



A. Features

IP 20

- High Efficiency (Up to 88%).
- 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-45LTA-XXQSAA** Series operate from a 90 ~ 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 Note 1	Output Voltage Range Note 4	Max. Output Power	Efficiency Note 2	Power Factor Note 2	Model Number
1600mA	90 ~ 305Vac	16V~28V	45 W	87%	0.95	HEC-45LTA-28QSAA
1200mA	90 ~ 305Vac	21V~36V	45 W	88%	0.95	HEC-45LTA-36QSAA
1050mA	90 ~ 305Vac	25V~42V	45 W	88%	0.95	HEC-45LTA-42QSAA
930mA	90 ~ 305Vac	28V~48V	45 W	88%	0.95	HEC-45LTA-48QSAA
830mA	90 ~ 305Vac	32V~54V	45 W	88%	0.95	HEC-45LTA-54QSAA

D. Electronic Specifications

- Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage (V)	90	-	305	
Input Frequency (Hz)	47		63	
Input AC Current (A)	-	-	0.5	Measured at full load and 100Vac input.
	-	-	0.2	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 (I _{2t})		-	0.16 A _{2s}	At 220Vac input 25°C Cold Start. Duration=100μs, 10%I _{pk} -10%I _{pk} .
Power Factor	0.92	-	-	At 277Vac input, full load.
THD (%)	-	20	25	

- Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current (mA)				
I _o = 1600 mA	1520		1680	
I _o = 1200 mA	1140		1260	
I _o = 1050 mA	998		1103	
I _o = 930 mA	884		977	
I _o = 830 mA	789		872	
No Load Output Voltage (V)				
I _o = 1600 mA			35	There will be no damage or hazardous conditions occurred with no loading.
I _o = 1200 mA	----	----	50	
I _o = 1050 mA			63	
I _o = 930 mA			63	
I _o = 830 mA			63	
Output Ripple Voltage (V)	----	----	1% V _{omax}	Measured by 20 MHz bandwidth oscilloscopes and the output paralleled a 0.1μF ceramic capacitor and a 10μF 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 = 1600 mA Io = 1200 mA Io = 1050 mA Io = 930 mA Io = 830 mA			87 88 88 88 88	Measured at full load and 120Vac input.
Efficiency (%) Io = 1600 mA Io = 1200 mA Io = 1050 mA Io = 930 mA Io = 830 mA			87 88 88 88 88	Measured at full load and 277Vac input.
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)	-	-	70	
Dimensions Millimeters(L × W × H)	201 × 62 × 30.5			
Net Weight (g)				

- Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Voltage Protection			1.50 Vomax	In the event of an over-voltage condition, the LED Drives shall Shut down o/p voltage, re-power on to recover.
Over Temperature Protection	Shut down o/p voltage with re-power on to 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.

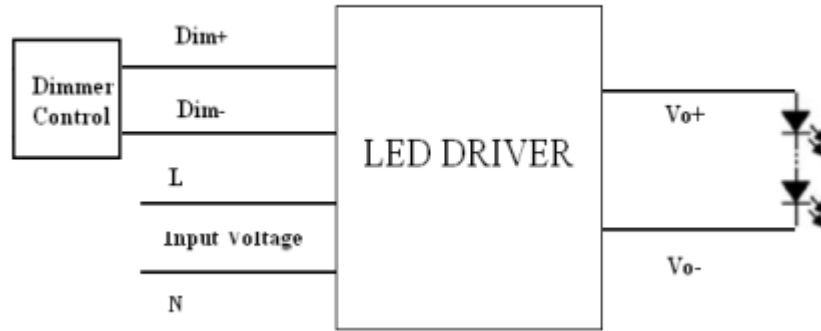
Notes:

1. Normal input voltage range 100~277Vac.
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.

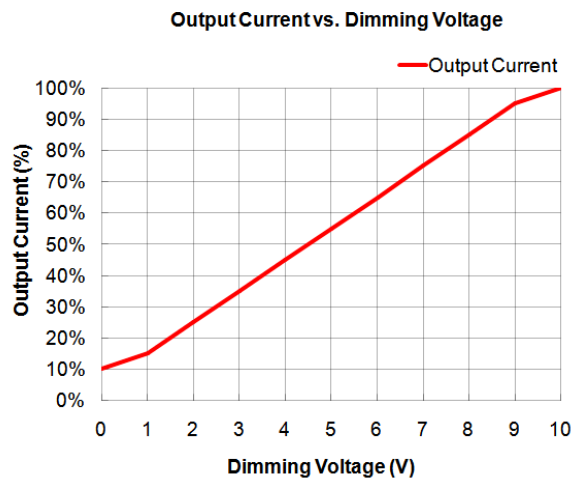


Notes:

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

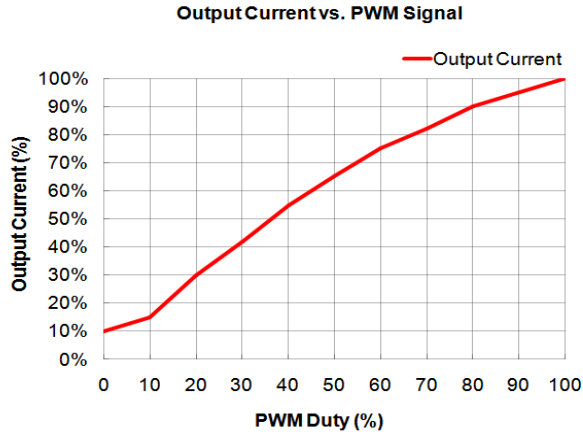
Parameter	Min.	Typ.	Max.	Notes
1-10V Dimming Voltage (V)	1	-	+ 10.8	
PWM Signal	5	10	+ 10.8	
0~10K Ω Variable Resistor (Ω)	-0	-	+10K	

- DC Voltage Dimming Curve

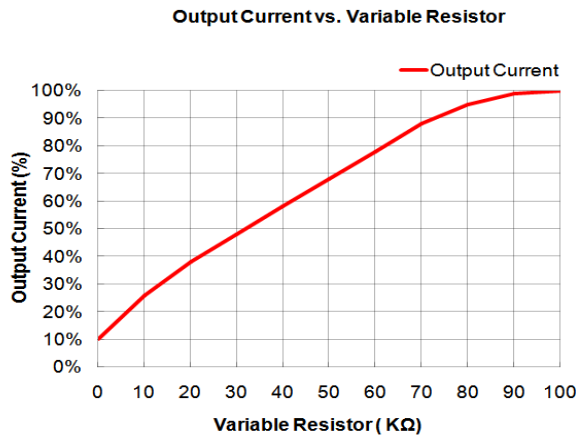




- PWM Signal Dimming Curve



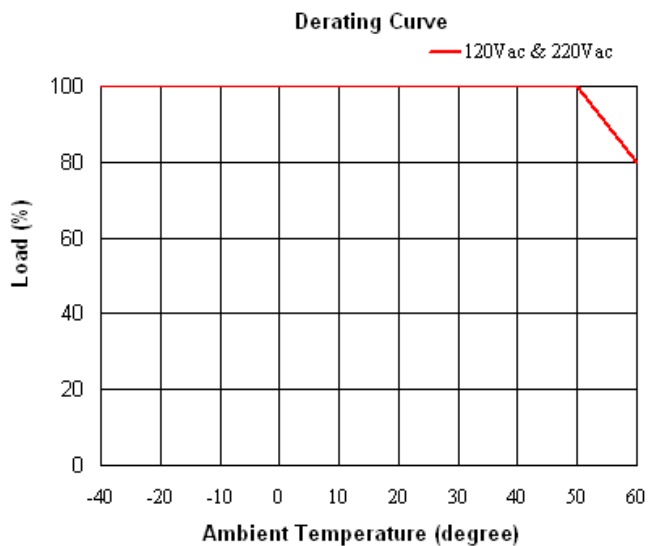
- Variable Resistor Curve



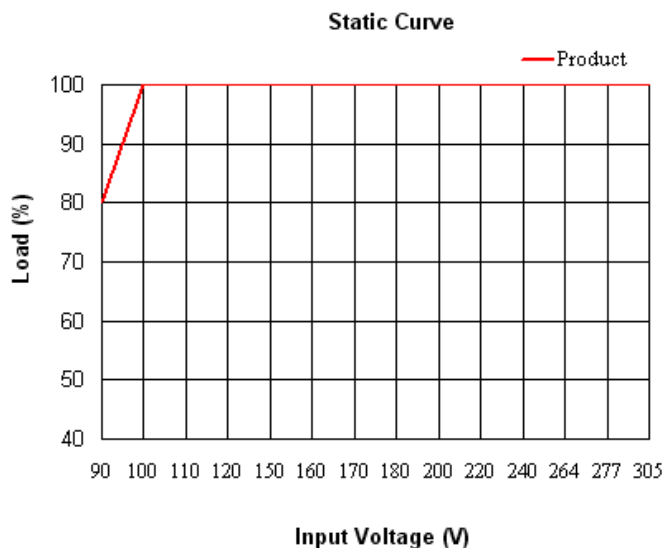


F. Electronic Curve

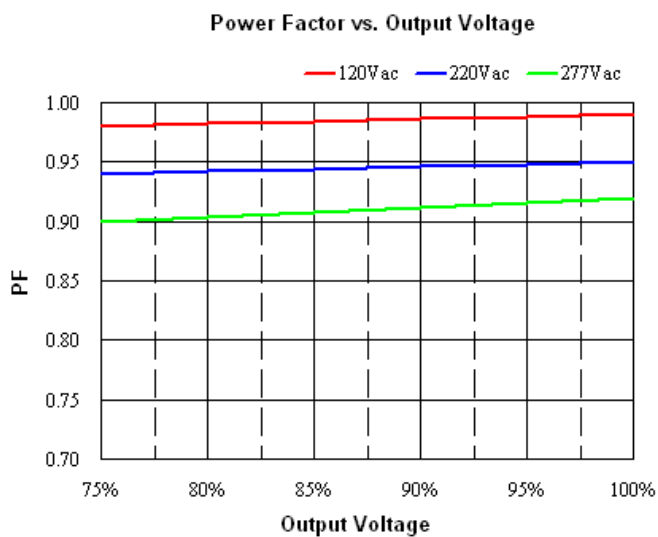
- Derating Curve



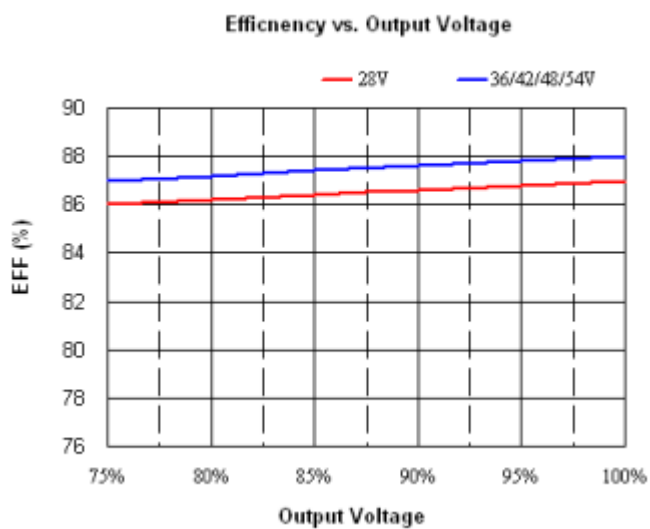
- Static Curve



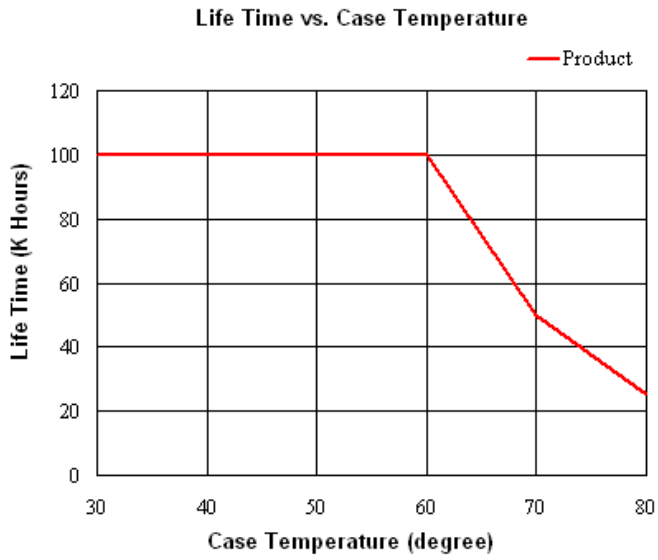
- Power Factor Characteristics Curve



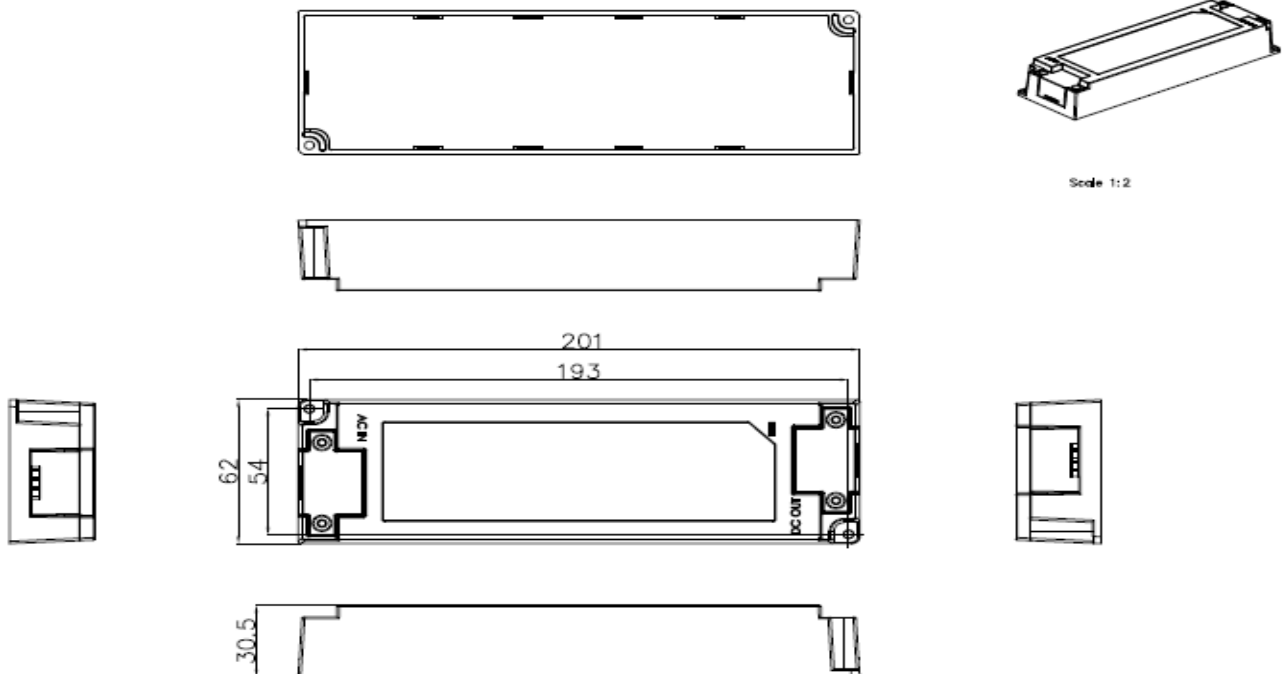
- Efficiency Characteristics Curve



- Life Time vs. Case Temperature Curve



G. Mechanical Outline





High Quality
Evolution
Commitment

HEC-45LTA-XXQSAA Rev A

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
2013-11-01	A	Datasheets Release	/	/

