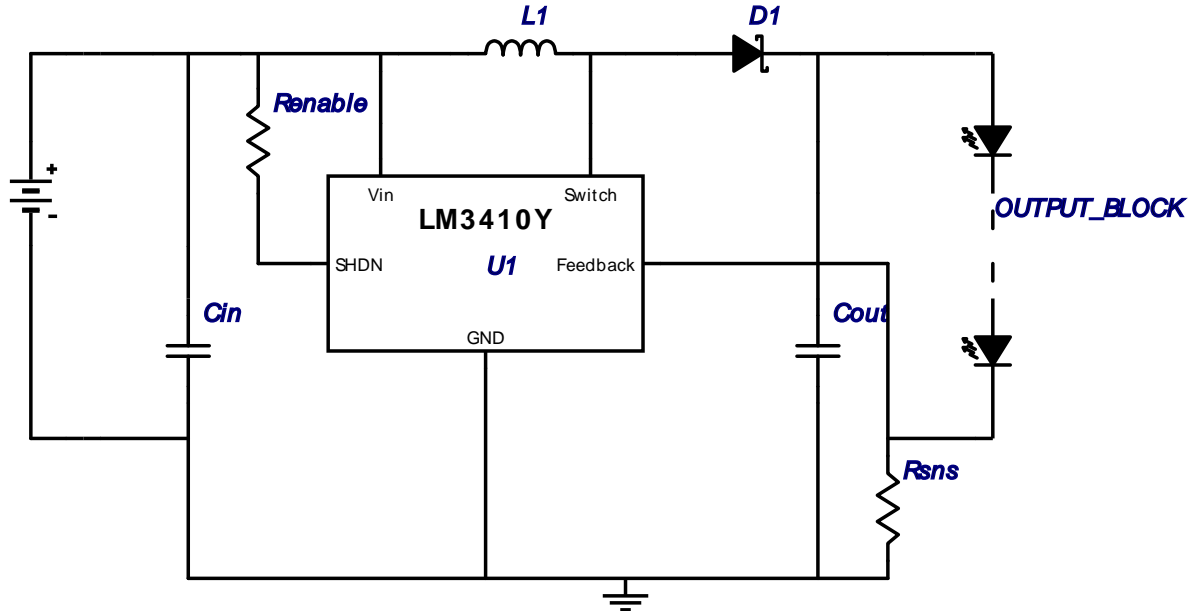


WEBENCH® Design Report

 Design : 3491240/10 LM3410YMF
 LM3410YMF 3.0V-4.3V to 15.69V @ 0.2A

Electrical BOM

#	Name	Manufacturer	Part Number	Quantity	Price	Properties	Footprint
1.	Cin	MuRata	GRM21BR60J226ME39L Series= X5R	1	\$0.05	Cap= 22.0 μ F ESR= 9.0 mOhm VDC= 6.3 V IRMS= 3.5 A	 0805 13mm2
2.	Cout	TDK	C3225X7R1E106M Series= X7R	1	\$0.18	Cap= 10.0 μ F ESR= 2.7 mOhm VDC= 25.0 V IRMS= 3.0 A	 1210 23mm2
3.	D1	Diodes Inc.	B230A-13-F	1	\$0.09	VF@Io= 500.0 mV VRRM= 30.0 V	 SMA 37mm2
4.	D_LED	CUSTOM	CUSTOM	10	\$0.00	LED	CUSTOM 0mm2
5.	L1	CUSTOM	CUSTOM	1	\$0.00	L= 27.0 μ H DCR= 12.185 mOhm	CUSTOM 0mm2
6.	Renable	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	1	\$0.01	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	 0402 8mm2
7.	Rsns	Rohm	MCR25JZHFLR910 Series= 298	1	\$0.04	Res= 910.0 mOhm Power= 500.0 mW Tolerance= 1.0%	 1210 23mm2
8.	U1	Texas Instruments	LM3410YMF	1	\$1.11	Switcher	 MF05A 0mm2

Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	45.036 m A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	446.3 m A	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.272 A	Current	Peak switch current in IC

#	Name	Value	Category	Description
4.	Iin Avg	1.197 A	Current	Average input current
5.	L Ipp	156.008 m A	Current	Peak-to-peak inductor ripple current
6.	LED Iavg	208.791 m A	Current	LED Average Current
7.	LED Ipp	8.665 m A	Current	LED Ripple Current
8.	M1 Irms	1.09 A	Current	Q Iavg
9.	BOM Count	17.0	General	Total Design BOM count
10.	FootPrint	195.0 mm2	General	Total Foot Print Area of BOM components
11.	Frequency	525.0 k Hz	General	Switching frequency
12.	IC Tolerance	12.0 m V	General	IC Feedback Tolerance
13.	M Vds Act	220.407 m V	General	Voltage drop across the MosFET
14.	Mode	CCM	General	Conduction Mode
15.	Pout	3.138 W	General	Total output power
16.	Total BOM	\$0.0	General	Total BOM Cost
17.	D1 Tj	32.5 degC	Op_Point	D1 junction temperature
18.	Vout OP	15.69 V	Op_Point	Operational Output Voltage
19.	Cross Freq	13.437 k Hz	Op_point	Bode plot crossover frequency
20.	Duty Cycle	83.253 %	Op_point	Duty cycle
21.	Efficiency	87.4 %	Op_point	Steady state efficiency
22.	IC Tj	65.164 degC	Op_point	IC junction temperature
23.	ICThetaJA	118.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
24.	IOUT_OP	200.0 m A	Op_point	Iout operating point
25.	LED Rd	1.1 Ohm	Op_point	LED DynamicResistance
26.	LED Vf	15.5 V	Op_point	Total LED Forward Calculated Voltage
27.	Phase Marg	21.353 deg	Op_point	Bode Plot Phase Margin
28.	VIN_OP	3.0 V	Op_point	Vin operating point
29.	Cin Pd	18.254 μ W	Power	Input capacitor power dissipation
30.	Cout Pd	537.795 μ W	Power	Output capacitor power dissipation
31.	Diode Pd	100.0 m W	Power	Diode power dissipation
32.	IC Pd	298.012 m W	Power	IC power dissipation
33.	L Pd	17.403 m W	Power	Inductor power dissipation
34.	LED Pd	3.1 W	Power	LED Power Dissipation
35.	Rsense Pd	36.4 m W	Power	LED Current Rsns Power Dissipation
36.	Total Pd	452.39 m W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	200.0 mA	Maximum Output Current
2.	Iout1	200.0 mAmps	Output Current #1
3.	VinMax	4.3 V	Maximum input voltage
4.	VinMin	3.0 V	Minimum input voltage
5.	Vout	15.5 V	Output Voltage
6.	Vout1	15.5 Volt	Output Voltage #1
7.	application	LED_DRIVER	LED Application
8.	base_pn	LM3410Y	National Based Product Number
9.	LED_Architect	N	LED Architect Project
10.	ledparallel	2.0	Number of LED in parallel
11.	ledpartnumber	Custom	LED Part number
12.	ledseries	5.0	Number of LED in series
13.	line_fsw	60.0	AC Line Frequency
14.	source	DC	Input Source Type
15.	Ta	30.0 degC	Ambient temperature

Design Assistance

1. **LM3410Y** Product Folder : <http://www.ti.com/product/LM3410Y> : contains the data sheet and other resources.

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