

## 25 Watt - LNHL25W Series

CONSTANT CURRENT LED DRIVER FOR HAZARDOUS LOCATIONS



**25W**  
 LNHL25W Series  
 UL TYPE HL

### Model: LNHL25W Series

- Drive Mode: Constant Current or Constant Voltage
- Technology: PFC Off-Line Switch Mode
- Output Power: 25W Max.
- Input Voltage: 90 to 305VAC, 47- 63Hz
- Output Voltages: 6VDC - 72VDC
- Output Currents: 350mA - 2080mA
- 0-10V Dimming 5% - 100%
- UL Type HL Rated with 5VA case for Hazardous Locations

### Environmental

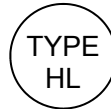
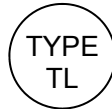
1. Operating temperature: Tc 90C Maximum. Reference -30 to +60°C ambient
2. UL Type TL (Tref Max/Meas. Tref): 90/74°C
3. Storage temperature range: -40 to +85°C
4. Humidity (non-condensing): 5% - 95%RH
5. Cooling: Convection
6. Vibration Frequency: 5-55Hz/2g, 30 minutes
7. Impact resistance: 1g/s
8. MTBF@ 40°C: 492,000 hours @ Full Load per MIL-217F Notice 2.

### Safety and Compliance

1. UL8750, EN61347, CSA 22.2 safety recognized, UL Type HL
2. FCC, 47CFR Part 15 Class B & EN55015 certified.
3. Water resistant and Dust Proof Design: IP66, NEMA4, for Dry, Damp, Wet Locations.
4. Compact, Lightweight Design.
5. Safety Isolation between Primary and Secondary
6. Meets EN61000-3-2 & EN61000-3-3 Class C
7. Protection: output over-voltage, output over-current, output short circuit, auto-recovery.
8. EN61000-4-5: 2kV L-N, 8/20 µsec surge protection.

### Electrical Specifications at 25°C

- Input voltage range: 90 to 305VAC
- Frequency: 47- 63HZ
- Power Factor:  $\geq 0.90$  at  $\geq 70\%$  Load, 120Vac/230Vac,  $\geq 88\%$  Load 277Vac
- THD%:  $\leq 20\%$  at  $\geq 60\%$  Load, 120Vac/230Vac/277Vac
- Inrush current:  $<50A$  at 25C, 277Vac, cold start, Full Load
- Input current: 0.25A typical at 120Vac, 60Hz, Full Load
- Efficiency: 88% typical at 230Vac Full Load
- Line regulation accuracy:  $\pm 3\%$
- Load regulation accuracy:  $\pm 3\%$
- Leakage current: 500uA typical; Hold up time: half cycle



IP66



### Constant Current Versions

Part Number <sup>(2)</sup>	US Class 2	CN Class 2	UL Types	Output Voltage Range	Output Constant Current	Current Accuracy	Output Power Maximum	Typical Efficiency <sup>(1)</sup>
LNHL25W-72-C0350	NO	NO	TL & HL	36 - 72 VDC	350 mA	$\pm 5\%$	25W	88%
LNHL25W-62-C0400	NO	NO	TL & HL	31 - 62 VDC	400 mA	$\pm 5\%$	25W	88%
LNHL25W-56-C0450	YES	YES	TL & HL	28 - 56 VDC	450 mA	$\pm 5\%$	25W	88%
LNHL25W-45-C0560	YES	YES	TL & HL	23 - 45 VDC	560 mA	$\pm 5\%$	25W	87%
LNHL25W-40-C0620	YES	YES	TL & HL	20 - 40 VDC	620 mA	$\pm 5\%$	25W	87%
LNHL25W-36-C0700	YES	YES	TL & HL	18 - 36 VDC	700 mA	$\pm 5\%$	25W	86%
LNHL25W-28-C0850	YES	YES	TL & HL	14 - 28 VDC	850 mA	$\pm 5\%$	25W	86%
LNHL25W-24-C1040	YES	YES	TL & HL	12 - 24 VDC	1040 mA	$\pm 5\%$	25W	85%
LNHL25W-20-C1250	YES	YES	TL & HL	10 - 20 VDC	1250 mA	$\pm 5\%$	25W	85%
LNHL25W-18-C1400	YES	YES	TL & HL	9 - 18 VDC	1400 mA	$\pm 5\%$	25W	84%
LNHL25W-16-C1560	YES	YES	TL & HL	8 - 16 VDC	1560 mA	$\pm 5\%$	25W	84%
LNHL25W-14-C1750	YES	YES	TL & HL	7 - 14 VDC	1750 mA	$\pm 5\%$	25W	82%
LNHL25W-12-C2080	YES	YES	TL & HL	6 - 12 VDC	2080 mA	$\pm 5\%$	25W	80%

### Notes

1. Typical efficiency measured at 230VAC input, full load
2. 0-10V Dimming is compatible with most quality 0-10V wall dimmers and direct 0-10V sink analog signal. See page 3 for details.

**25 Watt - LNHL25W Series**  
CONSTANT CURRENT LED DRIVER FOR HAZARDOUS LOCATIONS

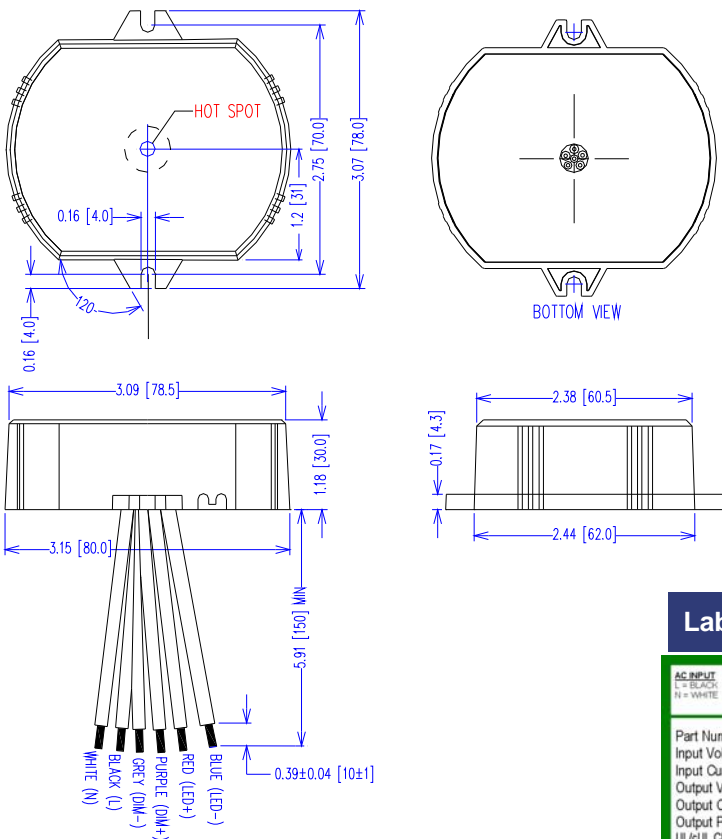
**Constant Voltage Versions**

Part Number	US Class 2	CN Class 2	Output Constant Voltage	Output Current Range	Voltage Accuracy	Output Power Maximum	Typical Efficiency <sup>(1)</sup>
LNHL25W-72	NO	NO	72 VDC	88 - 350 mA	± 5%	25W	88%
LNHL25W-62	NO	NO	62 VDC	100 - 400 mA	± 5%	25W	88%
LNHL25W-56	YES	YES	56 VDC	113 - 450 mA	± 5%	25W	88%
LNHL25W-45	YES	YES	45 VDC	140 - 560 mA	± 5%	25W	87%
LNHL25W-40	YES	YES	40 VDC	155 - 620 mA	± 5%	25W	87%
LNHL25W-36	YES	YES	36 VDC	175 - 700 mA	± 5%	25W	86%
LNHL25W-28	YES	YES	28 VDC	213 - 850 mA	± 5%	25W	86%
LNHL25W-24	YES	YES	24 VDC	260 - 1040 mA	± 5%	25W	85%
LNHL25W-20	YES	YES	20 VDC	313 - 1250 mA	± 5%	25W	85%
LNHL25W-18	YES	YES	18 VDC	350 - 1400 mA	± 5%	25W	84%
LNHL25W-16	YES	YES	16 VDC	390 - 1560 mA	± 5%	25W	84%
LNHL25W-14	YES	YES	14 VDC	438 - 1750 mA	± 5%	25W	82%
LNHL25W-12	YES	YES	12 VDC	520 - 2080 mA	± 5%	25W	80%

**Mechanical Dimensions: Inches [mm]**

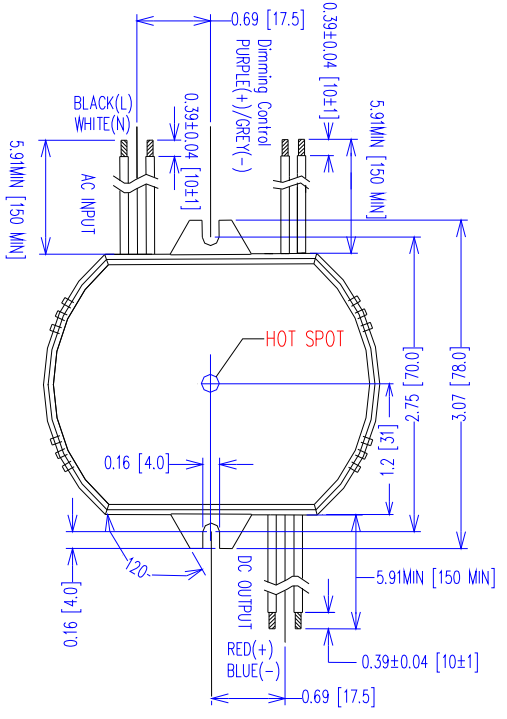
Material: Black 5VA Plastic Case  
Fully Encapsulated  
Weight: 198 grams (7.0 oz) Typical

**STANDARD LEAD-OUTS ARE FROM BOTTOM**



**ALTERNATE LEAD-OUTS FROM SIDES**  
Add SE at the end of the part#

For Example:  
LNHL25W-18-C1400-SE is non dimmable version  
LNHL25W-18-C1400-RDSE is 0-10V dimmable version  
LNHL25W-18-C1400-PDSE is PWM dimmable version



**Labeling Example**



## 25 Watt - LNHL25W Series

CONSTANT CURRENT LED DRIVER FOR HAZARDOUS LOCATIONS

**25W**  
 LNHL25W Series  
 UL TYPE HL

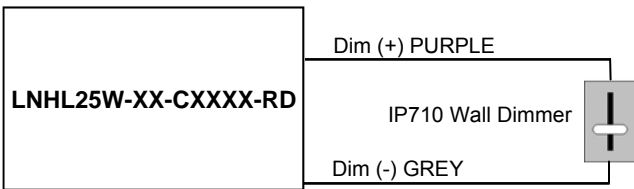
### -RD, 0-10V Dimming Scheme

Parameters	Minimum	Typical	Maximum
Absolute Voltage Range on 0-10V Input (Purple Wire)	-2.0V	—	+15V
Source Current out of 0-10V Input (Purple Wire)	0mA	—	2mA

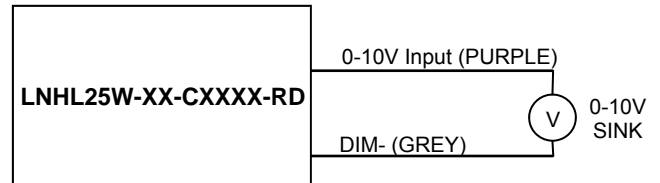
### Notes

1. -RD version is compatible with most 0-10V Wall Slide dimmers and direct 0-10V analog signal. Recommended dimmer is Leviton IP710 or equivalent connected between Purple and Gray wires. Yellow is not used for dimming.
2. -RD 0-10V dimmable version is not intended to dim below about 5% @ 0V or 10% @ 1.0V
3. -RD 0-10V dimmable version output will be 100% with Purple/Gray open and minimum with Purple/Gray Shorted.

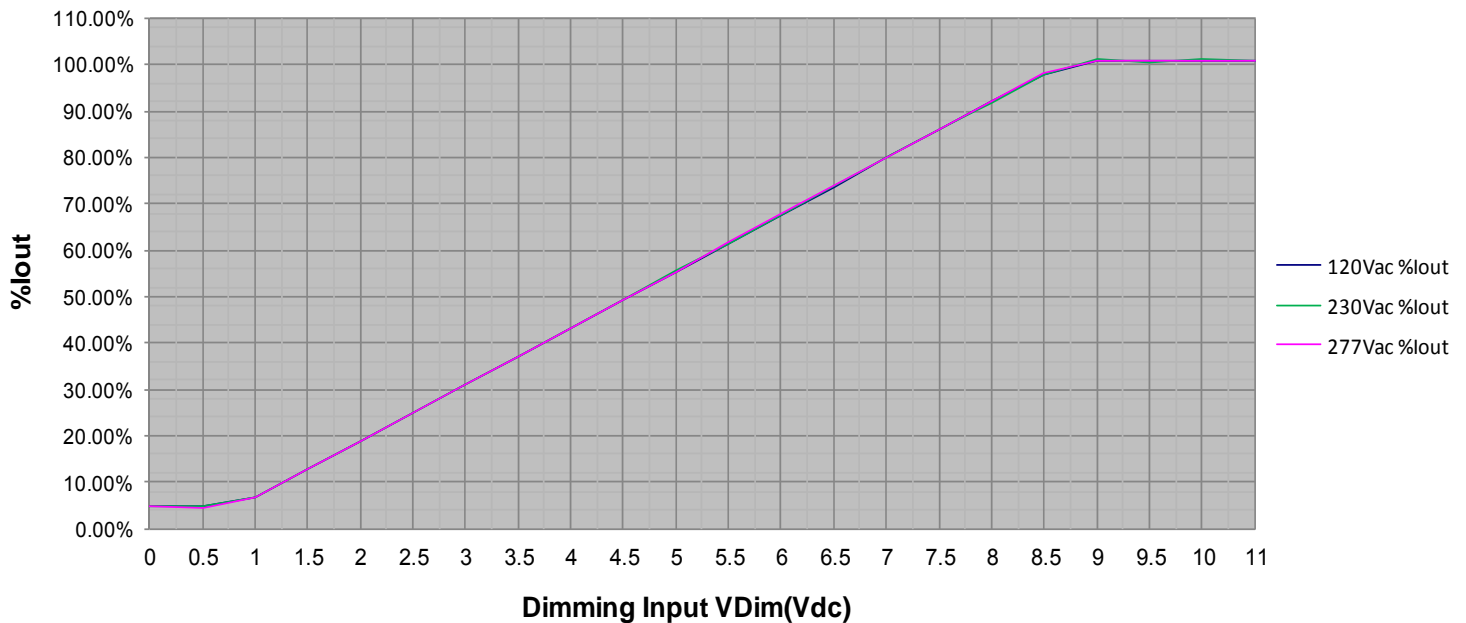
### -RD, 0-10V Slide Dimming Scheme



### -RD, 0-10V Analog Dimming Scheme



**% Output Current Vs. 0-10V DC Dimming Input**



**25 Watt - LNHL25W Series**  
CONSTANT CURRENT LED DRIVER FOR HAZARDOUS LOCATIONS

**Input Specifications**

Parameter	Min.	Typ.	Max.	Notes/Conditions
Input Voltage	90 Vac	—	305 Vac	120, 230, 240, 277 Vac Nominal Values
Input Frequency	47 Hz	—	63 Hz	50/60Hz Nominal
Input AC Current	—	—	0.25 A	Measured at 120Vac/60Hz Input, Output Full load.
	—	—	0.13 A	Measured at 230Vac/50Hz Input, Output Full load.
	—	—	0.11 A	Measured at 277Vac/60Hz Input, Output Full load.
Inrush Current (Peak)	—	—	50A	Measured at 277Vac/60Hz Input, Output Full Load, Ta 25°C, Cold Start 50% Ipeak duration $\approx$ 750 $\mu$ sec ( $1/2 \cdot I_p^{2 \cdot t}$ )
Inrush Current (I <sup>2</sup> t)	—	—	0.94 A <sup>2</sup> s	
Leakage Current	—	—	0.28mA	Measured at 120Vac/60Hz Input, Output Full load.
	—	—	0.75mA	Measured at 277Vac/60Hz Input, Output Full load.
THD	—	—	20%	Measured at $\geq$ 60% Load, 120Vac/230Vac/277Vac
Power Factor (PF)	0.90	—	—	Measured at $\geq$ 70% Load, 120Vac/230Vac, $\geq$ 88% Load 277Vac

**Output Specifications**

Parameter	Min.	Typ.	Max.	Notes/Conditions
DC Output Voltage	Per Table	—	Per Table	Per Tables on Page 1
DC Output Constant Current	-5%	Per Table	+5%	Per Tables on Page 1
Output Power	—	—	Per Table	Per Tables on Page 1 (+ [12V@200mA, 2.4W Auxiliary])
Ripple & Noise (Vpk-pk)	—	—	20% Vo	20 MHz BW, Full load output in parallel with 0.1 $\mu$ F ceramic & 10 $\mu$ F Electrolytic.
Ripple (Ipk-pk)	—	—	50% Io	20 MHz BW, Full load output in parallel with 0.1 $\mu$ F ceramic & 10 $\mu$ F Electrolytic. 120 Hz component (Flicker Free)
Start-up Time	—	200 mS	800 mS	Measured at 120Vac/60Hz Input, Output Full load.
Hold-up Time	—	30 mS	—	Typical @ 277Vac Input, Output Full load.

**Environmental Specifications**

Parameter	Min.	Typ.	Max.	Notes/Conditions
Case Temperature (Tc)	-30 °C	—	+90 °C	Measured at location specified on case.
Operating Temperature (Ta)	-30 °C	—	+60 °C	This is a reference range. Tc controls temperature range.
Storage Temperature (Ts)	-40 °C	—	+85 °C	Non operating temperature range.
Operating Humidity	—	—	95% RH	Relative Humidity, non-condensing.
Vibration	5 Hz	—	55 Hz	2G, 10 minutes/1 cycle, period 30 minutes, each along X, Y, Z axis.
MTBF	492,000 Hours	—	—	MIL-HDBK-217F Notice 2, Ta = 25C, Output Full Load.

**Protection Specifications**

Parameter	Min.	Typ.	Max.	Notes/Conditions
Output Short Circuit (SCP)	—	—	—	No Damage, Auto recovery after short is removed.
Output Over Current (OCP)	—	—	+8% Io	Constant Current Limiting circuit.
Output Over Voltage (OVP)	—	—	120% Vo	No Damage, Auto recovery after fault is removed.

## 25 Watt - LNHL25W Series

CONSTANT CURRENT LED DRIVER FOR HAZARDOUS LOCATIONS

**25W**  
 LNHL25W Series  
 UL TYPE HL

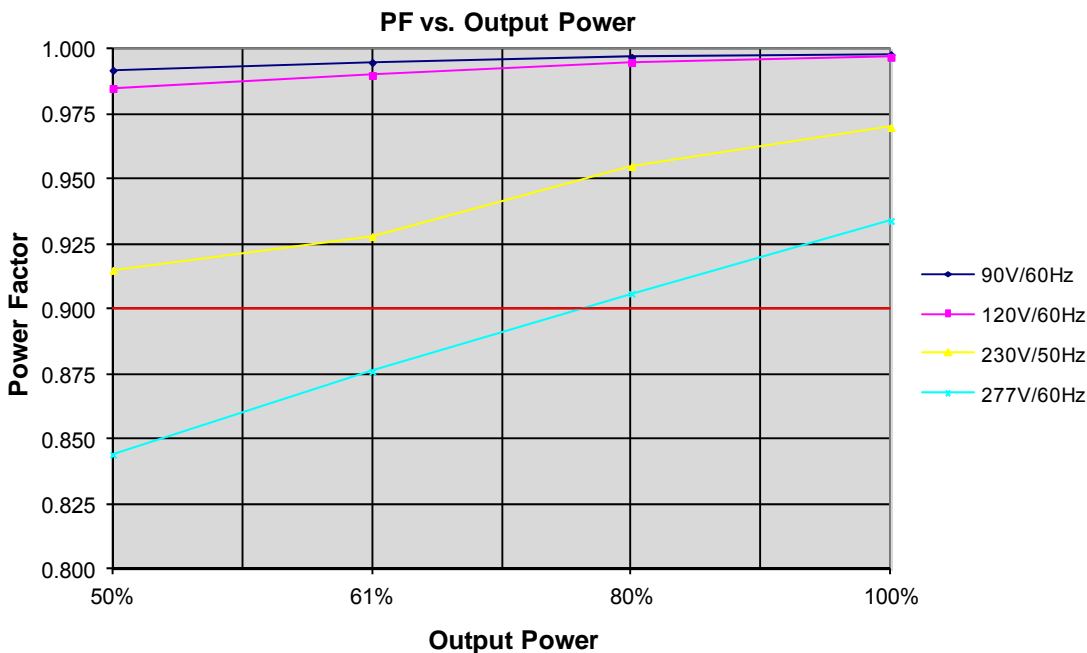
### Safety Recognized

Safety	Notes/Standards
UL/CUL	UL8750 & CAN/CSA C22.2 No. 250.13, UL Type HL, UL Type TL 90/74 °C
CE	EN61347-1, EN61347-2-13
Withstand Voltage	Input to Output: 3750 Vac
Isolation Resistance	Input to Output: >100 MΩ, 500VDC @ 25 °C, 70 % RH
Dimming & Aux Circuit	+12V Yellow/Dim+ Purple/Dim- Gray are considered part of the secondary circuit.

### EMC Certified

Standard	Notes/Conditions
FCC, 47CFR Part 15	Class B
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment.
EN 61000-3-2	Part 3-2: Limits for harmonic current emissions Class C, ≥80% Rated Power
EN 61000-3-3	Part 3-3: Limitation of voltage changes, voltage fluctuations and flicker.
EN 61000-4-5	Part 4-5: Surge Immunity test, 2 kV L-N, 4 kV L-FG & N-FG
Energy Star	Energy Star transient protection: Ballast or driver shall comply with ANSI/IEEE C62.41.1-2002 and ANSI/IEEE C62.41.2-2002, Category A operation. The line transient shall consist of seven strikes of a 100 kHz ring wave, 2.5 kV level, for both common mode and differential mode.

### Power Factor Curves (Typical)



25W

LNHL25W Series

UL TYPE HL

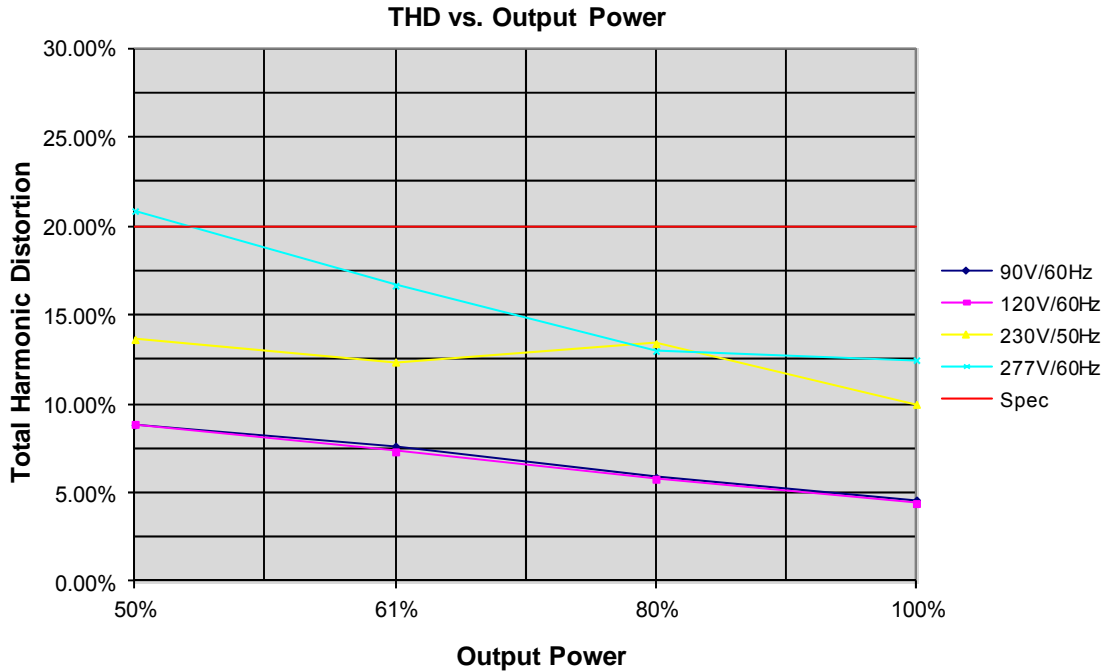


LED Optimized Drivers

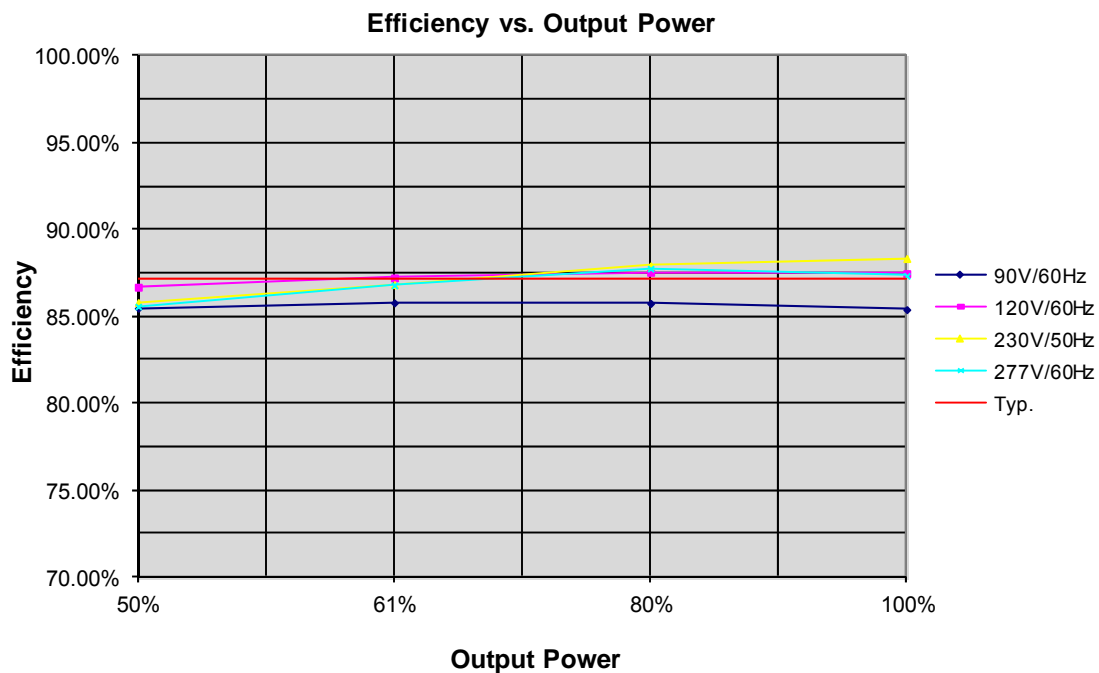
# 25 Watt - LNHL25W Series

CONSTANT CURRENT LED DRIVER FOR HAZARDOUS LOCATIONS

## THD Curves (Typical)



## Efficiency Curve (Typical)



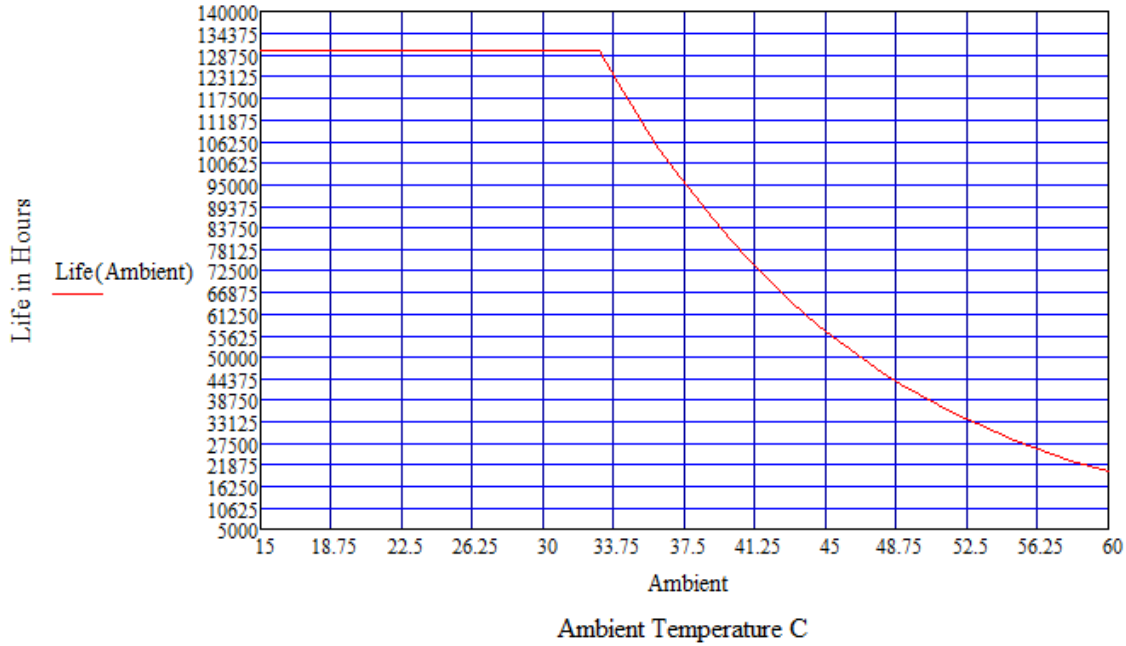
## 25 Watt - LNHL25W Series

CONSTANT CURRENT LED DRIVER FOR HAZARDOUS LOCATIONS

**25W**  
 LNHL25W Series  
 UL TYPE HL

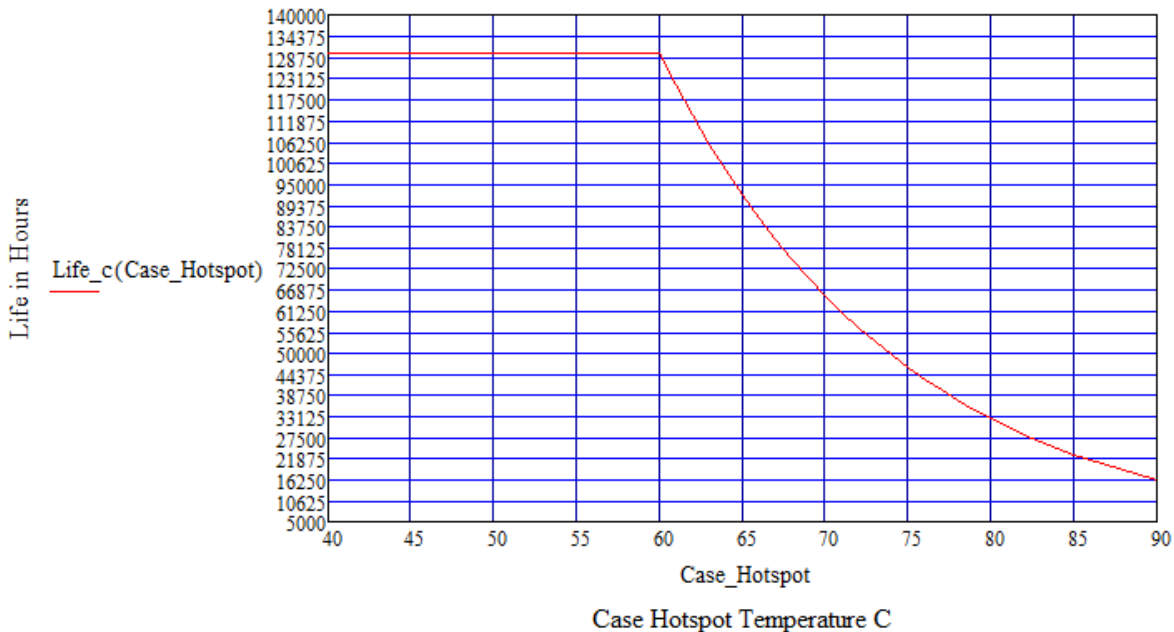
### Life vs. Ambient Temperature

LNHL25W Estimated Life Full Load @ 120Vac



### Life vs. Case (Tc) Temperature

LNHL25W Estimated Life Full Load @ 120Vac



25W

LNHL25W Series

UL TYPE HL



LED Optimized Drivers

## 25 Watt - LNHL25W Series

CONSTANT CURRENT LED DRIVER FOR HAZARDOUS LOCATIONS

