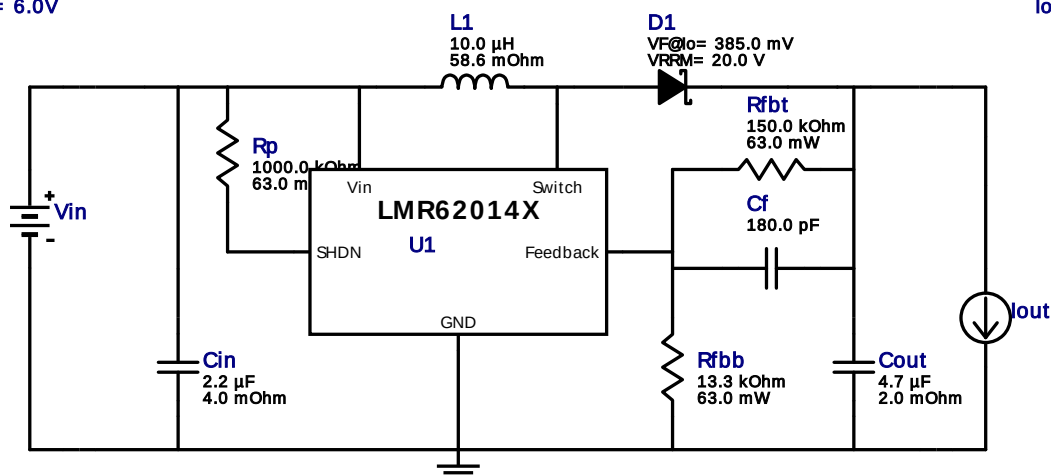


WEBENCH® Design Report

Design : 3785481/7 LMR62014XMF/NOPB
 LMR62014XMF/NOPB 4.5V-6.0V to 15.0V @ 0.4A

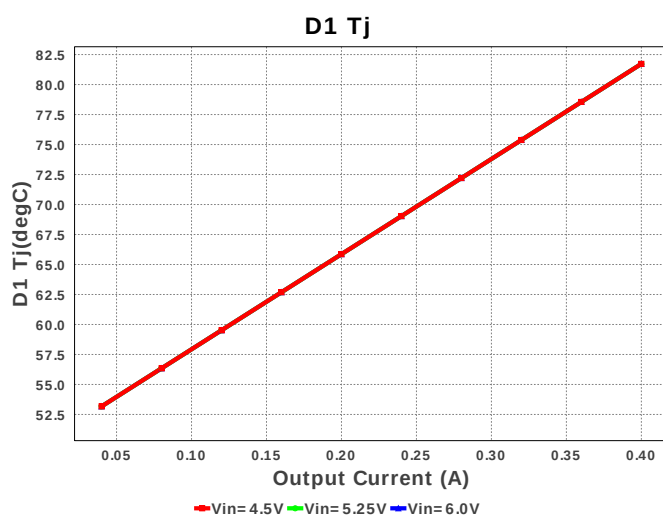
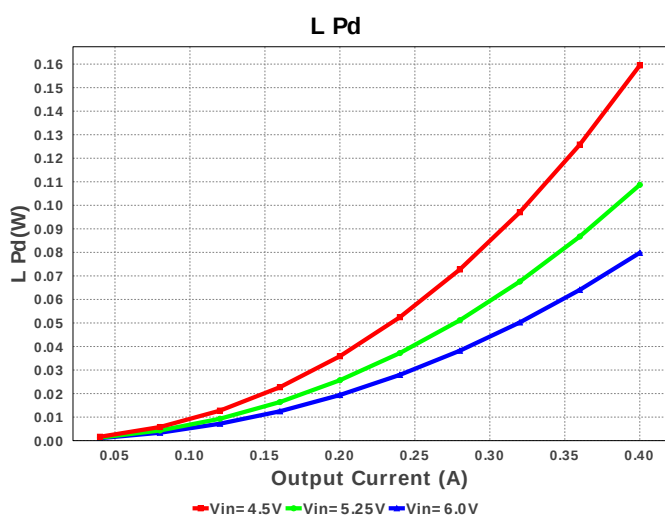
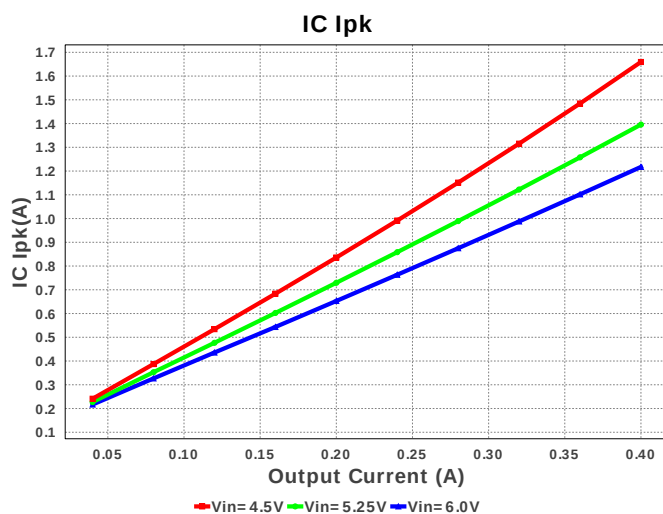
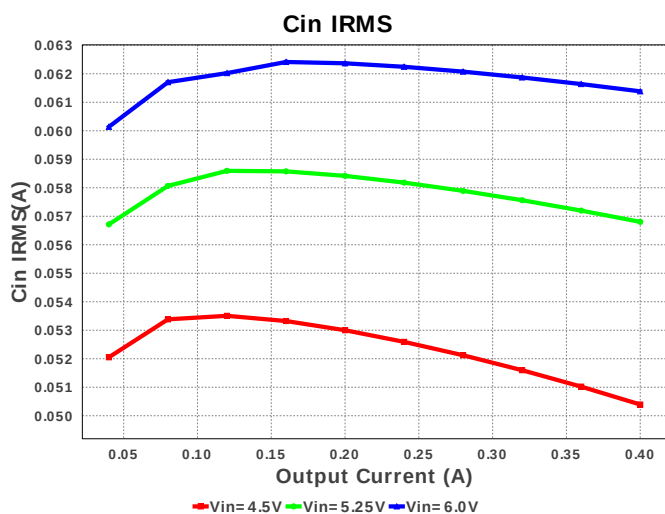
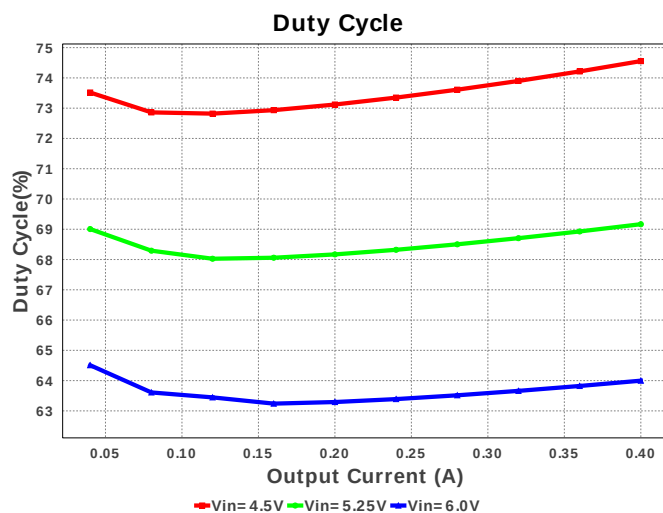
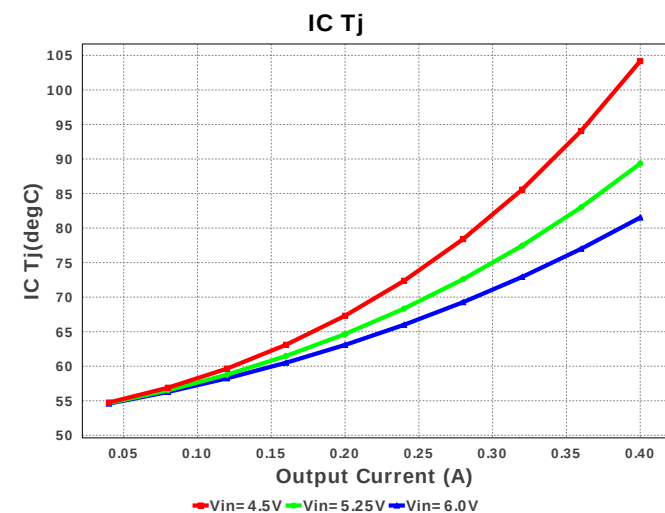
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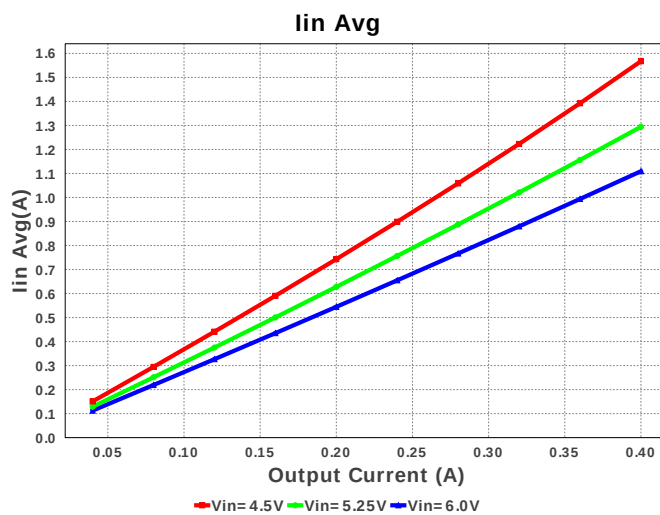
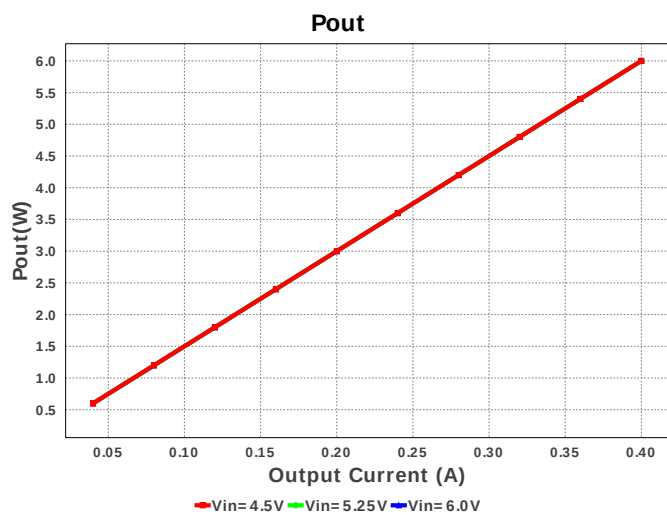
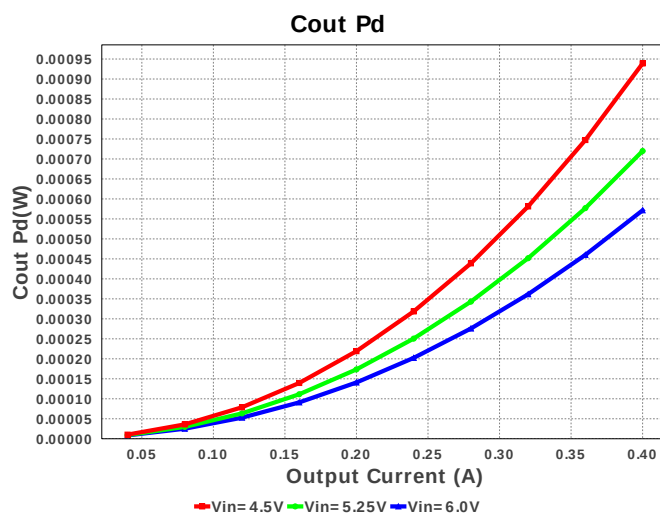
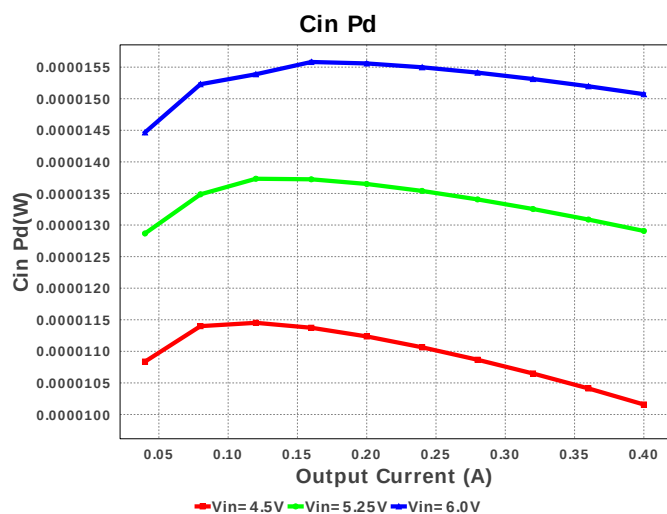
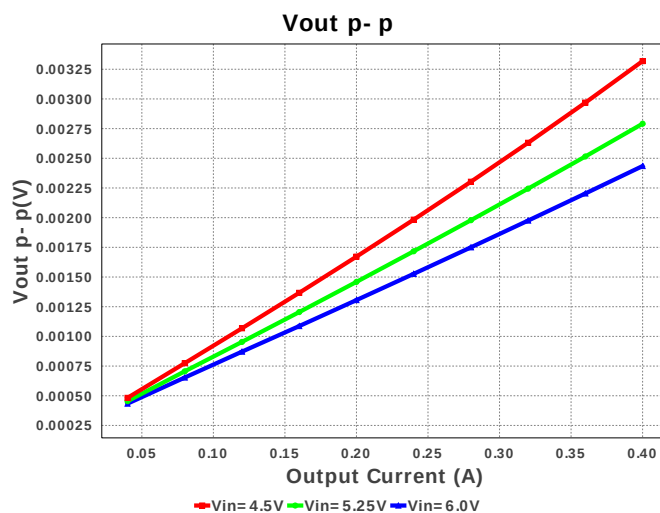
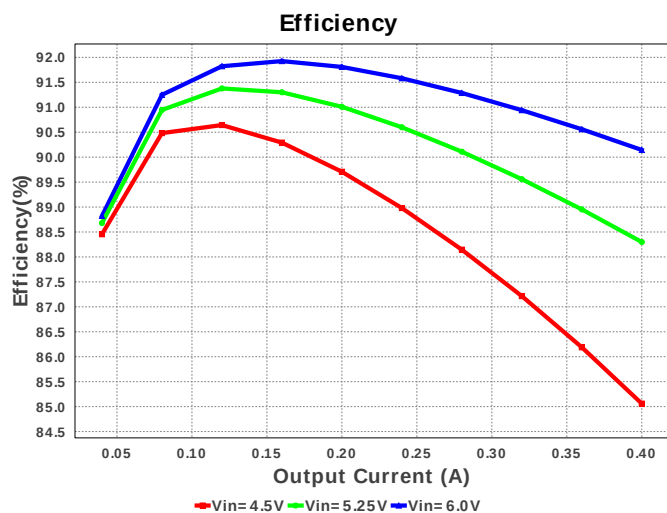
Iout = 0.4A

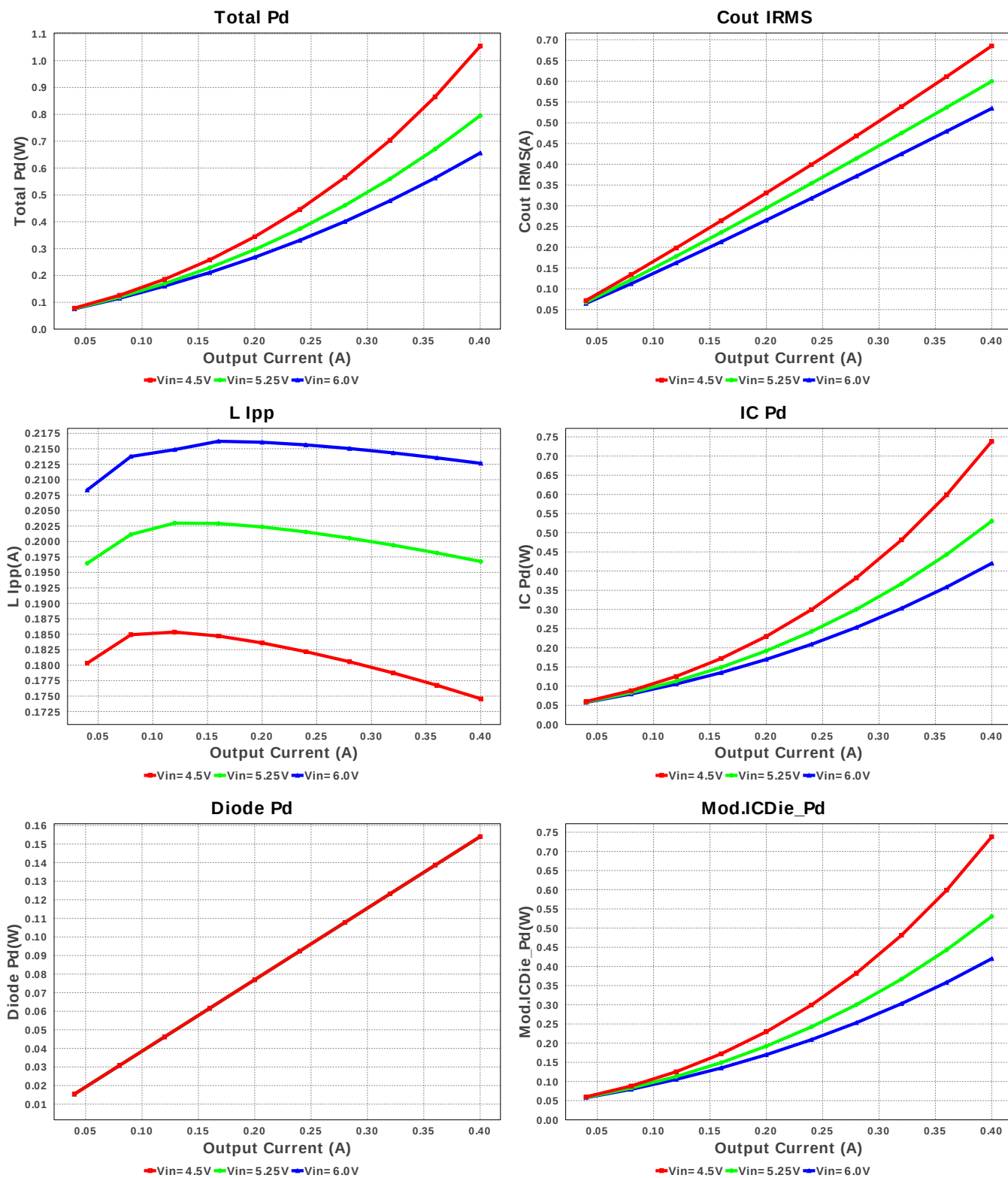


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cf	Yageo America	CC0805JRNPO9BN181 Series= C0G/NP0	Cap= 180.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7mm2
2.	Cin	MuRata	GRM21BR71A225MA01L Series= X7R	Cap= 2.2 uF ESR= 4.0 mOhm VDC= 10.0 V IRMS= 4.35 A	1	\$0.03	 0805 7mm2
3.	Cout	MuRata	GRM21BR61E475MA12L Series= X5R	Cap= 4.7 uF ESR= 2.0 mOhm VDC= 25.0 V IRMS= 7.29 A	1	\$0.06	 0805 7mm2
4.	D1	ON Semiconductor	MBR0520LT1G	VF@Io= 385.0 mV VRRM= 20.0 V	1	\$0.06	 SOD-123 13mm2
5.	L1	Bourns	SRN6045-100M	L= 10.0 uH DCR= 58.6 mOhm	1	\$0.16	 SRN6045 64mm2
6.	Rfbb	Vishay-Dale	CRCW040213K3FKED Series= CRCW..e3	Res= 13.3 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
7.	Rfbb	Vishay-Dale	CRCW0402150KFKED Series= CRCW..e3	Res= 150.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
8.	Rp	Vishay-Dale	CRCW04021M00FKED Series= CRCW..e3	Res= 1000.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
9.	U1	Texas Instruments	LMR62014XMF/NOPB	Switcher	1	\$0.55	 DBV0005A 15mm2







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	50.394 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	685.168 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.659 A	Current	Peak switch current in IC
4.	Iin Avg	1.568 A	Current	Average input current
5.	L Ipp	174.57 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	9	General	Total Design BOM count
7.	FootPrint	121.0 mm2	General	Total Foot Print Area of BOM components
8.	Frequency	1.6 MHz	General	Switching frequency
9.	Pout	6.0 W	General	Total output power
10.	Total BOM	\$0.9	General	Total BOM Cost
11.	D1 Tj	81.724 degC	Op_Point	D1 junction temperature

#	Name	Value	Category	Description
12.	Duty Cycle	74.555 %	Op_point	Duty cycle
13.	Efficiency	85.06 %	Op_point	Steady state efficiency
14.	IC Tj	104.176 degC	Op_point	IC junction temperature
15.	IOUT_OP	400.0 mA	Op_point	Iout operating point
16.	VIN_OP	4.5 V	Op_point	Vin operating point
17.	Vout p-p	3.319 mV	Op_point	Peak-to-peak output ripple voltage
18.	Cin Pd	10.158 μ W	Power	Input capacitor power dissipation
19.	Cout Pd	938.911 μ W	Power	Output capacitor power dissipation
20.	Diode Pd	154.0 mW	Power	Diode power dissipation
21.	IC Pd	738.064 mW	Power	IC power dissipation
22.	L Pd	159.461 mW	Power	Inductor power dissipation
23.	Total Pd	1.054 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	400.0 mA	Maximum Output Current
2.	Iout1	400.0 mAmps	Output Current #1
3.	VinMax	6.0 V	Maximum input voltage
4.	VinMin	4.5 V	Minimum input voltage
5.	Vout	15.0 V	Output Voltage
6.	Vout1	15.0 Volt	Output Voltage #1
7.	base_pn	LMR62014X	Base Product Number
8.	source	DC	Input Source Type
9.	Ta	50.0 degC	Ambient temperature

Design Assistance

1. **LMR62014X** Product Folder : <http://www.ti.com/product/lmr62014> : contains the data sheet and other resources.

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