LTC3114-1 Supply Design Summary Report

Vin : 18V (min.), 24V (nom.), 30V (max.)

Output Rails : Vout1 = 24.09V / 0.5A (max.)

Project Name : LTC3114-1 24V Supply

Project Date : 9/14/2019

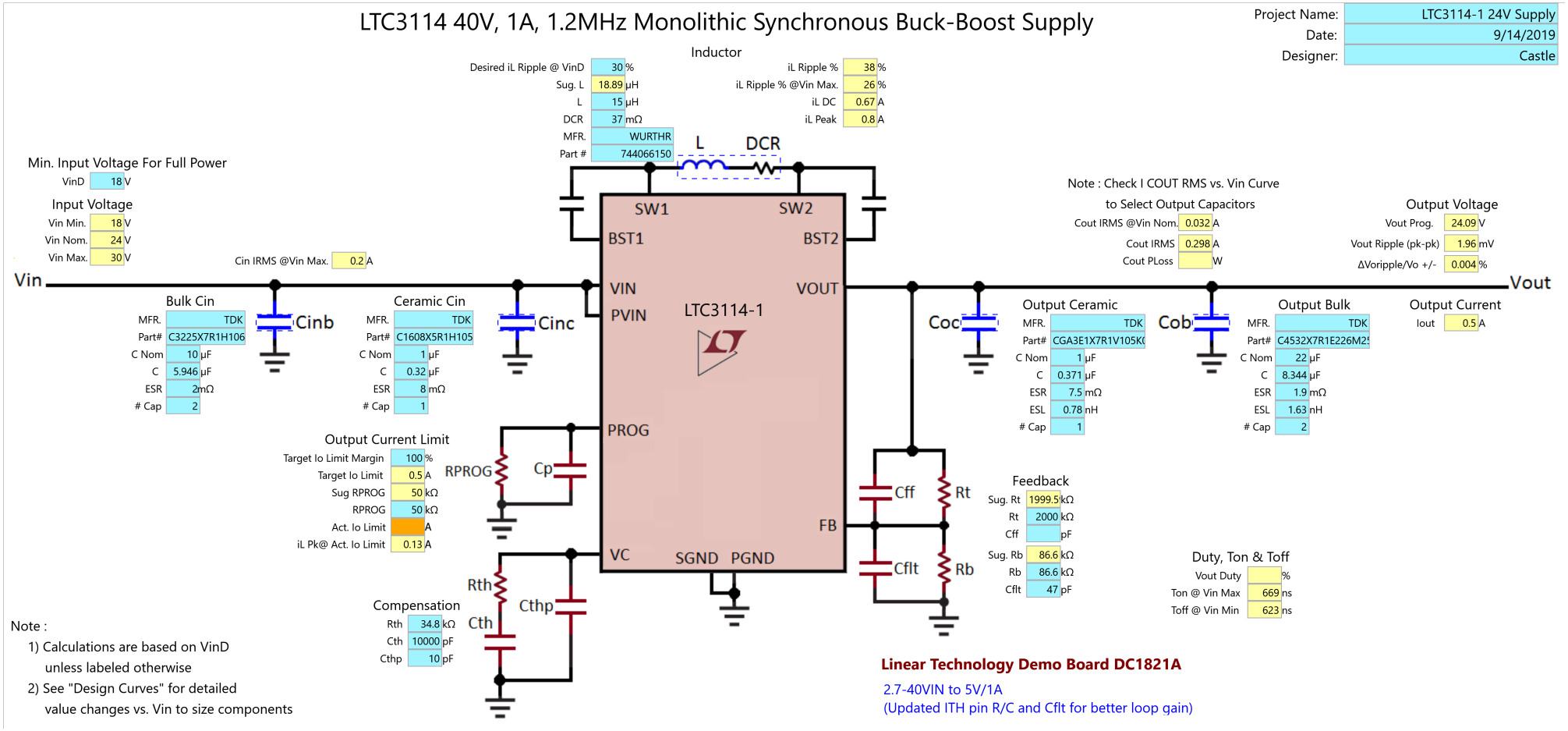
Designer : Castle

Generated by LTpowerCAD

LTC3114-1 Solution - Simplified Schematic

Vin : 18V (min.), 24V (nom.), 30V (max.)

Output Rails : Vout1 = 24.09V / 0.5A (max.)



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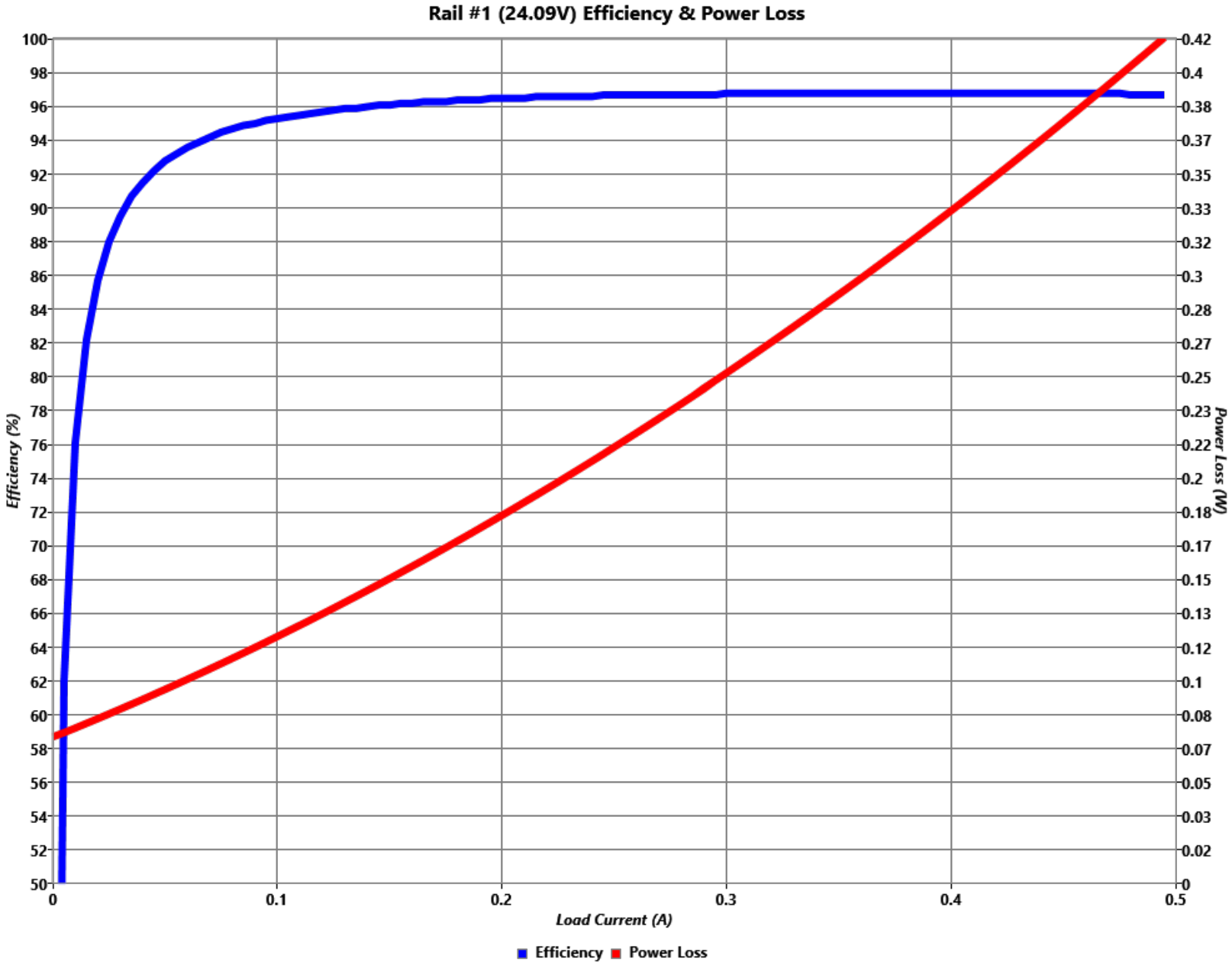
LTC3114-1 Solution - Efficiency & Loss Estimations

Rail # 1 : Vin = 24V, Vout1 = 24.09V

** Estimations For CCM Mode Only. Inductor AC Losses Entered by User*



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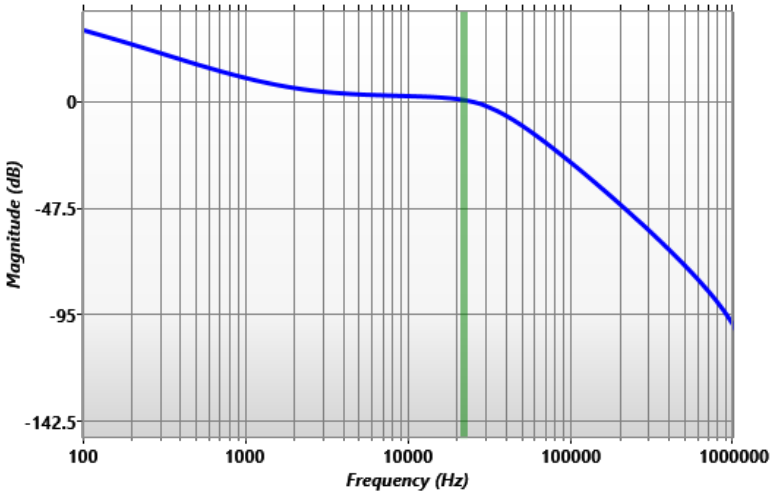
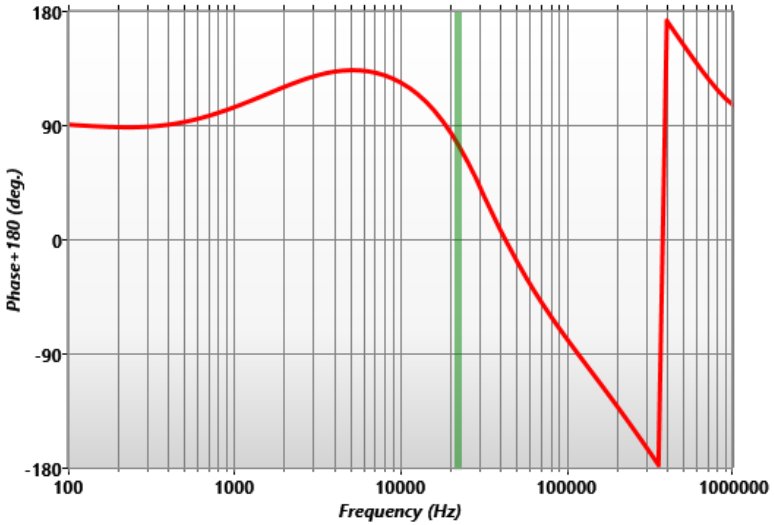
LTC3114-1 Solution - Loop Gain & Load Transient Estimations

Rail # 1 : Vin = 24V, Vout1 = 24.09V, Iout1 = 0.5A

** Estimations For CCM Mode Only. Estimations Based On Small Signal Avg. Model*

Rail #1 (24.09V) Loop Gain





LTC3114-1 Supply Design Summary

Project Info: *LTC3114-1 24V Supply, 9/14/2019, Castle*

Design Specifications

Steady State :

Rail #	Vin Min.	Vin Nom.	Vin Max.	Fsw	Vo	ΔVo	ΔVo%	Io Max	ΔiLp-p	ΔiL%	iLpk	Duty Max	Ton min.	Toff min.
1	18 V	24 V	30 V	1200 kHz	24.09 V	1.03 mV	0 %	0.5 A	0 A	1 %	0.5 A	0 %	669 ns	623 ns

Efficiency and Loop :

Rail #	Vo	Iomax	Eff.@Iomax	PLoss@Iomax	Loop BW	Loop PM
1	24.09 V	0.5 A	96.63 %	0.42 W	22.39 kHz	72.95 deg

Recommendations and Warnings :

Message

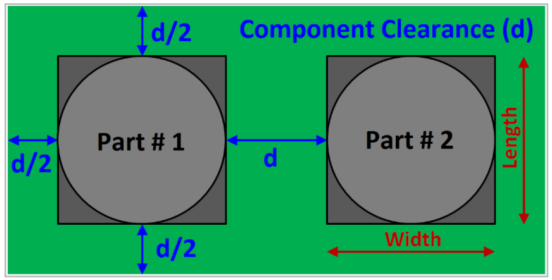
Power Components

Power Components Bill Of Materials : Export BOM

Ref. Des.	Value	Quantity	Description	Mfr. Name	Mfr. Part #	Pkg. (Imperial)	L(mm)	W(mm)	H(mm)	User Note
U1		1	IC	LINEAR TECH	LTC3114-1		5	3	2.8	
Lo1	15µH	1	IND	WURTHR	744066150		10.3	10.5	5.1	
Cinb1 Cinb2	10µF	2	CAP	TDK	C3225X7R1H106M250AC	1210	3.2	2.5	2.8	
Cinc1	1µF	1	CAP	TDK	C1608X5R1H105K080AB	0805	2	1.25	1.3	
Cob1 Cob2	22µF	2	CAP	TDK	C4532X7R1E226M250KC	0805	2	1.25	1.3	
Coc1	1µF	1	CAP	TDK	CGA3E1X7R1V105K080AC	0805	2	1.25	1.3	

Power Components Footprint :

# Components	8	
Max. Height	5.1	mm
Component Clearance (d)	1	mm
* Power Components Area (Excludes ICs)	186.4	mm^2
	0.289	in^2
* Power Components Area (Includes ICs)	210.4	mm^2
	0.326	in^2



**** Note :***

The calculated power component area is only the simple sum of component footprint areas with given clearance, assuming all power components are on the same side of PCB. It is NOT the final PCB size with layout design.