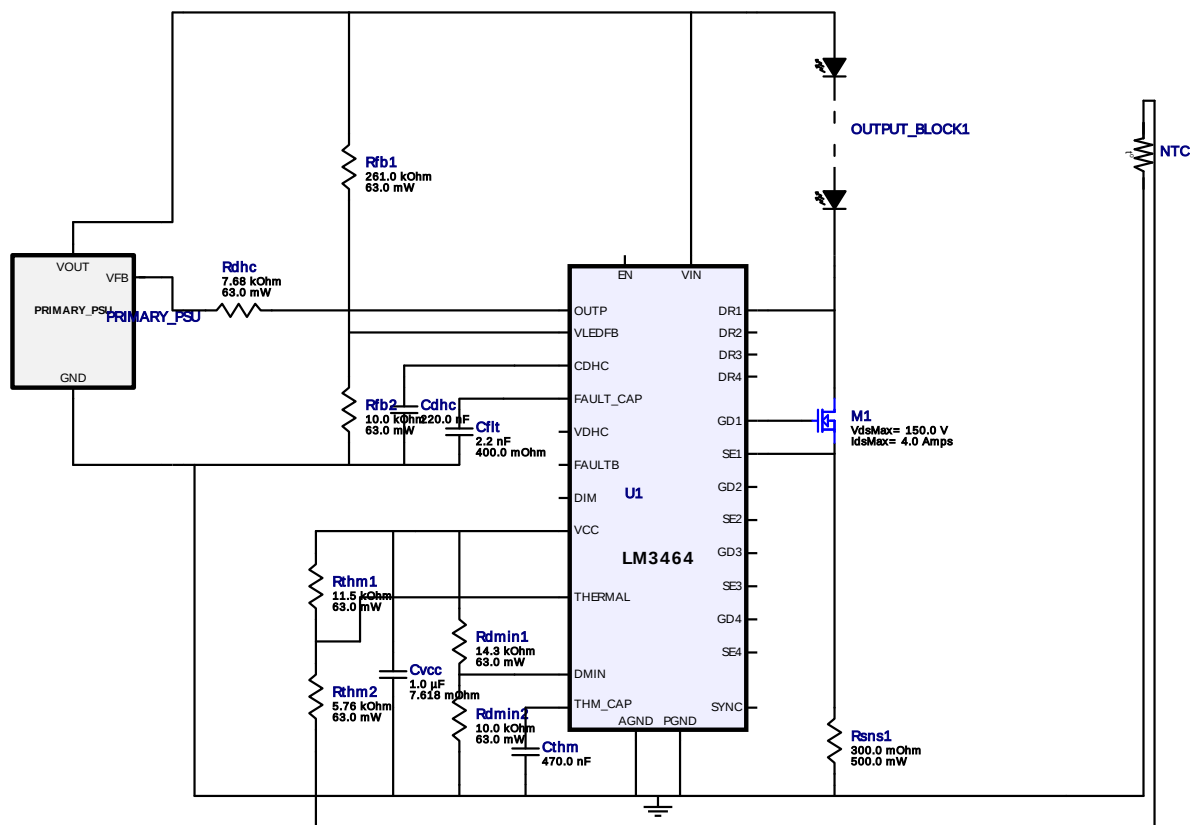


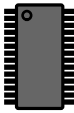
WEBENCH® Design Report

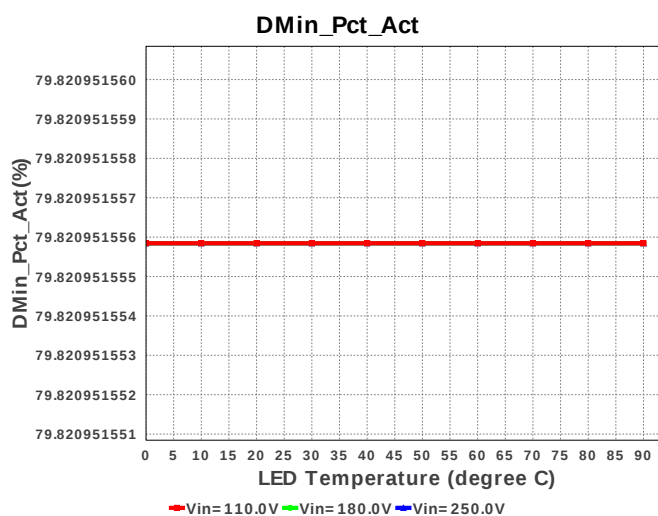
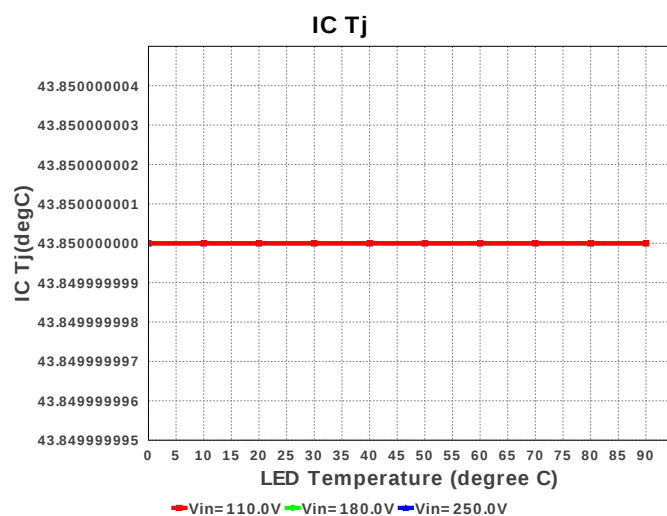
Design : 3496425/91 LM3464MH/NOPB
LM3464MH/NOPB 110.0V-250.0V to 58.40V @ 0.7A

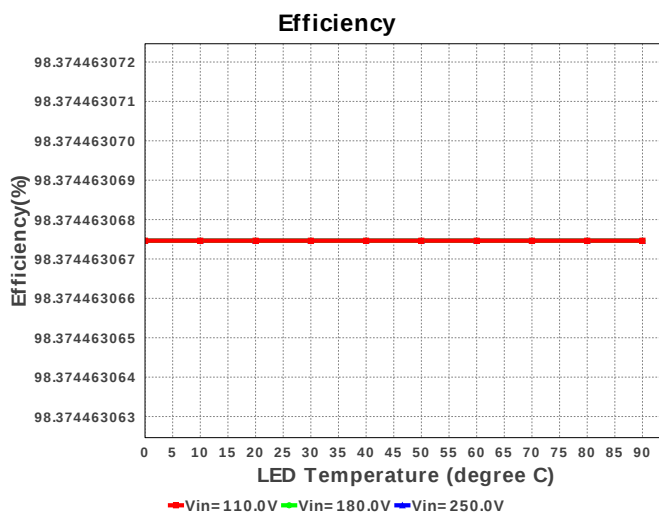
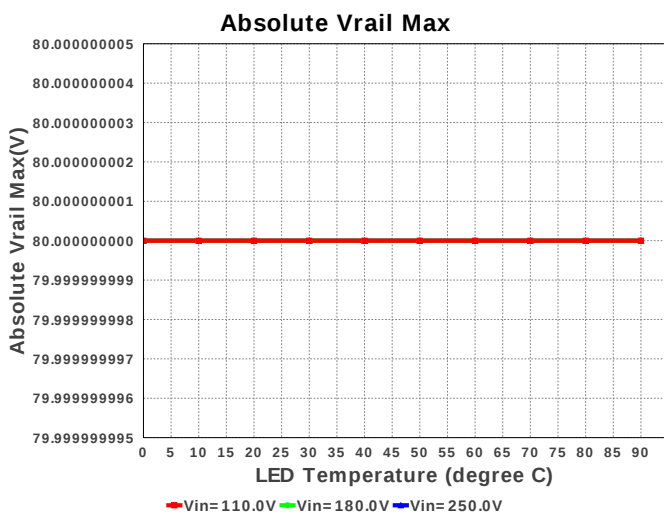
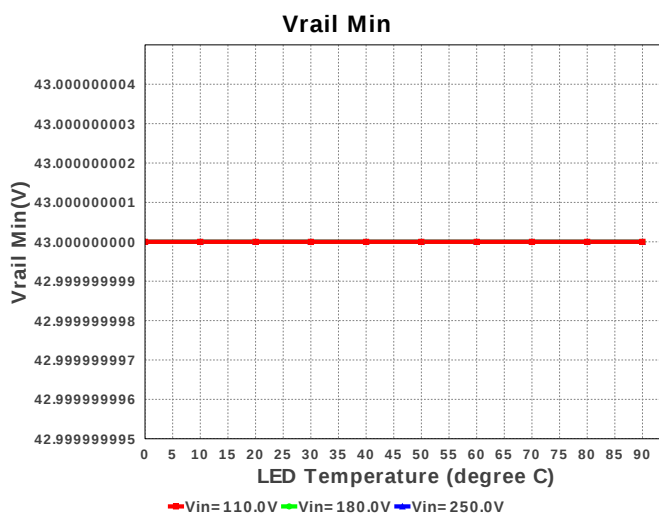
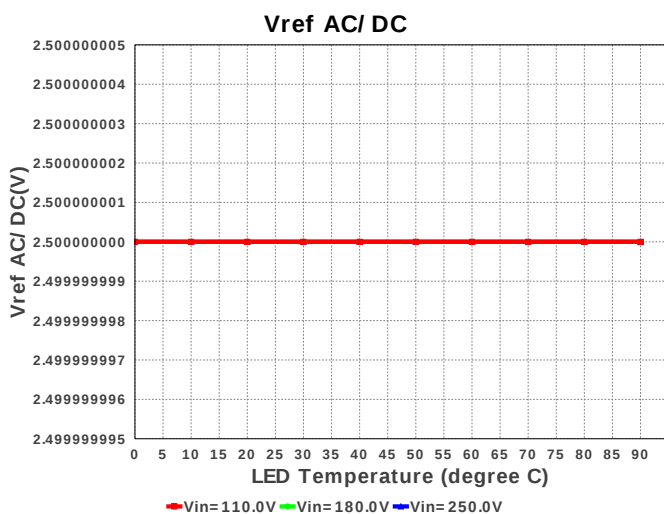
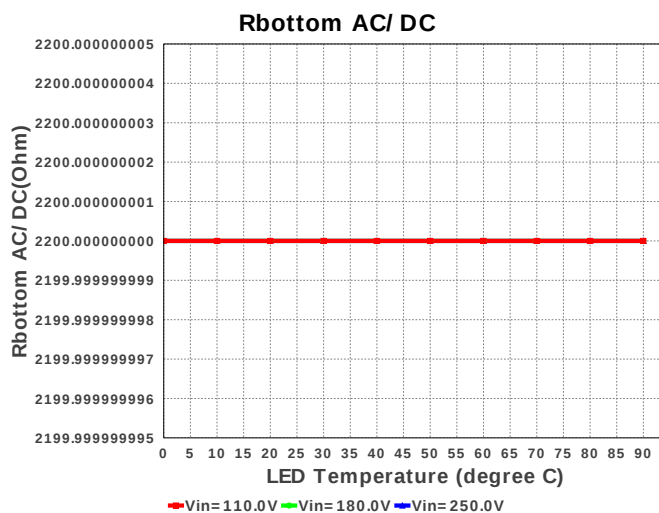
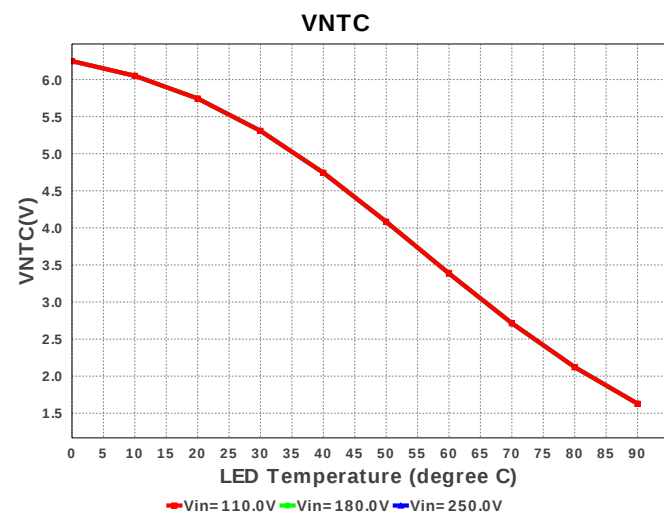


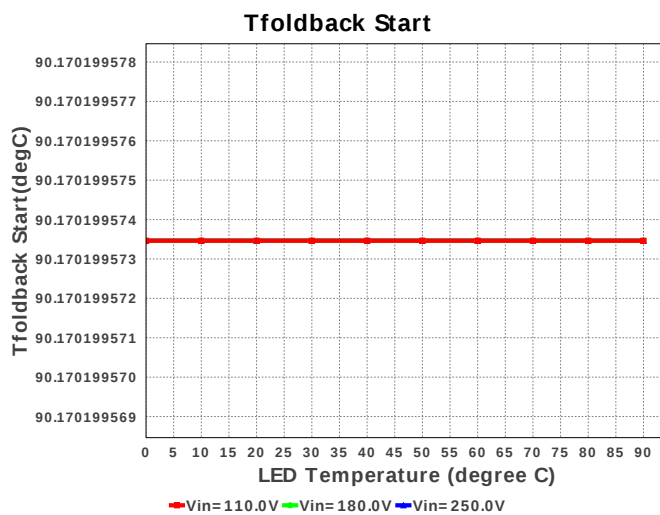
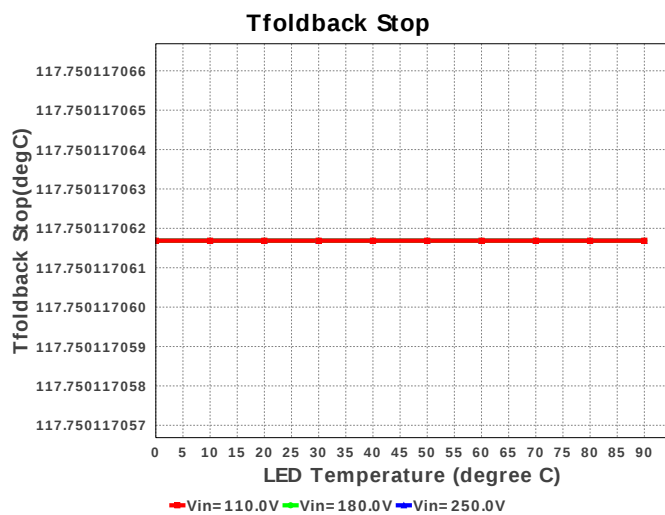
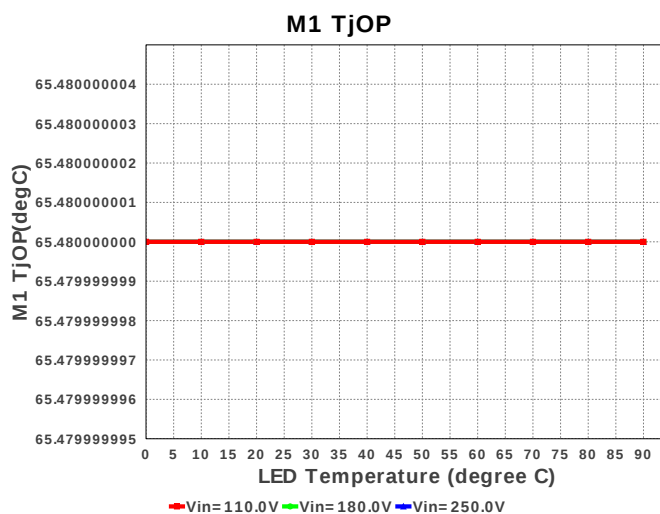
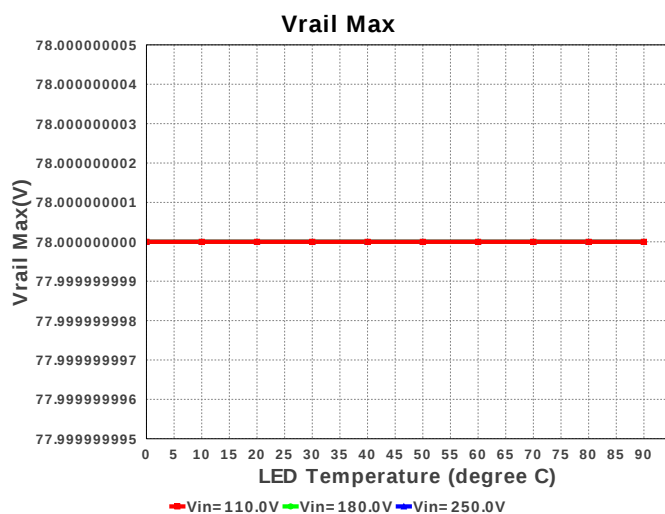
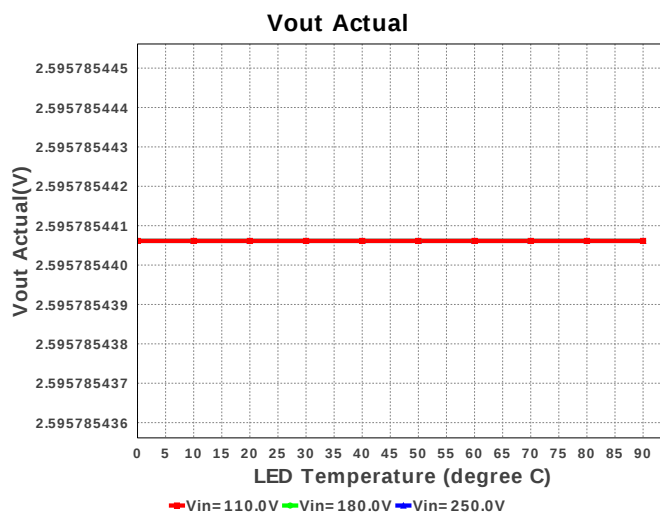
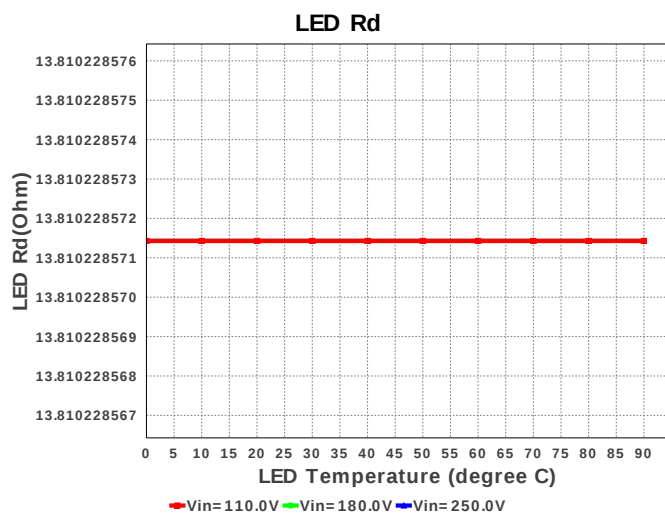
Electrical BOM

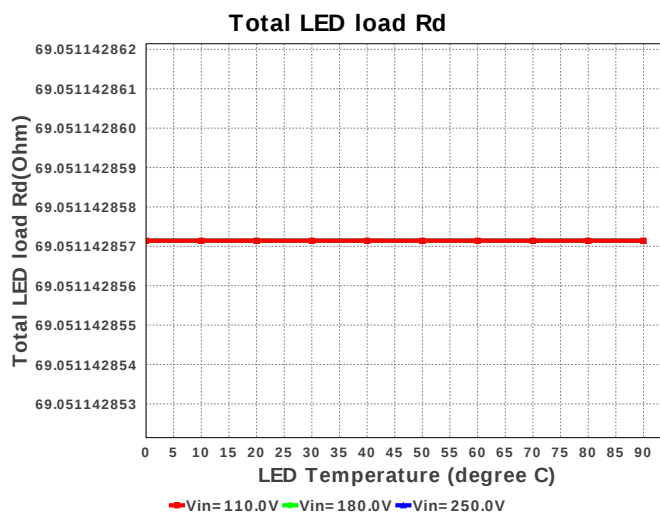
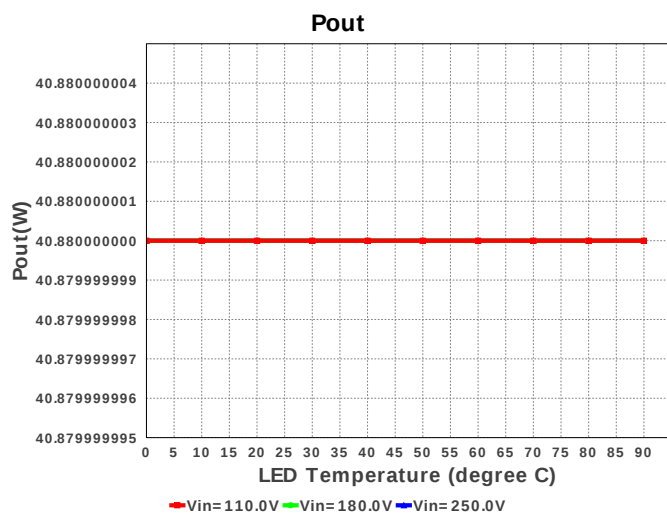
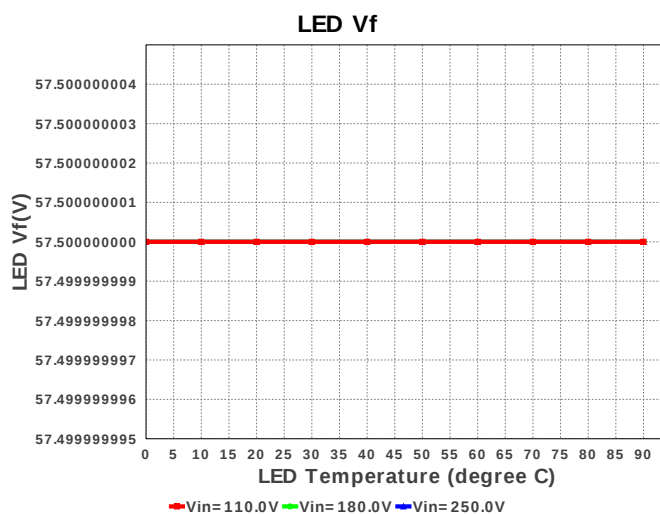
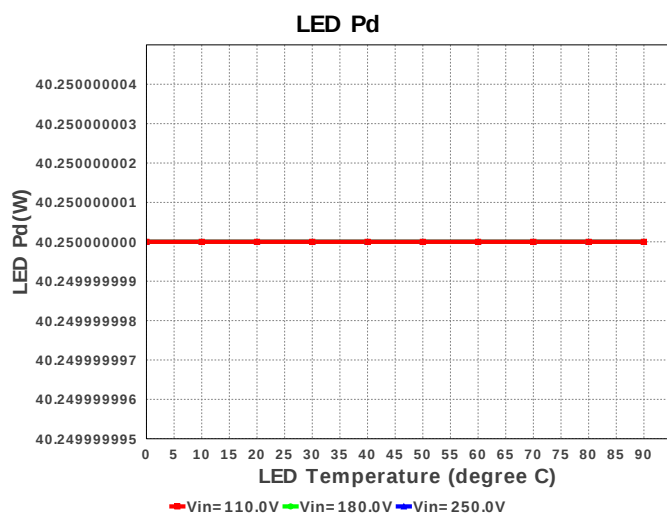
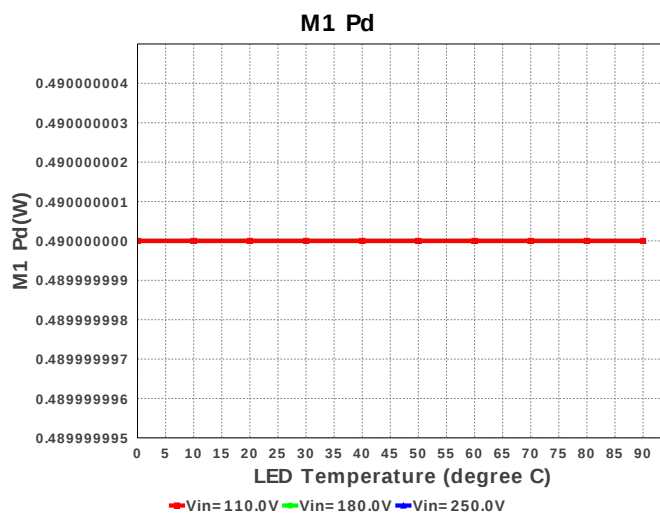
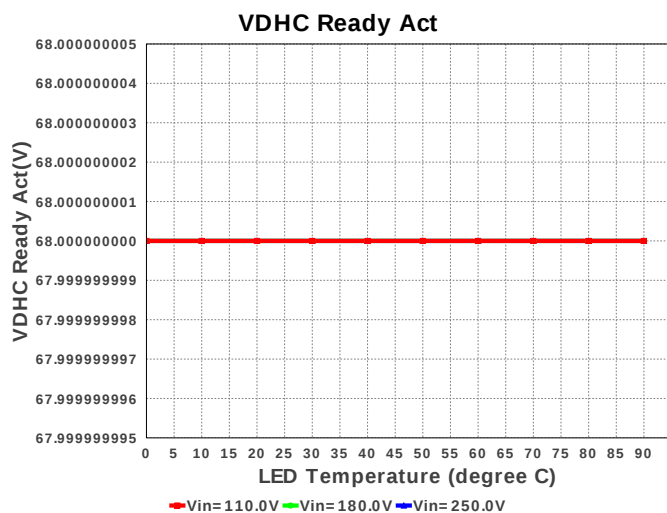
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cdhc	MuRata	GRM155R71C224KA12D Series= X7R	Cap= 220.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm²
2.	Cfit	Kemet	C0805C222K5RACTU Series= X7R	Cap= 2.2 nF ESR= 400.0 mOhm VDC= 50.0 V IRMS= 251.0 mA	1	\$0.01	 0805 7 mm²
3.	Cthm	MuRata	GRM155C80J474KE19D Series= X6S	Cap= 470.0 nF VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm²
4.	Cvcc	TDK	C1005X5R0J105M Series= X5R	Cap= 1.0 uF ESR= 7.618 mOhm VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm²
5.	D_LED1	Cree	XHP50A-00-0000-0D00J40DV	LED	5	\$5.34	 xlampxhp 0 mm²
6.	M1	Fairchild Semiconductor	FDD2572	VdsMax= 150.0 V IdsMax= 4.0 Amps	1	\$0.70	 DPAK 102 mm²

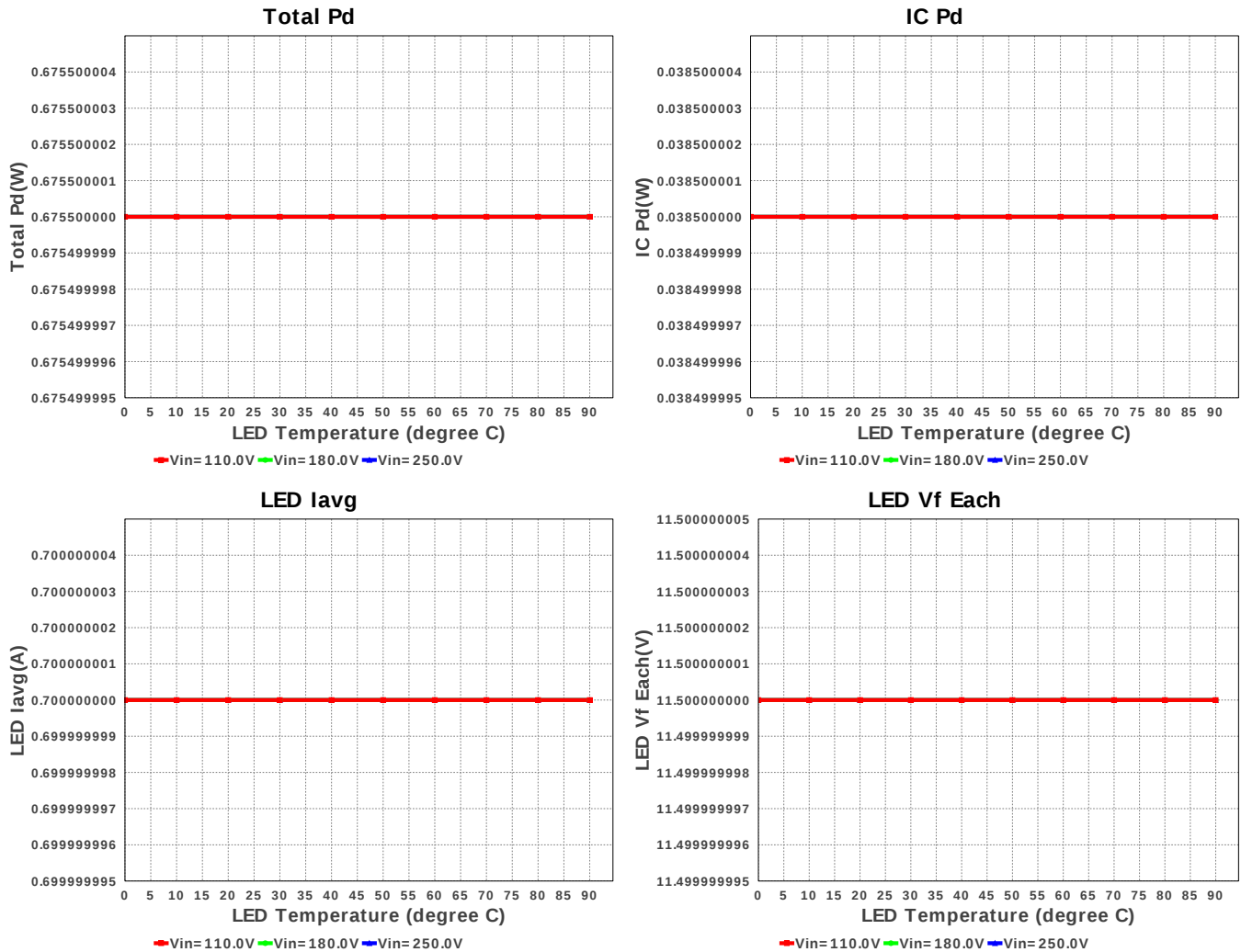
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
7.	NTC	Panasonic	ERT-J0EV104H Series= ERT-J	Thermistor	1	\$0.08	 0402 3 mm²
8.	Rdhc	Vishay-Dale	CRCW04027K68FKED Series= CRCW..e3	Res= 7.68 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
9.	Rdmin1	Vishay-Dale	CRCW040214K3FKED Series= CRCW..e3	Res= 14.3 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
10.	Rdmin2	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
11.	Rfb1	Vishay-Dale	CRCW0402261KFKED Series= CRCW..e3	Res= 261.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
12.	Rfb2	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
13.	Rsns1	Rohm	MCR25JZHFLR300 Series= MCR25	Res= 300.0 mOhm Power= 500.0 mW Tolerance= 1.0%	1	\$0.03	 1210 15 mm²
14.	Rthm1	Vishay-Dale	CRCW040211K5FKED Series= CRCW..e3	Res= 11.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
15.	Rthm2	Vishay-Dale	CRCW04025K76FKED Series= CRCW..e3	Res= 5.76 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
16.	U1	Texas Instruments	LM3464MH/NOPB	Switcher	1	\$2.40	 MXA28A 98 mm²











Operating Values

#	Name	Value	Category	Description
1.	LED Iavg	700.0 mA	Current	LED Average Current
2.	BOM Count	20	General	Total Design BOM count
3.	FootPrint	254.0 mm ²	General	Total Foot Print Area of BOM components
4.	Frequency	0.0 Hz	General	Switching frequency
5.	Pout	40.88 W	General	Total output power
6.	Total BOM	\$30.02	General	Total BOM Cost
7.	Tfoldback Stop	117.75 degC	Op_Point	Stop Temperature for Thermal Foldback
8.	Vout Actual	2.596 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
9.	Efficiency	98.374 %	Op_point	Steady state efficiency
10.	IC Tj	43.85 degC	Op_point	IC junction temperature
11.	IOUT_OP	700.0 mA	Op_point	Iout operating point
12.	LED Rd	13.81 Ohm	Op_point	LED DynamicResistance
13.	LED Vf	57.5 V	Op_point	Total LED Forward Calculated Voltage
14.	M1 TJOP	65.48 degC	Op_point	MOSFET junction temperature
15.	VIN_OP	250.0 V	Op_point	Maximum AC voltage input to power supply
16.	IC Pd	38.5 mW	Power	IC power dissipation
17.	LED Pd	40.25 W	Power	LED Power Dissipation
18.	M1 Pd	490.0 mW	Power	Average power dissipation in the switching FET over the AC line period
19.	Total Pd	675.5 mW	Power	Total Power Dissipation
20.	Absolute Vrail Max	80.0 V		Absolute Vrail Maximum
21.	DMin_Pct_Act	79.821 %		Minimum Duty Cycle Limit when LEDs are Hot
22.	LED Vf Each	11.5 V		Calculated Forward Voltage of Each LED
23.	Rbottom AC/DC	2.2 kOhm		Bottom Resistor in Feedback Loop of Power Supply Unit
24.	Tfoldback Start	90.17 degC		Start Temperature for Thermal Foldback
25.	Total LED load Rd	69.051 Ohm		Total LED Load DynamicResistance
26.	VDHC Ready Act	68.0 V		Ready Voltage for DHC Startup
27.	VNTC	6.249 V		Voltage across NTC resistor
28.	Vout Tolerance	74.546 m%		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable
29.	Vrail Max	78.0 V		Maximum Rail voltage that can be pushed up by the LM3464
30.	Vrail Min	43.0 V		Minimum Rail voltage of Power Supply Unit

#	Name	Value	Category	Description
31.	Vref AC/DC	2.5 V		Reference Voltage for Circuit in Power Supply Unit

Design Inputs

#	Name	Value	Description
1.	Iout	700.0 m	Maximum Output Current
2.	VinMax	250.0	Maximum input voltage
3.	VinMin	110.0	Minimum input voltage
4.	Vout	57.5	Output Voltage
5.	acFrequency	60.0	Light Output in Lumen
6.	application	LED_DRIVER	LED Application
7.	base_pn	LM3464	Texas Instruments Base Part Number
8.	isLEDArchitect	N	LED Architect Project
9.	ledparallel	1.0	Number of LED in parallel
10.	ledpartnumber	XHP50A-00-0000-0D0014007	LED Part number
11.	ledseries	5.0	Number of LED in series
12.	line_fsw	60.0	AC Line Frequency
13.	source	AC	Input Source Type
14.	ta	40.0	Ambient temperature

Design Assistance

1. Thermal foldback is necessary in many applications due to the extreme temperatures created in LED environments. In general, two functions are necessary a temperature break-point after which the nominal operating current needs to be reduced, and a slope corresponding to the amount of LED current decrease per temperature increase.

2. The user can set the 'Start' and 'Stop' temperatures for the thermal foldback by changing the default settings on the 'Thermal Foldback start and end temperatures' in the 'Advanced Options' menu on the left side bar. These values are then updated on the 'Op-Vals' section. The 'Op-Vals' section has a slider to simulate the increase or decrease in temperature. The operating value 'Thermal Resistance' changes based on the change in temperature. This is the resistance of the thermistor at the selected temperature and it's value is then updated in the simulation directly

3. LM3464 Product Folder : <http://www.ti.com/product/LM3464> : contains the data sheet and other resources.

Texas Instruments' WEBENCH simulation tools attempt to recreate the performance of a substantially equivalent physical implementation of the design. Simulations are created using Texas Instruments' published specifications as well as the published specifications of other device manufacturers. While Texas Instruments does update this information periodically, this information may not be current at the time the simulation is built. Texas Instruments does not warrant the accuracy or completeness of the specifications or any information contained therein. Texas Instruments does not warrant that any designs or recommended parts will meet the specifications you entered, will be suitable for your application or fit for any particular purpose, or will operate as shown in the simulation in a physical implementation. Texas Instruments does not warrant that the designs are production worthy.

You should completely validate and test your design implementation to confirm the system functionality for your application prior to production.

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