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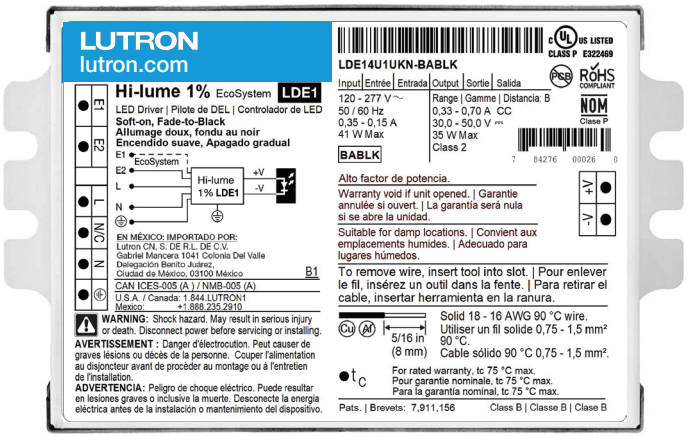
Hi-lume 1% EcoSystem LED Driver with Soft-on, Fade-to-Black

Hi-lume 1% EcoSystem LED Drivers with Soft-on, Fade-to-Black provide a high-performance solution for any space, in any application. They provide smooth, continuous dimming down to 1% of full output current, and fade smoothly between 0% and 1% with Soft-on, Fade-to-Black.

Features

- cULus® Listed Class P for USA and Canada.
- UL® Type TL rated. Visit “Online Certificates Directory” at www.ul.com, enter file number “E322469” to determine the Type TL numbers specific to the LDEx model Lutron LED Driver.
- Soft-on, Fade-to-Black: fades smoothly between 0% and 1% when turned on and off for an incandescent-like experience.
- Continuous, flicker-free dimming from 100% to 1%[1].
- Dimming Method:
  - Constant-current reduction dimming provides video-friendly performance down to 5%
  - PWM dimming below 5% (240 Hz), % Modulation = 100%
- Guaranteed dimming performance when used with Lutron EcoSystem controls.
- Guaranteed compatibility with Energi Savr Node units with EcoSystem, GRAFIK Eye QS with EcoSystem, PowPak dimming module with EcoSystem, and Quantum systems, allowing for integration into a planned or existing EcoSystem lighting control solution.
- QwikFig compatible models available, see **How to Build a Model Number** page for details. For more information, please refer to the QwikFig User Guide (Lutron P/N 041473) or contact your Lutron sales representative.
- Protected from miswires of input power to EcoSystem control inputs up to 277 V~.
- Rated lifetime of 50,000 hours at 75 °C calibration point (t_c).
- FCC Part 15 Class A
- 100% performance tested at factory before shipping.
- RoHS compliant.
- Non-volatile memory restores all settings after power failure.
- For more information please visit: www.lutron.com/hilume1softbled



K-case type

3.00 in (76 mm) W × 1.00 in (25 mm) H × 4.90 in (124 mm) L

M-case type

1.18 in (30 mm) W × 1.00 in (25 mm) H × 14.13 in (359 mm) L

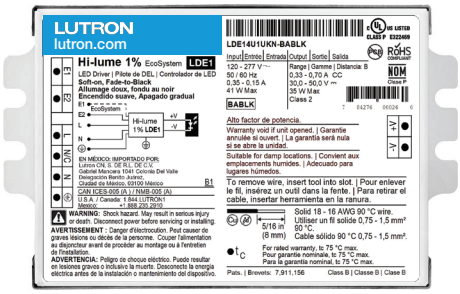
EcoSystem Features

- Simpler to wire and more reliable than 0–10 V⎓.
- Guarantees compatibility between Lutron controls, LED drivers, ballasts, and sensors.
- Accommodates zone and control changes without rewiring.
- Link to Lutron Quantum Total Light Management System to monitor lighting power consumption.
- Polarity-free and topology-free.
- Digital EcoSystem intelligence allows easy code compliance.
- Digital EcoSystem control link can be Class 1 or Class 2.
- Upon loss of Digital EcoSystem control link, drivers go to emergency level (default is high-end, but can be programmed during system setup).

[1] Light output at 1% depends on the efficacy of the LED light engine used with the driver.

Job Name:	Model Numbers:	
Job Number:		

How to Build a Model Number, K-Case Type: Hi-lume 1% EcoSystem (up to 40 W) LED Driver with Soft-on, Fade-to-Black



K-case type

L D E 1 4 U 1 U K – A

Example: LDE14U1UK**N**-**B**A**070**

- 0.70 A
- 21–35 W**
- Non-studded case LED driver

For further assistance in selecting your model number, contact our LED Center of Excellence at **LEDs@lutron.com**

** Minimum and maximum wattages derived from minimum and maximum compatible load voltages at 0.7 A:
0.7 A × 30 V = 21 W; 0.7 A × 50 V = 35 W

Case Style

- **S**: Studded (K-case only)
- **N**: Non-Studded

LED Load Output Range: Class 2 Constant Current

(see the following pages for more detail)

- **A**: 0.22–0.45 A, 21.0–50.0 V⎓*, 7–17.5 W
- **B**: 0.33–0.70 A, 30.0–50.0 V⎓*, 14–35 W
- **C**: 0.46–0.93 A, 16.0–37.1 V⎓*, 13–26 W
- **D**: 0.38–0.75 A, 12.0–30.2 V⎓*, 8–16 W
- **E**: 0.71–1.05 A, 31.0–50.0 V⎓*, 22–40 W
- **F**: 0.71–1.40 A, 19.0–38.0 V⎓*, 21–40 W
- **G**: 0.94–1.40 A, 13.0–30.0 V⎓*, 18.5–32 W
- **H**: 0.63–1.05 A, 10.0–21.0 V⎓*, 8–18 W

Current Level (for Constant-Current)

- **022** = 0.22 A
- **140** = 1.40 A

Option 1: Order a driver configured by Lutron to a desired output current.

Example: LDE14U1UKN-BA070 has been pre-configured at Lutron to an output of 0.70 A. Refer to the example above.

Note: LDE1 drivers produced by Lutron after January 1, 2019 can be reconfigured through QwikFig with a K- or M- can nest.

Option 2: Order a bulk driver and configure it through QwikFig with a K- or M- can nest.

Example: LDE14U1UKN-BABLK (0.33–0.70 A)*

Note: Default set to minimum output current for the respective **LED Load Output Range**.

Attention: Model numbers may appear similar to Lutron Hi-lume 1% EcoSystem, Hi-lume 1% 3-wire or Hi-lume 1% 2-wire drivers, but they are not direct model-for-model replacements. Please note the driver's output rating and the load ratings to select the correct product for your fixture.

* Output voltage range changes with output current and according to power limits. Check driver specifications on the following pages carefully to understand output voltage range of a particular SKU. Purchaser is responsible for electrical compatibility between LED driver and LED load.

Job Name:	Model Numbers:	
Job Number:		

K-Case Models: "A" Output Range

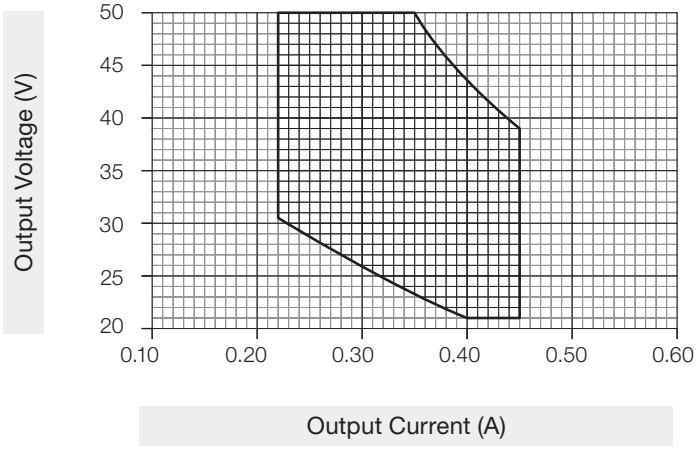
Driver Type	Output Voltage	Output Current	Output Power	Standards Recognition	Maximum Rated Temp. @ t_c for Warranty
Constant Current Driver (Class 2)	21–50 V⎓	0.22–0.45 A	7–17.5 W	c UL us LISTED CLASS P E322469 NOM*	75 °C

* BLK model LDE14U1UKx-AABLK is NOM certified and available for Mexico. "x" in the model number is either "S" (Studded) or "N" (Non-Studded).

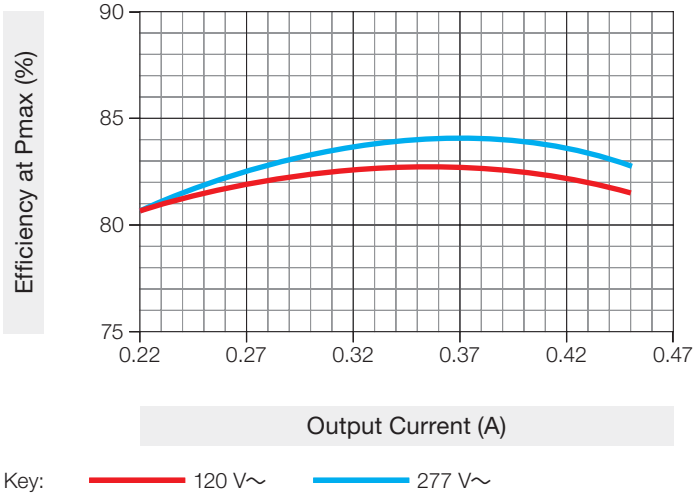
Typical Performance Specifications

Parameter	Value	Test Conditions
Input Current	0.09 A	V_i = 277 V~, t_a = 25 °C, I_o = 0.45 A, V_o = 38.9 V⎓, Maximum Light Output LDE14U1UKN-AA045
Power Factor	0.88	
THD	17%	
Driver Efficiency	83%	

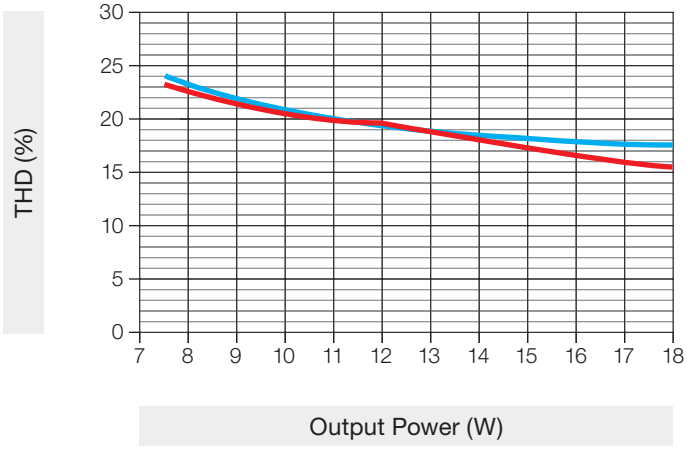
Load Compatibility



Typical Efficiency vs. Output Current

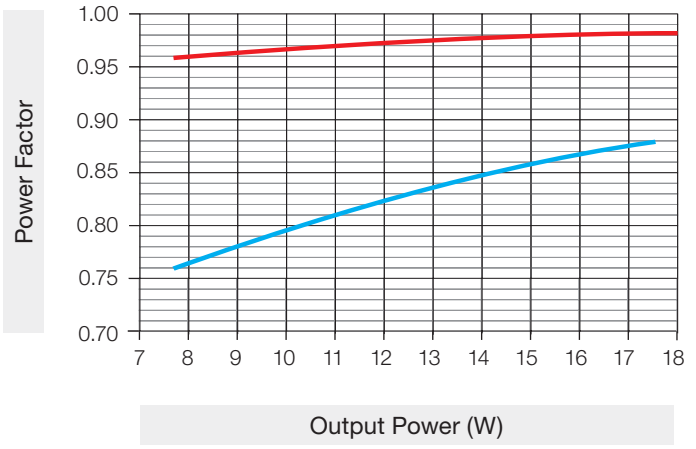


Typical THD vs. Output Power



Key: 120 V~ 277 V~

Typical Power Factor vs. Output Power



Key: 120 V~ 277 V~

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Job Name:	Model Numbers:	
Job Number:		

K-Case Models: "A" Output Range *(continued)*

Output Current and Compatible Load Voltage

		Compatible Load Voltage (V)		Typical Performance at Minimum Compatible Load Voltage			Typical Performance at Maximum Compatible Load Voltage		
Model Number* LDE14U1UKS/N	Rated Output Current (A)	Minimum	Maximum	Power Factor at 120 V~/ 277 V~	THD at 120 V~/ 277 V~	Efficiency at 120 V~/ 277 V~	Power Factor at 120 V~/ 277 V~	THD at 120 V~/ 277 V~	Efficiency at 120 V~/ 277 V~
-AA022	0.22	30.5	50.0	0.94/0.73	25%/26%	76%/75%	0.97/0.81	20%/20%	80%/80%
-AA023	0.23	29.9	50.0	0.94/0.74	25%/26%	77%/76%	0.97/0.81	20%/19%	81%/81%
-AA024	0.24	29.3	50.0	0.95/0.74	24%/25%	77%/76%	0.97/0.83	19%/19%	81%/81%
-AA025	0.25	28.7	50.0	0.95/0.74	24%/25%	77%/76%	0.97/0.83	19%/19%	81%/82%
-AA026	0.26	28.1	50.0	0.95/0.75	24%/25%	77%/76%	0.97/0.84	19%/19%	81%/82%
-AA027	0.27	27.6	50.0	0.95/0.75	23%/24%	77%/76%	0.98/0.84	18%/18%	82%/82%
-AA028	0.28	27.0	50.0	0.95/0.76	23%/24%	77%/76%	0.98/0.85	18%/18%	82%/83%
-AA029	0.29	26.4	50.0	0.96/0.76	23%/24%	76%/76%	0.98/0.85	18%/18%	82%/83%
-AA030	0.30	25.9	50.0	0.96/0.76	23%/24%	76%/76%	0.98/0.86	17%/18%	82%/83%
-AA031	0.31	25.4	50.0	0.96/0.76	23%/23%	76%/76%	0.98/0.86	17%/18%	82%/83%
-AA032	0.32	24.9	50.0	0.96/0.77	23%/23%	76%/76%	0.98/0.87	17%/18%	82%/83%
-AA033	0.33	24.3	50.0	0.96/0.77	23%/23%	76%/76%	0.98/0.87	16%/18%	82%/83%
-AA034	0.34	23.8	50.0	0.96/0.77	23%/23%	76%/76%	0.98/0.87	16%/18%	82%/84%
-AA035	0.35	23.3	50.0	0.96/0.77	23%/23%	75%/75%	0.98/0.88	16%/17%	83%/84%
-AA036	0.36	22.9	48.6	0.96/0.77	23%/23%	75%/75%	0.98/0.88	16%/17%	83%/84%
-AA037	0.37	22.4	47.3	0.96/0.77	23%/23%	75%/74%	0.98/0.88	16%/17%	83%/84%
-AA038	0.38	21.9	46.1	0.96/0.77	23%/23%	74%/74%	0.98/0.88	16%/17%	82%/84%
-AA039	0.39	21.4	44.9	0.96/0.77	22%/23%	74%/74%	0.98/0.88	16%/17%	82%/84%
-AA040	0.40	21.0	43.8	0.96/0.77	22%/23%	74%/74%	0.98/0.88	16%/17%	82%/84%
-AA041	0.41	21.0	42.7	0.96/0.77	22%/22%	74%/74%	0.98/0.88	16%/17%	82%/83%
-AA042	0.42	21.0	41.7	0.96/0.77	22%/22%	74%/74%	0.98/0.88	16%/17%	82%/83%
-AA043	0.43	21.0	40.7	0.97/0.78	22%/22%	74%/74%	0.98/0.88	16%/17%	82%/83%
-AA044	0.44	21.0	39.8	0.97/0.79	21%/21%	74%/74%	0.98/0.88	16%/17%	81%/83%
-AA045	0.45	21.0	38.9	0.97/0.79	21%/21%	74%/74%	0.98/0.88	16%/17%	81%/83%

* See **How to Build a Model Number, K-Case Type** page for a sample model number.

Job Name:	Model Numbers:	
Job Number:		

K-Case Models: "B" Output Range

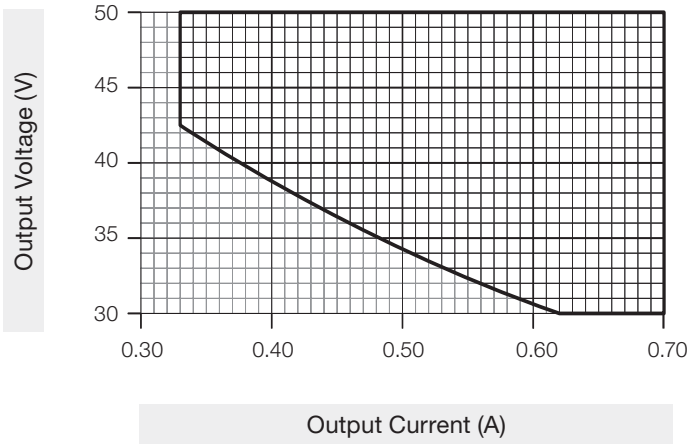
Driver Type	Output Voltage	Output Current	Output Power	Standards Recognition	Maximum Rated Temp. @ t_c for Warranty
Constant Current Driver (Class 2)	30–50 V⎓	0.33–0.70 A	14–35 W	c UL us LISTED CLASS P E322469 NOM*	75 °C

* BLK model LDE14U1UKx-BABLK is NOM certified and available for Mexico. "x" in the model number is either "S" (Studded) or "N" (Non-Studded).

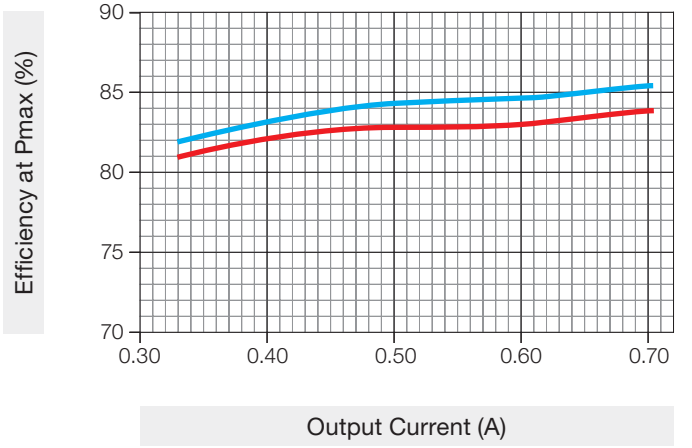
Typical Performance Specifications

Parameter	Value	Test Conditions
Input Current	0.15 A	V_i = 277 V~, t_a = 25 °C, I_o = 0.7 A, V_o = 50 V⎓, Maximum Light Output LDE14U1UKN-BA070
Power Factor	0.96	
THD	17%	
Driver Efficiency	87%	

Load Compatibility

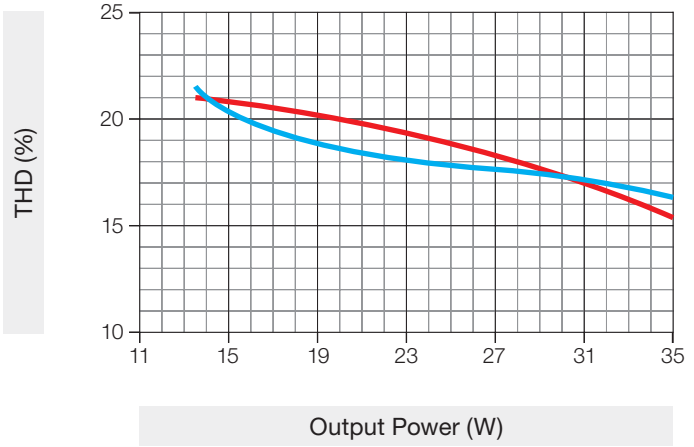


Typical Efficiency vs. Output Current



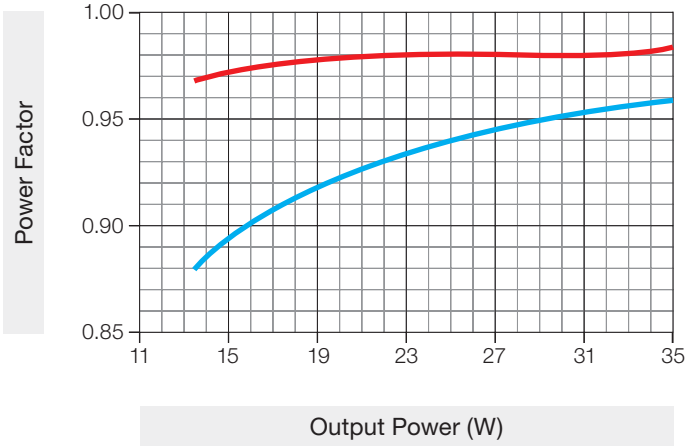
Key: 120 V~ 277 V~

Typical THD vs. Output Power



Key: 120 V~ 277 V~

Typical Power Factor vs. Output Power



Key: 120 V~ 277 V~

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Job Name:	Model Numbers:	
Job Number:		

K-Case Models: "B" Output Range *(continued)*

Output Current and Compatible Load Voltage

		Compatible Load Voltage (V)		Typical Performance at Minimum Compatible Load Voltage			Typical Performance at Maximum Compatible Load Voltage		
Model Number* LDE14U1UKS/N	Rated Output Current (A)	Minimum	Maximum	Power Factor at 120 V~/ 277 V~	THD at 120 V~/ 277 V~	Efficiency at 120 V~/ 277 V~	Power Factor at 120 V~/ 277 V~	THD at 120 V~/ 277 V~	Efficiency at 120 V~/ 277 V~
-BA033	0.33	42.5	50.0	0.97/0.88	21%/21%	80%/81%	0.97/0.90	21%/20%	81%/82%
-BA034	0.34	41.9	50.0	0.97/0.88	21%/21%	80%/81%	0.98/0.91	21%/20%	81%/82%
-BA035	0.35	41.3	50.0	0.97/0.89	21%/21%	80%/81%	0.98/0.91	20%/20%	81%/82%
-BA036	0.36	40.7	50.0	0.97/0.89	21%/21%	80%/81%	0.98/0.91	20%/19%	81%/82%
-BA037	0.37	40.2	50.0	0.97/0.89	21%/21%	80%/82%	0.98/0.92	20%/19%	82%/83%
-BA038	0.38	39.6	50.0	0.97/0.89	21%/21%	80%/82%	0.98/0.92	20%/19%	82%/83%
-BA039	0.39	39.1	50.0	0.97/0.89	21%/21%	81%/82%	0.98/0.92	20%/19%	82%/83%
-BA040	0.40	38.5	50.0	0.97/0.90	21%/21%	81%/82%	0.98/0.92	20%/19%	82%/83%
-BA041	0.41	38.0	50.0	0.97/0.90	21%/20%	81%/82%	0.98/0.93	20%/18%	82%/83%
-BA042	0.42	37.5	50.0	0.97/0.90	21%/20%	81%/82%	0.98/0.93	20%/18%	82%/83%
-BA043	0.43	37.0	50.0	0.97/0.90	21%/20%	81%/82%	0.98/0.93	20%/18%	82%/84%
-BA044	0.44	36.5	50.0	0.97/0.90	21%/20%	81%/82%	0.98/0.93	20%/18%	82%/84%
-BA045	0.45	36.1	50.0	0.97/0.90	21%/20%	81%/82%	0.98/0.93	20%/18%	82%/84%
-BA046	0.46	35.6	50.0	0.97/0.90	21%/20%	81%/82%	0.98/0.93	19%/18%	82%/84%
-BA047	0.47	35.2	50.0	0.97/0.91	21%/20%	81%/82%	0.98/0.94	19%/18%	82%/84%
-BA048	0.48	34.7	50.0	0.97/0.91	21%/20%	81%/82%	0.98/0.94	19%/18%	83%/84%
-BA049	0.49	34.3	50.0	0.98/0.91	21%/20%	81%/82%	0.98/0.94	19%/18%	83%/84%
-BA050	0.50	33.9	50.0	0.98/0.91	21%/20%	81%/82%	0.98/0.94	19%/18%	83%/84%
-BA051	0.51	33.5	50.0	0.98/0.91	21%/20%	81%/82%	0.98/0.94	19%/18%	83%/84%
-BA052	0.52	33.1	50.0	0.98/0.91	20%/19%	81%/82%	0.98/0.94	19%/18%	83%/84%
-BA053	0.53	32.8	50.0	0.98/0.91	20%/19%	81%/82%	0.98/0.94	19%/18%	83%/84%
-BA054	0.54	32.4	50.0	0.98/0.91	20%/19%	81%/82%	0.98/0.94	18%/18%	83%/84%
-BA055	0.55	32.1	50.0	0.98/0.91	20%/19%	81%/82%	0.98/0.95	18%/18%	83%/84%
-BA056	0.56	31.7	50.0	0.98/0.91	20%/19%	81%/82%	0.98/0.95	18%/17%	83%/84%
-BA057	0.57	31.4	50.0	0.98/0.91	20%/19%	81%/82%	0.98/0.95	18%/17%	83%/84%
-BA058	0.58	31.1	50.0	0.98/0.91	20%/19%	81%/82%	0.98/0.95	18%/17%	83%/84%
-BA059	0.59	30.8	50.0	0.98/0.91	20%/19%	81%/82%	0.98/0.95	18%/17%	83%/84%
-BA060	0.60	30.5	50.0	0.98/0.91	20%/19%	81%/82%	0.98/0.95	18%/17%	83%/84%
-BA061	0.61	30.3	50.0	0.98/0.92	20%/19%	81%/82%	0.98/0.95	17%/17%	83%/85%
-BA062	0.62	30.0	50.0	0.98/0.92	20%/19%	81%/82%	0.98/0.95	17%/17%	83%/85%
-BA063	0.63	30.0	50.0	0.98/0.92	20%/19%	81%/83%	0.98/0.95	17%/17%	83%/85%
-BA064	0.64	30.0	50.0	0.98/0.92	20%/19%	81%/83%	0.98/0.96	17%/17%	83%/85%
-BA065	0.65	30.0	50.0	0.98/0.92	20%/19%	81%/83%	0.98/0.96	17%/17%	83%/85%
-BA066	0.66	30.0	50.0	0.98/0.92	20%/19%	82%/83%	0.98/0.96	16%/17%	83%/85%
-BA067	0.67	30.0	50.0	0.98/0.92	20%/19%	82%/83%	0.98/0.96	16%/17%	83%/85%
-BA068	0.68	30.0	50.0	0.98/0.92	20%/18%	82%/83%	0.98/0.96	16%/17%	83%/85%
-BA069	0.69	30.0	50.0	0.98/0.93	20%/18%	82%/83%	0.98/0.96	16%/16%	84%/85%
-BA070	0.70	30.0	50.0	0.98/0.93	20%/18%	82%/83%	0.98/0.96	16%/16%	84%/85%

* See **How to Build a Model Number, K-Case Type** page for a sample model number.

Job Name:	Model Numbers:	
Job Number:		

K-Case Models: "C" Output Range

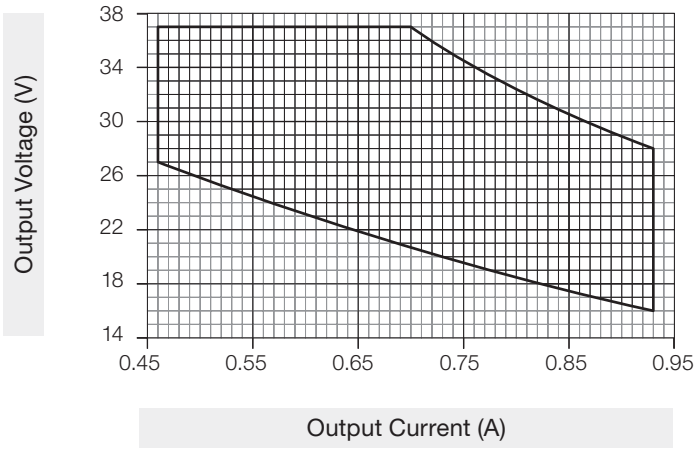
Driver Type	Output Voltage	Output Current	Output Power	Standards Recognition	Maximum Rated Temp. @ t_c for Warranty
Constant Current Driver (Class 2)	16–37.1 V⎓	0.46–0.93 A	13–26 W	c UL us LISTED CLASS P E322469 NOM*	75 °C

* BLK model LDE14U1UKx-CABLK is NOM certified and available for Mexico. "x" in the model number is either "S" (Studded) or "N" (Non-Studded).

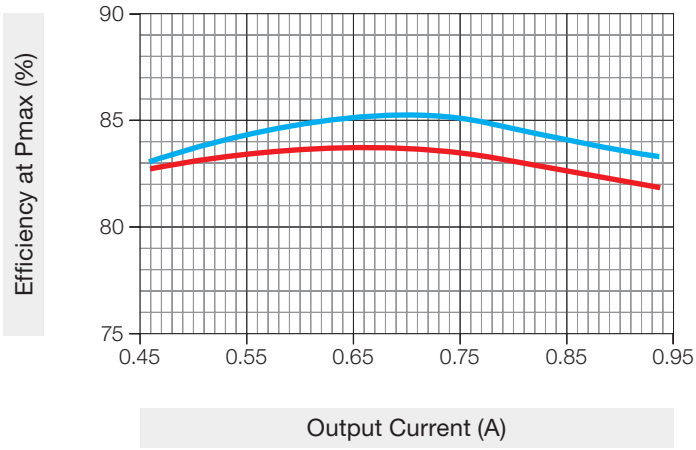
Typical Performance Specifications

Parameter	Value	Test Conditions
Input Current	0.12 A	V_i = 277 V~, t_a = 25 °C, I_o = 0.93 A, V_o = 28 V⎓, Maximum Light Output LDE14U1UKN-CA093
Power Factor	0.95	
THD	16%	
Driver Efficiency	83%	

Load Compatibility

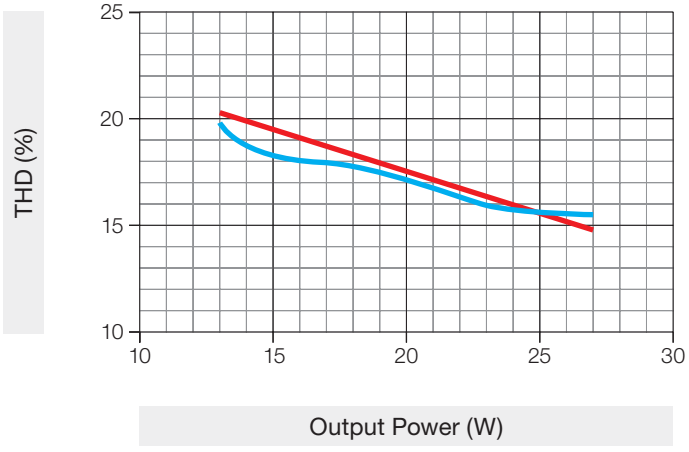


Typical Efficiency vs. Output Current



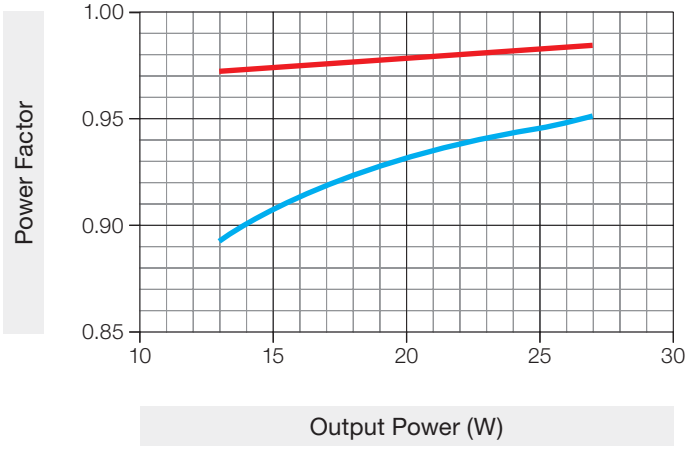
Key: 120 V~ 277 V~

Typical THD vs. Output Power



Key: 120 V~ 277 V~

Typical Power Factor vs. Output Power



Key: 120 V~ 277 V~

continued on next page…

Job Name:	Model Numbers:	
Job Number:		