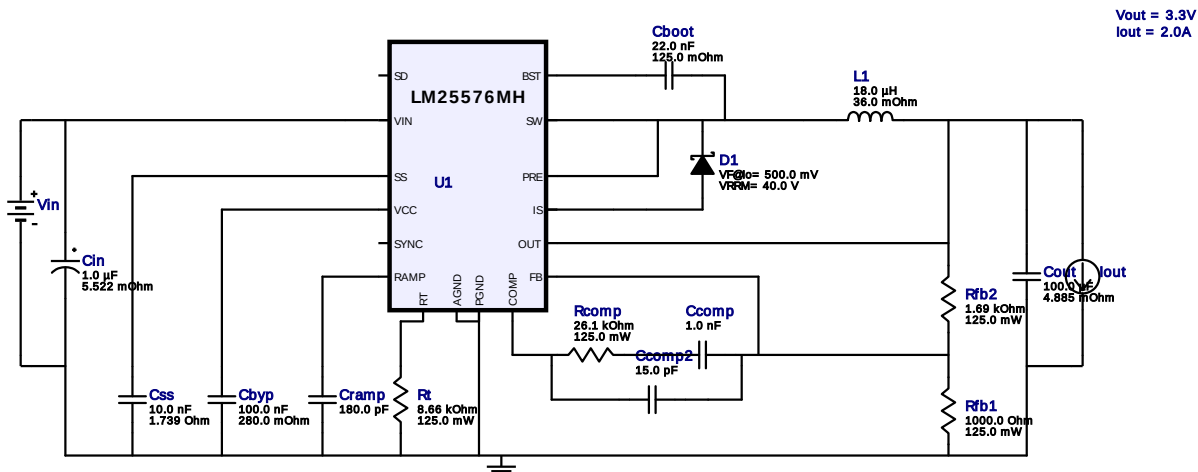


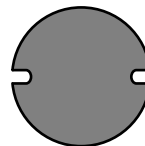
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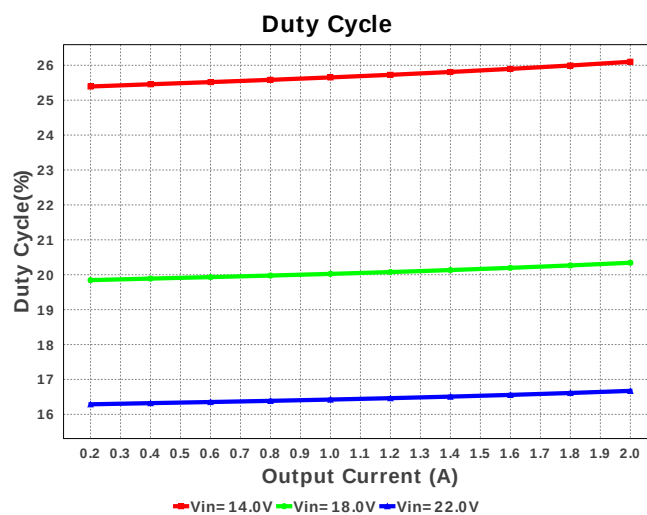
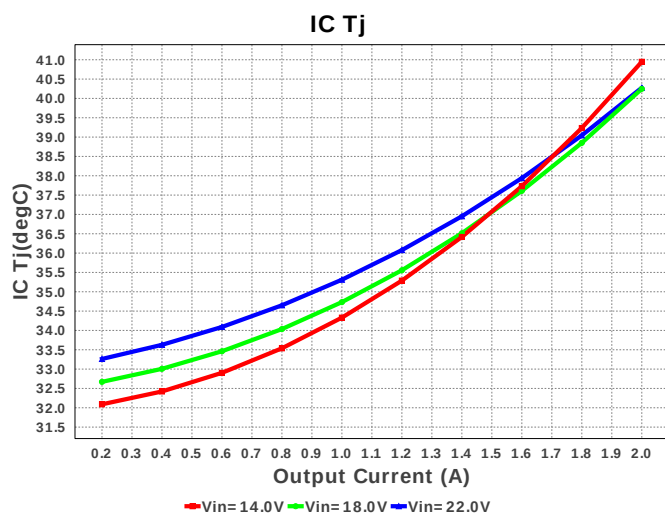
Design : 4737567/48 LM25576MHX/NOPB
LM25576MHX/NOPB 14.0V-22.0V to 3.30V @ 2.0A

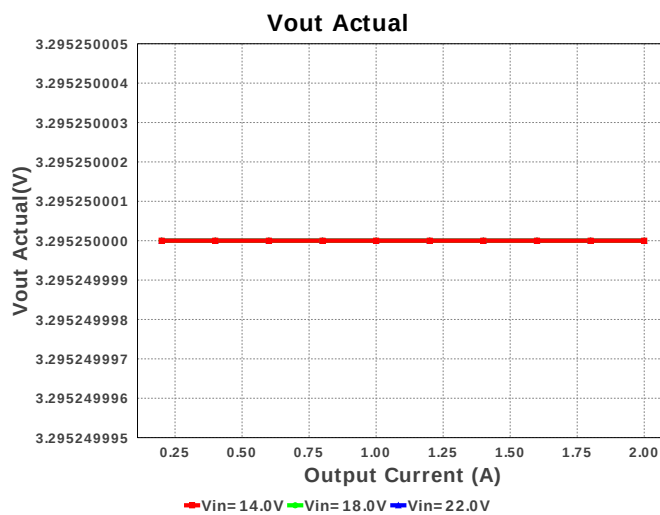
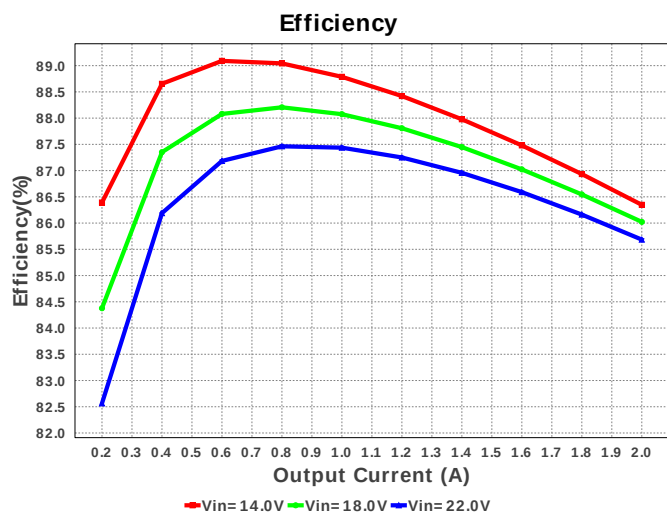
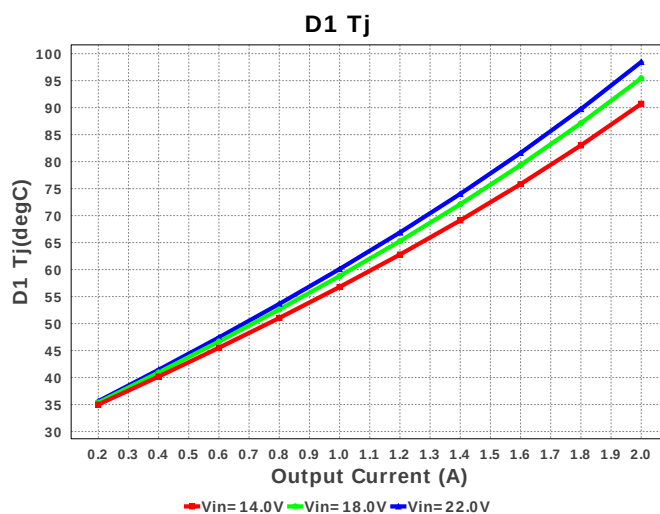
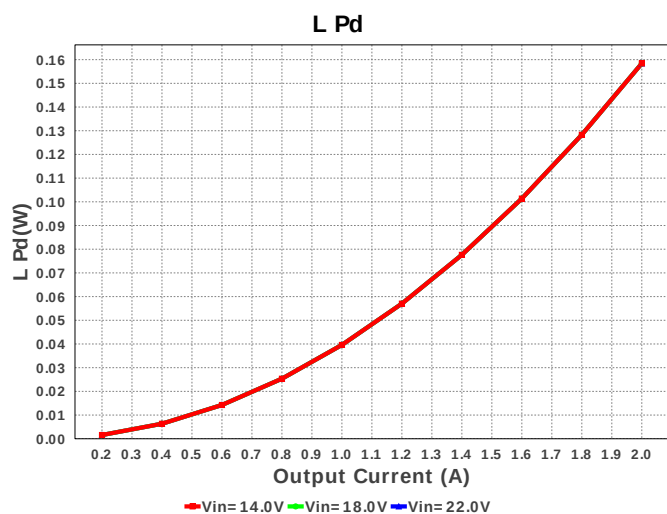
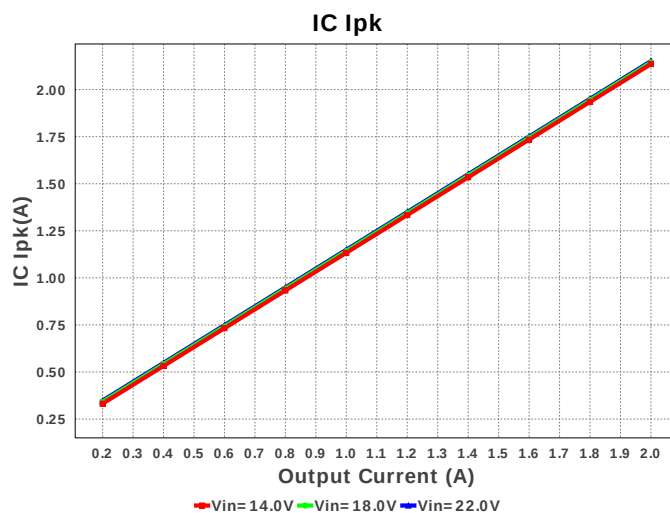
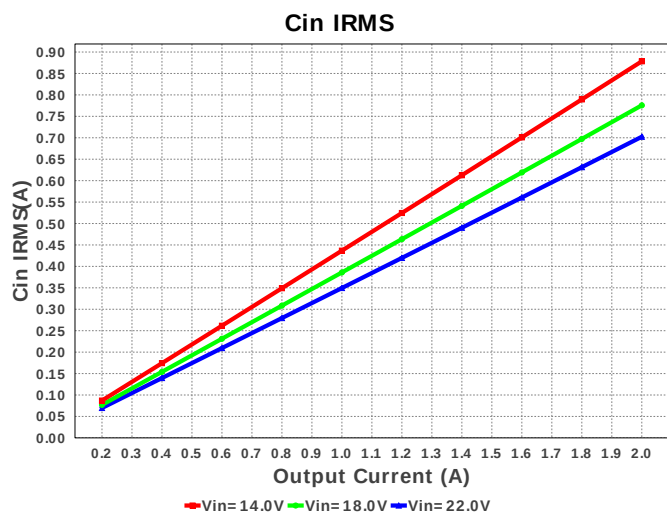


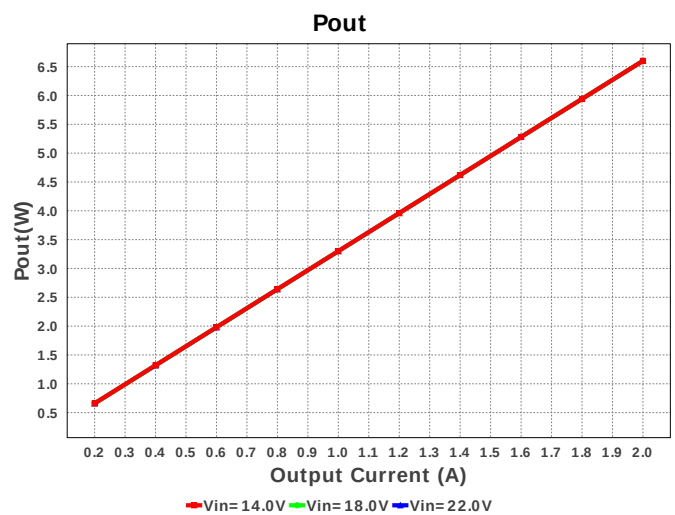
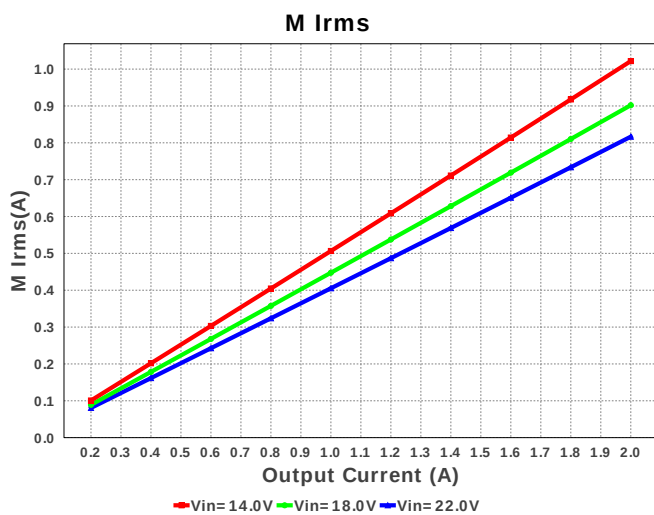
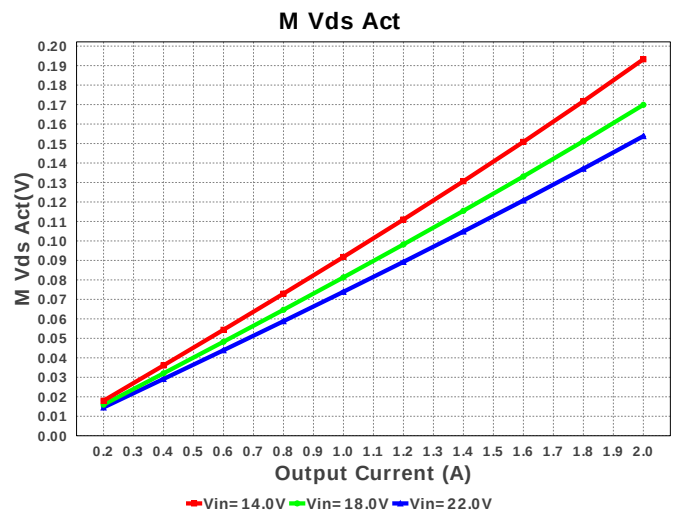
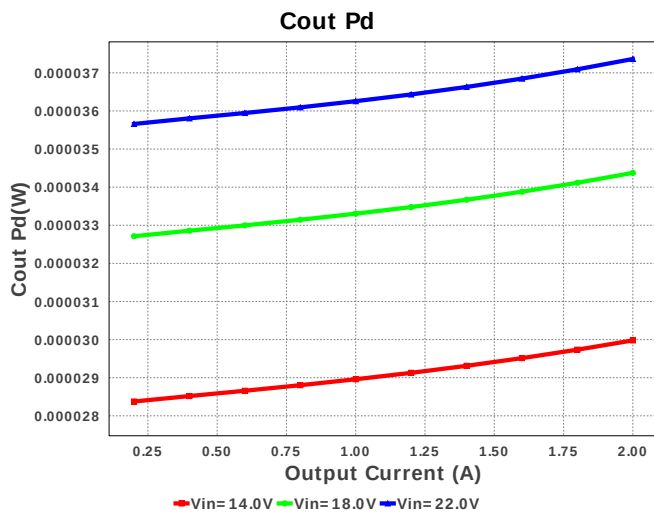
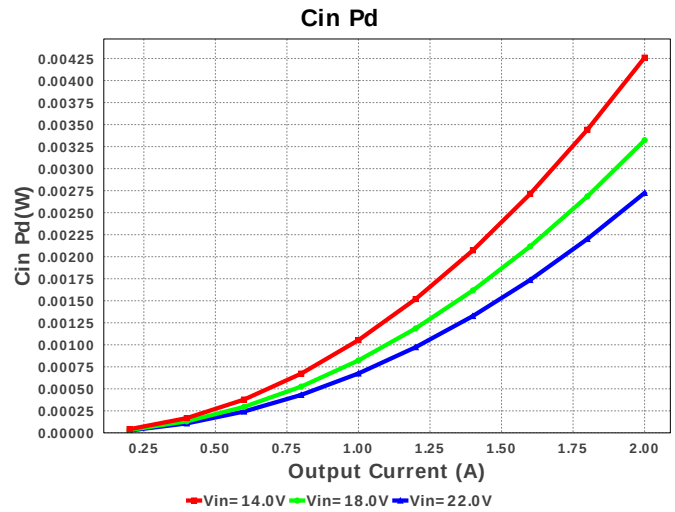
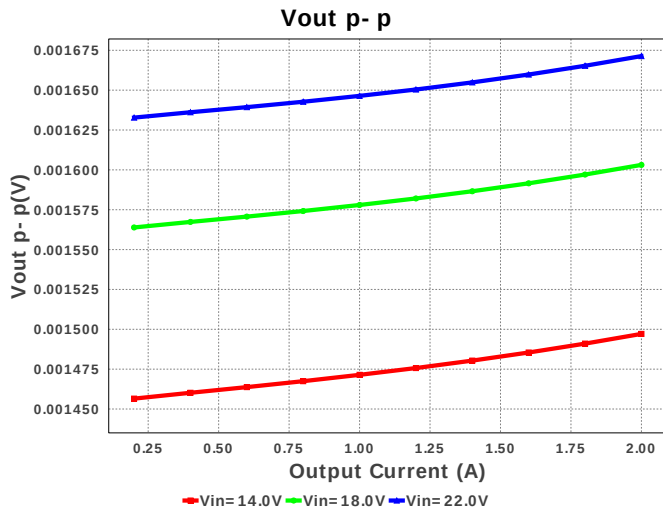
Electrical BOM

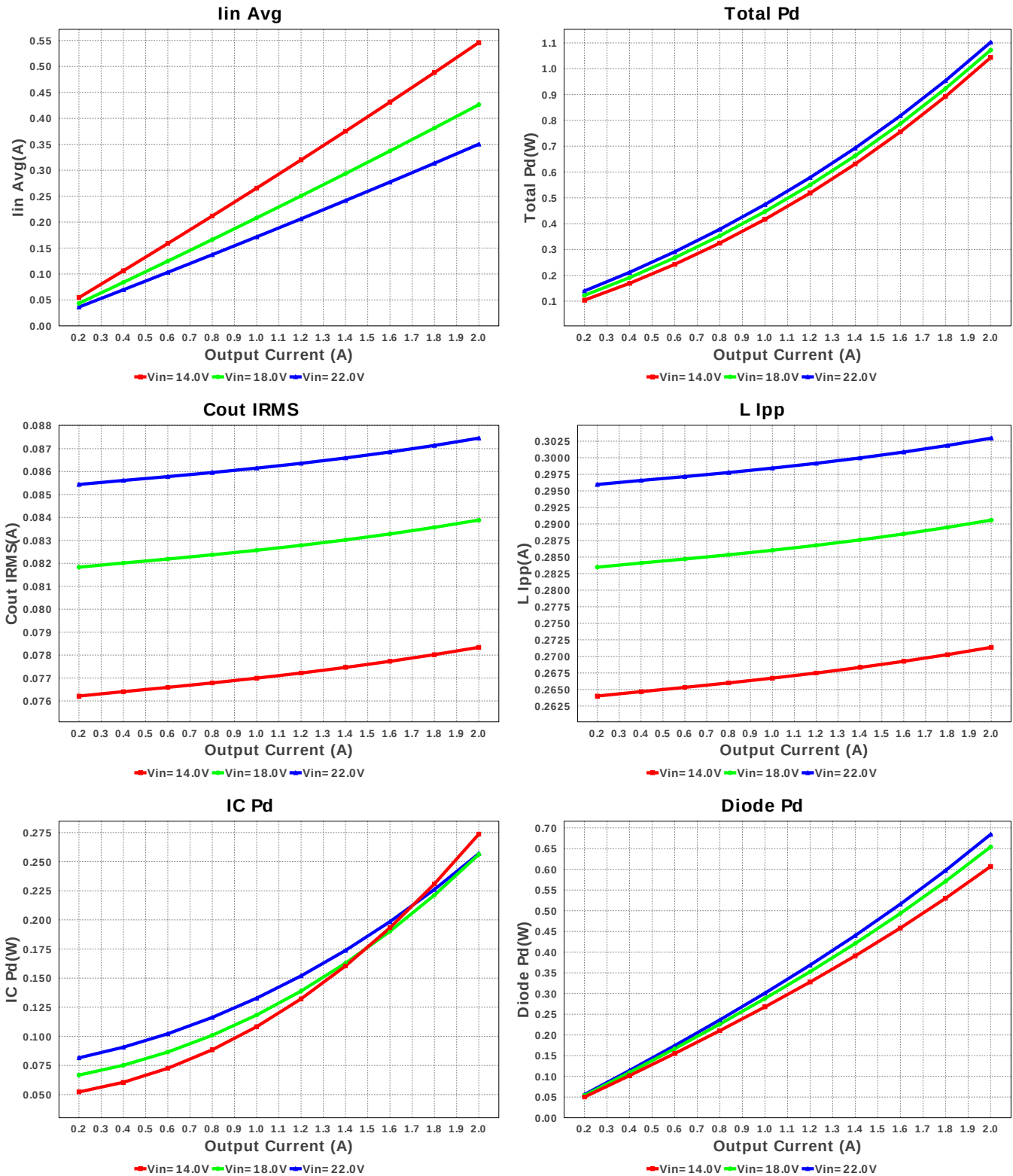
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	Kemet	C0805C223K5RACTU Series= X7R	Cap= 22.0 nF ESR= 125.0 mOhm VDC= 50.0 V IRMS= 645.0 mA	1	\$0.01	0805 7 mm ²
2.	Cbyp	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
3.	Ccomp	MuRata	GRM216R71E102KA01D Series= X7R	Cap= 1.0 nF VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
4.	Ccomp2	Yageo America	CC0805JRNPO9BN150 Series= C0G/NP0	Cap= 15.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
5.	Cin	TDK	C1608X7R1V105K080AC Series= X7R	Cap= 1.0 uF ESR= 5.522 mOhm VDC= 35.0 V IRMS= 2.2162 A	1	\$0.05	0603 5 mm ²
6.	Cout	MuRata	GRM31CR60J107ME39L Series= X5R	Cap= 100.0 uF ESR= 4.885 mOhm VDC= 6.3 V IRMS= 4.4118 A	1	\$0.14	1206_190 11 mm ²
7.	Cramp	Kemet	C0805C181K5GACTU Series= C0G/NP0	Cap= 180.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
8.	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
9.	D1	Diodes Inc.	B340A-13-F	VF@Io= 500.0 mV VRRM= 40.0 V	1	\$0.11	SMA 37 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	L1	Bourns	SDR1307-180ML	L= 18.0 μ H DCR= 36.0 mOhm	1	\$0.35	 SDR1307 227 mm ²
11.	Rcomp	Panasonic	ERJ-6ENF2612V Series= ERJ-6E	Res= 26.1 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
12.	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
13.	Rfb2	Panasonic	ERJ-6ENF1691V Series= ERJ-6E	Res= 1.69 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
14.	Rt	Panasonic	ERJ-6ENF8661V Series= ERJ-6E	Res= 8.66 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
15.	U1	Texas Instruments	LM25576MHX/NOPB	Switcher	1	\$2.00	 MXA20A 71 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	702.366 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	87.456 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	2.151 A	Current	Peak switch current in IC
4.	Iin Avg	350.12 mA	Current	Average input current
5.	L Ipp	302.96 mA	Current	Peak-to-peak inductor ripple current
6.	M Irms	816.637 mA	Current	MOSFET RMS current
7.	BOM Count	15	General	Total Design BOM count
8.	FootPrint	418.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	571.723 kHz	General	Switching frequency
10.	IC Tolerance	18.0 mV	General	IC Feedback Tolerance
11.	M Vds Act	153.798 mV	General	Voltage drop across the MosFET

#	Name	Value	Category	Description
12.	Pout	6.6 W	General	Total output power
13.	Total BOM	\$2.75	General	Total BOM Cost
14.	D1 Tj	98.458 degC	Op_Point	D1 junction temperature
15.	Vout Actual	3.295 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
16.	Vout OP	3.3 V	Op_Point	Operational Output Voltage
17.	Duty Cycle	16.672 %	Op_point	Duty cycle
18.	Efficiency	85.685 %	Op_point	Steady state efficiency
19.	IC Tj	40.276 degC	Op_point	IC junction temperature
20.	ICThetaJA	40.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
21.	IOUT_OP	2.0 A	Op_point	Iout operating point
22.	VIN_OP	22.0 V	Op_point	Vin operating point
23.	Vout p-p	1.671 mV	Op_point	Peak-to-peak output ripple voltage
24.	Cin Pd	2.724 mW	Power	Input capacitor power dissipation
25.	Cout Pd	37.364 μ W	Power	Output capacitor power dissipation
26.	Diode Pd	684.579 mW	Power	Diode power dissipation
27.	IC Pd	256.891 mW	Power	IC power dissipation
28.	L Pd	158.4 mW	Power	Inductor power dissipation
29.	Total Pd	1.103 W	Power	Total Power Dissipation
30.	Vout Tolerance	2.757 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	2.0	Maximum Output Current
2.	VinMax	22.0	Maximum input voltage
3.	VinMin	14.0	Minimum input voltage
4.	Vout	3.3	Output Voltage
5.	base_pn	LM25576	Texas Instruments Base Part Number
6.	source	DC	Input Source Type
7.	ta	30.0	Ambient temperature

Design Assistance

1. LM25576 Product Folder : <http://www.ti.com/product/LM25576> : contains the data sheet and other resources.

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