

## 40 Watt - LD40W-NN Series

CONSTANT VOLTAGE LED DRIVER



CONSTANT VOLTAGE  
LD40W-NN Series  
**40W**

### Model: LD40W-NN Series

- Drive Mode: Constant Voltage
- For use with Constant Voltage LED Lighting
- Technology: PFC Off-Line Switch Mode
- Output Power: 40W Max.
- Input Voltage: 120 to 277VAC, 47- 63Hz
- Number of Outputs: One
- Output Voltages: 12VDC - 48VDC
- Output Currents: 208mA - 3330mA

### Environmental

1. Operating temperature: Tc 90C Maximum. Reference -30 to +60°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@ 25°C: 482,000 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 compliant.
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: 120 to 277Vac (Full Range 90 to 305VAC)
- Frequency: 47- 63HZ
- Power Factor:  $\geq 0.90$  at  $\geq 60\%$  Load, 120Vac/230Vac,  $\geq 85\%$  Load 277Vac
- THD%:  $\leq 20\%$  at  $\geq 60\%$  Load, 120Vac/230Vac,  $\geq 80\%$  Load 277Vac
- Inrush current:  $<20A$  at 25C, 277Vac, cold start, Full Load
- Input current: 0.42A typical at 120Vac, 60Hz, Full Load
- Efficiency: 85% typical at 230Vac Full Load
- Line regulation accuracy:  $\pm 3\%$
- Load regulation accuracy:  $\pm 4\%$
- Leakage current: 277Vac, 750uA maximum



IP66



### 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>
LD40W-48	YES	YES	48 VDC	208 - 830 mA	$\pm 5\%$	40W	85%
LD40W-36	YES	YES	36 VDC	275 - 1100 mA	$\pm 5\%$	40W	85%
LD40W-24 <sup>(2)</sup>	YES	YES	24 VDC	418 - 1670 mA	$\pm 5\%$	40W	85%
LD40W-12 <sup>(2)</sup>	YES	YES	12 VDC	825 - 3330 mA	$\pm 5\%$	40W	83%

### Notes

1. Typical efficiency measured at 230VAC input, full load
2. SAM Recognized

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LED Optimized Drivers

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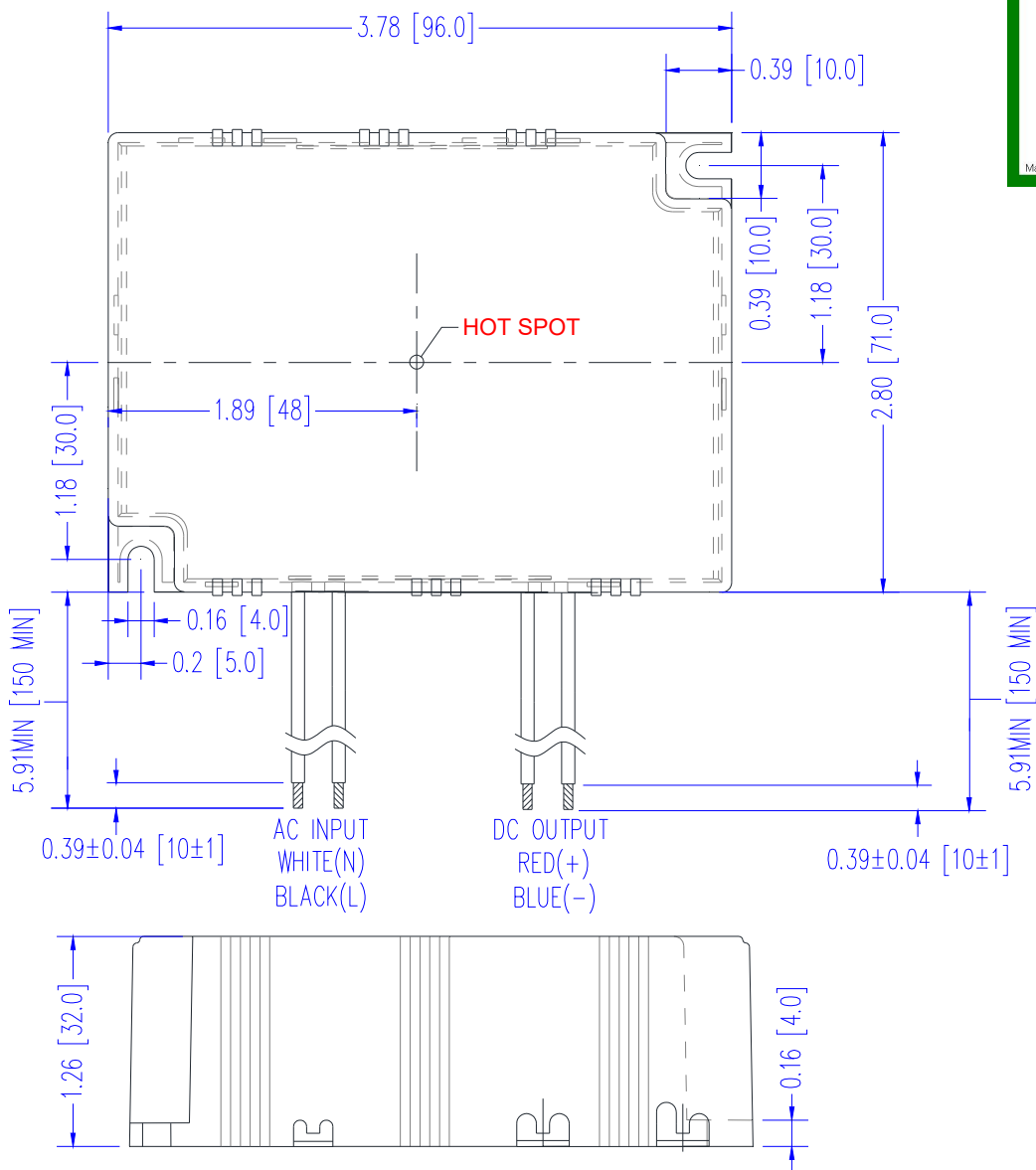
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## Mechanical Dimensions: Inches [mm]

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
<b>Part Number: LD40W-12</b> <b>Input Voltage: 90-305 VAC 50/60Hz</b> <b>Input Current: 0.56 Amp Max</b> <b>Output Voltage: 12 VDC Constant Voltage</b> <b>Output Current: 825-3330mA</b> <b>Output Power: 40W Max</b> <b>UL &amp; cUL Class 2 Output, UL Type HL</b> <b>SAM Recognized</b>			
<b>IP66</b> Made in China E325626 REV E1.2 Y6			



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### 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	—	—	0.42 A	Measured at 120Vac/60Hz Input, Output Full load.
	—	—	0.22 A	Measured at 230Vac/60Hz Input, Output Full load.
	—	—	0.19 A	Measured at 277Vac/60Hz Input, Output Full load.
Inrush Current (Peak)	—	14A	20A	Measured at 277Vac/60Hz Input, Output Full Load, Ta 25°C, Cold Start 50% I <sub>peak</sub> duration $\approx$ 150 $\mu$ sec ( $1/2 * I_p^2 * t$ )
Inrush Current (I <sup>2</sup> t)	—	—	0.015 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, $\geq$ 80% Load 277Vac
Power Factor (PF)	0.90	—	—	Measured at $\geq$ 60% Load, 120Vac/230Vac, $\geq$ 85% Load 277Vac

### Output Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
DC Output Voltage	Per Table	—	Per Table	Per Table on Page 1
DC Output Current Range	25%	Per Table	+5%	Per Table on Page 1
Output Power	—	—	Per Table	Per Table on Page 1
Ripple & Noise (V <sub>pk-pk</sub> )	—	—	20% V <sub>o</sub>	20 MHz BW, Full load output in parallel with 0.1 $\mu$ F ceramic & 10 $\mu$ F Electrolytic.
Ripple (I <sub>pk-pk</sub> )	—	—	50% I <sub>o</sub>	20 MHz BW, Full load output in parallel with 0.1 $\mu$ F ceramic & 10 $\mu$ 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 @ 277Vac Input, Output Full load.

### Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Case Temperature (T <sub>c</sub> )	-30 °C	—	+90 °C	Measured at location specified on case.
Operating Temperature (T <sub>a</sub> )	-30 °C	—	+60 °C	This is a reference range. T <sub>c</sub> controls temperature range.
Storage Temperature (T <sub>s</sub> )	-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	342,000 Hours	—	—	MIL-HDBK-217F Notice 2, T <sub>a</sub> = 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 <sub>o</sub>	Constant Current Limiting circuit.
Output Over Voltage (OVP)	—	—	120% V <sub>o</sub>	No Damage, Auto recovery after fault is removed.

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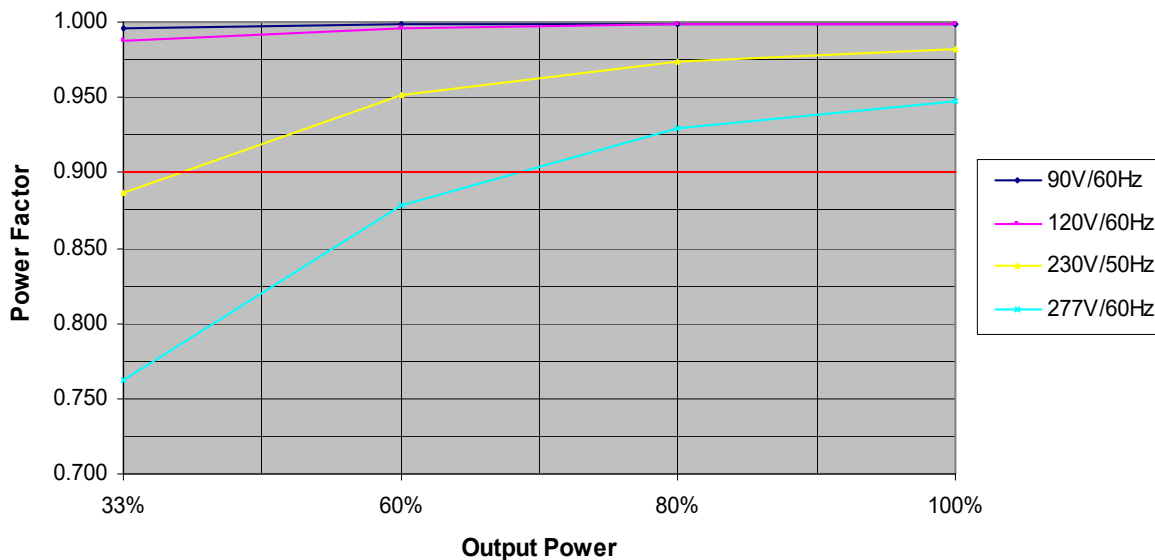
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**Safety Compliance**

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

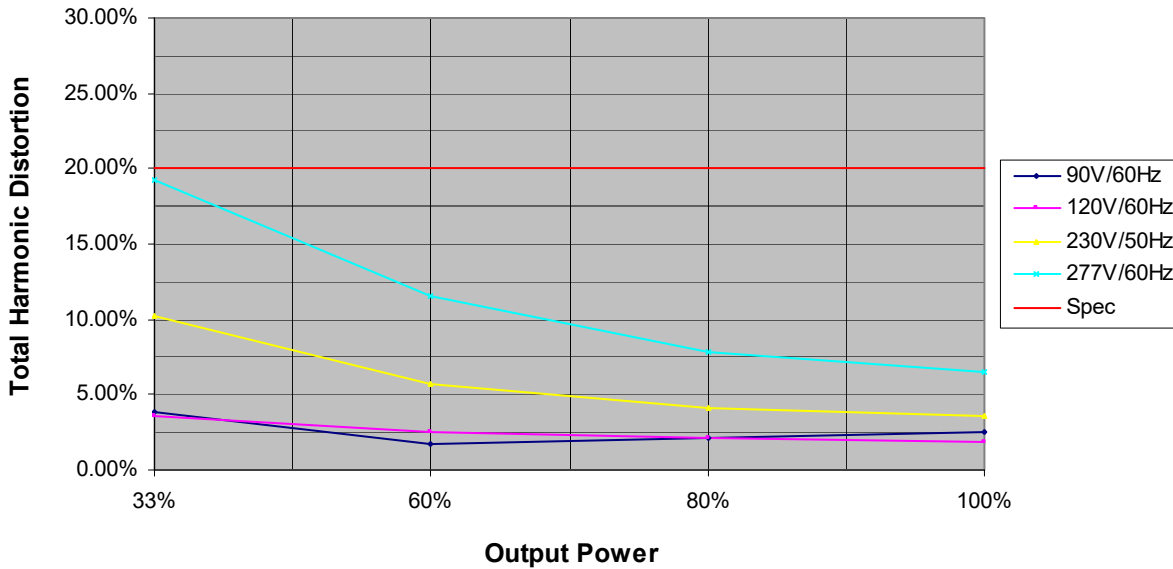
**EMC Compliance**

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, $\geq 80\%$ 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)****PF vs. Output Power**

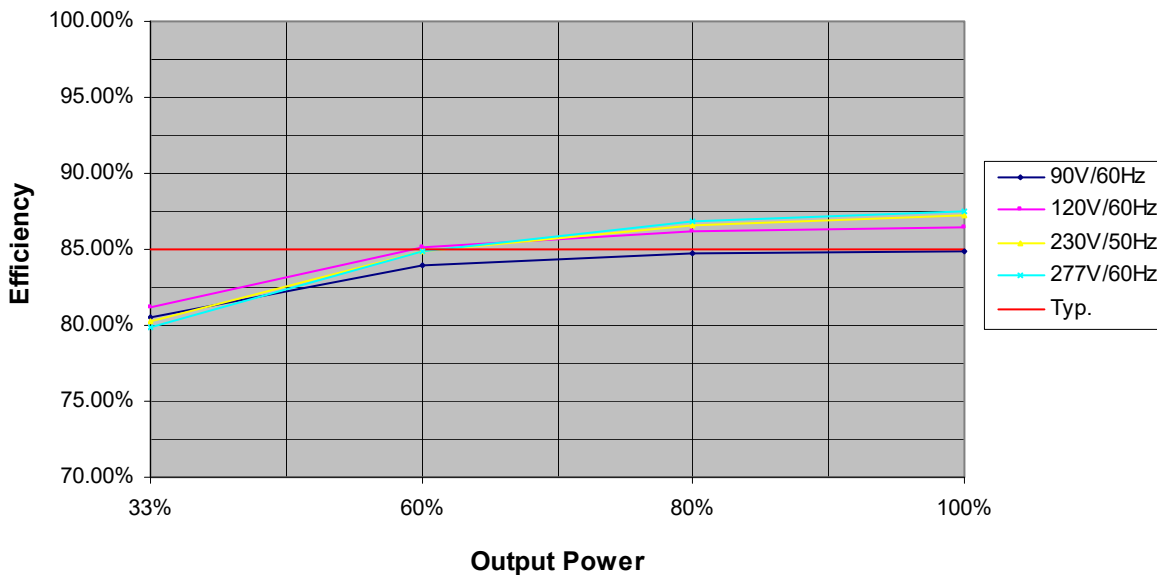
### THD Curves (Typical)

#### THD vs. Output Power



### Efficiency Curve (Typical)

#### Efficiency vs. Output Power



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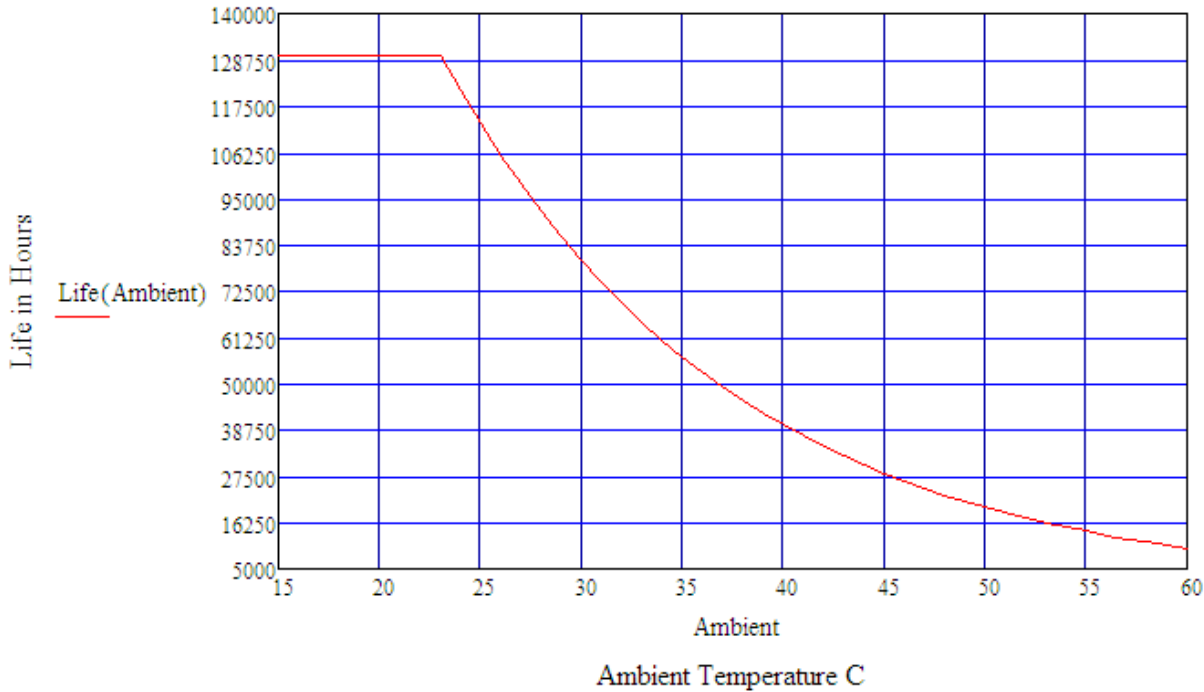
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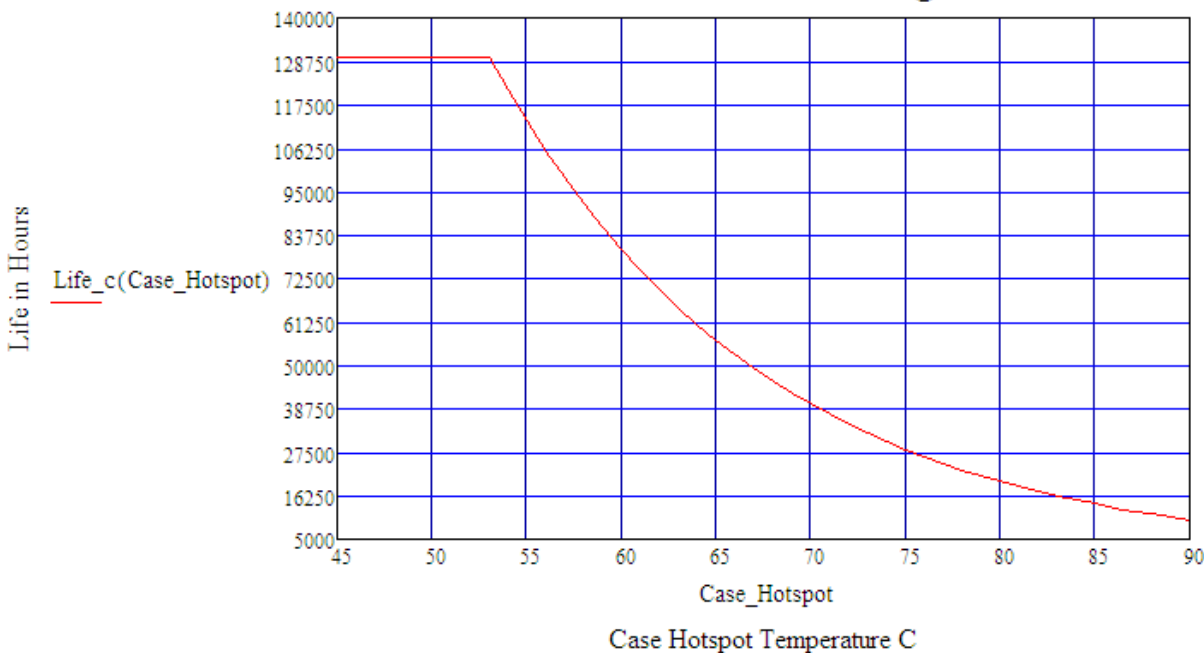
## Life vs. Ambient Temperature

LD40W Estimated Life Full Load @ 120Vac



## Life vs. Case (Tc) Temperature

LD40W Estimated Life Full Load @ 120Vac





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### Revision History

REV - Change Date	Description of Changes		
	Items	Changed From	Changed To
REV E1.2 - 11/01/2020	Update to comply with UL8750	Original E1.2	Constant Voltage