

40 WATT LD40WXXX -TL

CONSTANT CURRENT TRIAC & ELV DIMMABLE LED DRIVERS



PHASE DIMMING

LD40WXXX -TL

40W

Model: LD40WXXX -TL Series

- Designed for use with Triac or ELV Phase Dimmers 120Vac or 230Vac/240Vac.
- 120Vac Version can be used without dimmer 120/208-277Vac
- Drive Mode: PFC Corrected
- Output Power: 40W Max.
- Input Voltage: 120 or 208-277VAC, 50/60Hz
- Number of Outputs: One
- Output Voltages: 15VDC - 114VDC
- Output Currents: 350mA - 1670mA

Environmental

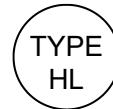
1. Operating temperature: Tc 85C Maximum. Reference -30 to +50°C ambient
2. Storage temperature range: -40 to +85°C
3. Humidity (non-condensing): 5% - 95%RH
4. Cooling: Convection
5. Vibration Frequency: 5-55Hz/2g, 30 minutes
6. Impact resistance: 1g/s
7. MTBF@ 40°C: 375,000 hours @ Full Load per MIL-217F Notice 2.

Safety and Compliance

1. UL8750, EN61347, CSA 22.2 safety recognized, UL Type HL
2. FCC Class B @120VAC, Class A @ 230/277Vac
3. Water resistant and Dust Proof Design: IP66, NEMA4, for Dry, Damp 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 surge protection.

Electrical Specifications at 25°C

- Input Voltage: 120Vac Version 120Vac, 230Vac Version 208-277Vac
- Frequency: 50/60HZ
- Power Factor: > 0.90 at Rated Vac, Full Load (No dimmer)
- THD: <20% at Rated Vac, Full Load (No dimmer)
- Start-up Time: <1.0 Seconds Full Load (No dimmer)
- Inrush current: ≤30A at 25C, 277Vac, cold start, Max. Load
- Input current: ≤0.34A at 120Vac, 60Hz, Maximum Load
- Line regulation accuracy: ± 3%
- Load regulation accuracy: ± 5%
- Dimming Range: CCR Mode See Graph page 2.



IP66



120Vac Input Versions

Part Number(1)	US Class 2	CN Class 2	Output Voltage Range	Output Constant Current	Current Accuracy	Output Power Maximum	Typical Efficiency (3)	DIMMER(5)
LD40W120-114-C0350-TL	NO	NO	72 - 114 VDC	350 mA	± 5%	40W	85%	Incan & ELV
LD40W120-54-C0700-TL	YES	YES	34 - 54 VDC	700 mA	± 5%	37.8W	85%	Incan & ELV
LD40W120-40-C1000-TL	YES	YES	25 - 40 VDC	1000 mA	± 5%	40W	84%	Incan & ELV
LD40W120-36-C1100-TL	YES	YES	22 - 36 VDC	1100 mA	± 5%	39.6W	84%	Incan & ELV
LD40W120-30-C1300-TL	YES	YES	19 - 30 VDC	1300 mA	± 5%	39W	83%	Incan & ELV
LD40W120-24-C1670-TL	YES	YES	15 - 24 VDC	1670 mA	± 5%	40W	82%	Incan & ELV

1. LD40W120, 120Vac Version can be used without dimmer at 120Vac or 208-277Vac.

230Vac Input Versions

Part Number	US Class 2	CN Class 2	Output Voltage Range	Output Constant Current	Current Accuracy	Output Power Maximum	Typical Efficiency (3)	DIMMER(6)
LD40W230-114-C0350-TL	NO	NO	72 - 114 VDC	350 mA	± 5%	40W	86%	Incan & ELV
LD40W230-54-C0700-TL	YES	YES	34 - 54 VDC	700 mA	± 5%	37.8W	86%	Incan & ELV
LD40W230-40-C1000-TL	YES	YES	25 - 40 VDC	1000 mA	± 5%	40W	85%	Incan & ELV
LD40W230-36-C1100-TL	YES	YES	22 - 36 VDC	1100 mA	± 5%	39.6W	85%	Incan & ELV
LD40W230-30-C1300-TL	YES	YES	19 - 30 VDC	1300 mA	± 5%	39W	84%	Incan & ELV
LD40W230-24-C1670-TL	YES	YES	15 - 24 VDC	1670 mA	± 5%	40W	83%	Incan & ELV

Notes

3. Typical efficiency measured at 120Vac or 230Vac input, full load, no dimmer.
4. All versions are ≤10% to ~100% CCR Dimmable with any good quality proper power phase dimmer.
5. Use any good quality 120VAC ≤600W Incandescent (Triac) or ELV (Electronic Low Voltage) dimmer. Refer to page 2.
6. Use any good quality 230/240VAC ≤500W Incandescent (Triac) or ELV (Electronic Low Voltage) dimmer. Refer to page 2.

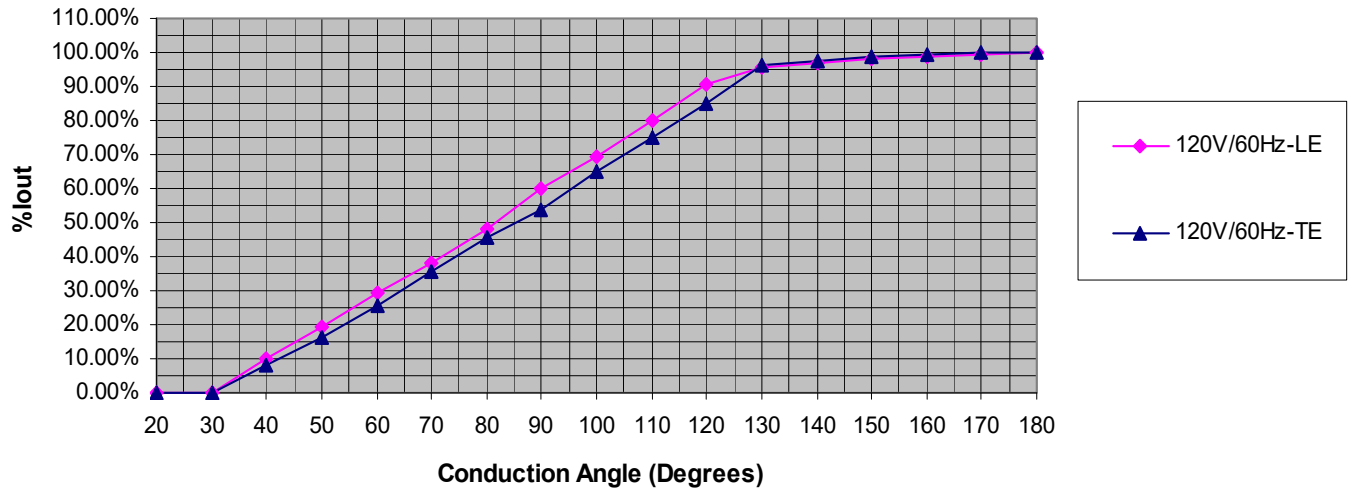
Custom designs available. Please consult the factory.

Specifications subject to change without notice

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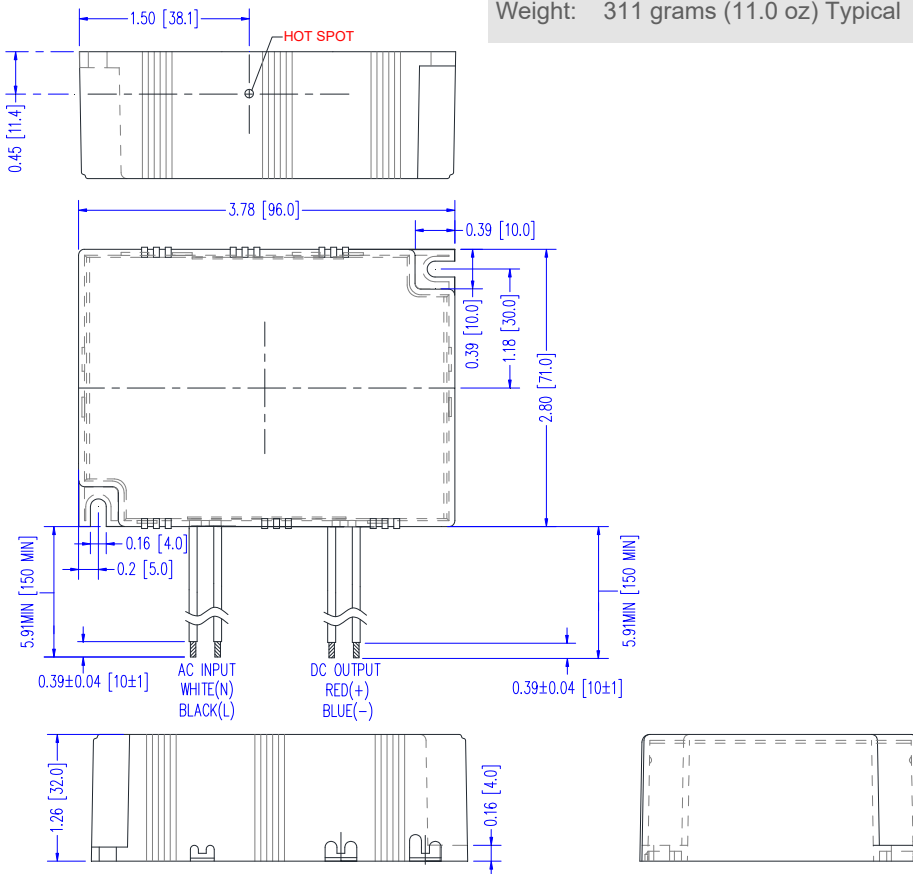
Typical Dimming Curve:

%Output Current vs. Conduction Angle in Degrees



Mechanical Dimensions: Inches [mm]

Material: Black PC ABS Plastic Case
Fully Encapsulated
Weight: 311 grams (11.0 oz) Typical



Labeling Example

LED Optimized Driver
 Part Number: LD40W120-54-C0700-TL
 Input Voltage: 120 VAC 50/60 Hz
 Input Current: 0.39 Amp Max
 Output Voltage: 34-54 VDC
 Output Current: 700 mA CCR Dimmable
 Output Power: 40Watts Maximum
 UL & cUL Class 2 Output, UL Type TL
 Triac (Incandescent) & ELV Dimmable

IP66

DC Output: + = RED, - = BLUE
 AC Input: L = BLACK, N = WHITE

EPtronics, Inc.
www.EPtronics.com
800 643-0688/310 335-0700

Rev B
HG

40 WATT LD40WXXX -TL

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Input Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Input Voltage full range	108 Vac	120 Vac	132 Vac	120 Vac Nominal Value Note: LD25W120, 120Vac Version can be used without dimmer at 120Vac or 208-277Vac
	208Vac	230Vac	300Vac	230Vac Nominal Value (220/230/240/277)
Input Frequency	47 Hz	—	63 Hz	50/60Hz Nominal
Input AC Current	—	—	0.34 A	Measured at 120Vac/60Hz Input, Output Full load.
	—	—	0.17 A	Measured at 230Vac/60Hz Input, Output Full load.
Inrush Current (Peak)	—	—	30A	Measured at 277Vac/60Hz Input, Output Full Load, Ta 25°C, Cold Start 50% I _{peak} duration \approx 750 μ sec (1/2*I _p ² *t)
Inrush Current (I ² t)	—	—	0.34 A ² 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 120 or 230Vac Input, No Dimmer
Power Factor (PF)	0.90	—	—	Measured at 120 or 230Vac Input, No Dimmer

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
Ripple & Noise (V _{pk-pk})	—	—	10%	20 MHz BW, Full load output in parallel with 0.1 μ F ceramic & 10 μ F Electrolytic.
Ripple (I _{pk-pk})	—	—	55%	20 MHz BW, Full load output in parallel with 0.1 μ F ceramic & 10 μ F Electrolytic. 120 Hz component
Start-up Time	—	700 mS	1000 mS	Measured at 120Vac/60Hz Input, Output Full load.
Hold-up Time	—	30 mS	—	Typical @ 120/277Vac Input, Output Full load.

Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Case Temperature (T _c)	-30 °C	—	+85 °C	Measured at location specified on case.
Operating Temperature (T _a)	-30 °C	—	+50 °C	This is a reference range. T _c controls temperature range.
Storage Temperature (T _s)	-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	375,000 Hours	—	—	MIL-HDBK-217F Notice 2, T _a = 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% I _o	Constant Current Limiting circuit.
Output Over Voltage (OVP)	—	—	120% V _o	No Damage, Auto recovery after fault is removed.

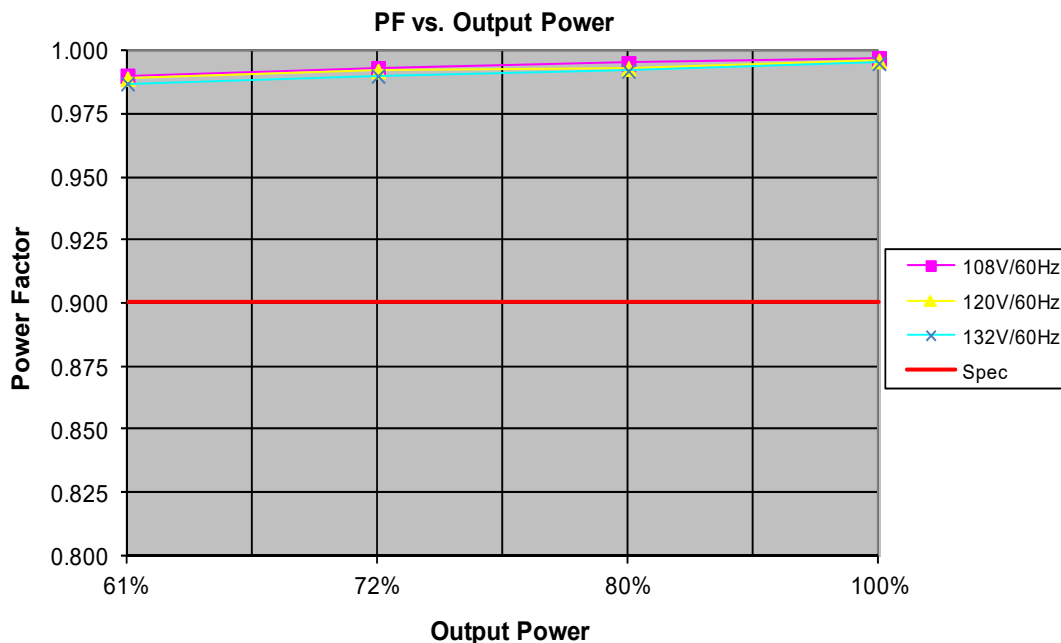
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**LED Optimized Drivers
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Safety Compliance

Safety	Notes/Standards
UL/CUL	UL8750, UL1310 for UL Class 2 & CAN/CSA C22.2 No. 250.13, UL Type HL
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 Circuit	AC Phase Dimmable. Incandescent Forward Phase or ELV reverse phase.

EMC Compliance

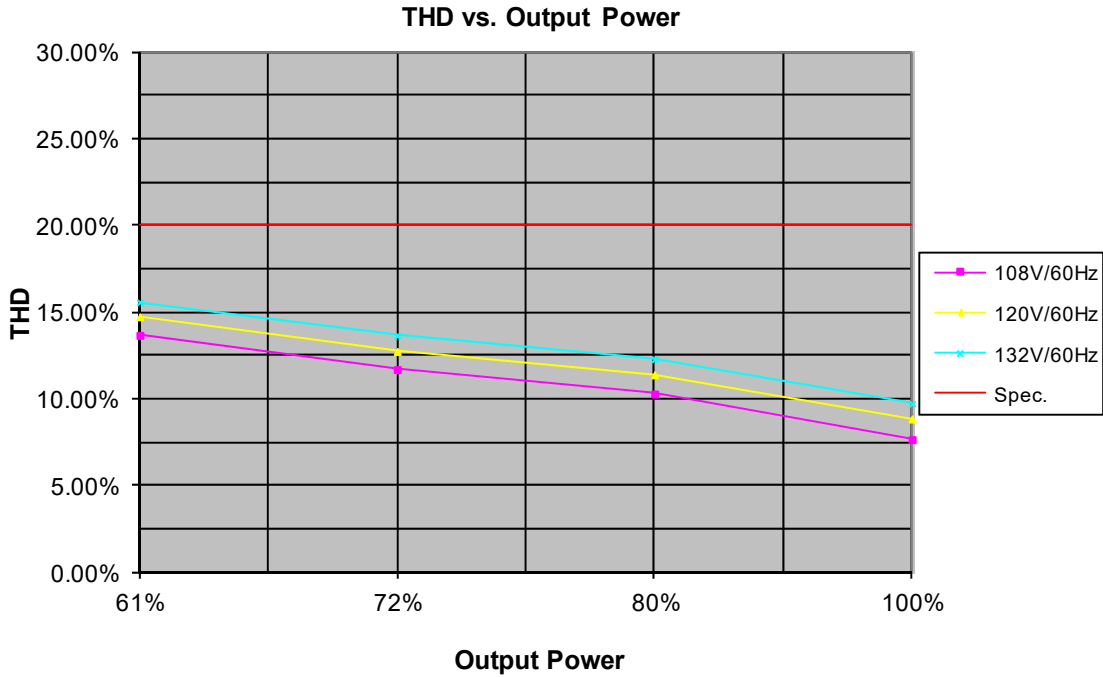
Standard	Notes/Conditions
FCC, 47CFR Part 15	Class B @120Vac, Class A @ 230/277Vac
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment.
EN 61000-3-2	Part 3-2: Limits for harmonic current emissions Class C, ≥80% Rated Power
EN 61000-3-3	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) - Direct Connect to AC (No Dimmer)


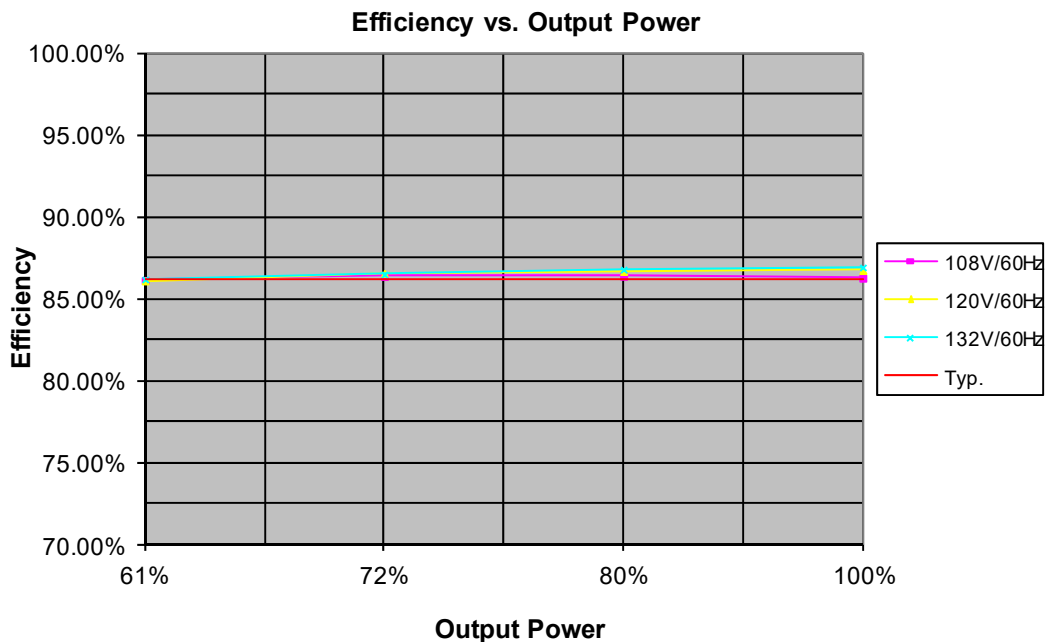
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THD Curves (Typical) - Direct Connect to AC (No Dimmer)



Efficiency Curve (Typical) - Direct Connect to AC (No Dimmer)



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PHASE DIMMING

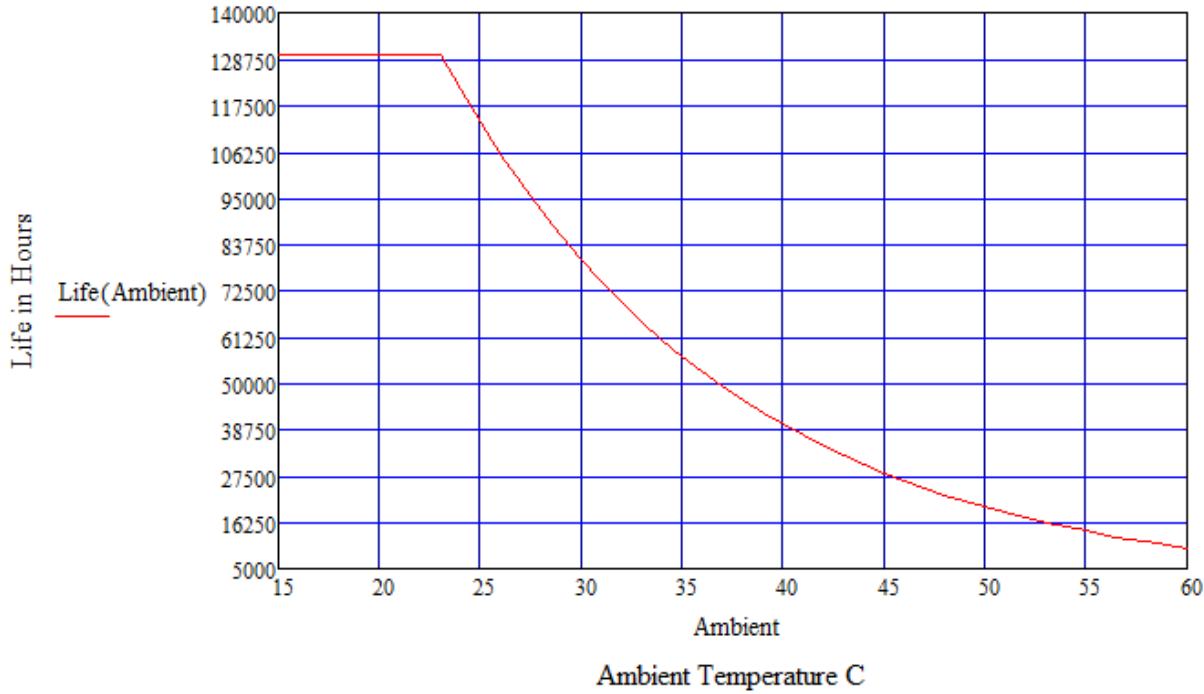


LED Optimized Drivers
Triac & ELV Dimmable

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Life vs. Ambient Temperature

LD40WXXX -TL Estimated Life Full Load @ 120Vac



Life vs. Case (Tc) Temperature

LD40WXXX -TL Estimated Life Full Load @ 120Vac

