LED Optimized Drivers

20 Watt - LD20W-NN Series

CONSTANT VOLTAGE LED DRIVER

20W LD20W-NN Series CONSTANT VOLTAGE

Model: LD20W-NN Series

- Drive Mode: Constant Voltage
- For use with Constant Voltage LED Lighting
- Technology: PFC Off-Line Switch Mode
- Output Power: 20W Max.
- Input Voltage: 90-305VAC, 47- 63Hz
- Number of Outputs: One
- Output Voltages: 12VDC - 48VDC
- Output Currents: 88mA - 1660mA

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@ 40^{O}C: 488,000 hours @ Full Load per MIL-217F Notice 2.

Safety and Compliance

1. UL8750, EN61347, CSA 22.2 safety compliant
2. FCC, 47CFR Part 15 Class B 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/4kV 8/20 µsec transient protection.

Electrical Specifications at 25^{O}C

- Input voltage range: 90-305Vac
- Frequency: 47 - 63HZ
- Power Factor: ≥ 0.90 at ≥ 70% Load, 120Vac/230Vac, ≥ 90% Load 277Vac
- THD%: ≤ 20% at ≥ 60% Load, 120Vac/230Vac/277Vac
- Inrush current: <15A at 25C, 230V, cold start, Max. Load
- Input current: 0.25A at 120Vac, 60Hz, Maximum Load
- Efficiency: 85% typical at 230Vac full load.
- Line regulation accuracy: ± 3%
- Load regulation accuracy: ± 4%
- Leakage current: 300uA typical; Hold up time: half cycle

c UL us E325626 CE FC IP66 RoHS Compliant

Constant Voltage Versions

Part Number	US Class 2	CN Class 2	Output Constant Voltage	Output Current Range	Voltage Accuracy	Output Power Maximum	Typical Efficiency (1)
LD20W-48	YES	NO	48 Vdc	88 - 350 mA	± 5%	16.8W	85%
LD20W-36	YES	YES	36 Vdc	138 - 550 mA	± 5%	20W	85%
LD20W-24(5)	YES	YES	24 Vdc	208 - 830 mA	± 5%	20W	84%
LD20W-12(5)	YES	YES	12 Vdc	415 - 1660 mA	± 5%	20W	82%

Notes

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

Custom designs available. Please consult with the factory.

Specifications subject to change without notice

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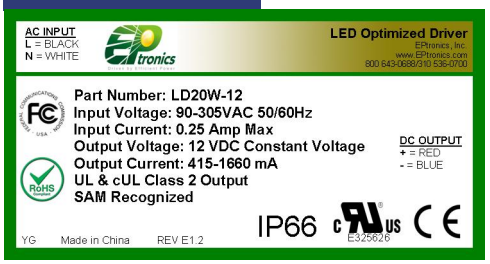
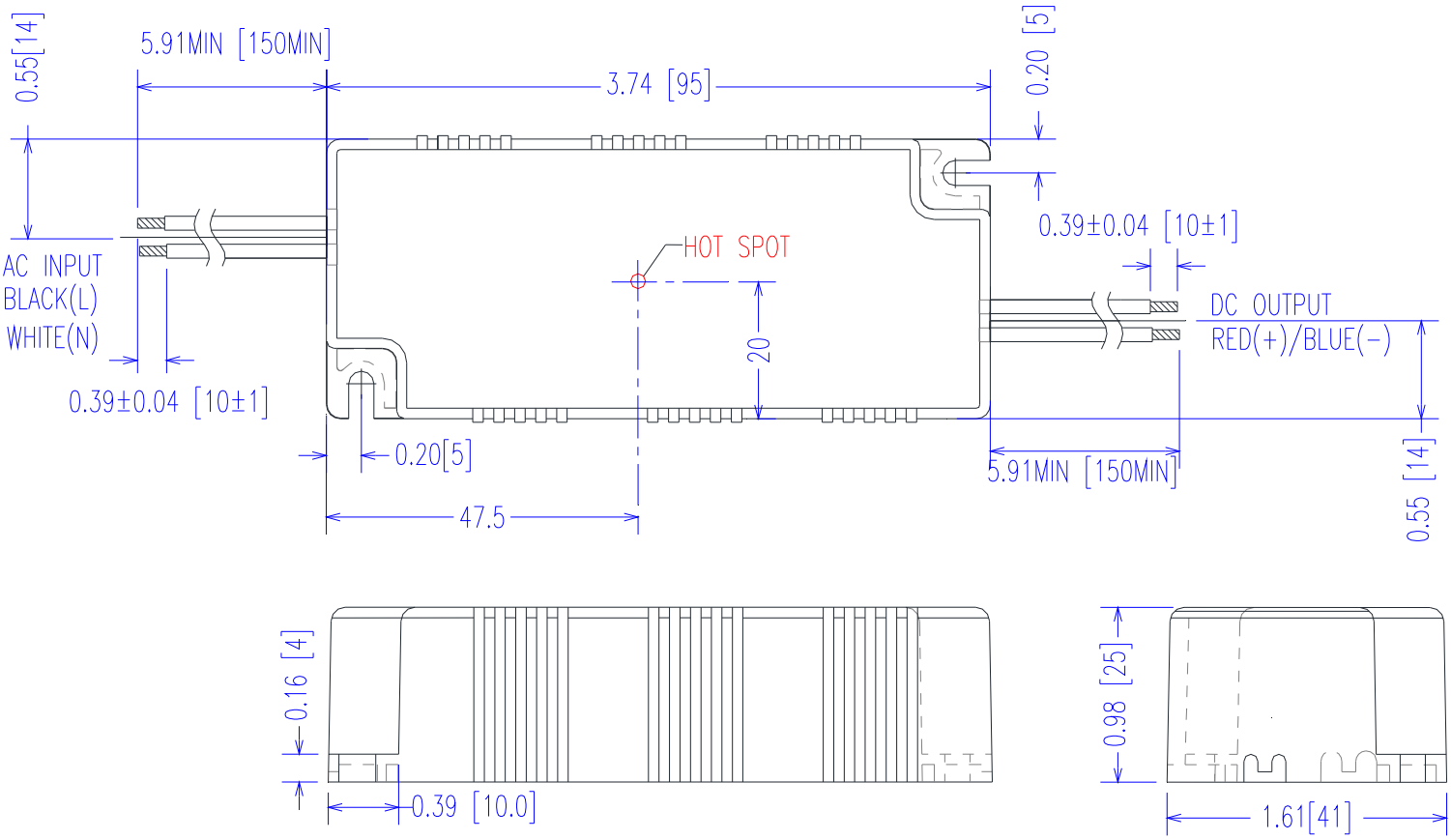
Mechanical Dimensions: Inches [mm]

Material: Black PC ABS Plastic Case
Fully Encapsulated
Weight: 165 grams (5.8 oz) Typical

Labeling Example





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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	——	——	0.25 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^{O}C, Cold Start 50% Ipeak duration ~250 µsec (1/2*Ip^{2}*t)
Inrush Current (I^{2}t)	——	——	0.31 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 ≥ 60% Load, 120Vac/230Vac/277Vac
Power Factor (PF)	0.90	——	——	Measured at ≥ 70% Load, 120Vac/230Vac, ≥ 90% 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 (Vpk-pk)	——	——	20% Vo	20 MHz BW, Full load output in parallel with 0.1 µF ceramic & 10 µF Electrolytic.
Ripple (Ipk-pk)	——	——	50% Io	20 MHz BW, Full load output in parallel with 0.1 µF ceramic & 10 µF 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 ^{O}C	——	+90 ^{O}C	Measured at location specified on case.
Operating Temperature (Ta)	-30 ^{O}C	——	+60 ^{O}C	This is a reference range. Tc controls temperature range.
Storage Temperature (Ts)	-40 ^{O}C	——	+85 ^{O}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	530,000 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.

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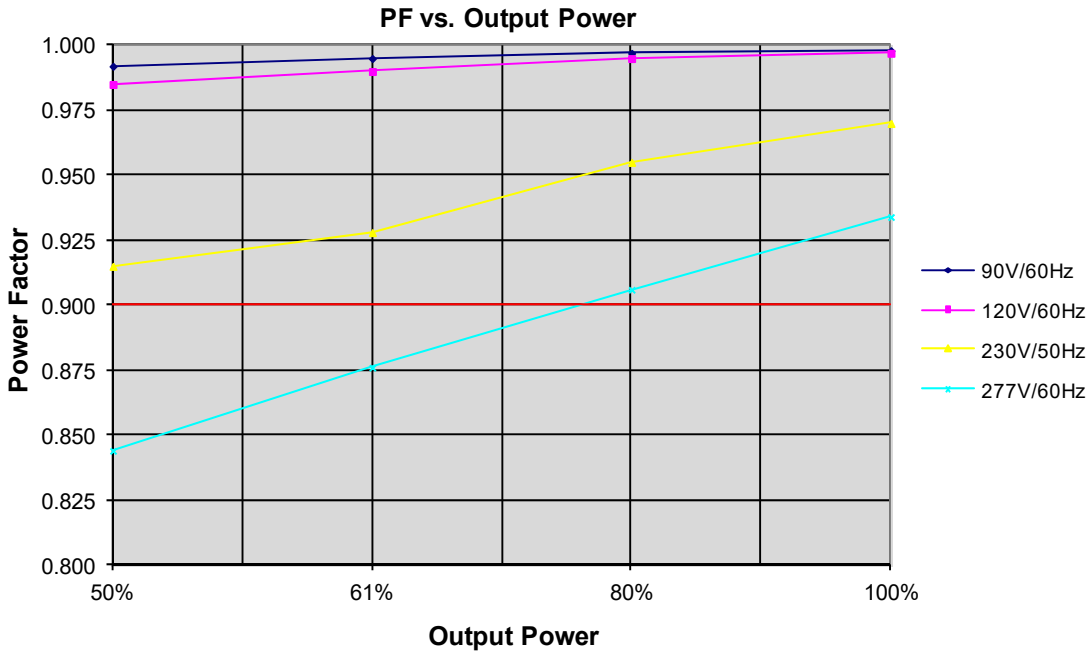
Safety Recognized

Safety	Notes/Standards
UL/CUL Recognized	UL8750 & CAN/CSA C22.2 No. 250.13
CE	EN61347-1, EN61347-2-13
Withstand Voltage	Input to Output: 3750 Vac
Isolation Resistance	Input to Output: >100 MΩ, 500VDC @ 25 ^{O}C, 70 % RH

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)



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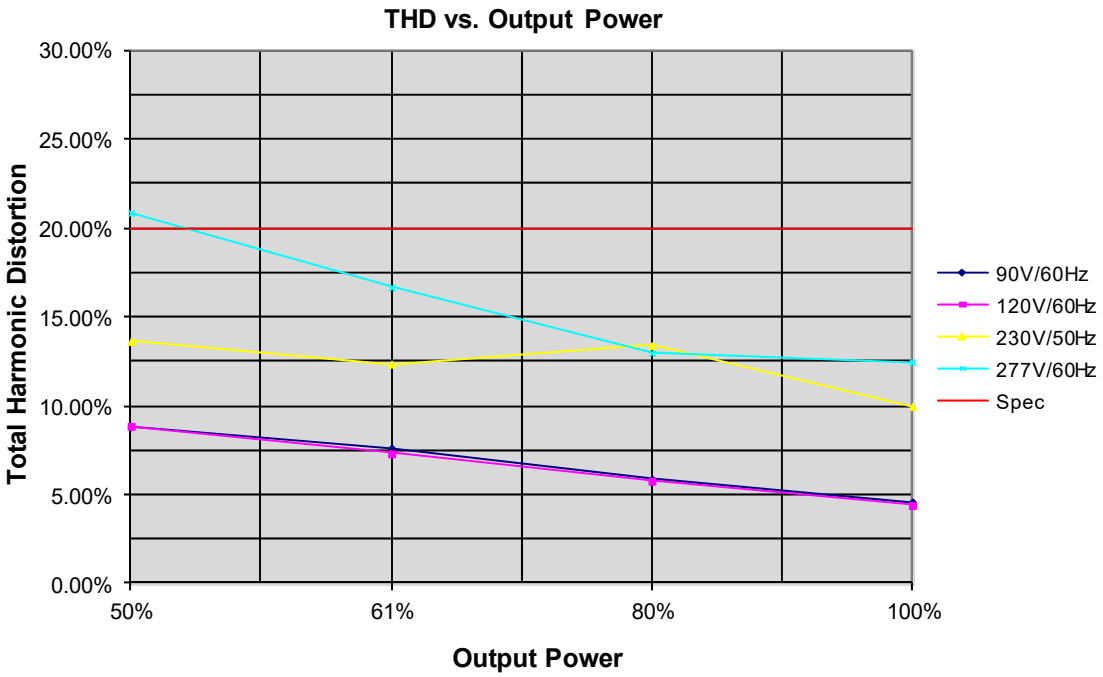
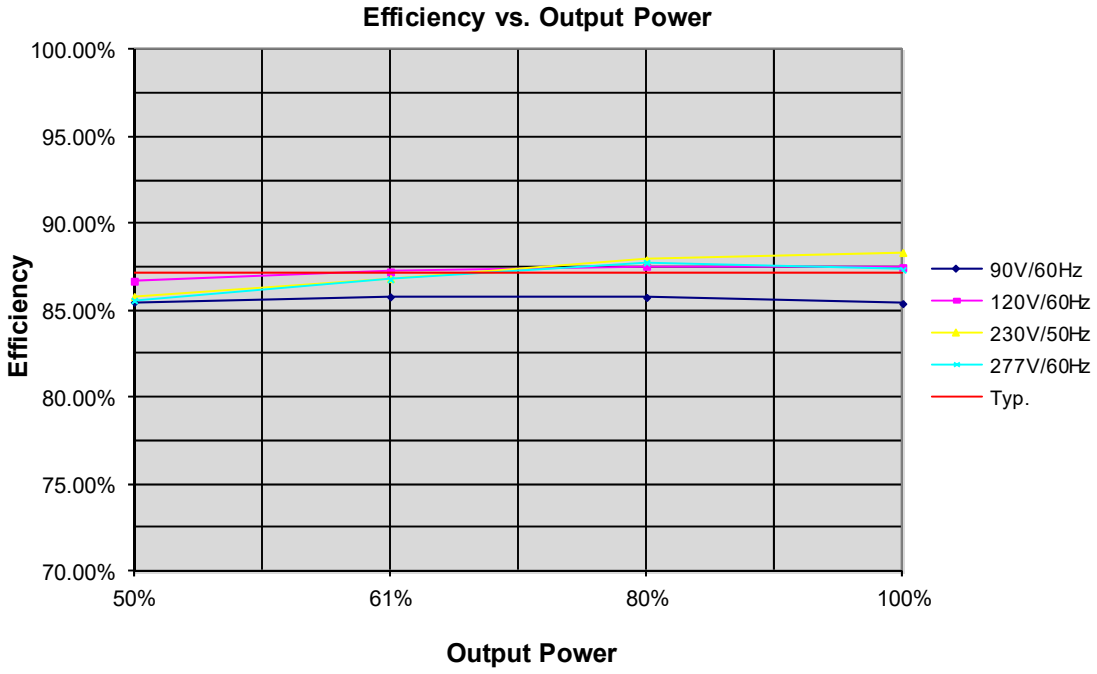
THD Curves (Typical)



Efficiency Curve (Typical)



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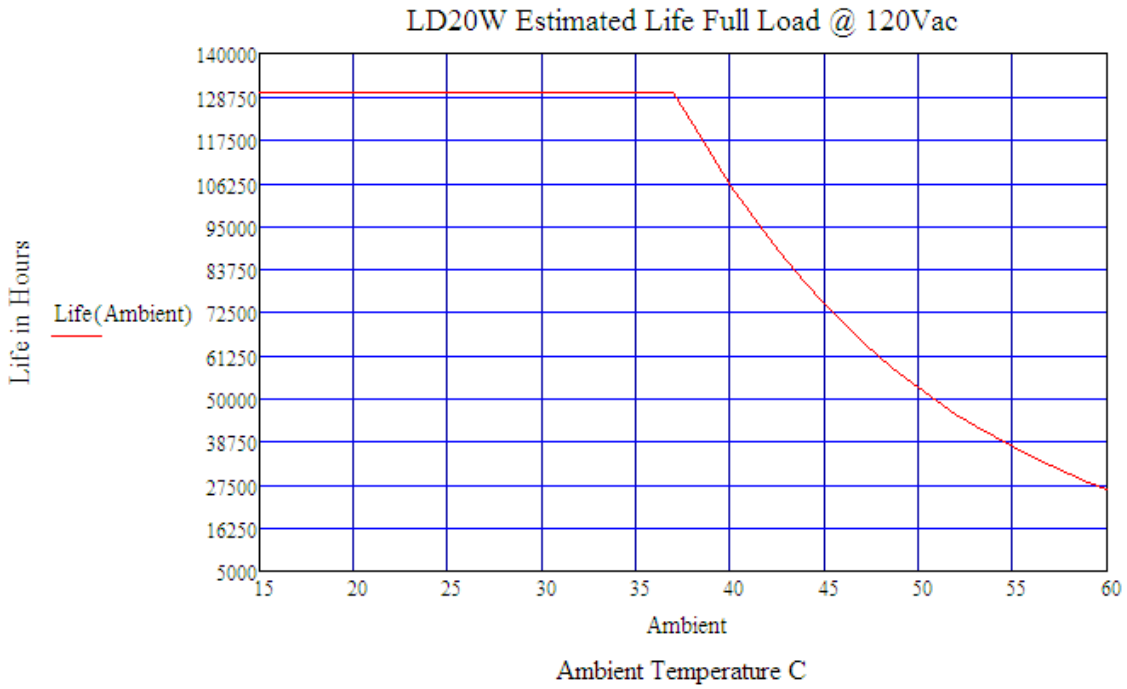
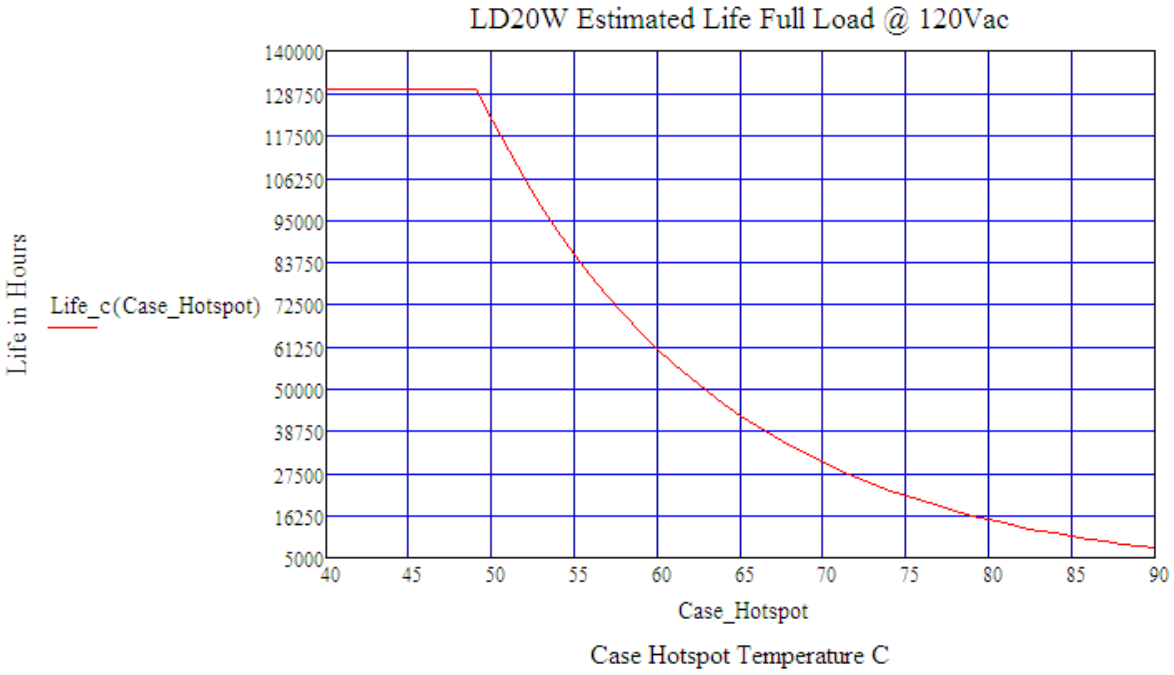
Life vs. Ambient Temperature



Life vs. Case (Tc) Temperature



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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