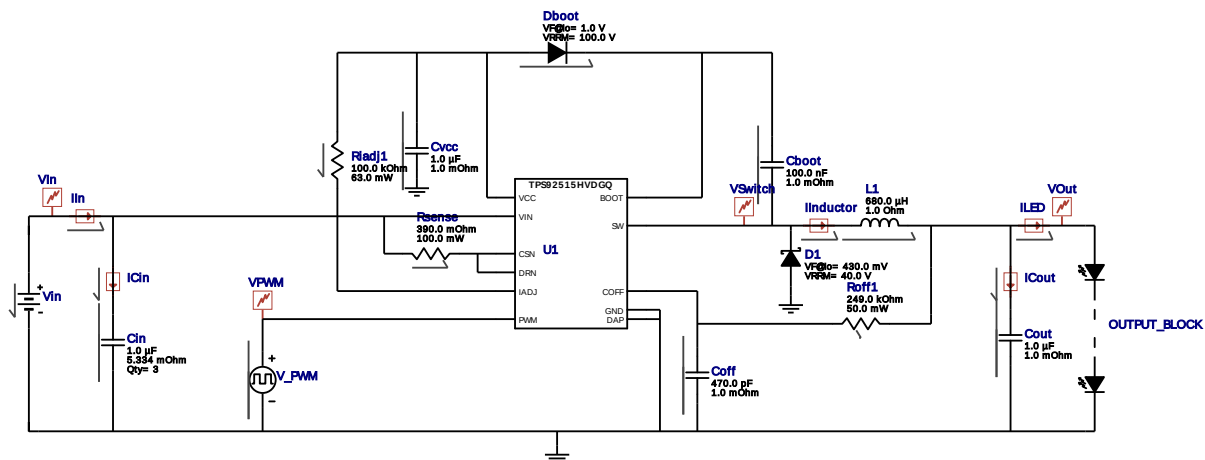




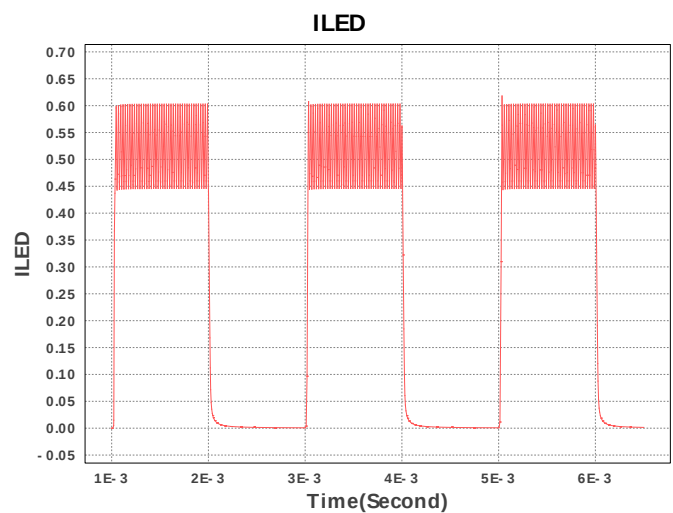
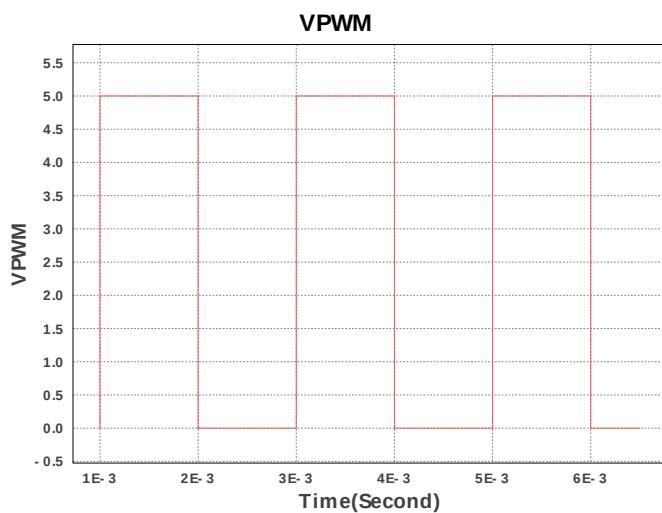
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	MuRata	GRM155R71A104KA01D Series= X7R	Cap= 100.0 nF ESR= 1.0 mOhm VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
2.	Cin	MuRata	GRM31CR72A105KA01L Series= X7R	Cap= 1.0 µF ESR= 5.334 mOhm VDC= 100.0 V IRMS= 1.554 A	3	\$0.24	1206_190 11 mm ²
3.	Coff	MuRata	GRM033R71C471KA01D Series= X7R	Cap= 470.0 pF ESR= 1.0 mOhm VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	0201 2 mm ²
4.	Cout	Taiyo Yuden	GMK212B7105KG-T Series= X7R	Cap= 1.0 µF ESR= 1.0 mOhm VDC= 35.0 V IRMS= 0.0 A	1	\$0.04	0805 7 mm ²
5.	Cvcc	Kemet	C0603C105Z8VACTU Series= Y5V	Cap= 1.0 µF ESR= 1.0 mOhm VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	0603 5 mm ²
6.	D1	Bourns	CD214A-B240LLF	VF@Io= 430.0 mV VRRM= 40.0 V	1	\$0.13	SMA 37 mm ²
7.	Dboot	ON Semiconductor	MMSD4148T1G	VF@Io= 1.0 V VRRM= 100.0 V	1	\$0.03	SOD-123 13 mm ²
8.	L1	Bourns	SDR1307-681KL	L= 680.0 µH DCR= 1.0 Ohm	1	\$0.42	SDR1307 226 mm ²
9.	Radj1	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
10.	Roff1	Yageo	RC0201FR-07249KL Series= ?	Res= 249.0 kOhm Power= 50.0 mW Tolerance= 1.0%	1	\$0.01	0201 2 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11.	Rsense	Panasonic	ERJ-3RQFR39V Series= ERJ-3R	Res= 390.0 mOhm Power= 100.0 mW Tolerance= 1.0%	1	\$0.02	0603 5 mm ²
12.	U1	Texas Instruments	TPS92515HVDGQR	Switcher	1	\$0.85	DGQ0010E 24 mm ²

Simulation Parameters

#	Name	Parameter Name	Description	Values
1.	Coff	IC	Initial Voltage	0 V
2.	Cout	IC	Initial Voltage	0 V
3.	Cvcc	IC	Initial Voltage	5 V
4.	VIn	V	no description	24.0 V
5.	V_PWM	signal_type	Signal Type	PULSE
		V1	Initial Input Voltage	5 V
		V2	Minimum Input Voltage	0 V
		Td	Initial Time Delay	0 s
		Tf	Fall Time	1n s
		Tr	Rise Time	1n s
		Pw	Pulse Width	1m s
		Period	Total period	2m s



Design Inputs

#	Name	Value	Description
1.	Iout	500.0 mA	Maximum Output Current
2.	VinMax	26.0 V	Maximum input voltage
3.	VinMin	22.0 V	Minimum input voltage
4.	Vout	14.75 V	Output Voltage
5.	acFrequency	60.0 Hz	AC Frequency
6.	application	LED_DRIVER	LED Application
7.	base_pn	TPS92515HV	Base Product Number
8.	LED_Architect	N	LED Architect Project
9.	ledparallel	1.0	Number of LED in parallel
10.	ledpartnumber	Custom	LED Part number
11.	ledseries	5.0	Number of LED in series
12.	line_fsw	60.0	AC Line Frequency
13.	source	DC	Input Source Type
14.	Ta	45.0 degC	Ambient temperature

Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	248.065 mA	Capacitor	Input capacitor RMS ripple current
2.	Cin Pd	109.41 μW	Capacitor	Input capacitor power dissipation
3.	Cout IRMS	47.956 mA	Capacitor	Output capacitor RMS ripple current
4.	Cout Pd	2.3 μW	Capacitor	Output capacitor power dissipation

#	Name	Value	Category	Description
5.	Diode Pd	136.54 mW	Diode	Diode power dissipation
6.	IC Ipk	583.061 mA	IC	Peak switch current in IC
7.	IC Pd	146.23 mW	IC	IC power dissipation
8.	IC Tj	53.218 degC	IC	IC junction temperature
9.	ICThetaJA	56.2 degC/W	IC	IC junction-to-ambient thermal resistance
10.	Iin Avg	306.39 mA	IC	Average input current
11.	L Ipp	166.123 mA	Inductor	Peak-to-peak inductor ripple current
12.	L Pd	250.0 mW	Inductor	Inductor power dissipation
13.	L1 Irms	500.0 mA	Inductor	Inductor ripple current
14.	LED Iavg	500.0 mA	LED	LED Average Current
15.	LED Ipp	114.717 mA	LED	LED Ripple Current
16.	LED Pd	7.375 W	LED	LED Power Dissipation
17.	LED Rd	430.0 mOhm	LED	LED DynamicResistance
18.	LED Vf	14.75 V	LED	Total LED Forward Calculated Voltage
19.	Total LED load Rd	2.15 Ohm	LED	Total LED Load DynamicResistance
20.	Cin Pd	109.41 µW	Power	Input capacitor power dissipation
21.	Cout Pd	2.3 µW	Power	Output capacitor power dissipation
22.	Diode Pd	136.54 mW	Power	Diode power dissipation
23.	IC Pd	146.23 mW	Power	IC power dissipation
24.	L Pd	250.0 mW	Power	Inductor power dissipation
25.	LED Pd	7.375 W	Power	LED Power Dissipation
26.	Rsense Pd	58.175 mW	Power	LED Current Rsns Power Dissipation
27.	Total Pd	591.088 mW	Power	Total Power Dissipation
28.	Rsense Pd	58.175 mW	Resistor	LED Current Rsns Power Dissipation
29.	BOM Count	22	System	Total Design BOM count
30.	Code Version	1.1	Information System	Vin operating point
31.	Duty Cycle	59.667 %	Information System	Duty cycle
32.	Efficiency	92.58 %	Information System	Steady state efficiency
33.	FootPrint	367.0 mm ²	Information System	Total Foot Print Area of BOM components
34.	Frequency	52.665 kHz	Information System	Switching frequency
35.	Iout	500.0 mA	Information System	Iout operating point
36.	Mode	CCM	Information System	Conduction Mode
37.	Pout	7.375 W	Information System	Total output power
38.	Total BOM	\$0.0	Information System	Total BOM Cost
39.	Vin	26.0 V	Information System	Vin operating point
40.	Vout	14.75 V	Information System	Operational Output Voltage
41.	Vout p-p	357.164 mV	Information System	Peak-to-peak output ripple voltage

Design Assistance

1. Feature Highlights: Constant Average Current, up to 2A, 5.5 V to 65 V Input Voltage Range, Simple Constant Off-time Control, No Loop Compensation and fast transient response, Integrated 290mohm(typ) Internal N-Channel FET, Multiple Dimming Methods, Adjustable UVLO, Inherent Cycle-by-Cycle Current Limit, Integrated Thermal Protection

2. **TPS92515HV** Product Folder : <http://www.ti.com/product/TPS92515HV> : contains the data sheet and other resources.

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