



40 WATT LD40WXXX -TL

CONSTANT CURRENT TRIAC & ELV DIMMABLE LED DRIVERS

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

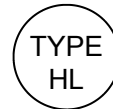
1. Operating temperature: Tc 85C Maximum. Reference -30 to +50°C ambient
2. Storage temperature range: -40 to +85°C
3. Humidity (non-condensing): 5% - 95%RH
4. Cooling: Convection
5. Vibration Frequency: 5-55Hz/2g, 30 minutes
6. Impact resistance: 1g/s
7. MTBF@ 40°C: 375,000 hours @ Full Load per MIL-217F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

Safety and Compliance

1. UL8750, EN61347, CSA 22.2 safety recognized, UL Type HL
2. FCC, 47CFR Part 15 Class B 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 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% | 40W | 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% | 40W | 84% | Incan & ELV |
| LD40W120-30-C1300-TL | YES | YES | 19 - 30 VDC | 1300 mA | ± 5% | 40W | 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% | 40W | 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% | 40W | 85% | Incan & ELV |
| LD40W230-30-C1300-TL | YES | YES | 19 - 30 VDC | 1300 mA | ± 5% | 40W | 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.

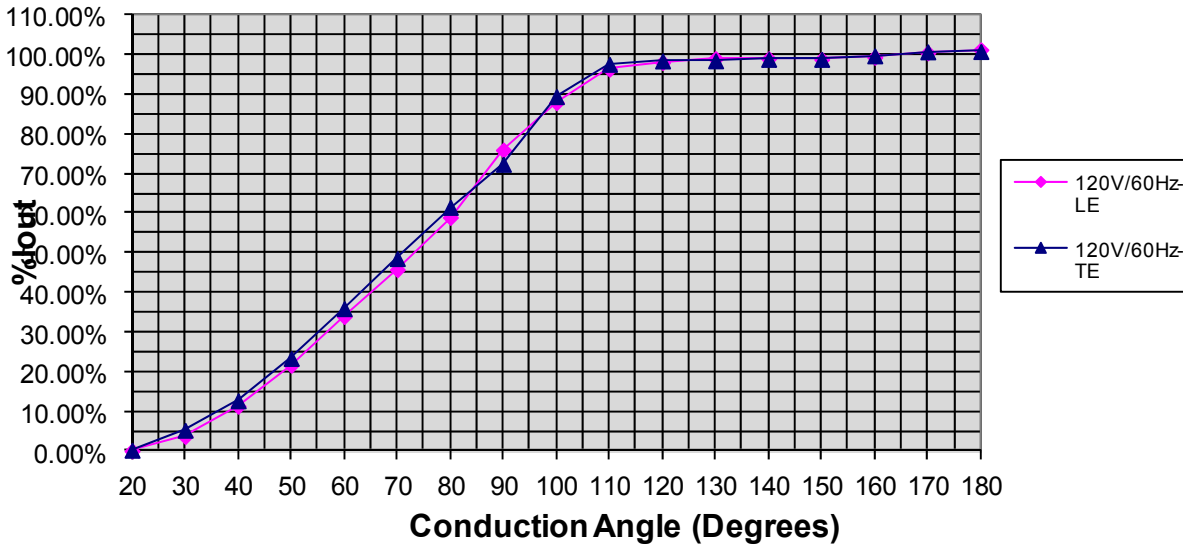
Custom designs available. Please consult the factory.

Specifications subject to change without notice

40 WATT LD40WXXX -TL
CONSTANT CURRENT TRIAC & ELV DIMMABLE LED DRIVERS

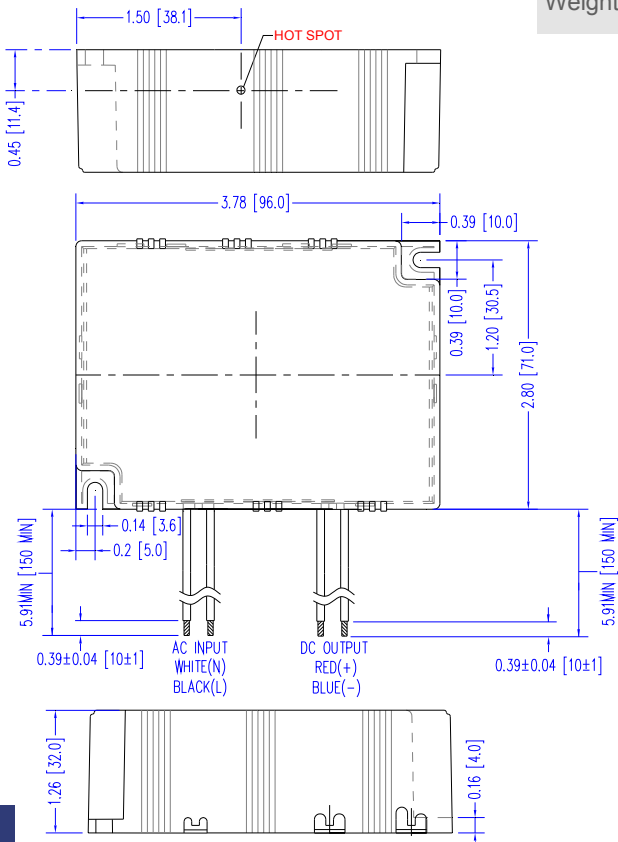
Typical Dimming Curve:

%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

| | | | |
|--|---------|---|------------------------------------|
| DC Output + = RED - = BLUE | | LED Optimized Driver EPtronics, Inc. www.EPtronics.com 800 643-0688/310 536-0700 | AC Input L = BLACK N = WHITE |
| 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 | | | |
| Made in China | E325626 | REV B | HG |

40 WATT LD40WXXX -TL

CONSTANT CURRENT TRIAC & ELV DIMMABLE LED DRIVERS

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% Ipeak 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 (Vpk-pk) | — | — | 10% | 20 MHz BW, Full load output in parallel with 0.1 μ F ceramic & 10 μ F Electrolytic. |
| Ripple (Ipk-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 (Tc) | -30 °C | — | +85 °C | Measured at location specified on case. |
| Operating Temperature (Ta) | -30 °C | — | +50 °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 | 375,000 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. |

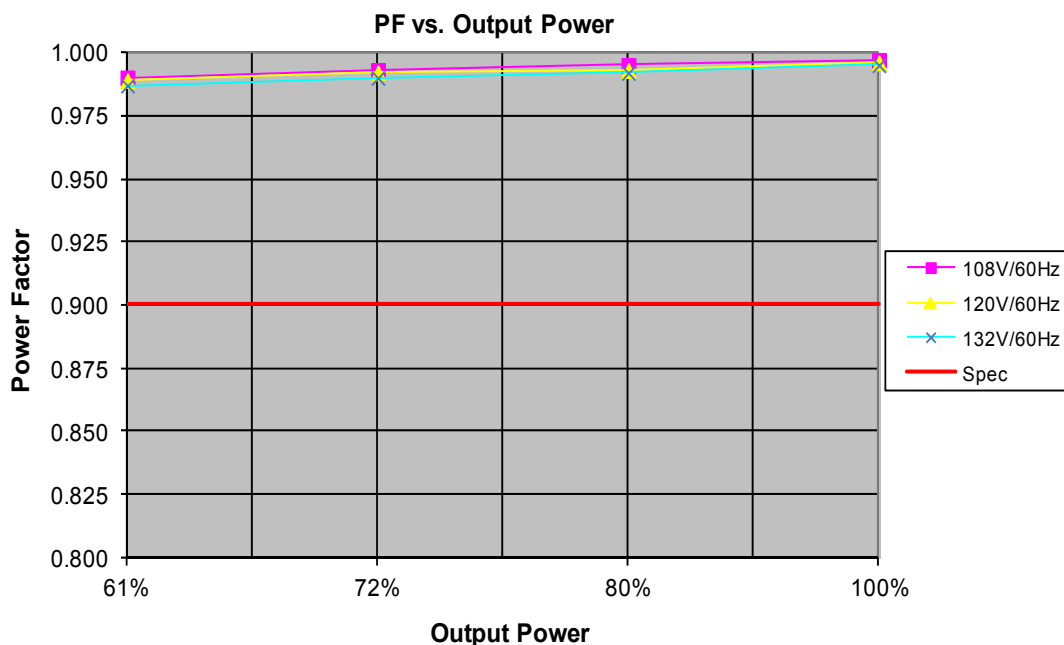
40W**LD40WXXX -TL****PHASE DIMMING**
**LED Optimized Drivers
Triac & ELV Dimmable**
40 WATT LD40WXXX -TL
 CONSTANT CURRENT TRIAC & ELV DIMMABLE LED DRIVERS

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

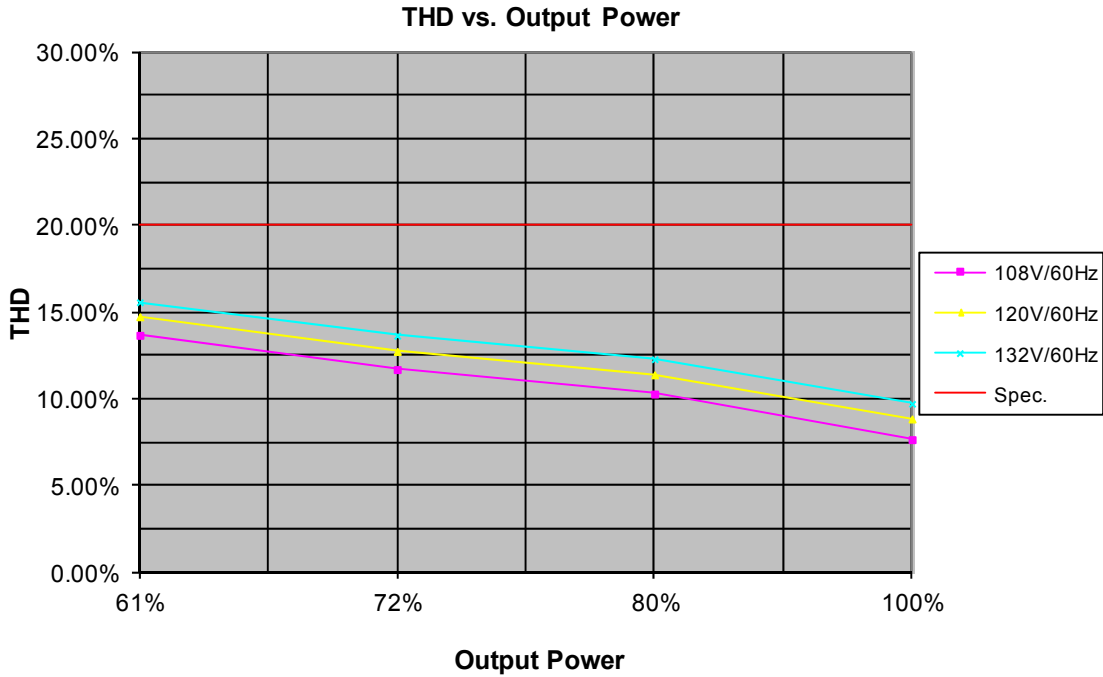
| Standard | Notes/Conditions |
|--------------------|--|
| FCC, 47CFR Part 15 | Class B |
| EN 55015 | Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment. |
| EN 61000-3-2 | Part 3-2: Limits for harmonic current emissions Class C, ≥80% 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)


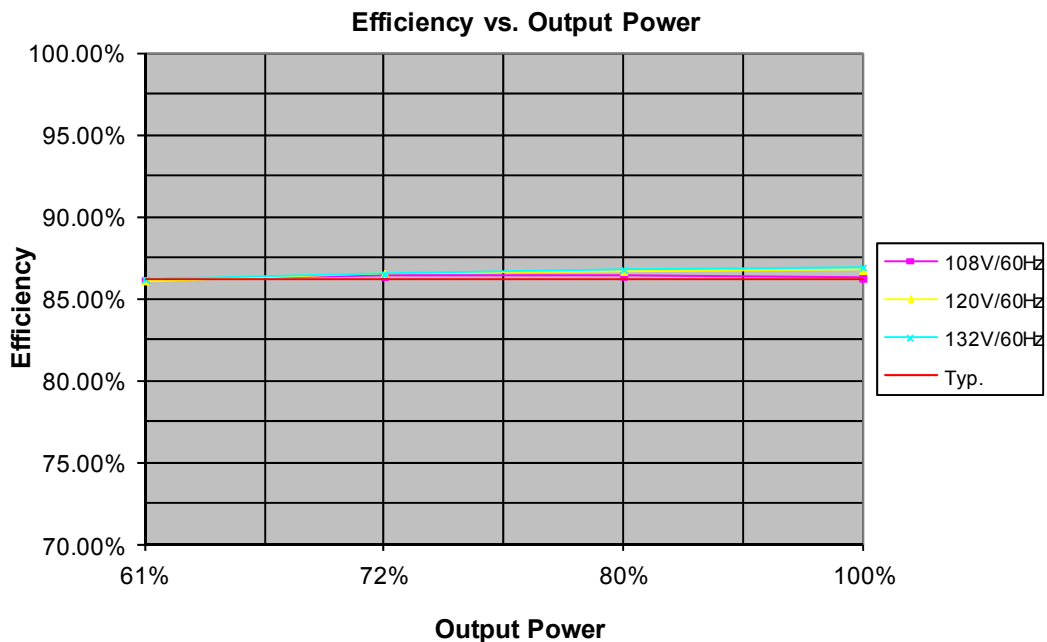
40 WATT LD40WXXX-TL

CONSTANT CURRENT TRIAC & ELV DIMMABLE LED DRIVERS

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



Efficiency Curve (Typical) LD25W120-36-C0350-TL



40W

LD40WXXX -TL

PHASE DIMMING



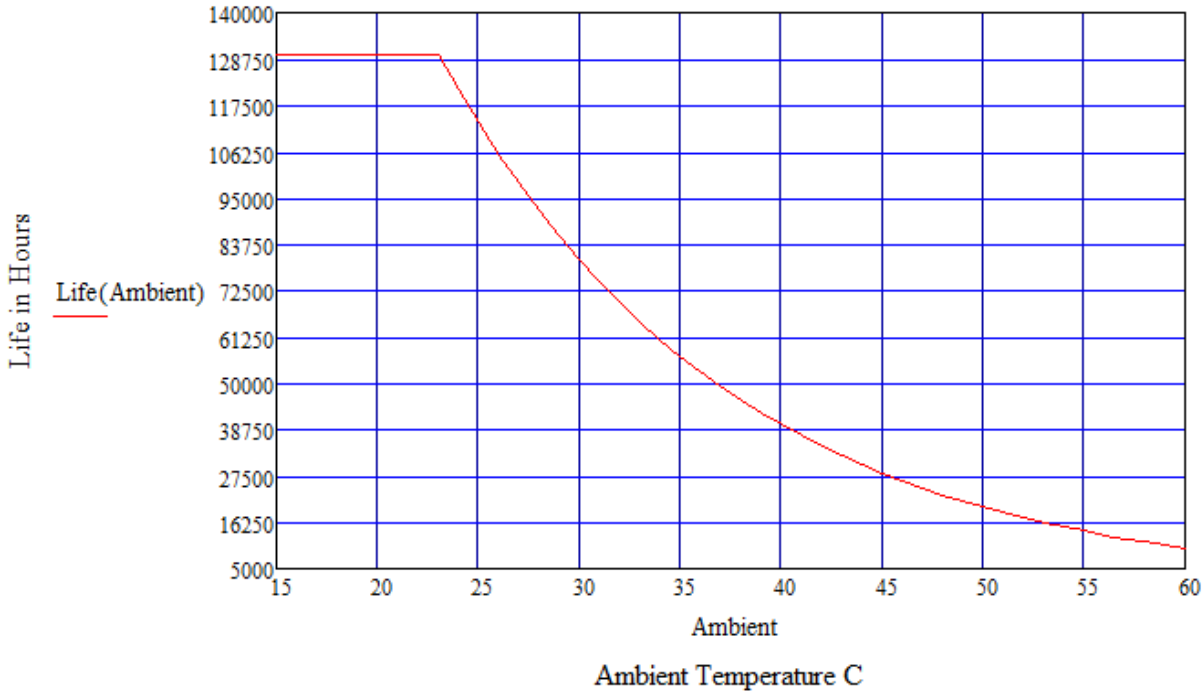
LED Optimized Drivers
Triac & ELV Dimmable

40 WATT LD40WXXX -TL

CONSTANT CURRENT TRIAC & ELV DIMMABLE LED DRIVERS

Life vs. Ambient Temperature

LD40WXXX -TL Estimated Life Full Load @ 120Vac



Life vs. Case (Tc) Temperature

LD40WXXX -TL Estimated Life Full Load @ 120Vac

