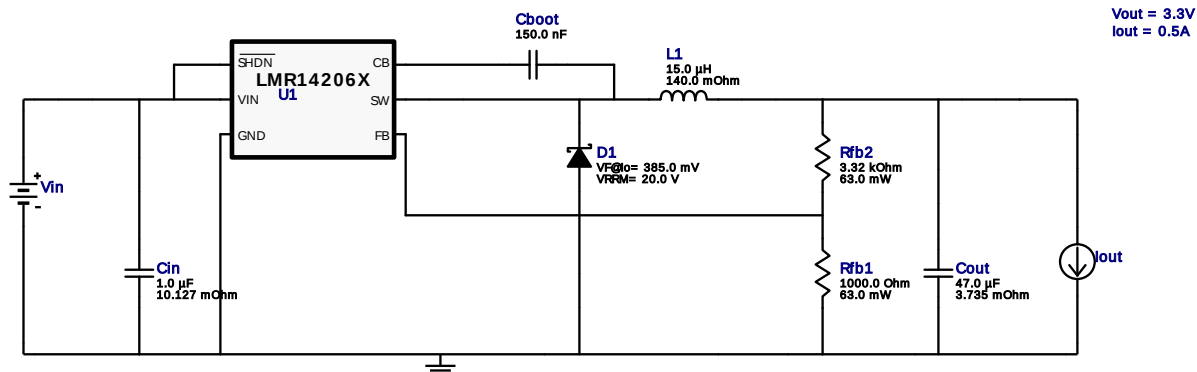


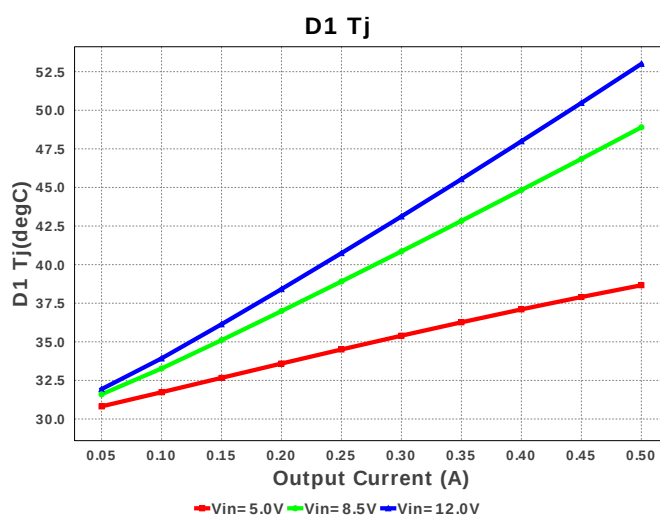
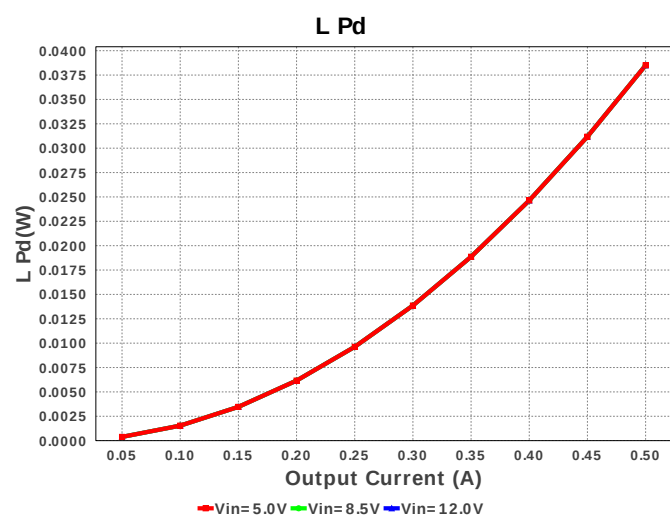
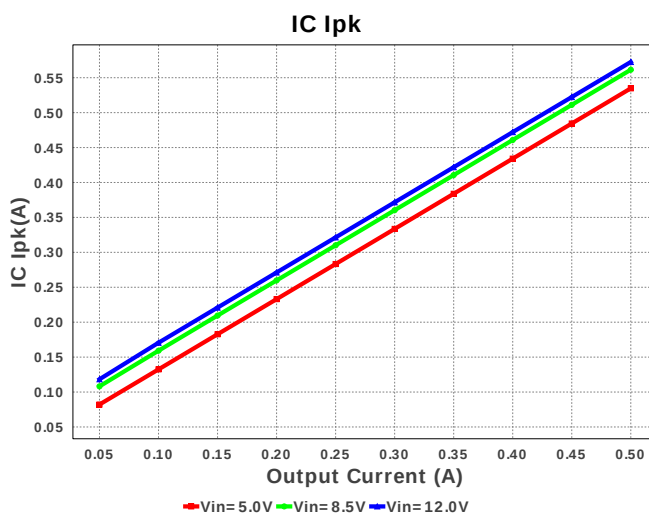
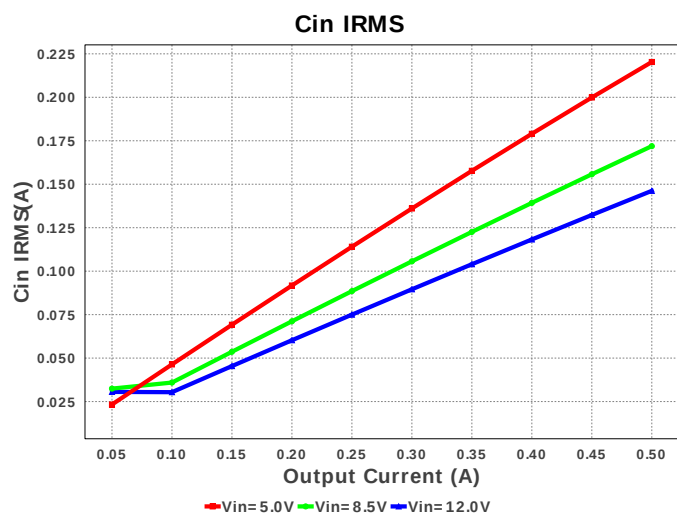
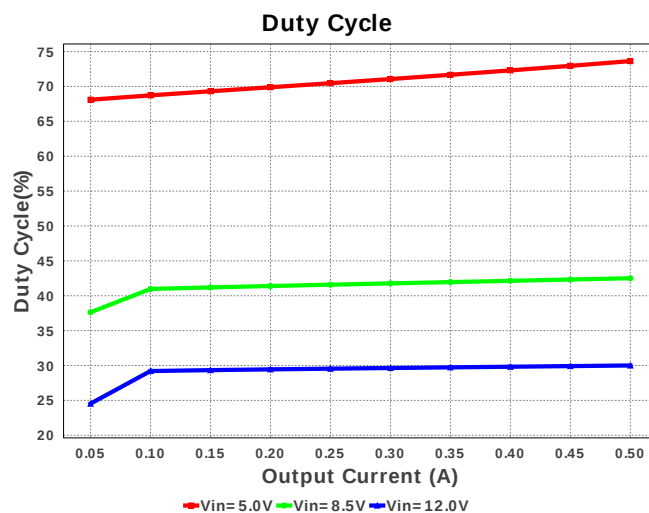
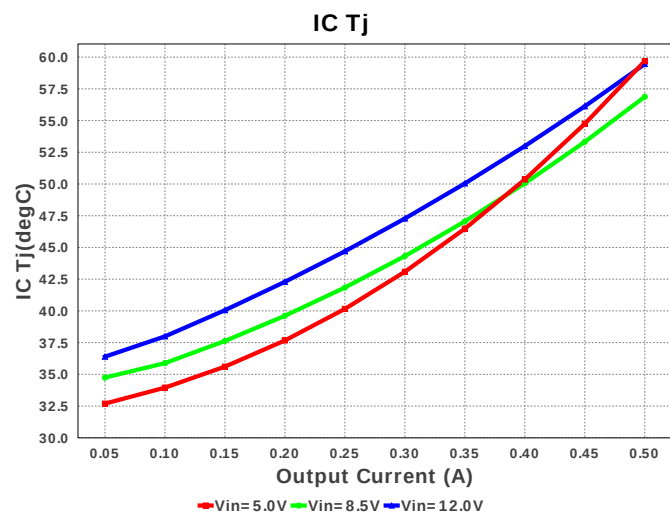
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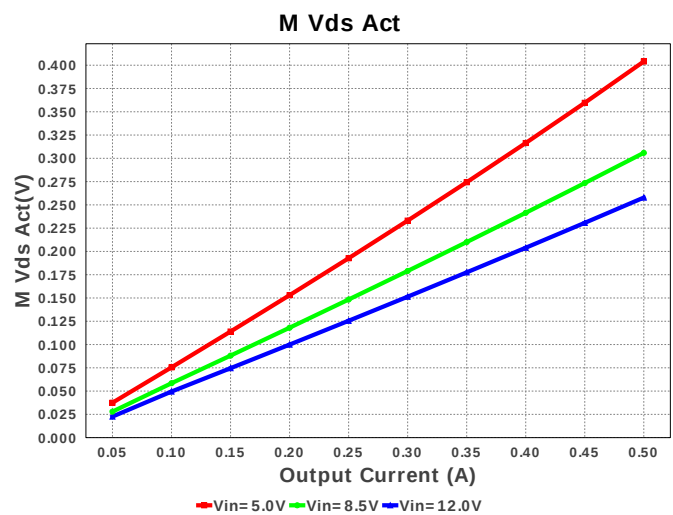
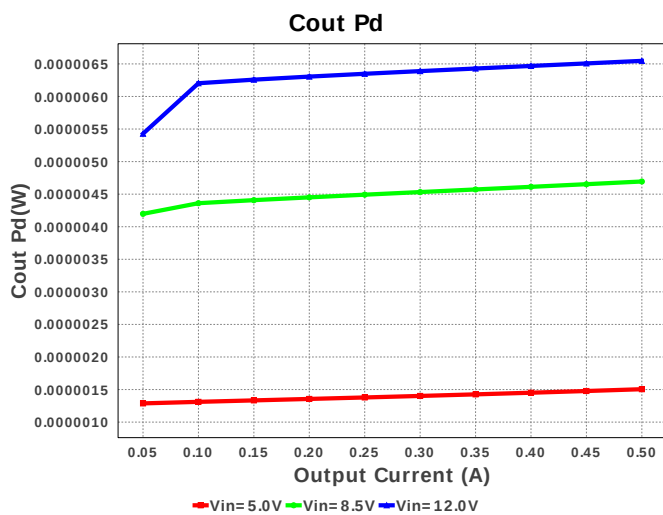
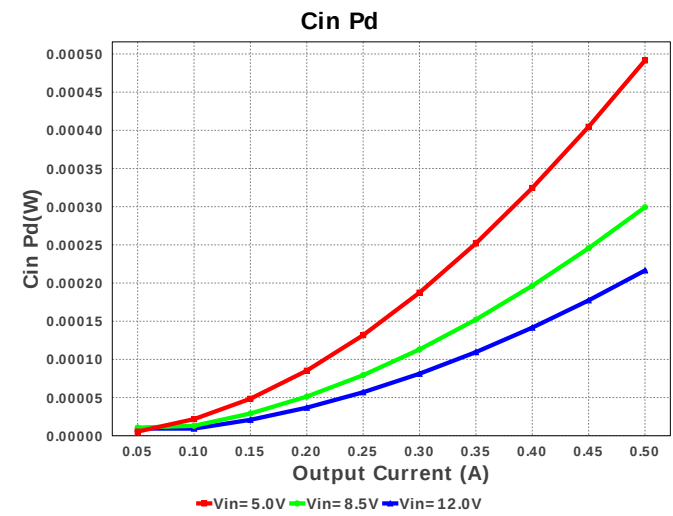
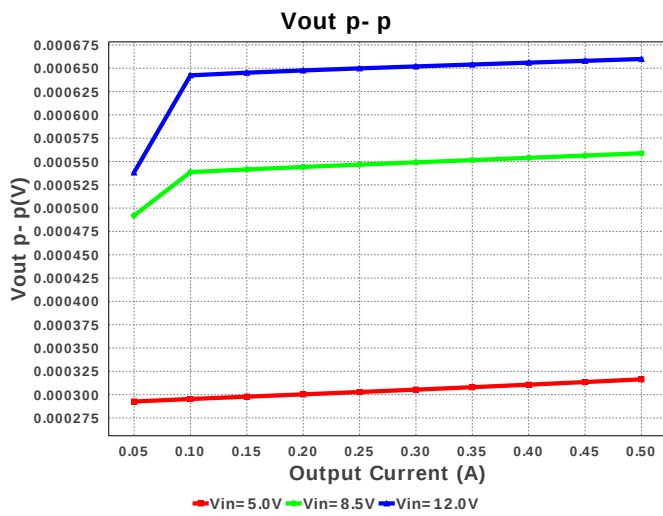
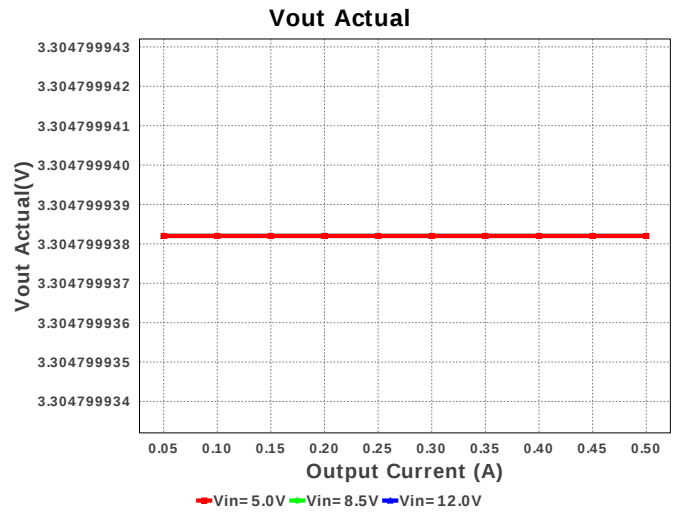
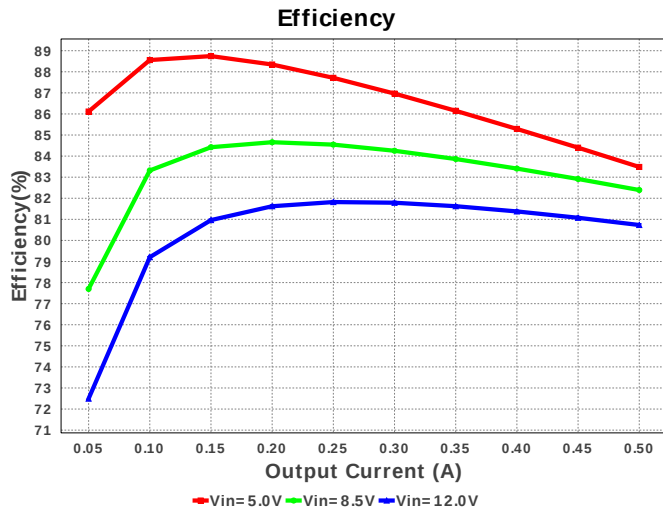
Design : 4372614/33 LMR14206XMKE/NOPB
LMR14206XMKE/NOPB 5.0V-12.0V to 3.30V @ 0.5A

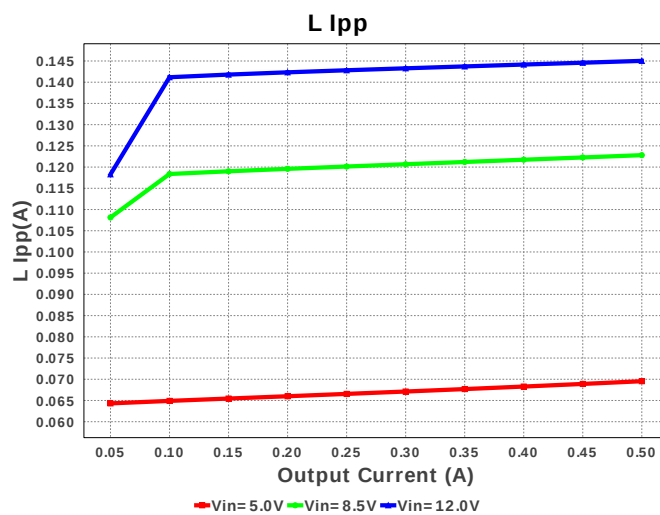
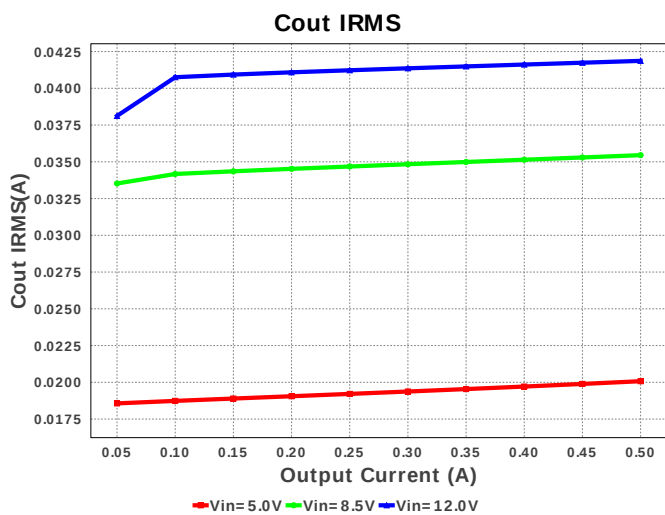
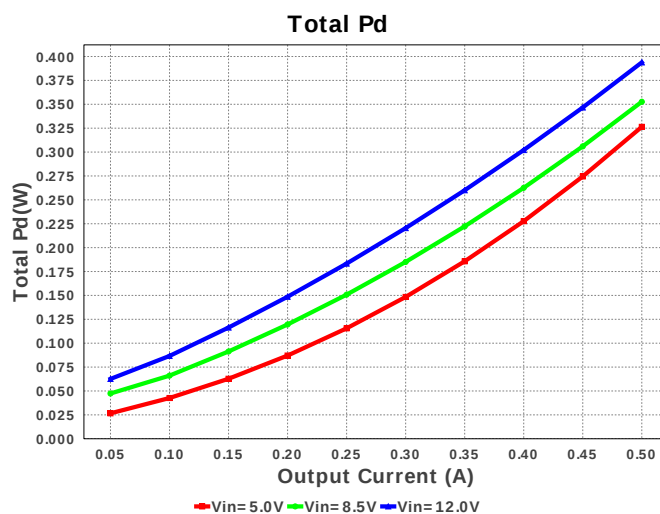
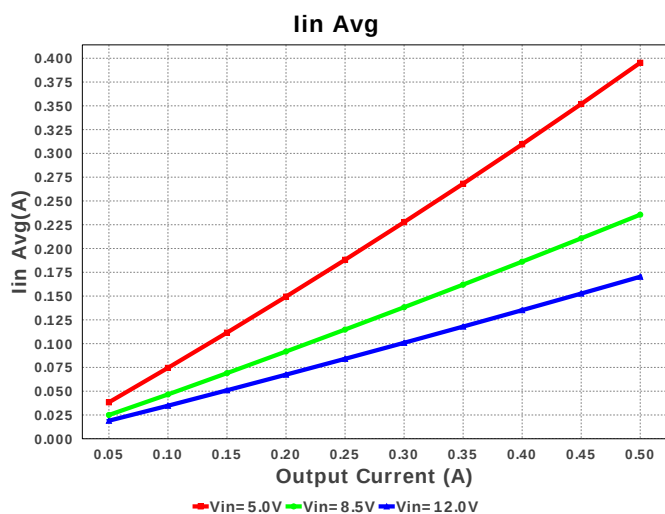
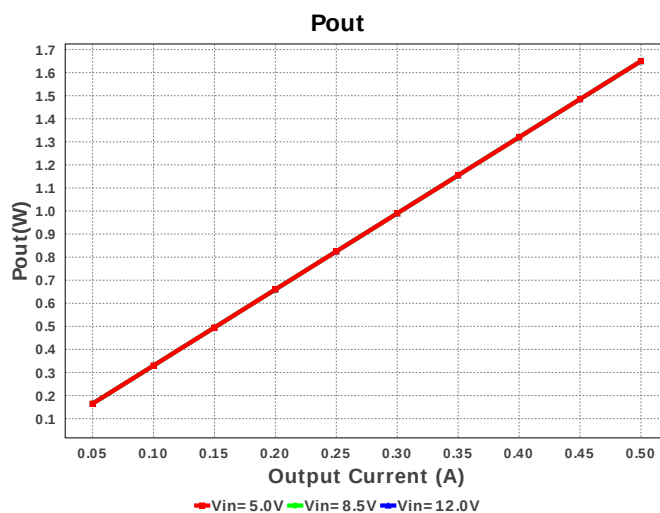
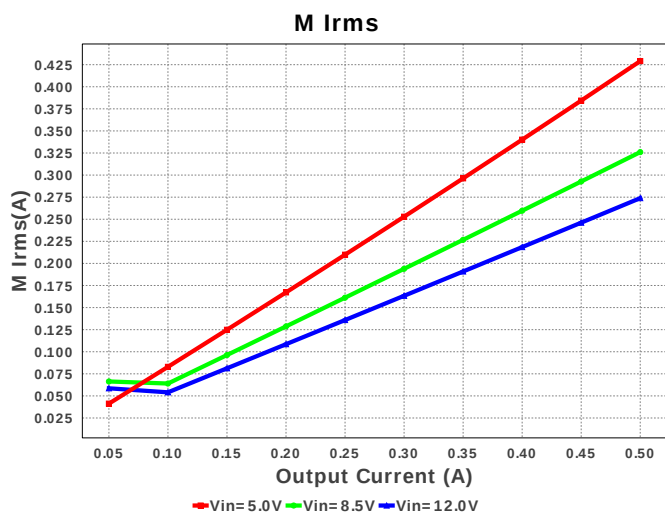


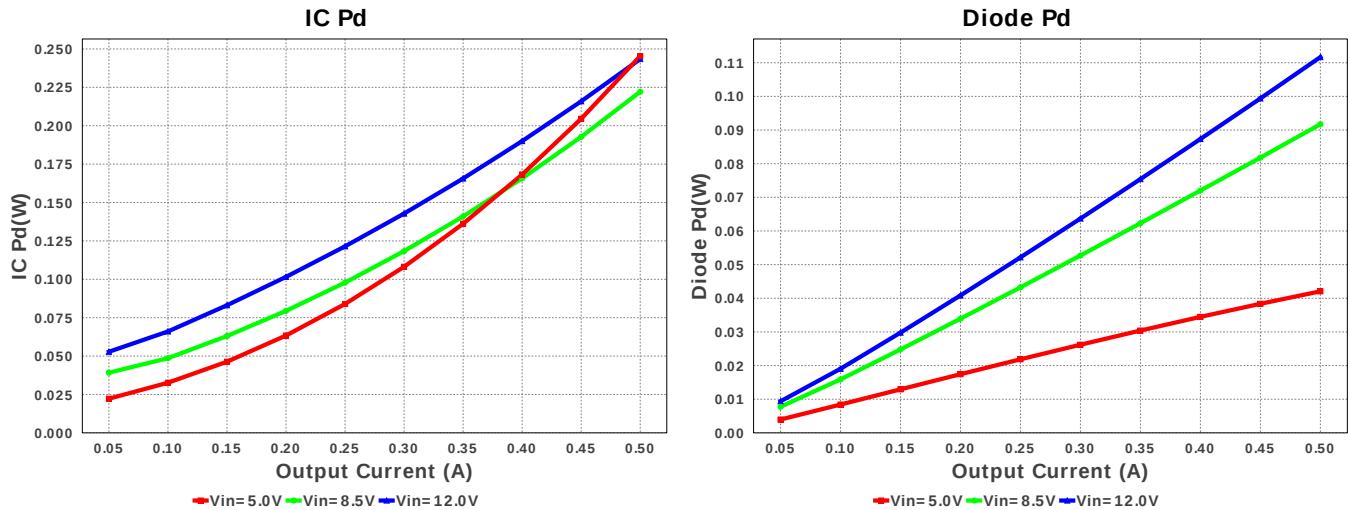
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	MuRata	GRM155R60J154KE01D Series= X5R	Cap= 150.0 nF VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm ²
2.	Cin	MuRata	GRM188R61C105KA93D Series= X5R	Cap= 1.0 uF ESR= 10.127 mOhm VDC= 16.0 V IRMS= 994.63 mA	1	\$0.01	 0603 5 mm ²
3.	Cout	MuRata	GRM31CC80J476KE18L Series= X6S	Cap= 47.0 uF ESR= 3.735 mOhm VDC= 6.3 V IRMS= 4.0522 A	1	\$0.10	 1206_190 11 mm ²
4.	D1	ON Semiconductor	MBR0520LT1G	VF@Io= 385.0 mV VRRM= 20.0 V	1	\$0.06	 SOD-123 13 mm ²
5.	L1	Bourns	SDR0604-150YL	L= 15.0 uH DCR= 140.0 mOhm	1	\$0.18	 SDR0604 61 mm ²
6.	Rfb1	Vishay-Dale	CRCW04021K00FKED Series= CRCW..e3	Res= 1000.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
7.	Rfb2	Vishay-Dale	CRCW04023K32FKED Series= CRCW..e3	Res= 3.32 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
8.	U1	Texas Instruments	LMR14206XMKE/NOPB	Switcher	1	\$1.14	 MK06A 11 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	146.202 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	41.866 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	572.514 mA	Current	Peak switch current in IC
4.	Iin Avg	170.32 mA	Current	Average input current
5.	L Ipp	145.03 mA	Current	Peak-to-peak inductor ripple current
6.	M1 Irms	273.888 mA	Current	Q lavg
7.	BOM Count	8	General	Total Design BOM count
8.	FootPrint	109.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	1.2 MHz	General	Switching frequency
10.	IC Tolerance	18.0 mV	General	IC Feedback Tolerance
11.	M Vds Act	257.828 mV	General	Voltage drop across the MosFET
12.	Pout	1.65 W	General	Total output power
13.	Total BOM	\$1.52	General	Total BOM Cost
14.	D1 Tj	53.005 degC	Op_Point	D1 junction temperature
15.	Vout Actual	3.305 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
16.	Vout OP	3.3 V	Op_Point	Operational Output Voltage
17.	Cross Freq	18.927 kHz	Op_point	Bode plot crossover frequency
18.	Duty Cycle	30.006 %	Op_point	Duty cycle
19.	Efficiency	80.731 %	Op_point	Steady state efficiency
20.	IC Tj	59.453 degC	Op_point	IC junction temperature
21.	ICThetaJA	121.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
22.	IOUT_OP	500.0 mA	Op_point	Iout operating point
23.	Phase Marg	62.227 deg	Op_point	Bode Plot Phase Margin
24.	VIN_OP	12.0 V	Op_point	Vin operating point
25.	Vout p-p	659.894 μ V	Op_point	Peak-to-peak output ripple voltage
26.	Cin Pd	216.464 μ W	Power	Input capacitor power dissipation
27.	Cout Pd	6.547 μ W	Power	Output capacitor power dissipation
28.	Diode Pd	111.675 mW	Power	Diode power dissipation
29.	IC Pd	243.415 mW	Power	IC power dissipation
30.	L Pd	38.5 mW	Power	Inductor power dissipation
31.	Total Pd	393.828 mW	Power	Total Power Dissipation
32.	Vout Tolerance	3.942 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	500.0 m	Maximum Output Current
2.	VinMax	12.0	Maximum input voltage
3.	VinMin	5.0	Minimum input voltage
4.	Vout	3.3	Output Voltage
5.	base_pn	LMR14206X	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **LMR14206X** Product Folder : <http://www.ti.com/product/LMR14206> : contains the data sheet and other resources.

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