Features

- Input voltage range:90-305VAC
- High efficiency up to 91%
- Low THD,10%Max up to 230Vac
- No load Power consumption<0.5W
- All-Around Protection: OCP,SCP,OTP, Input UVP
- Compact Metal Case with Excellent Thermal Performance
- Waterproof(IP67) and UL Dry/Damp/Wet Location
- Input Surge Protection:6kV line-line,10kV line-earth
- High Reliability & Long Lifetime & 5 Years Warranty

Description

The CKH-60-XXX IP67 R series is a 60W, constant-current IP67 LED driver that operates from 90-305Vac input with excellent power factor and THD feature. It is created for low bay, tunnel and street lights. The high efficiency of these drivers and compact metal case enable them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, input under voltage, output over voltage, short circuit, and over temperature.

Models

Model	Input Voltage range	Output Current	Output Voltage Range	Max output Power	Max Output Voltage	Power Factor	Typical Efficiency
CKH-60-550 IP67 R	90~305Vac	550mA	54-109V	60W	120V	0.95	91%
CKH-60-600 IP67 R	90~305Vac	600mA	50-100V	60W	110V	0.95	91%
CKH-60-650 IP67 R	90~305Vac	650mA	48-92V	60W	102V	0.95	91%
CKH-60-700 IP67 R	90~305Vac	700mA	48-86V	60W	96V	0.95	91%
CKH-60-750 IP67 R	90~305Vac	750mA	40-80V	60W	90V	0.95	91%
CKH-60-800 IP67 R	90~305Vac	800mA	37-75V	60W	85V	0.95	90.5%
CKH-60-850 IP67 R	90~305Vac	850mA	35-70V	60W	80V	0.95	90.5%
CKH-60-900 IP67 R	90~305Vac	900mA	34-67V	60W	77V	0.95	90.5%
CKH-60-950 IP67 R	90~305Vac	950mA	34-63V	60W	73V	0.95	90.5%
CKH-60-1000 IP67 R	90~305Vac	1000mA	34-60V	60W	70V	0.95	90.5%
CKH-60-1050 IP67 R	90~305Vac	1050mA	34-57V	60W	67V	0.95	90%
CKH-60-1200 IP67 R	90~305Vac	1200mA	25-50V	60W	60V	0.95	90%
CKH-60-1300 IP67 R	90~305Vac	1300mA	23-46V	60W	56V	0.95	90%
CKH-60-1400 IP67 R	90~305Vac	1400mA	21-43V	60W	53V	0.95	90%
CKH-60-1500 IP67 R	90~305Vac	1500mA	20-40V	60W	48V	0.95	90%
CKH-60-1600 IP67 R	90~305Vac	1600mA	20-38V	60W	47V	0.95	90%
CKH-60-1700 IP67 R	90~305Vac	1700mA	20-35V	60W	45V	0.95	90%
CKH-60-1800 IP67 R	90~305Vac	1800mA	20-34V	60W	42V	0.95	90%

Note:

1. Test condition：230Vac/50Hz，at full Load；

Input Specifications

Parameter	Min.	Typ.	Max	Notes
Rated Input Voltage	100V	-	240V	
Range of input voltage	90V	-	305V	Refer to derating curve when input voltage＜100V
Input Frequency	47Hz	-	63Hz	
Leakage Current	-	-	0.7mA	240Vac
Input Current	-	-	0.85A	90Vac,at full load condition
Inrush Current	-	-	25A	230Vac/50Hz, 90˚degree phase, full load, cold start, 50%Ipk~50%Ipk, duration=80μS
No Load Loss	-	-	0.5W	230Vac/50Hz, no load
Power Factor	-	0.95	-	230Vac/50Hz, at full load condition
THD	-	-	10%	100Vac~240Vac, 100%Load

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current				
CKH-60-550 IP67 R	-	550mA	-	
CKH-60-600 IP67 R	-	600mA	-	
CKH-60-650 IP67 R	-	650mA	-	
CKH-60-700 IP67 R	-	700mA	-	
CKH-60-750 IP67 R	-	750mA	-	
CKH-60-800 IP67 R	-	800mA	-	
CKH-60-850 IP67 R	-	850mA	-	
CKH-60-900 IP67 R	-	900mA	-	
CKH-60-950 IP67 R	-	950mA	-	At full load condition
CKH-60-1000 IP67 R	-	1000mA	-	
CKH-60-1050 IP67 R	-	1050mA	-	
CKH-60-1200 IP67 R	-	1200mA	-	
CKH-60-1300 IP67 R	-	1300mA	-	
CKH-60-1400 IP67 R	-	1400mA	-	
CKH-60-1500 IP67 R	-	1500mA	-	
CKH-60-1600 IP67 R	-	1600mA	-	
CKH-60-1700 IP67 R	-	1700mA	-	
CKH-60-1800 IP67 R	-	1800mA	-	
Output Current Tolerance	-5%	-	5%	At full load condition
Total Output Current Ripple	-	30%	40%	At full load condition, PK-PK
Startup Overshoot Current	-	-	10%	At full load condition
Load Regulation	-5%	-	5%	
Line Regulation	-5%	-	5%	100Vac~240Vac, full load
Startup times	-	0.5S	1S	

Note:

1) All parameters NOT specially mentioned are measured at 220Vac input and 25℃ of ambient temperature.

2) Ripple & Noise are measured at 20MHz of bandwidth by using a 300mm twisted pair-wire terminated with a 0.1uF & 47 μF parallel capacitor.

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 230Vac input:				
CKH-60-550 IP67 R	90%	91%	-	
CKH-60-600 IP67 R	90%	91%	-	
CKH-60-650 IP67 R	90%	91%	-	
CKH-60-700 IP67 R	90%	91%	-	
CKH-60-750 IP67 R	90%	91%	-	
CKH-60-800 IP67 R	89.5%	90.5%	-	
CKH-60-850 IP67 R	89.5%	90.5%	-	Measured at full load and steady –state temperature in 25℃ ambient
CKH-60-900 IP67 R	89.5%	90.5%	-	
CKH-60-950 IP67 R	89.5%	90.5%	-	Efficiency will be about 1% lower if measured immediately after startup
CKH-60-1000 IP67 R	89.5%	90.5%	-	
CKH-60-1050 IP67 R	89%	90%	-	
CKH-60-1200 IP67 R	89%	90%	-	
CKH-60-1300 IP67 R	89%	90%	-	
CKH-60-1400 IP67 R	88%	90%	-	
CKH-60-1500 IP67 R	88%	90%	-	
CKH-60-1600 IP67 R	88%	90%	-	
CKH-60-1700 IP67 R	88%	90%	-	
CKH-60-1800 IP67 R	88%	90%	-	
Efficiency at 120Vac input:				
CKH-60-550 IP67 R	88%	90%	-	
CKH-60-600 IP67 R	88%	90%	-	
CKH-60-650 IP67 R	88%	90%	-	
CKH-60-700 IP67 R	88%	90%	-	
CKH-60-750 IP67 R	88%	90%	-	
CKH-60-800 IP67 R	88%	90%	-	Measured at full load and steady –state temperature in 25℃ ambient
CKH-60-850 IP67 R	87.5%	90%	-	
CKH-60-900 IP67 R	87.5%	90%	-	Efficiency will be about 1% lower if measured immediately after startup
CKH-60-950 IP67 R	87.5%	90%	-	
CKH-60-1000 IP67 R	87.5%	90%	-	
CKH-60-1050 IP67 R	87%	89%	-	
CKH-60-1200 IP67 R	87%	89%	-	
CKH-60-1300 IP67 R	87%	89%	-	
CKH-60-1400 IP67 R	87%	89%	-	
CKH-60-1500 IP67 R	86%	88%	-	
CKH-60-1600 IP67 R	86%	88%	-	

CKH-60-1700 IP67 R CKH-60-1800 IP67 R	86% 86%	88% 88%	- -	
MTBF	250,000 Hours	-	-	Measured at 230Vac input, 80% Load and 25 ℃ ambient temperature (MIL-HDBK-217F)
Ambient Temperature	-40℃	-	+50℃	Refer to derating curve for the details.
Operating Case Temperature for Safety Tc_s	-40℃	-	+90℃	
Operating Case Temperature for Warranty Tc_w	-40℃	-	+75℃	Case temperature for 5 years warranty. Humidity: 10% RH to 100% RH.
Lifetime	-	51,200 Hours	-	Measured at 230Vac input, 100%Load and 75℃ case temperature; See lifetime vs. Case Temperature curve for the details
Storage Temperature	-40℃	-	+85℃	Humidity: 5% RH to 100% RH.
Dimensions	116X64X32mm			With mounting ear, See Mechanical Outline for the detail
Net Weight	-	430g	-	

Safety Standards

Safety Category	Country / Territory	Standards
CE,TUV	Europe	EN61347-1, EN61347-2-13
CCC	China	GB19510.1, GB19510.14

EMC Compliance

EMC Category	Country / Territory	Standards
CE	Europe	EN 55015, EN 61000-3-2, EN 61000-3-3
		EN61000-4-2,3,4,5,6,8,11
		EN 61547
CCC	China	GB 17743, GB 17625.1

Note：

1) This LED driver meets the EMI specifications above, but EMI performance of a lighting fixture also depends on the other devices on the fixture.

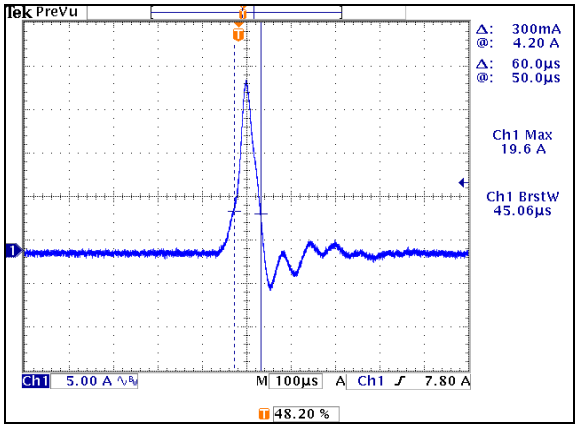
2) To perform electric strength (hi-pot) testing, the "GDT ground disconnect" (nut and metal lock sheet) on the driver end-cap should be removed temporarily to prevent the internal gas discharge tube from conducting (as allowed by IEC 60598-1 Clause 10.2). After testing is completed, these items must be reinstalled to restore lineto-earth surge protection and secure the end cap.

Protection Functions

Parameter	Min.	Typ.	Max.	Note
Over Load Protection	110%	-	150%	Hiccup, Auto Recovery
Short Circuit Protection	-	-	-	Hiccup, Auto Recovery
Over Voltage Protection	-	-	-	Hiccup, Auto Recovery
Over Temperature Protection	-	-	-	Hiccup, Auto Recovery
Input Under Voltage Protection	-	-	83V	Hiccup, Auto Recovery

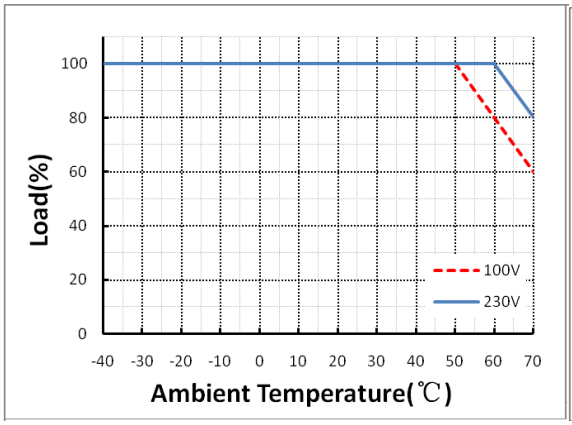
Curve

▲Inrush Current Waveform

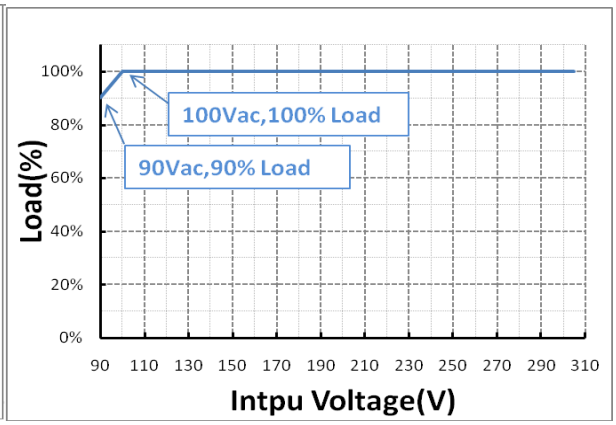


▲Derating

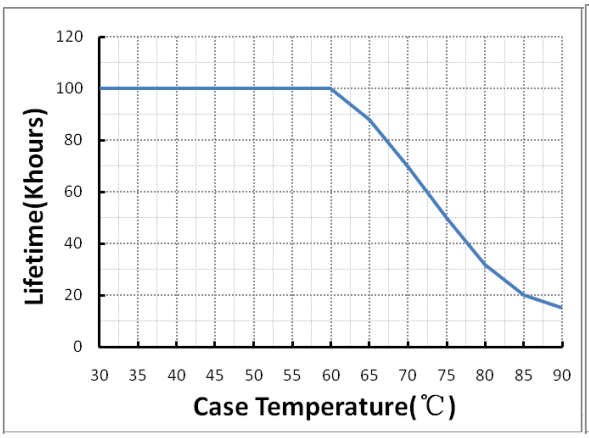
Output Power-Temperature



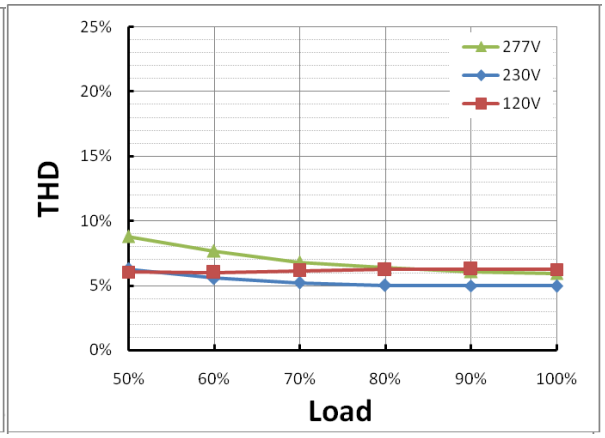
Output Power-Input Voltage



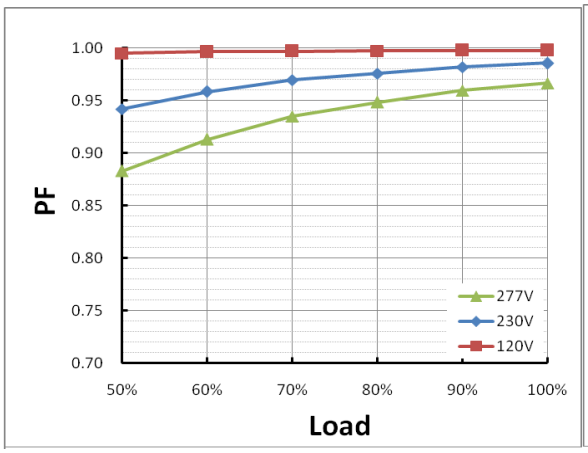
▲Lifetime



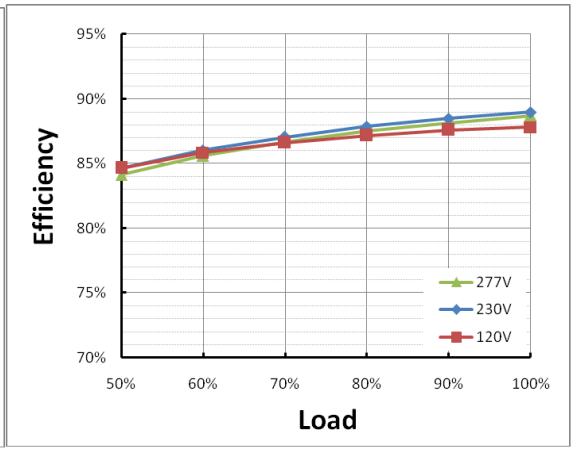
▲Total Harmonic Distortion



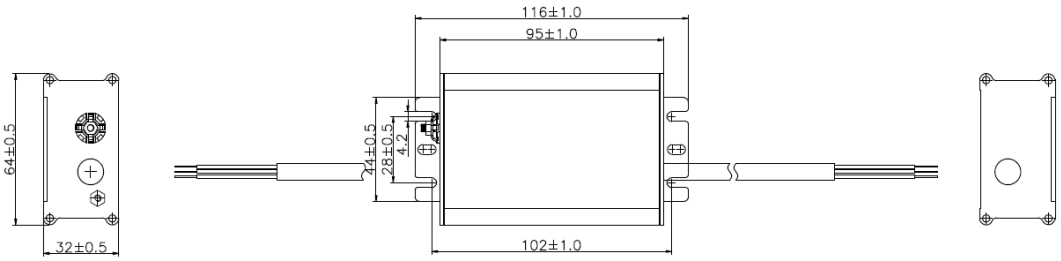
▲Power Factor



▲Efficiency@CKH-60-1800 IP67 R



Mechanical Outline



Note：Wire length of input and output can be changed as customer's requirement

TYPE	Total Length	Outside Color	Inside Wires Color	Wire Model/Diameter
Input wire	0.65M	Black	Brown/Blue/(Yellow/Green)	H05RN-F. 3X1.0mm^2
Output wire	0.30M	Black	Red/Black	H05RN-F. 2X1.0mm^2