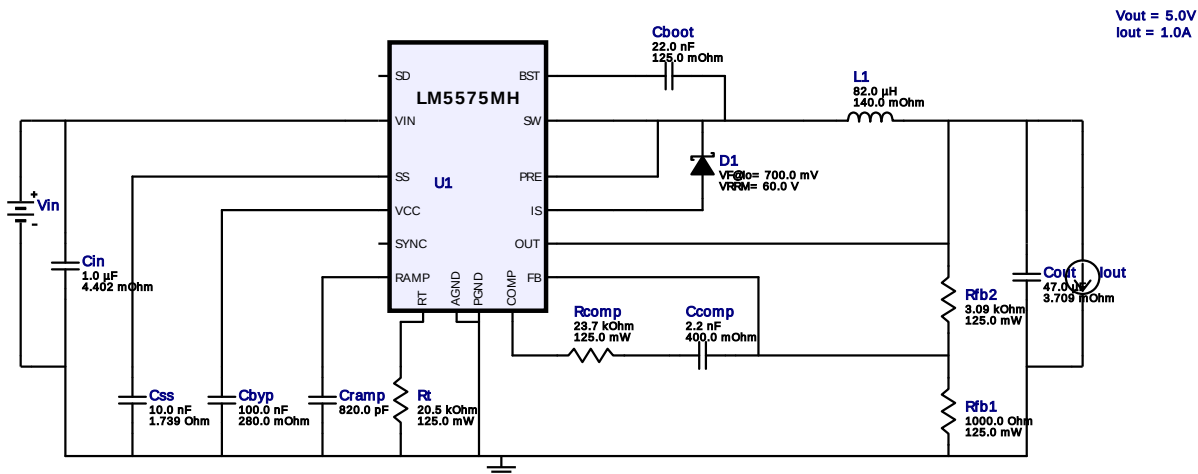


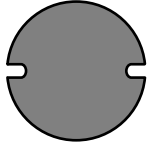
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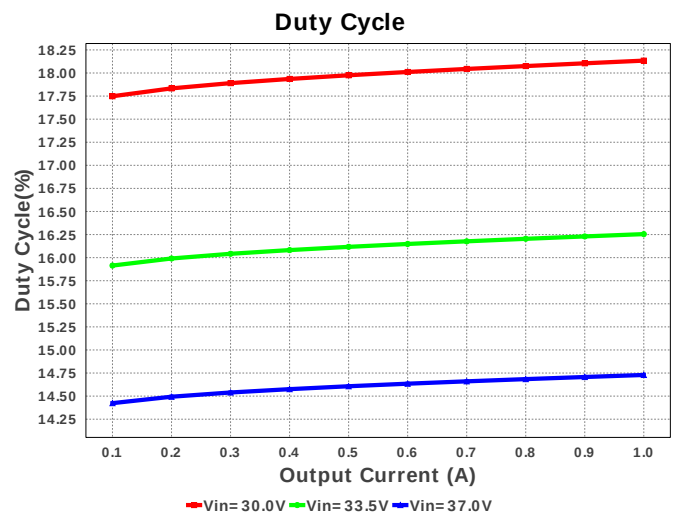
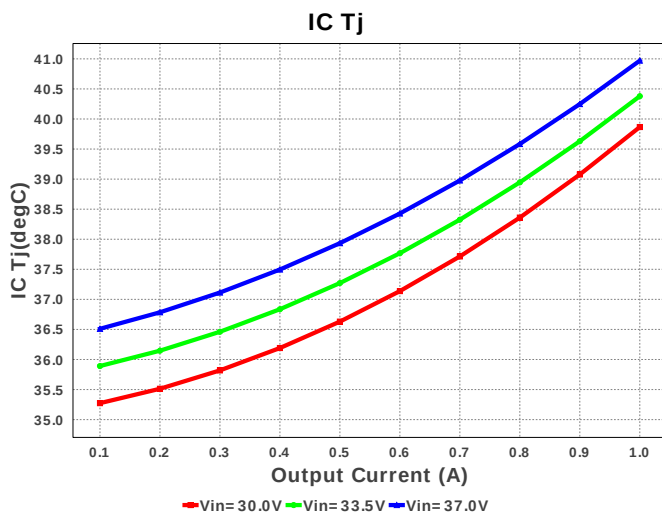
Design : 4742013/107 LM5575MHX/NOPB
LM5575MHX/NOPB 30.0V-37.0V to 5.00V @ 1.0A

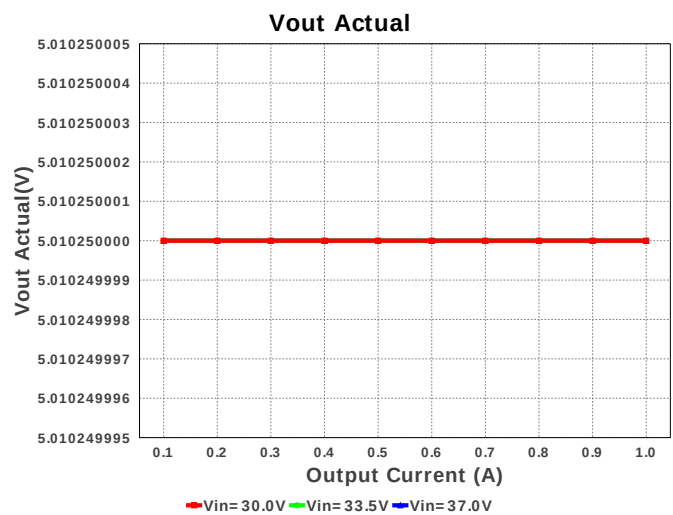
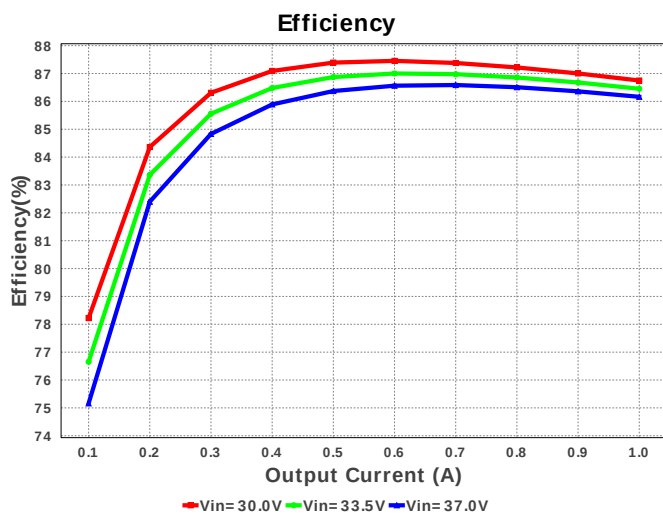
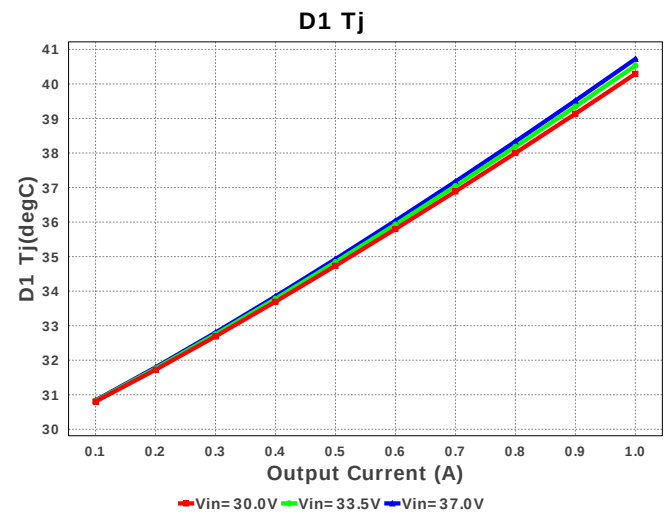
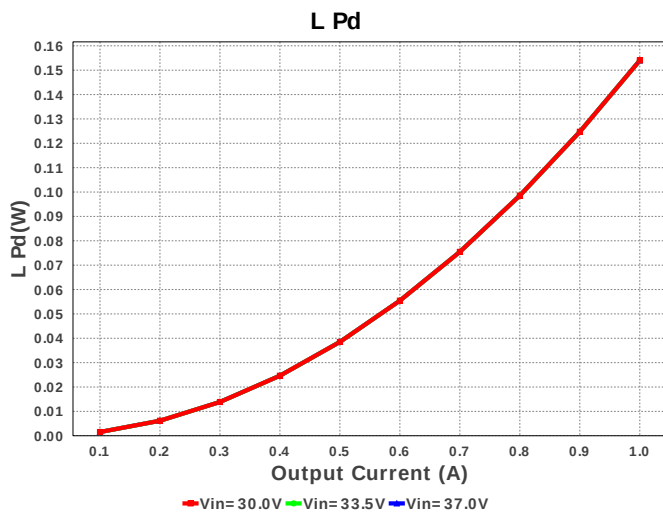
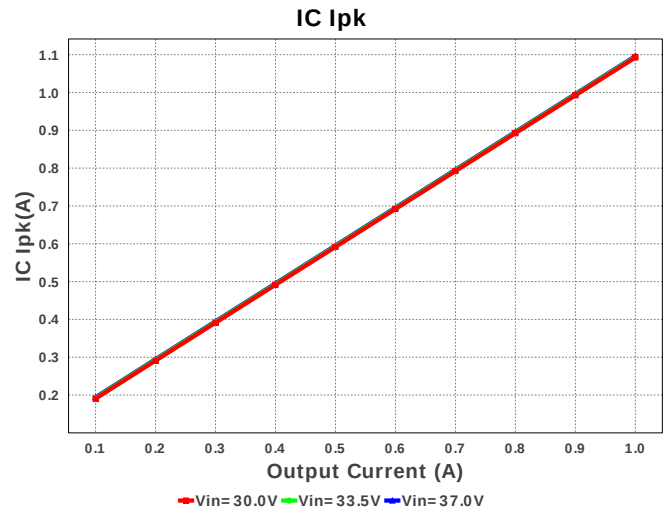
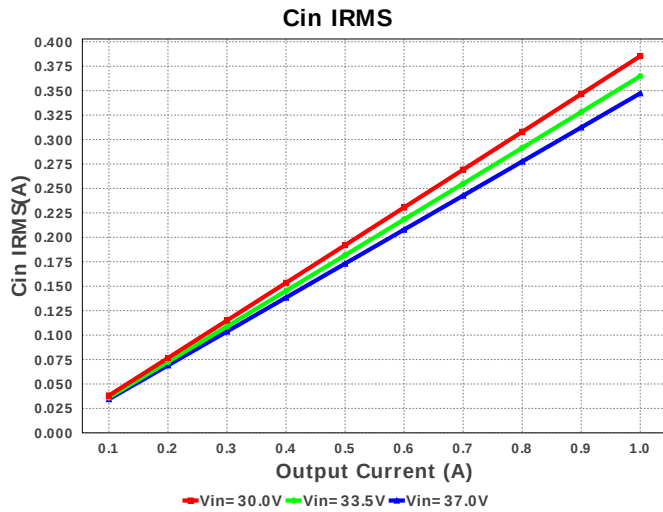


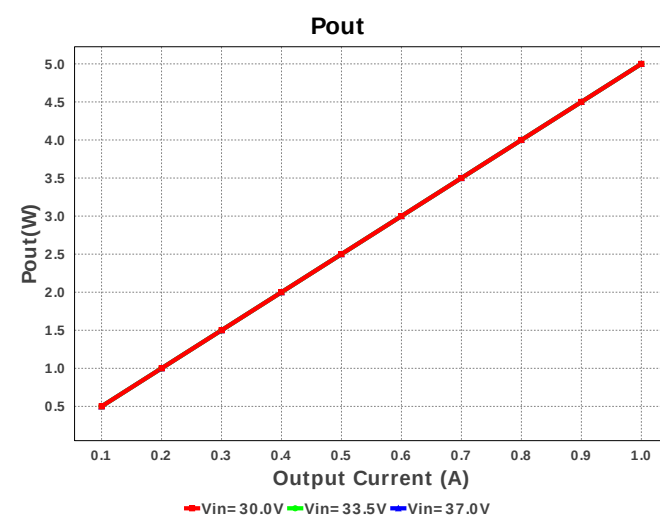
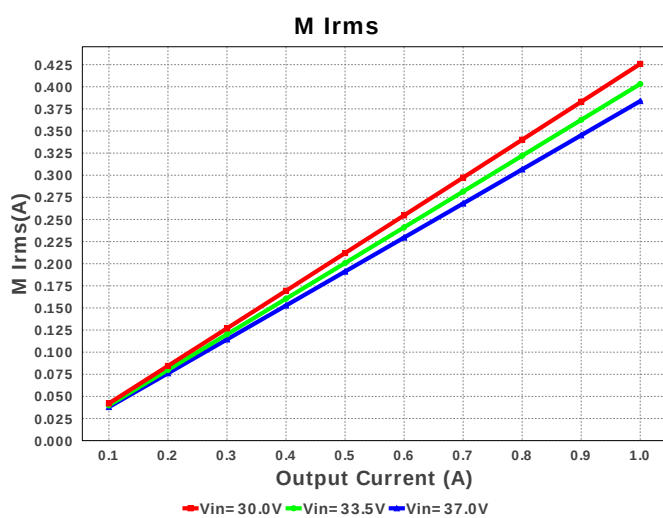
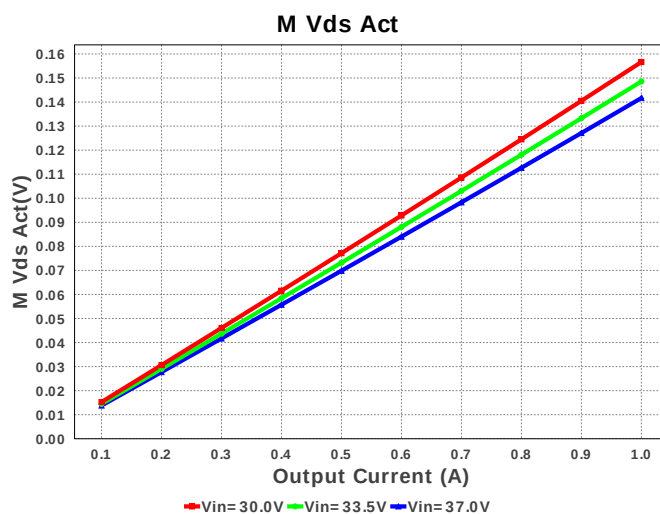
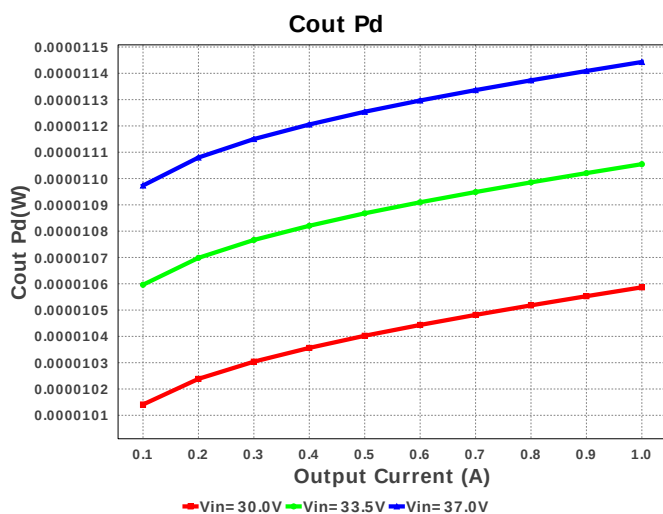
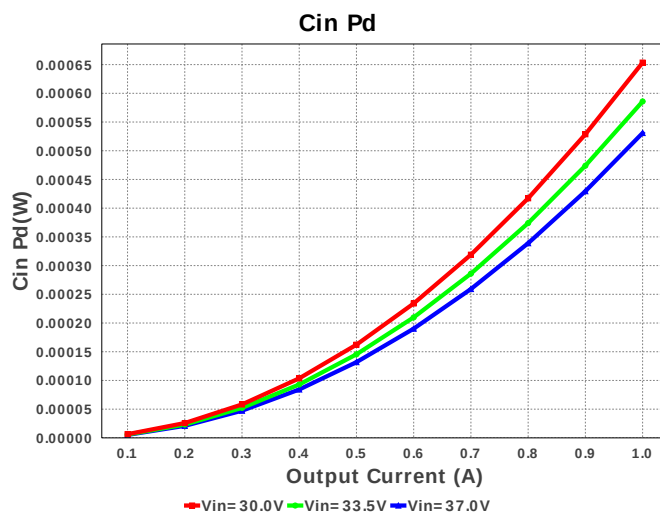
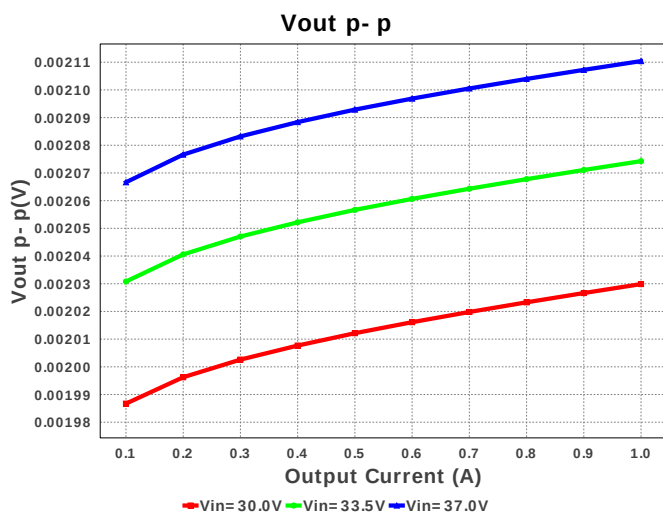
Electrical BOM

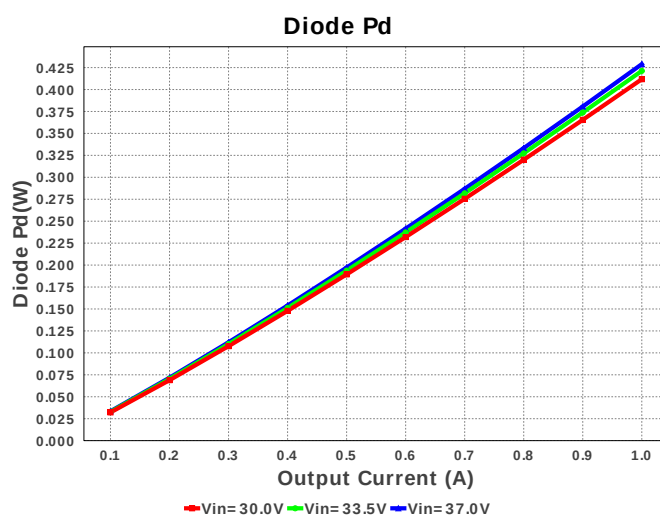
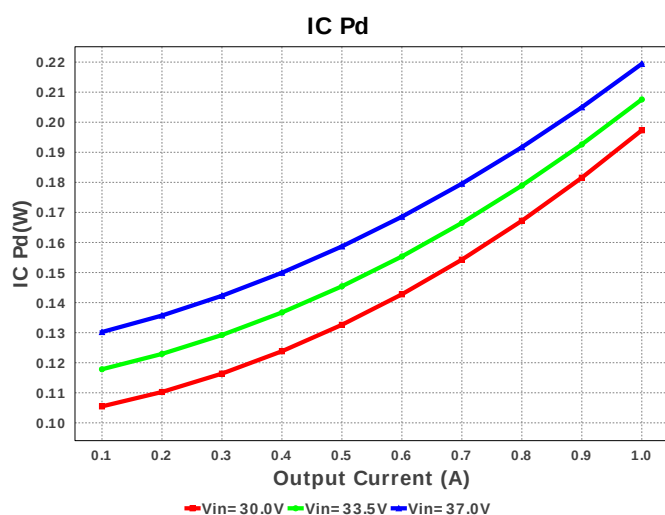
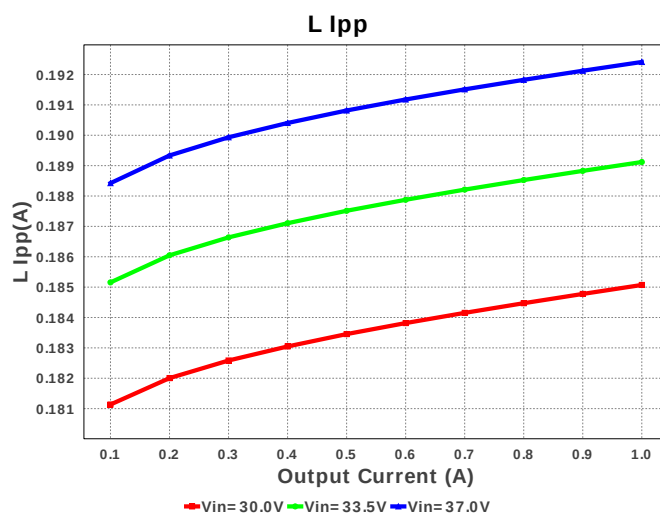
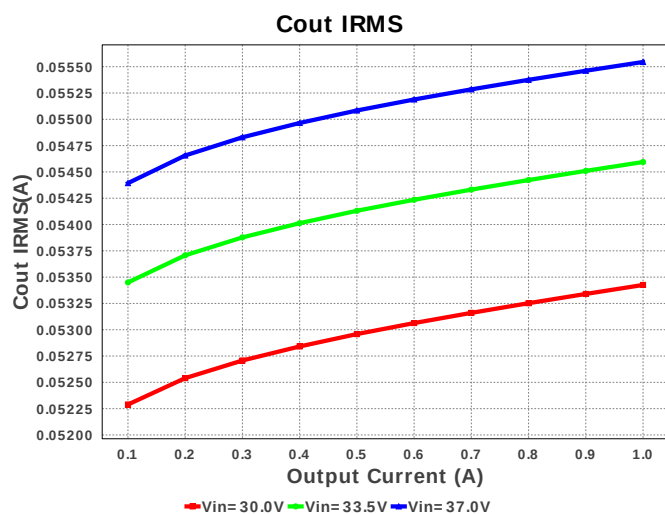
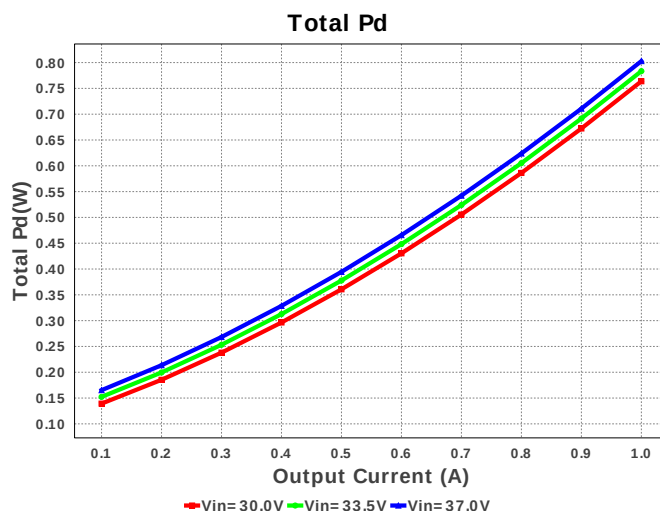
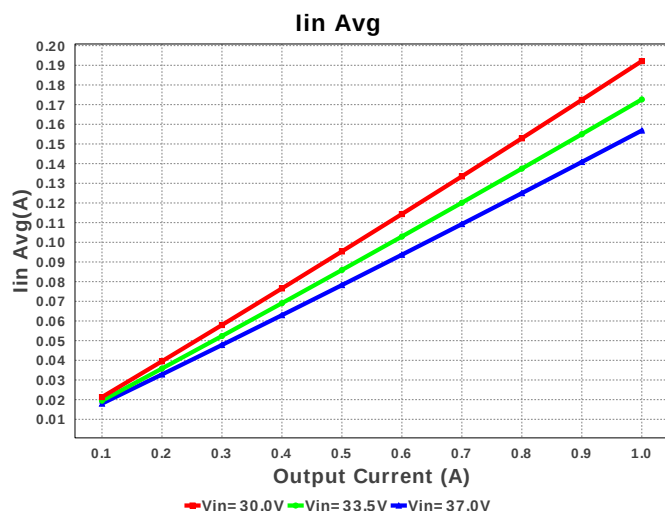
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	Kemet	C0805C223K5RACTU Series= X7R	Cap= 22.0 nF ESR= 125.0 mOhm VDC= 50.0 V IRMS= 645.0 mA	1	\$0.01	0805 7 mm ²
2.	Cbyp	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
3.	Ccomp	Kemet	C0805C222K5RACTU Series= X7R	Cap= 2.2 nF ESR= 400.0 mOhm VDC= 50.0 V IRMS= 251.0 mA	1	\$0.01	0805 7 mm ²
4.	Cin	MuRata	GRM21BR71H105KA12L Series= X7R	Cap= 1.0 uF ESR= 4.402 mOhm VDC= 50.0 V IRMS= 1.677 A	1	\$0.05	0805 7 mm ²
5.	Cout	MuRata	GRM31CR61A476KE15L Series= X5R	Cap= 47.0 uF ESR= 3.709 mOhm VDC= 10.0 V IRMS= 4.2862 A	1	\$0.15	1206_190 11 mm ²
6.	Cramp	Yageo America	CC0805KRX7R9BB821 Series= X7R	Cap= 820.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
7.	Css	Kemet	C0805C103K5RACTU Series= X7R	Cap= 10.0 nF ESR= 1.739 Ohm VDC= 50.0 V IRMS= 411.0 mA	1	\$0.01	0805 7 mm ²
8.	D1	Diodes Inc.	B260A-13-F	VF@Io= 700.0 mV VRRM= 60.0 V	1	\$0.09	SMA 37 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
9.	L1	Bourns	SDR1307-820KL	L= 82.0 μ H DCR= 140.0 mOhm	1	\$0.35	 SDR1307 227 mm ²
10.	Rcomp	Panasonic	ERJ-6ENF2372V Series= ERJ-6E	Res= 23.7 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
11.	Rfb1	Panasonic	ERJ-6ENF1001V Series= ERJ-6E	Res= 1000.0 Ohm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
12.	Rfb2	Panasonic	ERJ-6ENF3091V Series= ERJ-6E	Res= 3.09 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
13.	Rt	Panasonic	ERJ-6ENF2052V Series= ERJ-6E	Res= 20.5 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
14.	U1	Texas Instruments	LM5575MHX/NOPB	Switcher	1	\$2.05	 MXA16A 59 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	347.267 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	55.545 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.096 A	Current	Peak switch current in IC
4.	Iin Avg	156.83 mA	Current	Average input current
5.	L Ipp	192.41 mA	Current	Peak-to-peak inductor ripple current
6.	M1 Irms	383.785 mA	Current	Q lavg
7.	BOM Count	14	General	Total Design BOM count
8.	FootPrint	401.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	298.73 kHz	General	Switching frequency
10.	IC Tolerance	18.0 mV	General	IC Feedback Tolerance
11.	M Vds Act	141.68 mV	General	Voltage drop across the MosFET

#	Name	Value	Category	Description
12.	Pout	5.0 W	General	Total output power
13.	Total BOM	\$2.78	General	Total BOM Cost
14.	D1 Tj	40.723 degC	Op_Point	D1 junction temperature
15.	Vout Actual	5.01 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
16.	Vout OP	5.0 V	Op_Point	Operational Output Voltage
17.	Duty Cycle	14.729 %	Op_point	Duty cycle
18.	Efficiency	86.164 %	Op_point	Steady state efficiency
19.	IC Tj	40.971 degC	Op_point	IC junction temperature
20.	ICThetaJA	50.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
21.	IOUT_OP	1.0 A	Op_point	Iout operating point
22.	VIN_OP	37.0 V	Op_point	Vin operating point
23.	Vout p-p	2.11 mV	Op_point	Peak-to-peak output ripple voltage
24.	Cin Pd	530.858 μW	Power	Input capacitor power dissipation
25.	Cout Pd	11.443 μW	Power	Output capacitor power dissipation
26.	Diode Pd	428.907 mW	Power	Diode power dissipation
27.	IC Pd	219.413 mW	Power	IC power dissipation
28.	L Pd	154.0 mW	Power	Inductor power dissipation
29.	Total Pd	802.863 mW	Power	Total Power Dissipation
30.	Vout Tolerance	3.018 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	1.0	Maximum Output Current
2.	VinMax	37.0	Maximum input voltage
3.	VinMin	30.0	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	LM5575	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **LM5575** Product Folder : <http://www.ti.com/product/LM5575> : contains the data sheet and other resources.

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