

# Design 5 - LM3434SQ

## Introduction

## Design Specifications

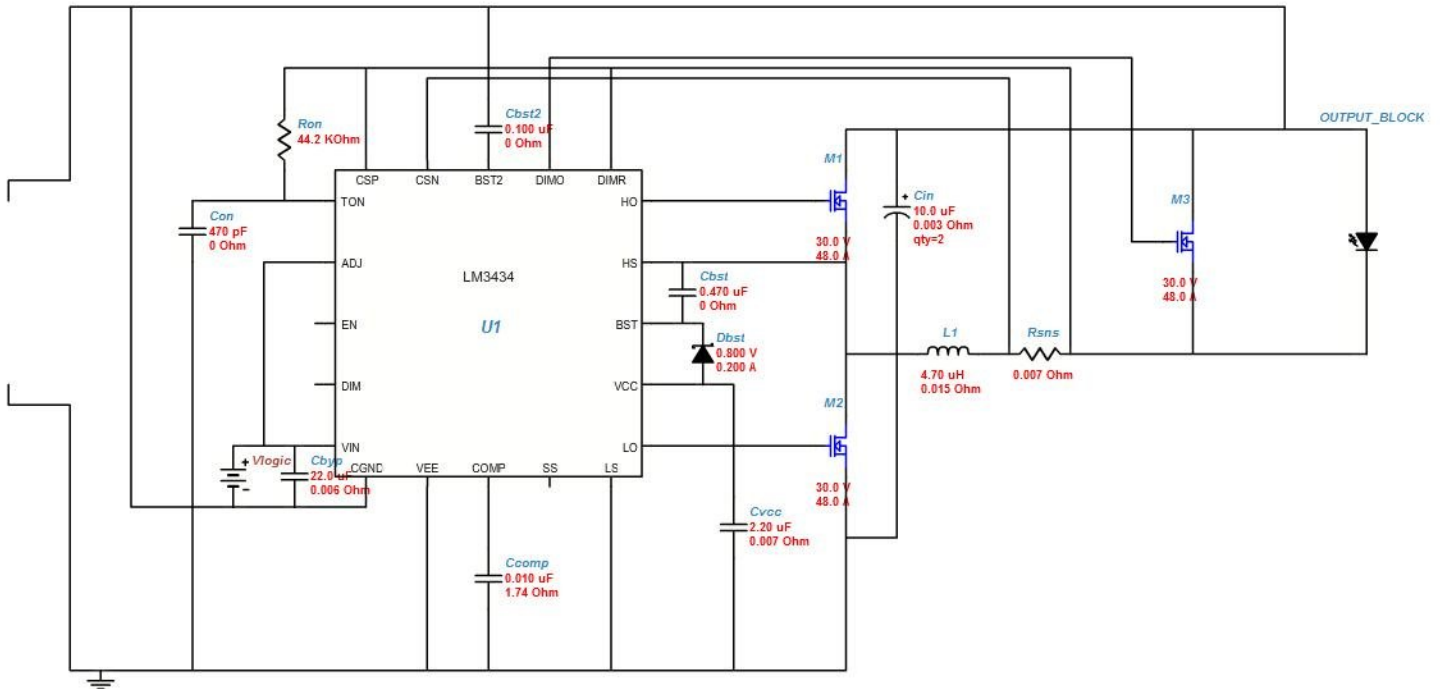
IC	LM3434
VinMin	9 V
VinMax	15 V
Vout	3.5 V
Iout	9 A

ta	30
Optimization Factor	0
pricefactor	0
application	LED_DRIVER
ledpartnumber	Custom















ledseries	1
ledparallel	1
ledrd	0.8
SoftStart Time	0 mili second

## Schematic

VinMin = 9 V  
VinMax = 15 V



## Bill of Materials

Part	Manufacturer	Part Number	Quan	Price	Attributes	Top View
Cbst	Taiyo Yuden	EMK212B7474KD-T	1	0.02	Cap=470nF, ESR=0Ohm, VDC=16V	
Cbst2	MuRata	GRM219R71C104KA01 D	1	0.01	Cap=100nF, ESR=0Ohm, VDC=16V	
Cbyp	MuRata	GRM31CR61C226ME15 L	1	0.24	Cap=22uF, ESR=6mOhm, VDC=16V	
Ccomp	Kemet	C0805C103K5RACTU	1	0.01	Cap=10nF, ESR=1.739Ohm, VDC=50V	
Cin	TDK	C3225X7R1E106M	2	0.2	Cap=10uF, ESR=2.7mOhm, VDC=25V	
Con	Yageo America	CC0805KRX7R9BB471	1	0.01	Cap=470pF, ESR=0Ohm, VDC=50V	
Cvcc	TDK	C2012Y5V1C225Z	1	0.02	Cap=2.2uF, ESR=7mOhm, VDC=16V	
Dbst	ON Semiconductor	BAT54T1G	1	0.037	VFatlo=0.8V, Io=0.2A, VRRM=30V	
L1	Bourns	SRP1250-4R7M	1	0.67	L=4.7uH, DCR=0.015Ohm, IDC=16A	
M1	Infineon Technologies	BSC090N03LS G	1	0.26	VdsMax=30V, IdsMax=48A, Rdson45=0.013Ohm	
M2	Infineon Technologies	BSC090N03LS G	1	0.26	VdsMax=30V, IdsMax=48A, Rdson45=0.013Ohm	
M3	Infineon Technologies	BSC090N03LS G	1	0.26	VdsMax=30V, IdsMax=48A, Rdson45=0.013Ohm	
Ron	Panasonic	ERJ-6ENF4422V	1	0.01	Resistance=44.2KOhm, Tolerance=1%, Power=0.125W	
Rsns	Susumu Co Ltd	PRL1632-R007-F-T1	1	0.21	Resistance=7mOhm, Tolerance=1%, Power=1W	

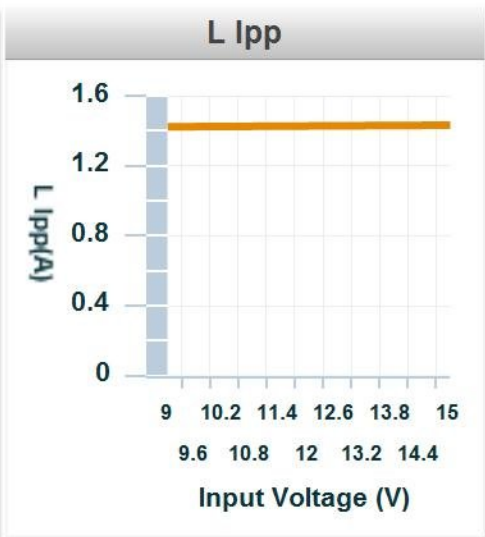
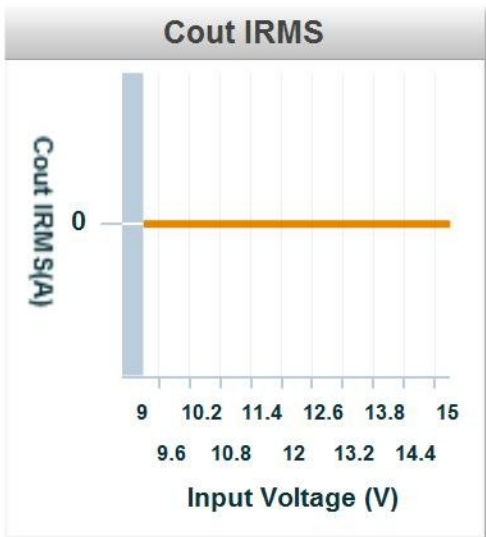
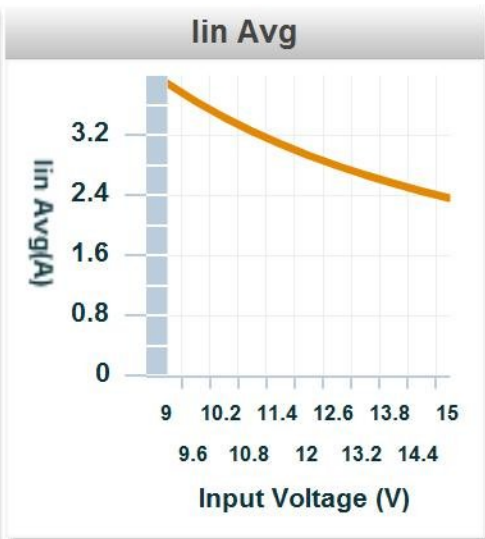
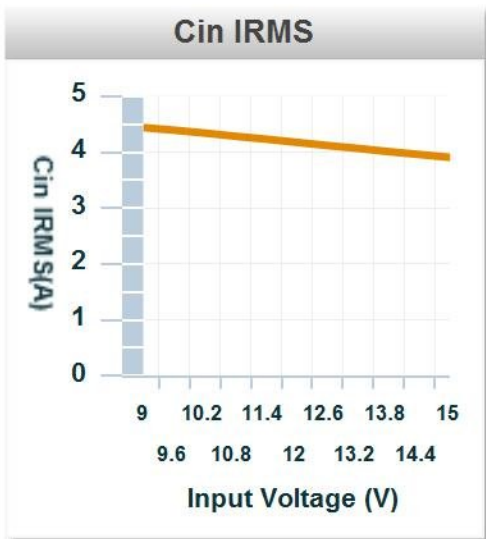


## Operating Values

Name	Value	Category	Description
Cin IRMS	3.91A	Current	Input capacitor RMS ripple current
Iin Avg	2.39A	Current	Average input current
Cout IRMS	0A	Current	Output capacitor RMS ripple current
L Ipp	1.43A	Current	Peak-to-peak inductor ripple current
SW Ipk	9.77A	Current	Peak switch current
Frequency	431KHz	General	Switching frequency
Pout	31.5W	General	Total output power
Mode	CCM	General	Conduction Mode
FootPrint	638mm2	General	Total Foot Print Area of BOM components
Total BOM	0\$	General	Total BOM price
BOM Count	17	General	Total BOM count
Efficiency	87.8%	Op_point	Steady state efficiency
Duty Cycle	25.2%	Op_point	Duty cycle
IOUT_OP	9A	Op_point	Iout operating point
VIN_OP	15V	Op_point	Vin operating point
M2 Tj	97.5degC	Op_point	M2 MOSFET junction temperature
M1 Tj	48.9degC	Op_point	M1 MOSFET junction temperature
IC Tj	48.1degC	Op_point	IC junction temperature
M1 Pd	0.41W	Power	M1 MOSFET total power dissipation
M2 Pd	1.41W	Power	M2 MOSFET total power dissipation
Rsns Pd	0.56W	Power	Current Limit Sense Resistor Power Dissipation
IC Pd	0.46W	Power	IC power dissipation
Cin Pd	0.02W	Power	Input capacitor power dissipation
Total Pd	4.39W	Power	Total Power Dissipation
L Pd	1.52W	Power	Inductor power dissipation

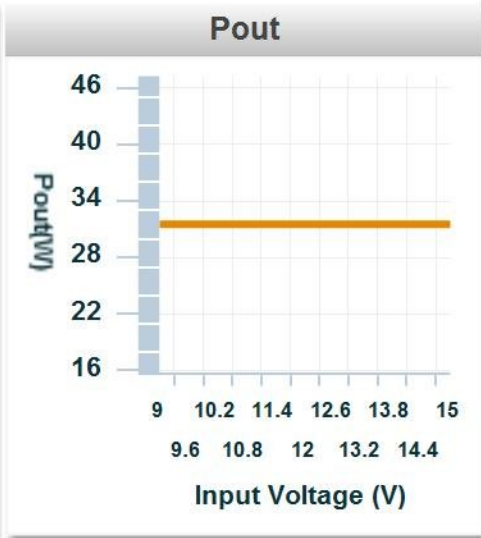
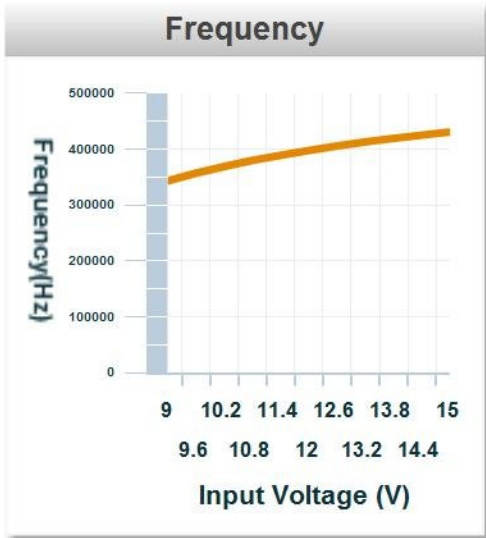
# Charts

## Current



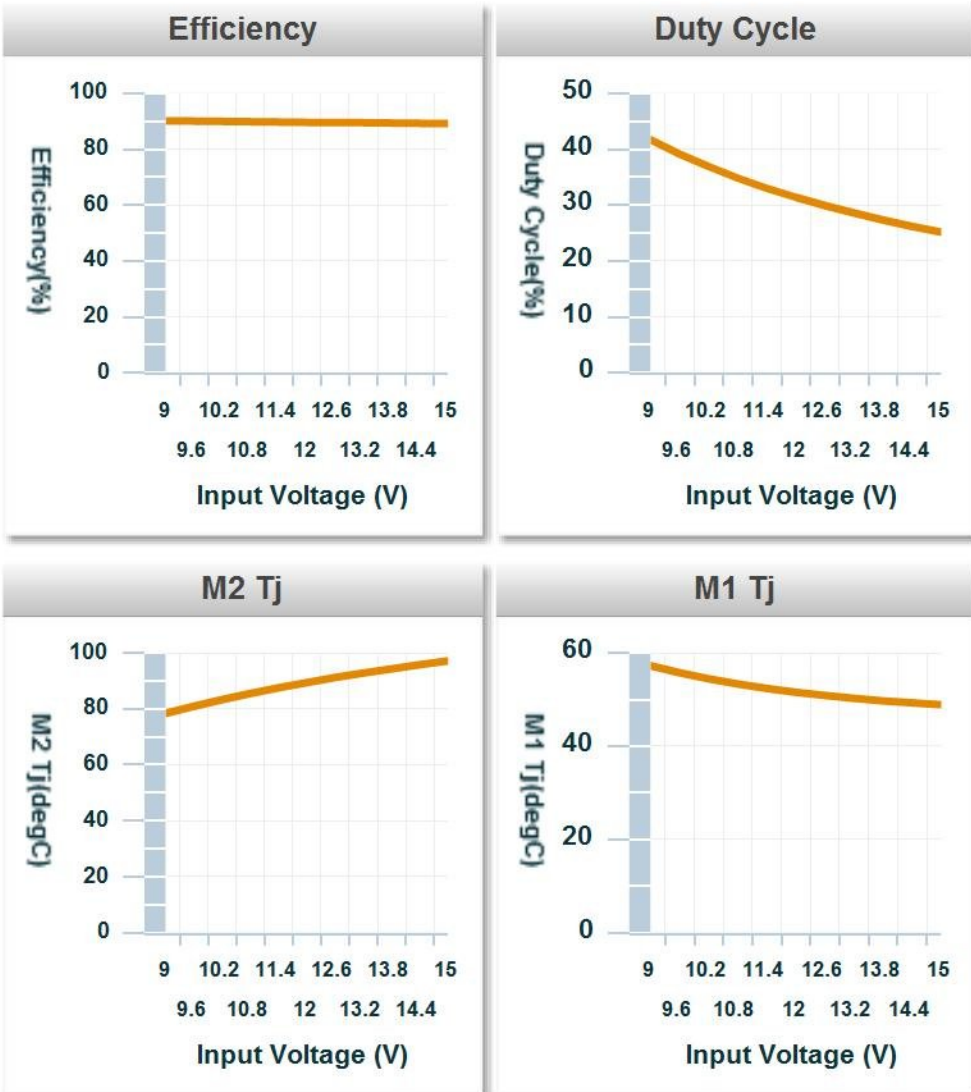
# Charts (Continued)

## General



# Charts (Continued)

Op\_point



■ Vin=15.00V



# Charts (Continued)

## Power

