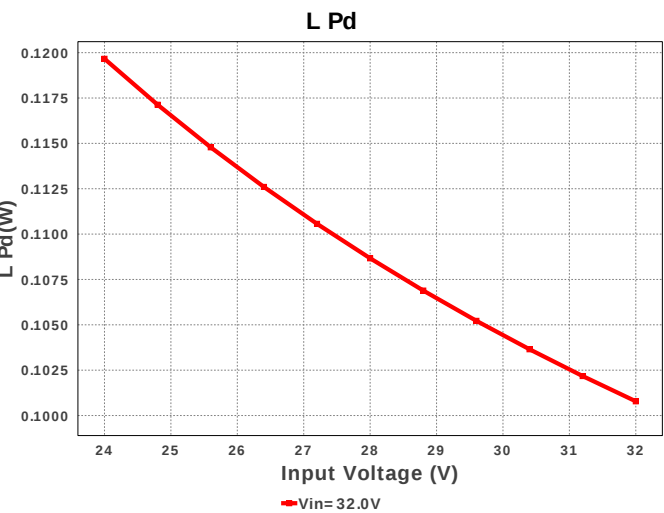
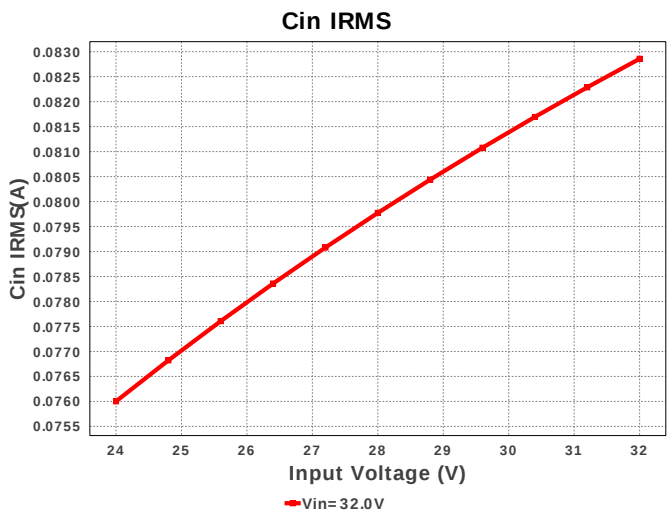
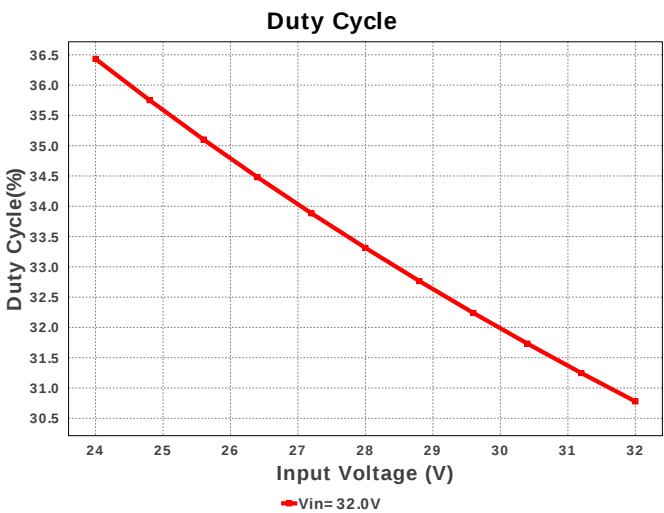
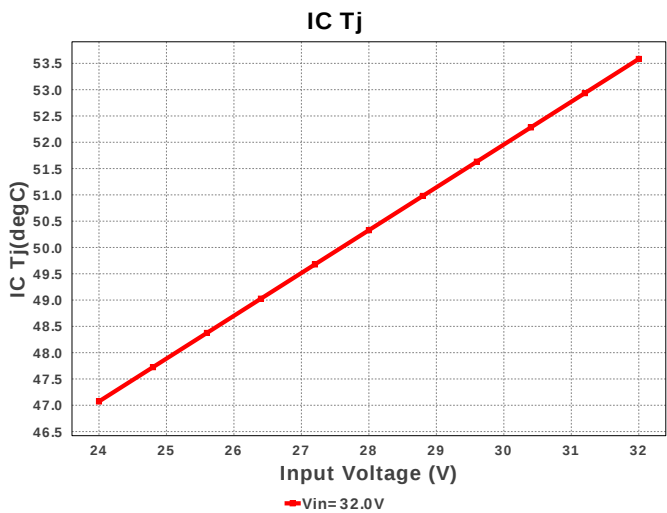


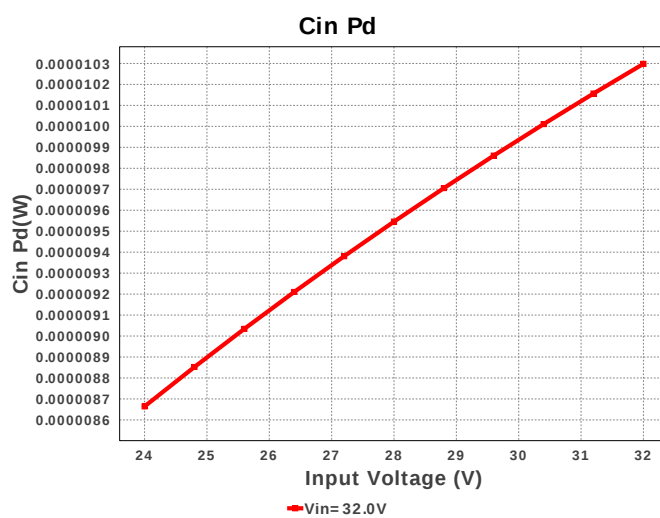
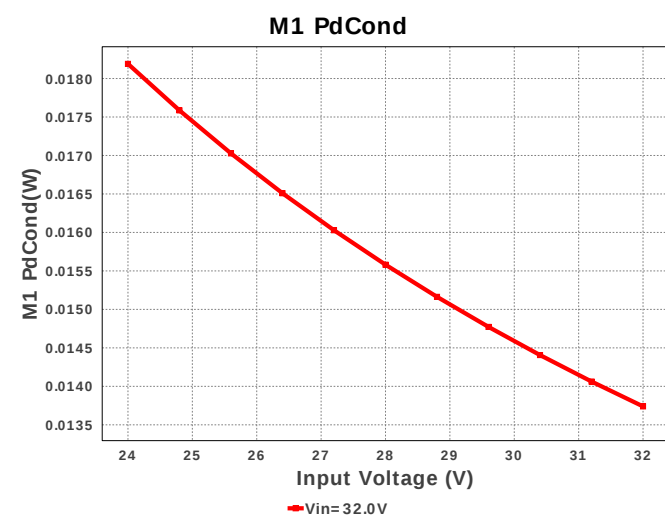
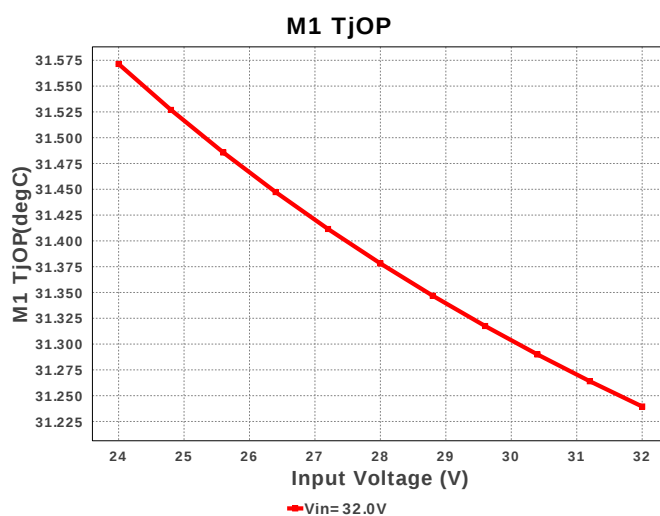
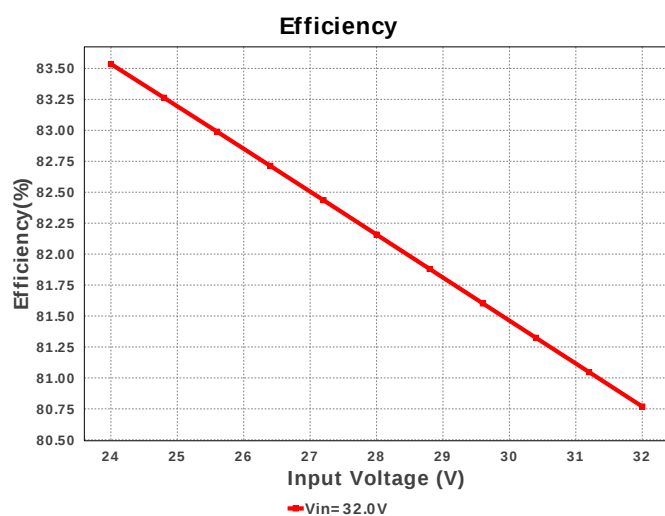
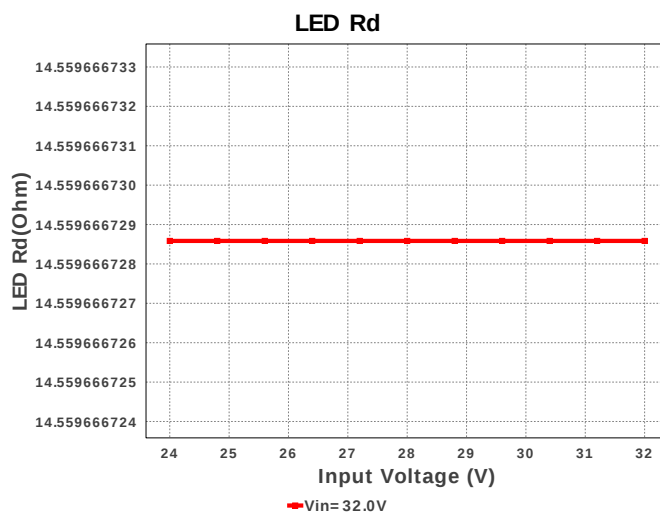
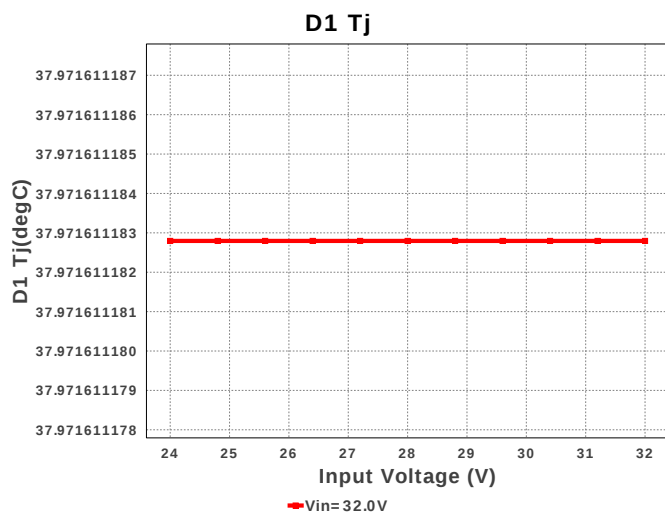


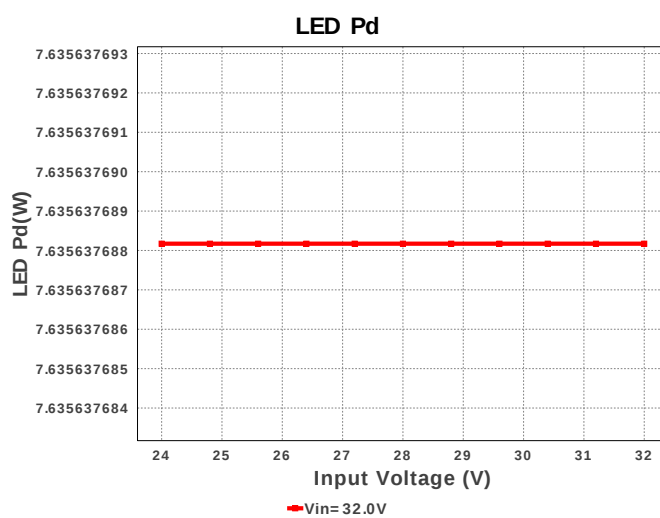
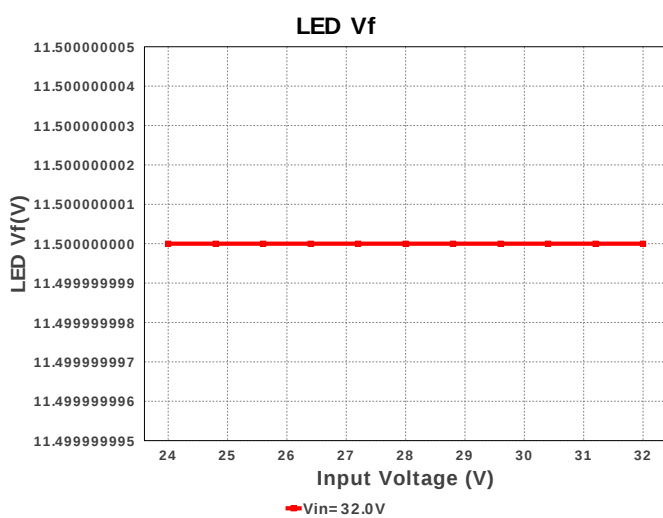
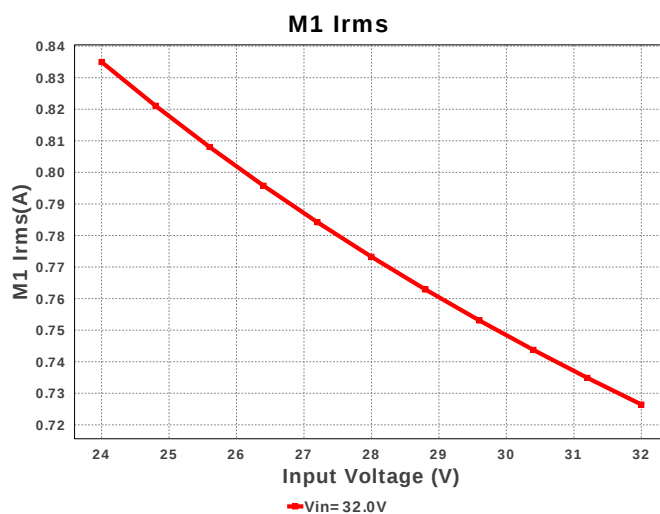
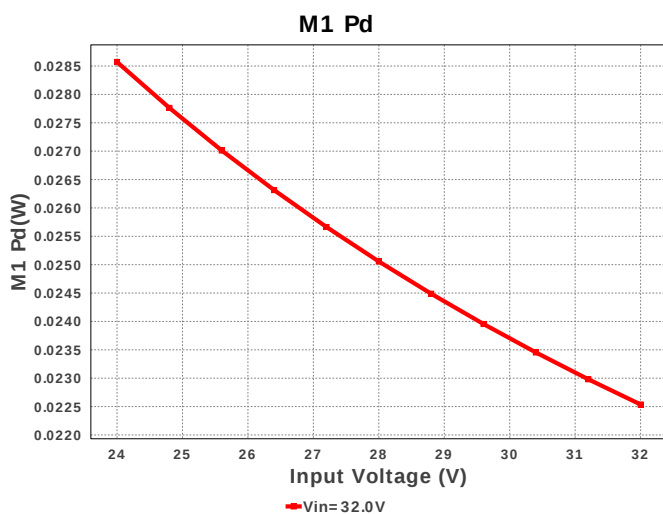
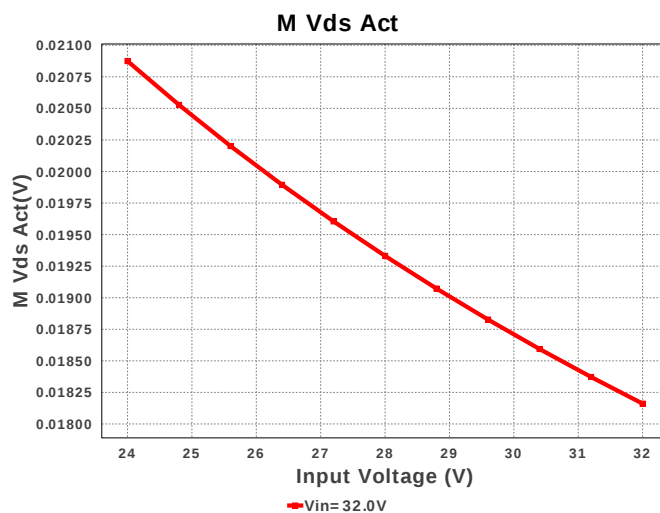
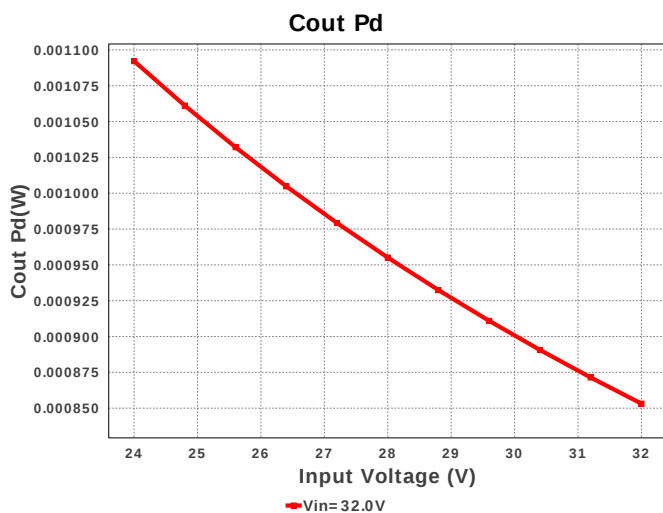
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Topology = Buck_Boost
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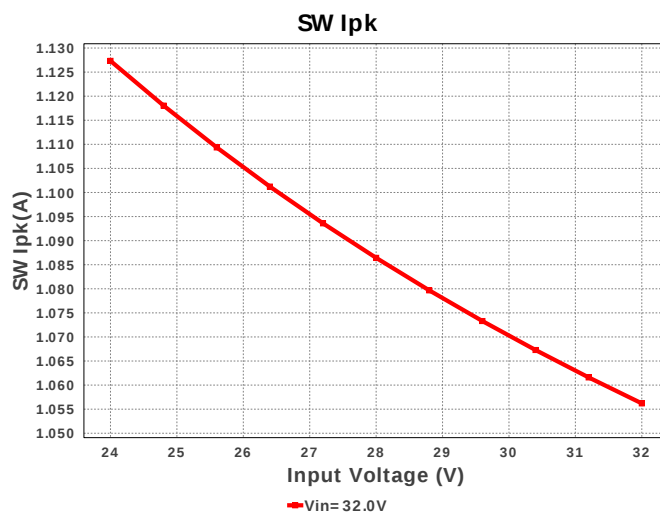
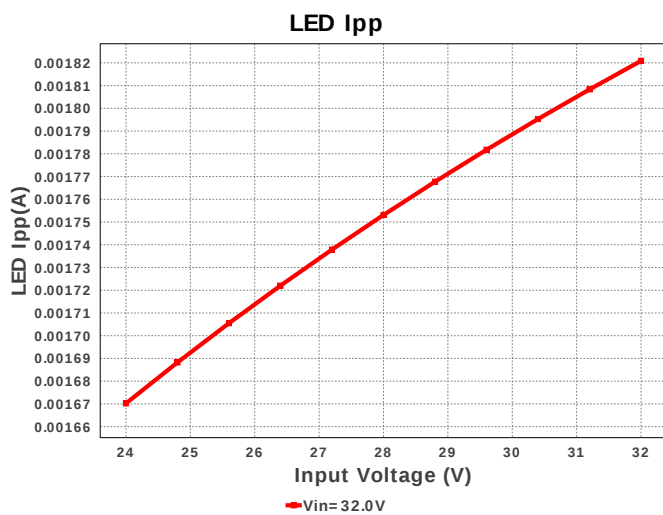
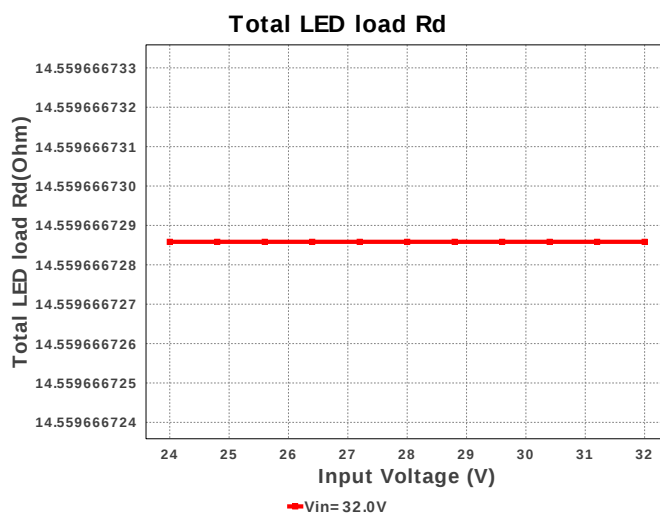
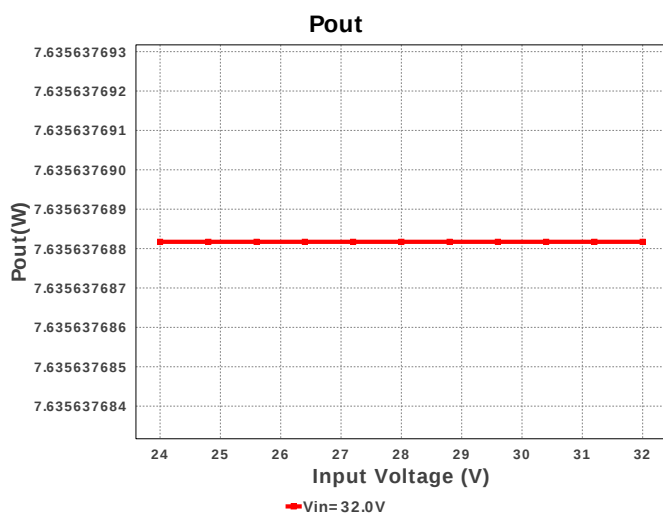
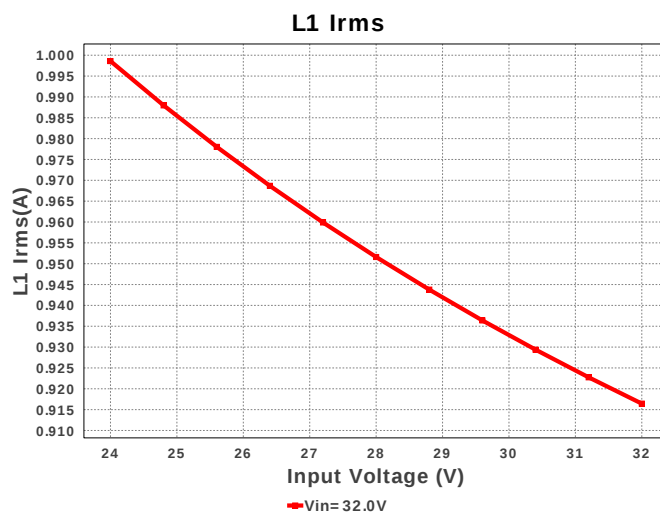
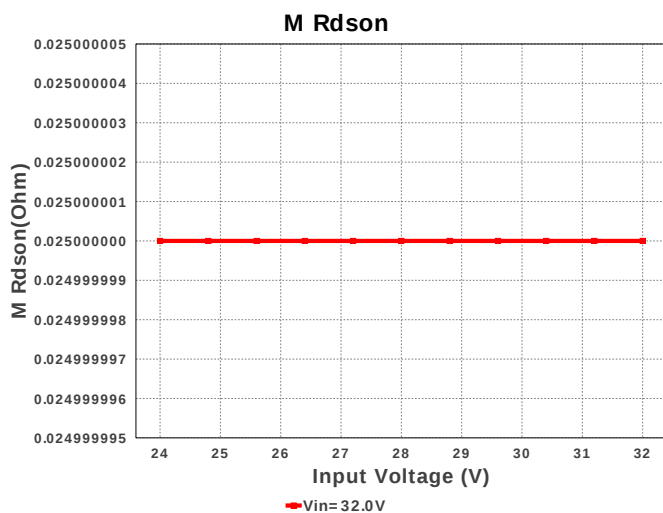
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	D1	Diodes Inc.	B260A-13-F	VF@Io= 700.0 mV VRRM= 60.0 V	1	\$0.09	 SMA 37 mm ²
11.	D_LED	Cree	XHP50A-00-0000-0D0BJ40CB	LED	1	\$5.18	 xlampxhp 0 mm ²
12.	L1	Bourns	SRR1260-560M	L= 56.0 µH DCR= 100.0 mOhm	1	\$0.41	 SRR1260 210 mm ²
13.	M1	Texas Instruments	CSD19537Q3	VdsMax= 100.0 V IdsMax= 50.0 Amps	1	\$0.50	 DQG0008A 18 mm ²
14.	Q1	Diodes Inc.	MMBT3906-7-F	Bipolar Transistor	1	\$0.02	 SOT-23 14 mm ²
15.	Rchs	Vishay-Dale	CRCW040212K4FKED Series= CRCW..e3	Res= 12.4 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
16.	Rcs	Rohm	MCR25JZHFLR120 Series= MCR25	Res= 120.0 mOhm Power= 500.0 mW Tolerance= 1.0%	1	\$0.03	 1210 15 mm ²
17.	Rdim	Vishay-Dale	CRCW04025K36FKED Series= CRCW..e3	Res= 5.36 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
18.	Rhsn	Vishay-Dale	CRCW04021K00FKED Series= CRCW..e3	Res= 1000.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
19.	Rhsp	Vishay-Dale	CRCW04021K00FKED Series= CRCW..e3	Res= 1000.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
20.	Rivp1	Vishay-Dale	CRCW0402619RFKED Series= CRCW..e3	Res= 619.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
21.	Rivp2	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
22.	Rovp1	Vishay-Dale	CRCW040238K3FKED Series= CRCW..e3	Res= 38.3 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
23.	Rovp2	Vishay-Dale	CRCW0402511KFKED Series= CRCW..e3	Res= 511.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
24.	Rr	Vishay-Dale	CRCW040210R0FKED Series= CRCW..e3	Res= 10.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
25.	Rsense	Panasonic	ERJ-3RSFR15V Series= ERJ-3R	Res= 150.0 mOhm Power= 100.0 mW Tolerance= 1.0%	1	\$0.03	 0603 5 mm ²
26.	Rt	Vishay-Dale	CRCW040245K3FKED Series= CRCW..e3	Res= 45.3 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

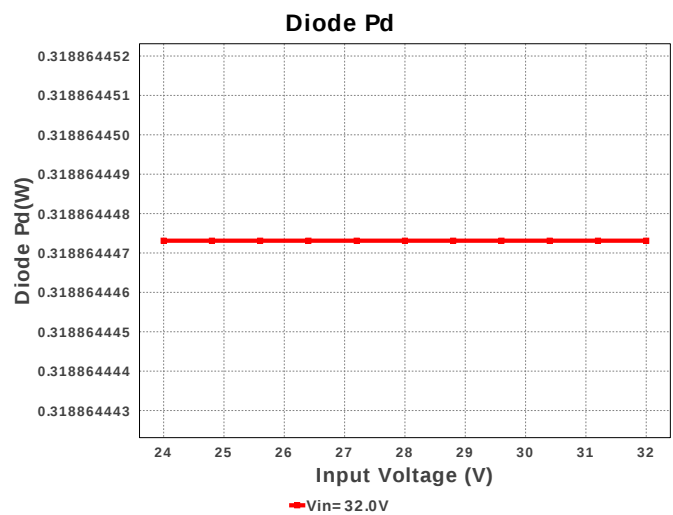
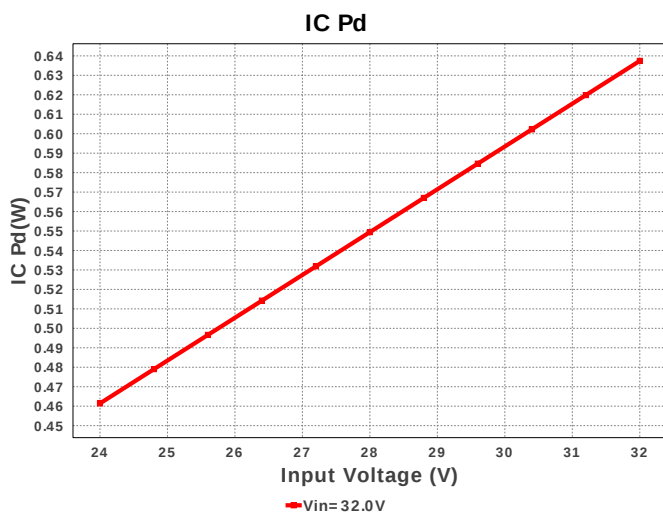
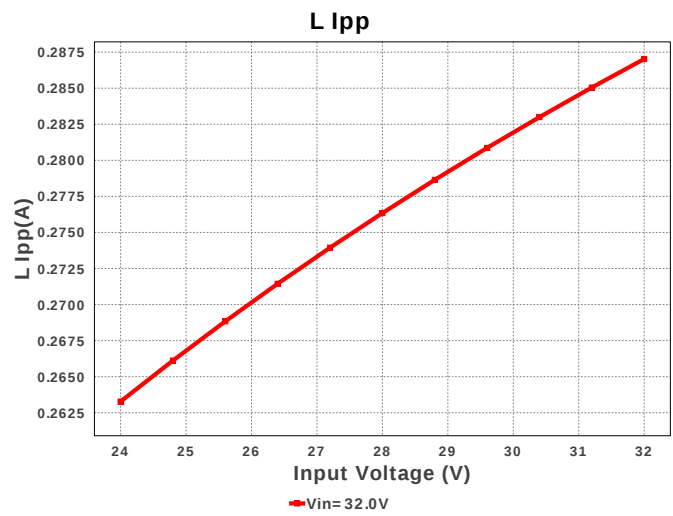
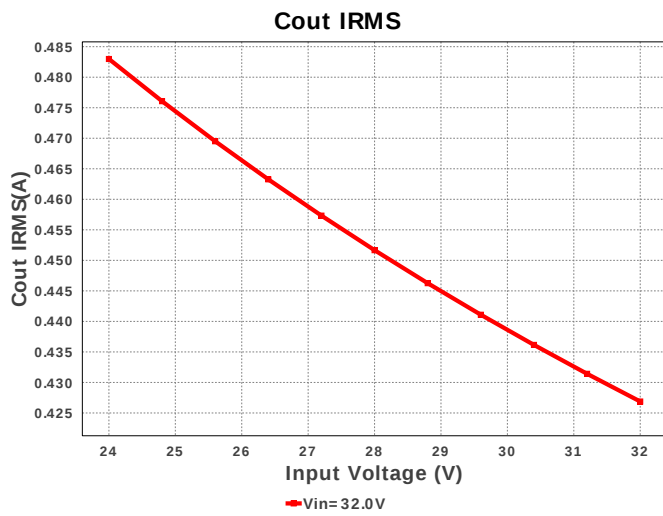
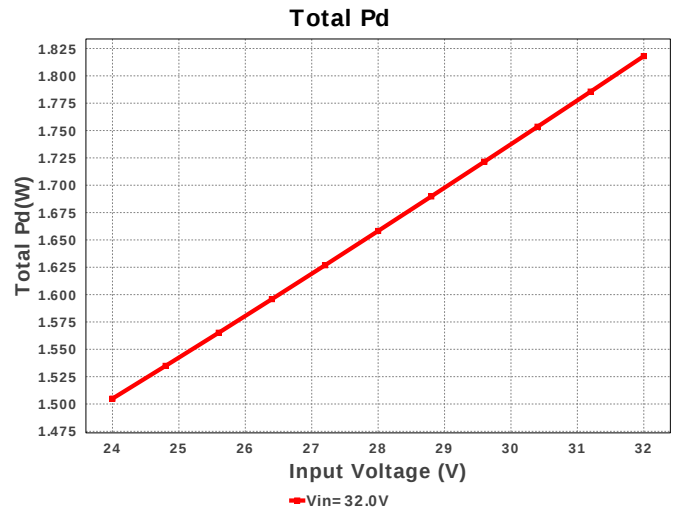
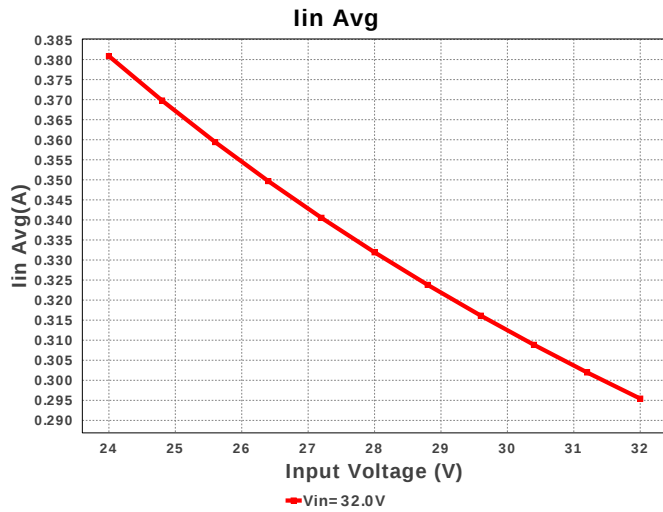
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
27. U1		Texas Instruments	LM3429Q1MH/NOPB	Switcher	1	\$1.35	 MXA14A 59 mm ²

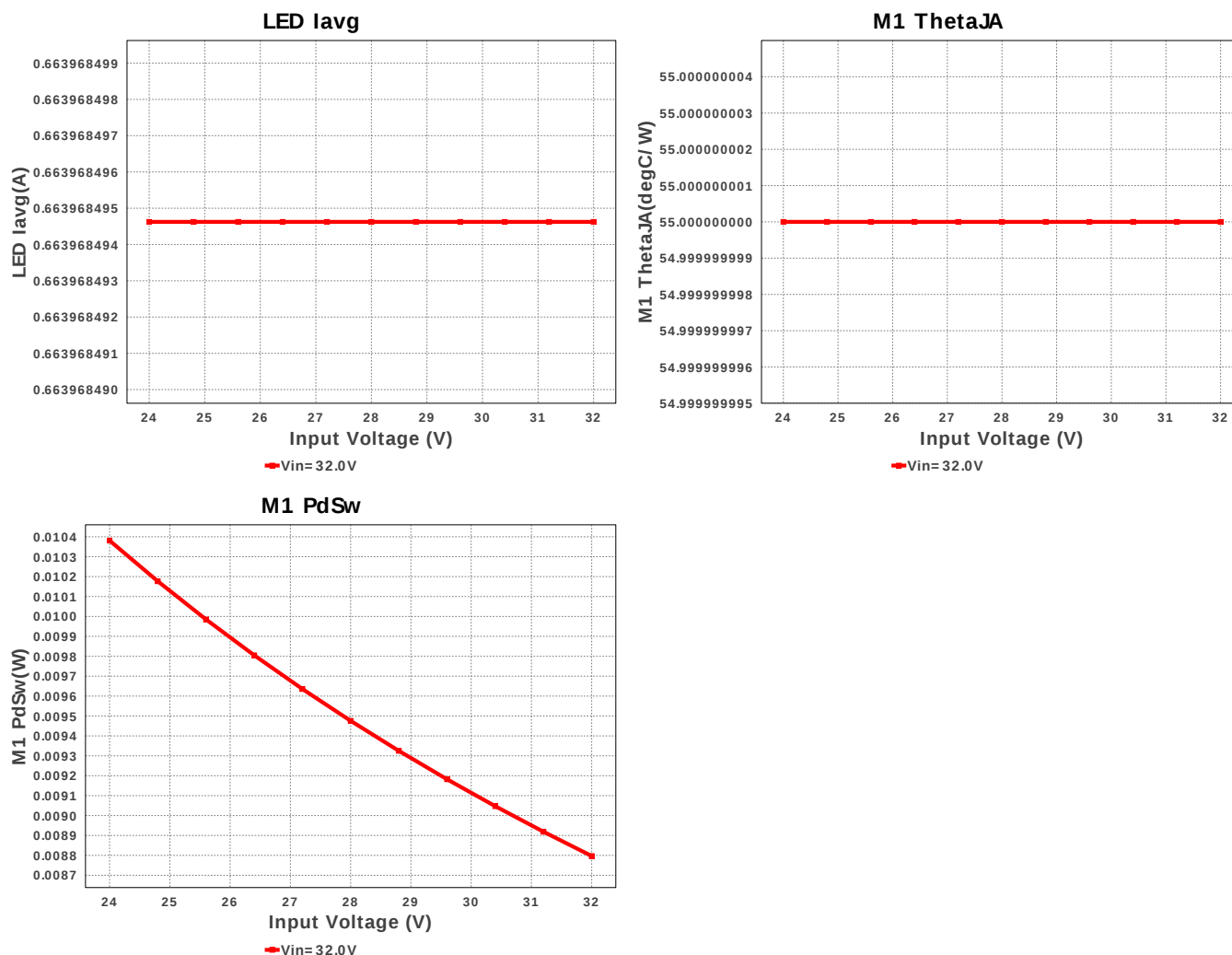












Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	101.811 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	603.911 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	593.36 mA	Current	Average input current
4.	L Ipp	352.68 mA	Current	Peak-to-peak inductor ripple current
5.	L1 Irms	1.205 A	Current	Inductor ripple current
6.	LED Iavg	663.968 mA	Current	LED Average Current
7.	LED Ipp	2.237 mA	Current	LED Ripple Current
8.	M1 Irms	1.103 A	Current	M1 MOSFET Irms
9.	SW Ipk	1.377 A	Current	Peak switch current
10.	BOM Count	28	General	Total Design BOM count
11.	FootPrint	466.0 mm ²	General	Total Foot Print Area of BOM components
12.	Frequency	546.358 kHz	General	Switching frequency
13.	IC Tolerance	25.0 mV	General	IC Feedback Tolerance
14.	M Rdson	6.8 mOhm	General	Drain-Source On-resistance
15.	M Vds Act	7.501 mV	General	M Vds
16.	M1 ThetaJA	50.0 degC/W	General	MOSFET junction-to-ambient thermal resistance
17.	Mode	CCM	General	Conduction Mode
18.	Pout	12.524 W	General	Total output power
19.	Total BOM	\$3.02	General	Total BOM Cost
20.	D1 Tj	38.797 degC	Op_Point	D1 junction temperature
21.	Vout OP	18.863 V	Op_Point	Operational Output Voltage
22.	Duty Cycle	47.175 %	Op_point	Duty cycle
23.	Efficiency	87.947 %	Op_point	Steady state efficiency
24.	IC Tj	48.431 degC	Op_point	IC junction temperature
25.	ICThetaJA	37.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
26.	IOUT_OP	663.97 mA	Op_point	Iout operating point
27.	LED Rd	14.56 Ohm	Op_point	LED DynamicResistance
28.	LED Vf	18.863 V	Op_point	Total LED Forward Calculated Voltage
29.	M1 TJOP	31.836 degC	Op_point	M1 MOSFET junction temperature
30.	VIN_OP	24.0 V	Op_point	Vin operating point
31.	Cin Pd	15.548 μW	Power	Input capacitor power dissipation

#	Name	Value	Category	Description
32.	Cout Pd	1.708 mW	Power	Output capacitor power dissipation
33.	Diode Pd	351.895 mW	Power	Diode power dissipation
34.	IC Pd	498.146 mW	Power	IC power dissipation
35.	L Pd	174.228 mW	Power	Inductor power dissipation
36.	LED Pd	12.524 W	Power	LED Power Dissipation
37.	M1 Pd	36.723 mW	Power	M1 MOSFET total power dissipation
38.	M1 PdCond	8.502 mW	Power	M1 MOSFET conduction losses
39.	M1 PdSw	28.222 mW	Power	M1 MOSFET switching losses
40.	Total Pd	1.716 W	Power	Total Power Dissipation
41.	Total LED load Rd	14.56 Ohm		Total LED Load DynamicResistance
42.	Vout Tolerance	132.54 m%		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	700.0 m	Maximum Output Current
2.	VinMax	32.0	Maximum input voltage
3.	VinMin	24.0	Minimum input voltage
4.	Vout	11.5	Output Voltage
5.	application	LED_DRIVER	LED Application
6.	base_pn	LM3429-Q1	Base Product Number
7.	LED_Architect	N	LED Architect Project
8.	ledparallel	1.0	Number of LED in parallel
9.	ledpartnumber	XHP50A-00-0000-0D0B1400	LED Part number
10.	ledseries	1.0	Number of LED in series
11.	line_fsw	60.0	AC Line Frequency
12.	source	DC	Input Source Type
13.	Ta	30.0	Ambient temperature

Design Assistance

1. Feature Highlights: Automotive Qualified LED Driver. Please consult product datasheet for detailed specifications.
2. The LM3429-Q1 is qualified for Automotive applications. All passives and other components selected in this design may not be qualified for Automotive applications. The user is required to verify that all components in the design meet the qualification and safety requirements for their specific application
3. **LM3429-Q1 Product Folder** : <http://www.ti.com/product/LM3429%2DQ1> : contains the data sheet and other resources.

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