A. Features

IP20

- 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 damp location.
- Class 2 and SELV.

B. Description

The ***HEC-60LTD-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
2150mA	90 ~ 305Vac	16V~28V	60 W	88%	0.95	HEC-60LTD-28QSAA
1400mA	90 ~ 305Vac	21V~42V	60 W	88%	0.95	HEC-60LTD-42QSAA

D. Electronic Specifications

- Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage (V)	90	-	305	
Input Frequency (Hz)	47		63	
Input AC Current (A)	-	-	0.8	Measured at full load and 100Vac input.
	-	-	0.4	Measured at full load and 277Vac input.
Leakage Current (mA)	-	-	0.7	At 277Vac 60Hz input.
Inrush Current (A)	-	-	40	At 220Vac input 25℃ Cold Start. Duration=100μs, 10%Ipk-10%Ipk.
Inrush Current (I2t)		-	0.16 A2s	
Power Factor	0.9	-	-	At 277Vac input, full load.
THD (%)	-	20	25	

- Output Specifications

Parameter	Min.	Typ.	Max.	Notes
DALI 100% duty Output Current (mA) Io = 2150 mA Io = 1400 mA	 2042 1330		 2257 1470	
DALI 10% duty Output Current (mA) Io = 215 mA Io = 140 mA	 151 100		 280 185	
No Load Output Voltage (V) Io = 2150 mA Io = 1400 mA	----	----	 35 63	There will be no damage or hazardous conditions occurred with no loading.
Output Ripple Voltage (V)	----	----	1% 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 = 2150 mA Io = 1400 mA	- -	- -	 88 88	Measured at full load and 120Vac input.
Efficiency (%) Io = 2150 mA Io = 1400 mA	- -	- -	 88 88	Measured at full load and 277Vac input.
MTBF (hours)	320,000	-	-	Measured at full load 50℃ ambient temperature (MIL-HDBK-217F).
Life Time (hours)		100,000	-	Measured at rated input voltage with full load, Case temperature=60℃ @ Tc point.See life time vs. Tc curve for the details.
Case Temperature (℃)	-	-	80	
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 (℃)	-40	-	+60	Humidity: 20% RH to 80% RH; See Derating Curve for more details.
Storage Temperature (℃)	-40	-	+80	Humidity: 10% RH to 90% RH.

- Safety and EMC Compliance

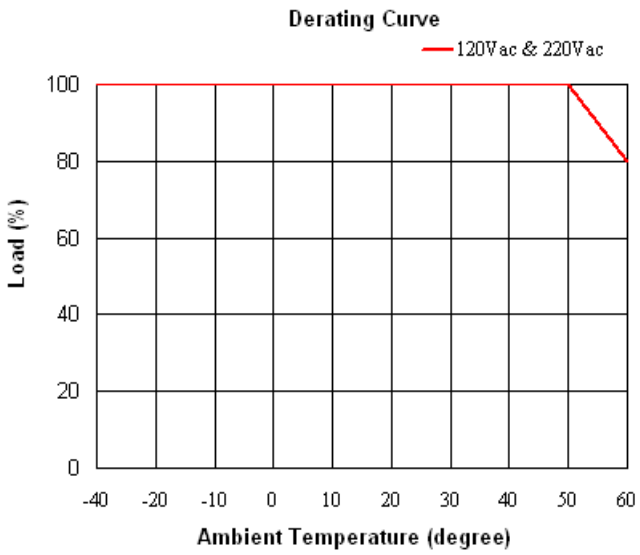
Safety Category	Standard
UL/CUL	UL8750, UL1310 Class 2, CSA C22.2 NO. 223-M91 Class 2.
CE	EN 61347-1, EN61347-2-13.
EMI Standards Note 6	**Notes**
EN 55015	Conducted emission Test & Radiated emission Test.
EN 61000-3-2	Harmonic current emissions.
EN 61000-3-3	Voltage fluctuations & flicker.
FCC Part 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:

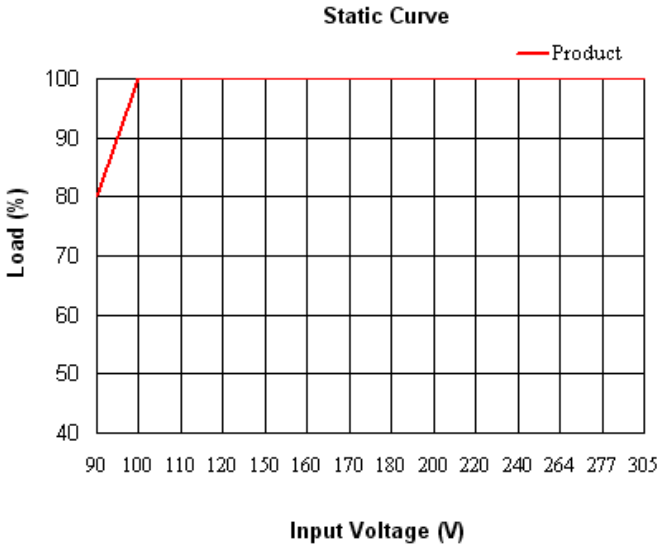
1. Normal input voltage range 100~277Vac.
2. Measured at input 220V with a full load.
3. All specifications are typical at 25 °C unless otherwise stated.
4. Constant current operation region is preferably 60%~100% rated output voltage. This is the suitable operation region for LED related applications, 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. Electronic Curve

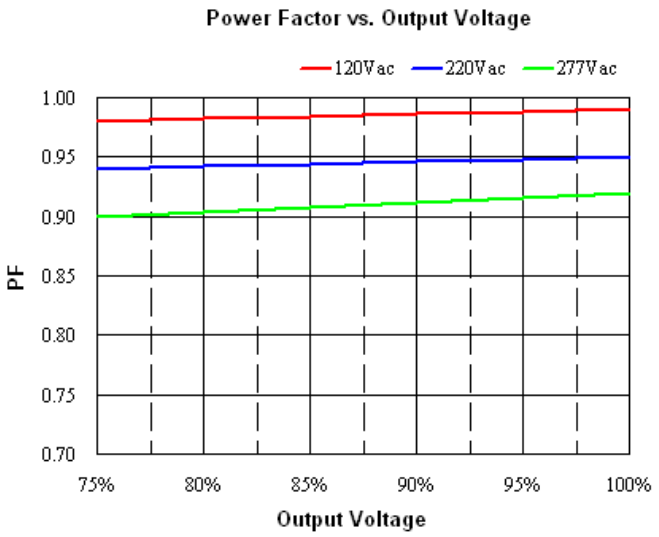
- Derating Curve



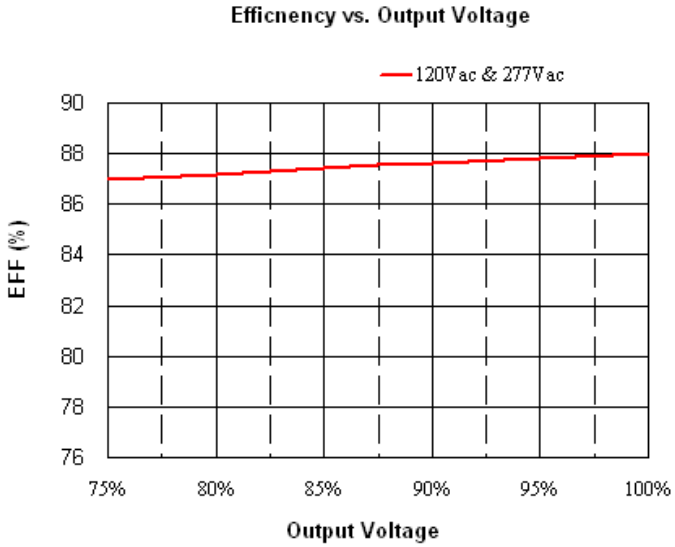
- Static Curve



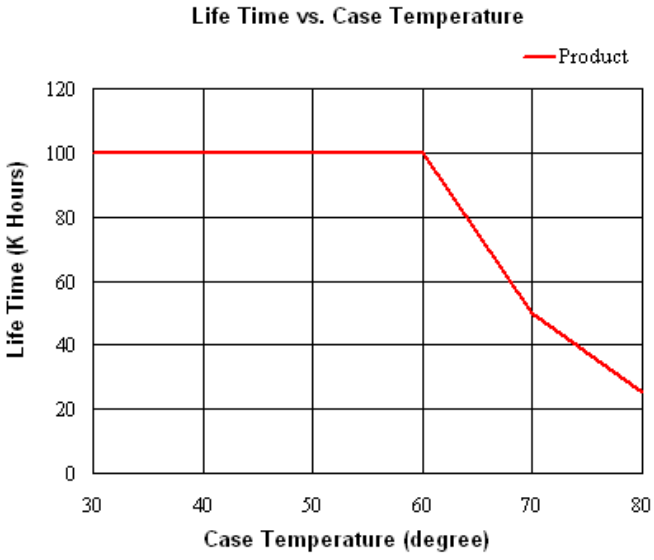
- Power Factor Characteristics Curve



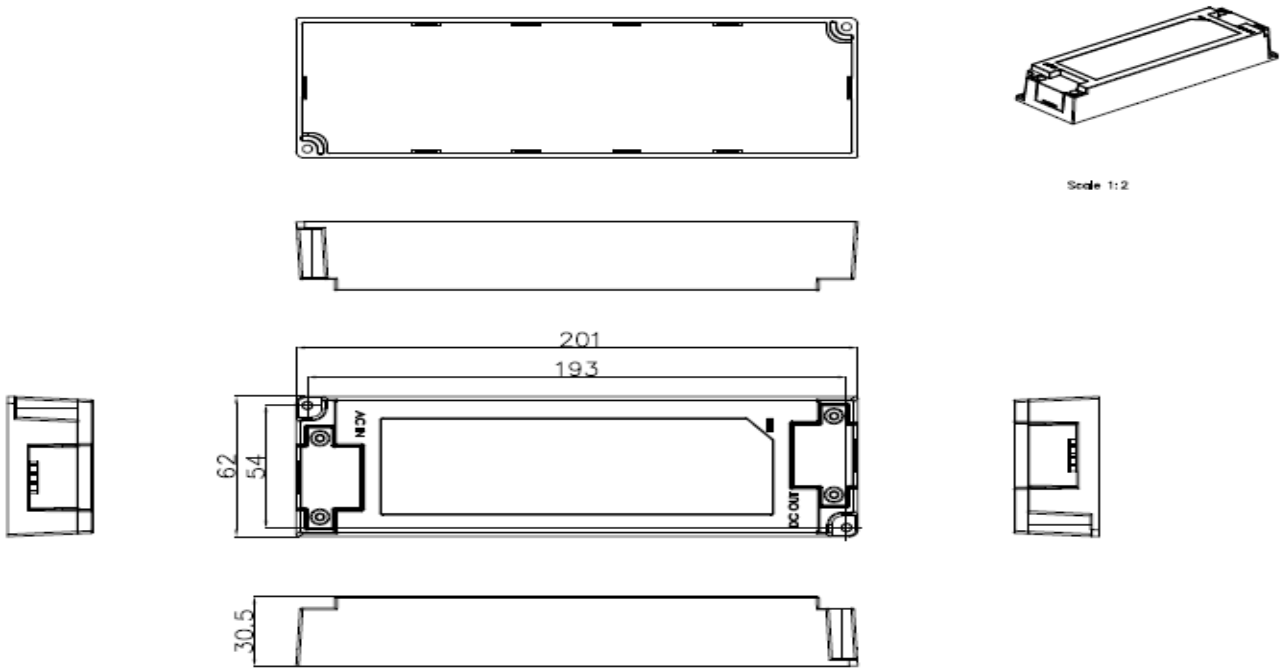
- Efficiency Characteristics Curve



- Life Time vs. Case Temperature Curve



F. Mechanical Outline



G. 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.

H. Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2013-11-01	A	Datasheets Release	/	/