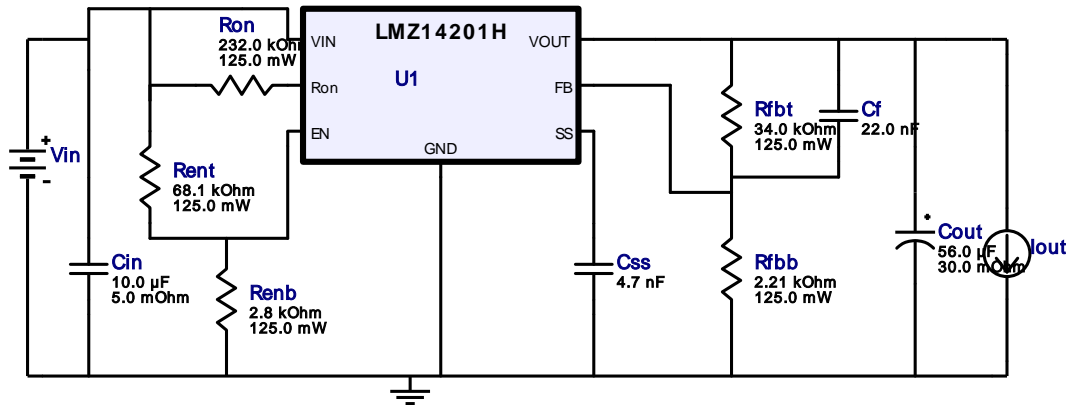
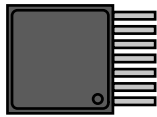


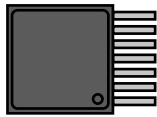
**WEBENCH<sup>®</sup> Design Report**

 Design : 4211230/1 LMZ14201HTZ/NOPB  
 LMZ14201HTZ/NOPB 30.0V-40.0V to 13.00V @ 1.0A

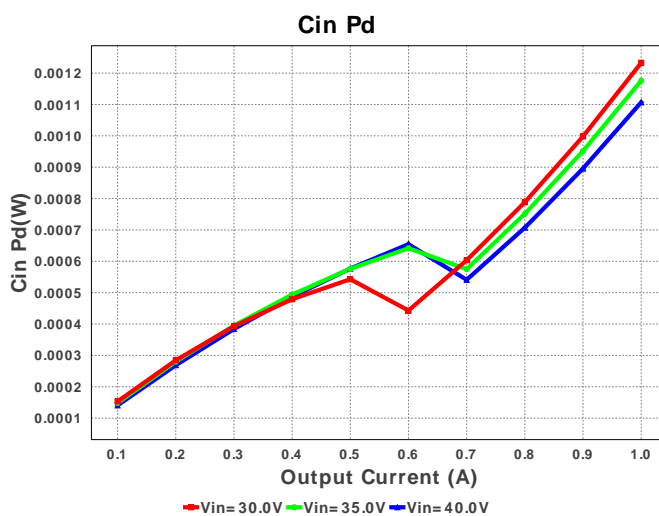
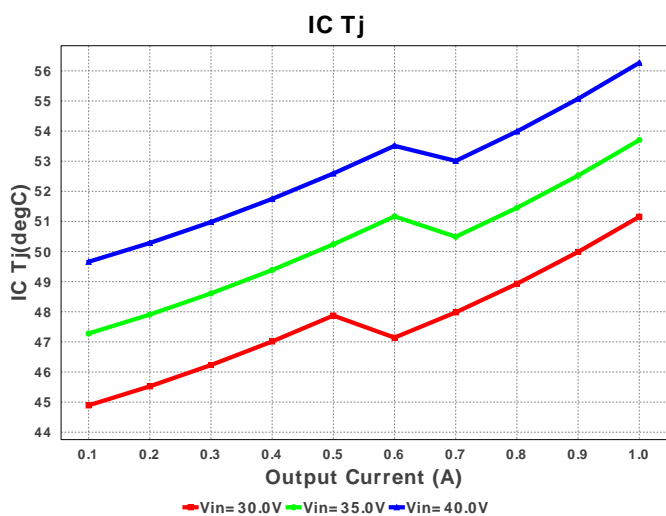
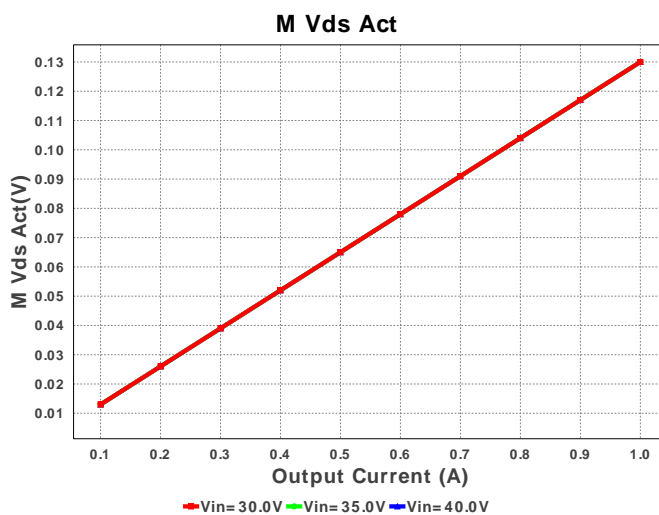
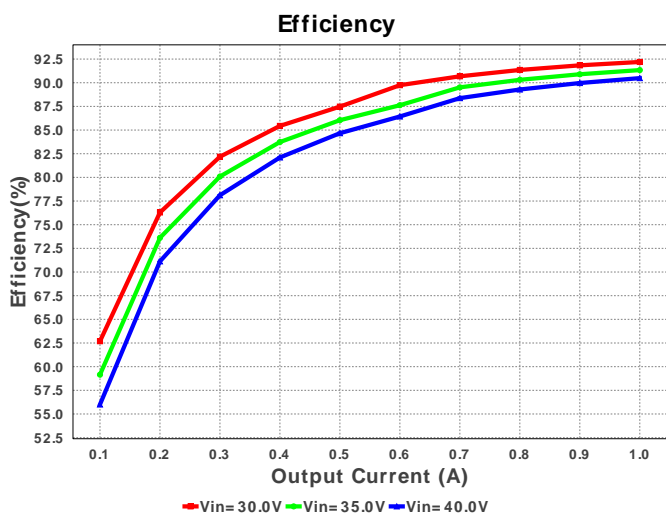
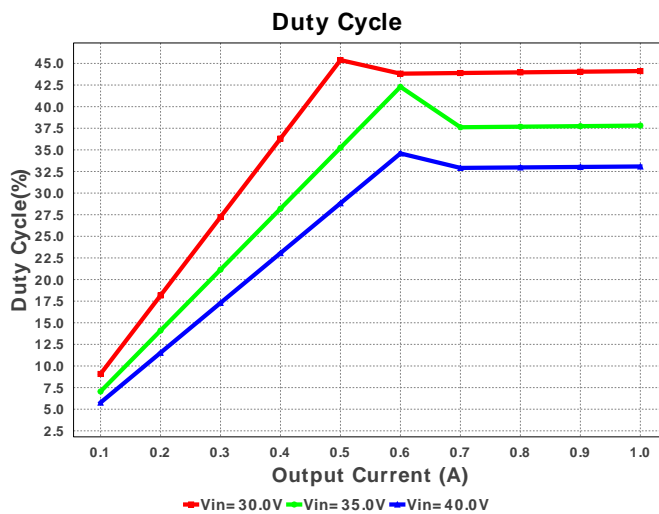
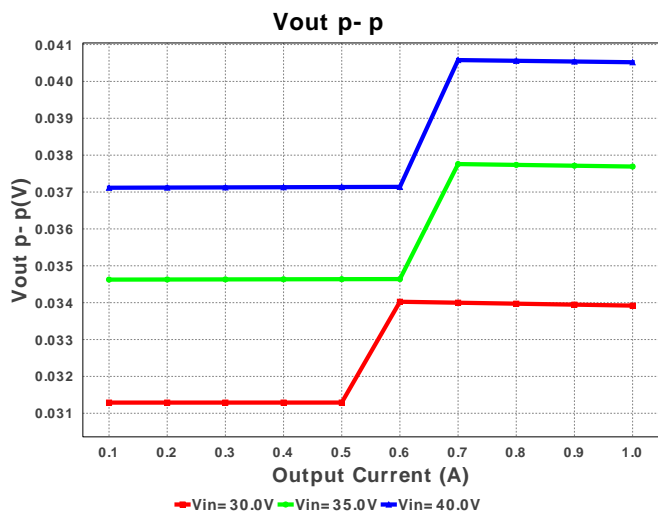
**VinMin = 30.0V**  
**VinMax = 40.0V**
**Vout = 13.0V**  
**Iout = 1.0A**

**Electrical BOM**

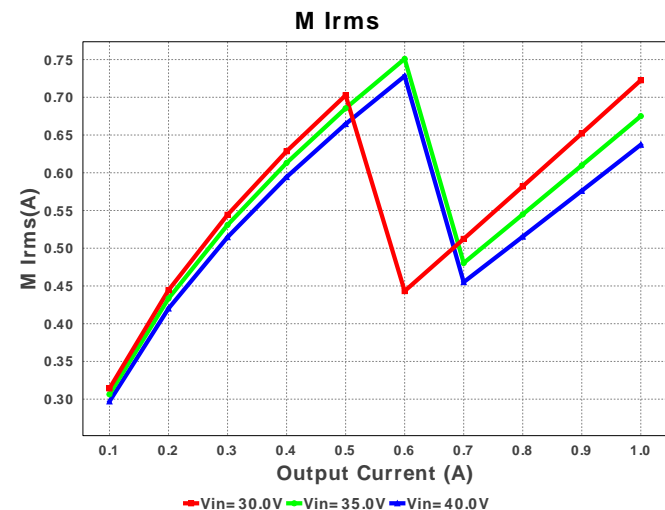
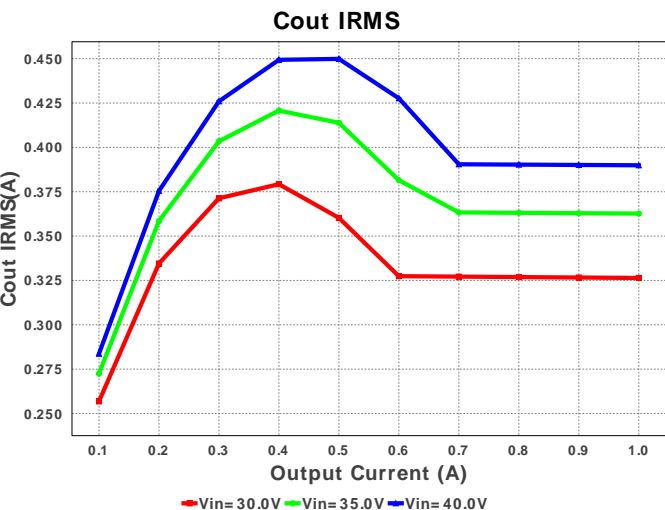
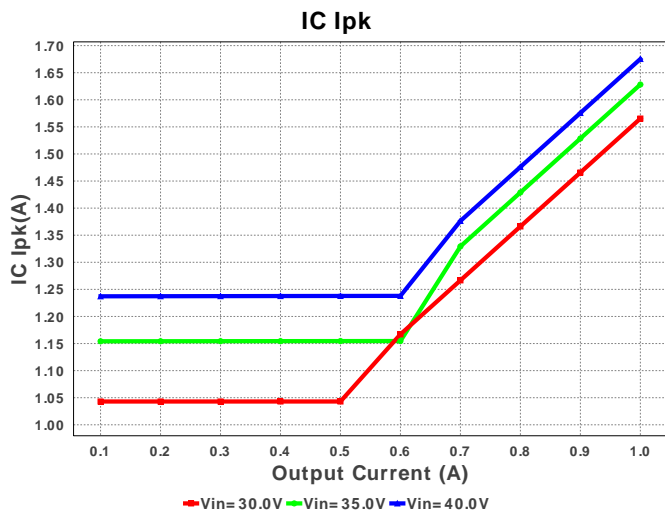
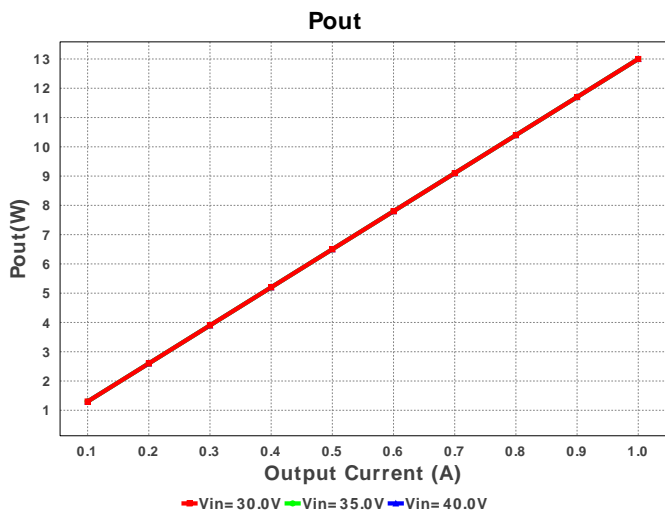
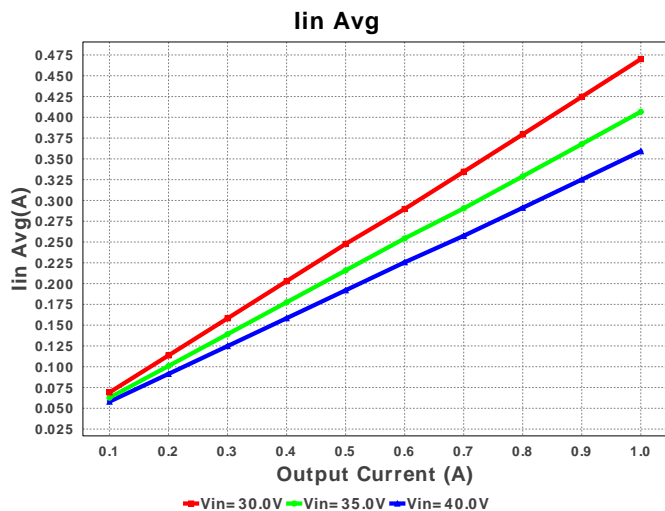
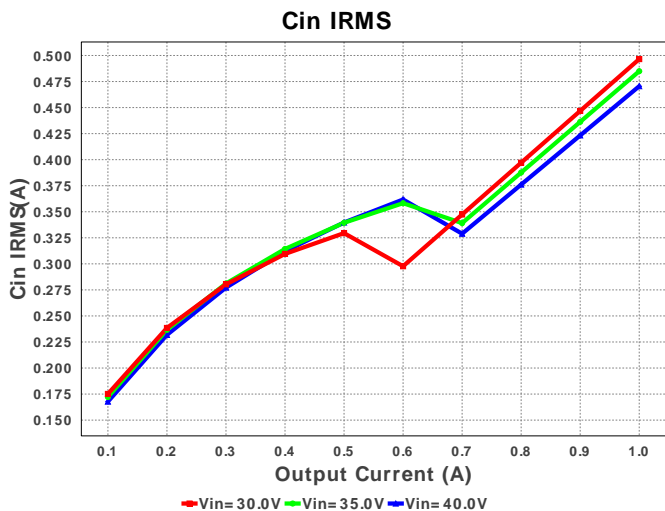
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cf	Yageo America	CC0805KRX7R9BB223 Series= X7R	Cap= 22.0 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm <sup>2</sup>
2.	Cin	TDK	C5750X7S2A106M Series= 479	Cap= 10.0 uF ESR= 5.0 mOhm VDC= 100.0 V IRMS= 6.45 A	1	\$0.84	 2220 54 mm <sup>2</sup>
3.	Cout	Panasonic	20SVPF56MX Series= 1273	Cap= 56.0 uF ESR= 30.0 mOhm VDC= 20.0 V IRMS= 2.8 A	1	\$0.35	 CAPSMT_62_E61 53 mm <sup>2</sup>
4.	Css	Yageo America	CC0805KRX7R9BB472 Series= X7R	Cap= 4.7 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm <sup>2</sup>
5.	Renb	Panasonic	ERJ-6ENF2801V Series= 225	Res= 2.8 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm <sup>2</sup>
6.	Rent	Panasonic	ERJ-6ENF6812V Series= 225	Res= 68.1 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm <sup>2</sup>
7.	Rfbb	Panasonic	ERJ-6ENF2211V Series= 225	Res= 2.21 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm <sup>2</sup>
8.	Rfbt	Panasonic	ERJ-6ENF3402V Series= 225	Res= 34.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm <sup>2</sup>
9.	Ron	Panasonic	ERJ-6ENF2323V Series= 225	Res= 232.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm <sup>2</sup>

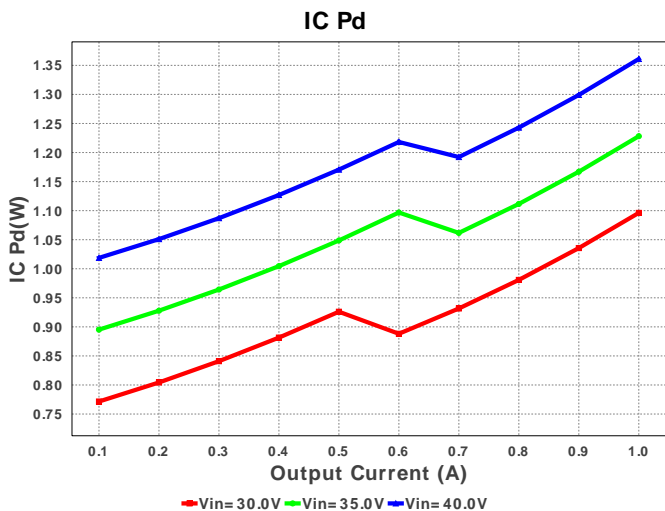
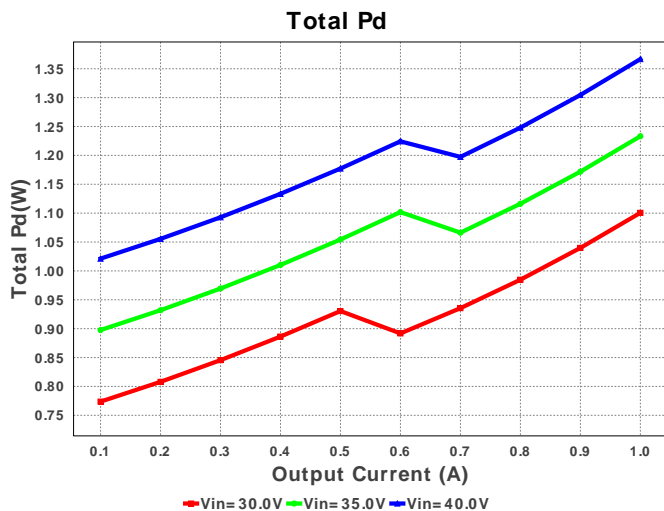
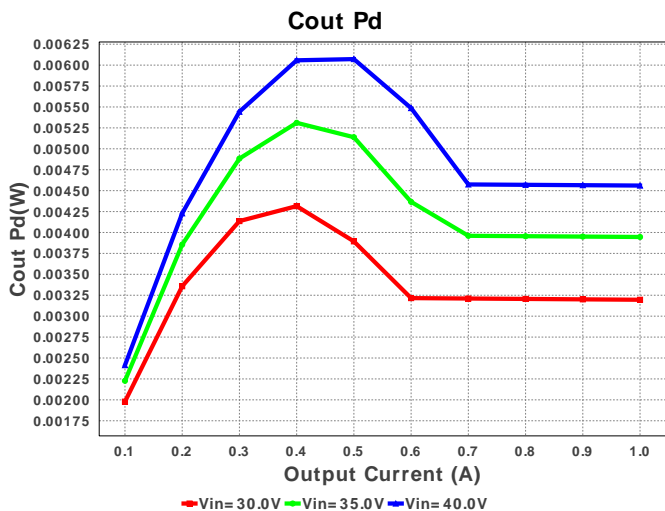
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	U1	Texas Instruments	LMZ14201HTZ/NOPB	Switcher	1	\$6.73	 TZA07A 199 mm <sup>2</sup>



TZA07A 199 mm<sup>2</sup>







### Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	470.498 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	389.903 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.675 A	Current	Peak switch current in IC
4.	Iin Avg	357.44 mA	Current	Average input current
5.	M Irms	634.172 mA	Current	MOSFET RMS current
6.	BOM Count	10	General	Total Design BOM count
7.	FootPrint	353.0 mm <sup>2</sup>	General	Total Foot Print Area of BOM components
8.	Frequency	438.717 kHz	General	Switching frequency
9.	IC Tolerance	20.0 mV	General	IC Feedback Tolerance
10.	M Vds Act	130.0 mV	General	Voltage drop across the MosFET
11.	Pout	13.0 W	General	Total output power
12.	Total BOM	\$7.99	General	Total BOM Cost
13.	Vout OP	13.0 V	Op_Point	Operational Output Voltage
14.	Duty Cycle	33.079 %	Op_point	Duty cycle
15.	Efficiency	90.924 %	Op_point	Steady state efficiency
16.	IC Tj	54.936 degC	Op_point	IC junction temperature
17.	ICThetaJA	19.3 degC/W	Op_point	IC junction-to-ambient thermal resistance
18.	IOUT_OP	1.0 A	Op_point	Iout operating point
19.	VIN_OP	40.0 V	Op_point	Vin operating point
20.	Vout p-p	40.52 mV	Op_point	Peak-to-peak output ripple voltage
21.	Cin Pd	1.107 mW	Power	Input capacitor power dissipation
22.	Cout Pd	4.561 mW	Power	Output capacitor power dissipation
23.	IC Pd	1.292 W	Power	IC power dissipation
24.	Total Pd	1.298 W	Power	Total Power Dissipation

### Design Inputs

#	Name	Value	Description
1.	Iout	1.0	Maximum Output Current
2.	Iout1	1.0	Output Current #1
3.	VinMax	40.0	Maximum input voltage

#	Name	Value	Description
4.	VinMin	30.0	Minimum input voltage
5.	Vout	13.0	Output Voltage
6.	Vout1	13.0	Output Voltage #1
7.	base_pn	LMZ14201H	Texas Instruments Base Part Number
8.	source	DC	Input Source Type
9.	ta	30.0	Ambient temperature

## Design Assistance

1. LMZ14201H Product Folder : <http://www.ti.com/product/LMZ14201H> : contains the data sheet and other resources.

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