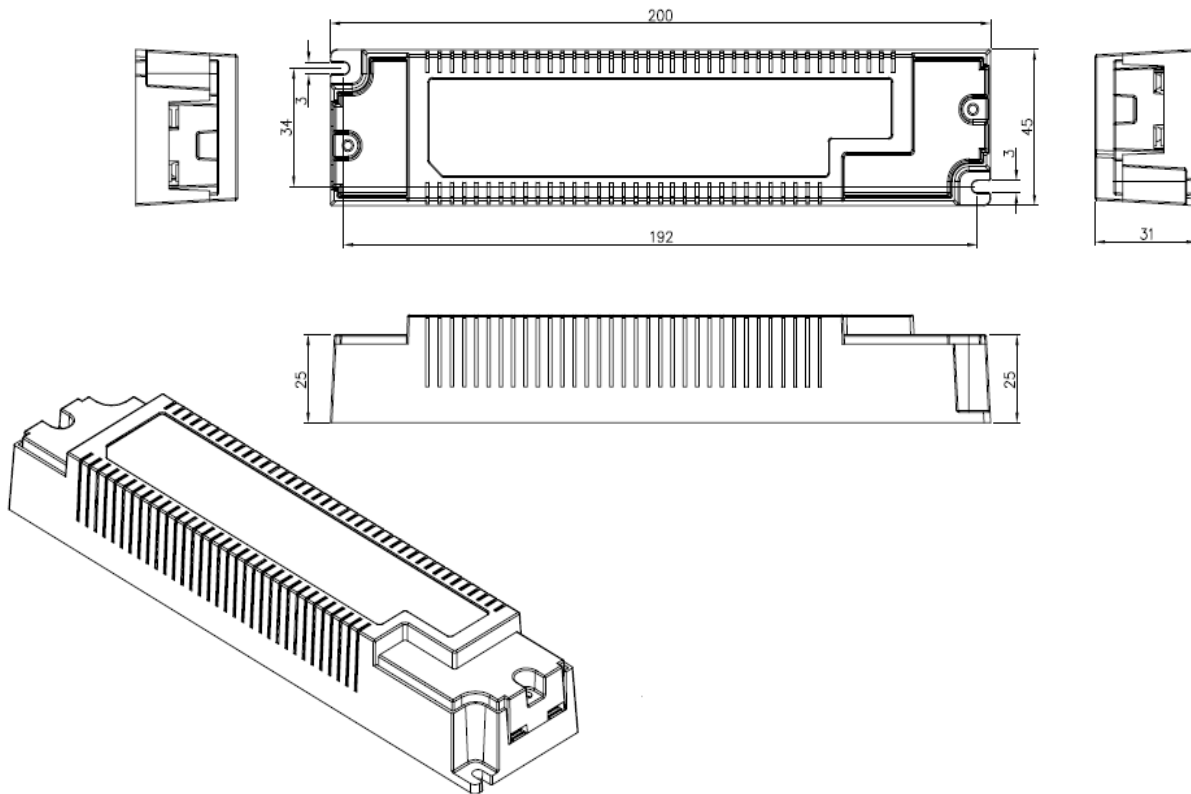
- Efficiency Characteristics Curve



- Life Time vs. Case Temperature Curve



G. Mechanical Outline





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H. RoHS Compliance Outline

Our products comply with the European Directive 2011/65/EU, calling for the elimination of lead and other hazardous substances from electronic products.

I. Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2014-11-25	A1.0	Datasheets Release	/	/



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