



WEBENCH® Power Architect

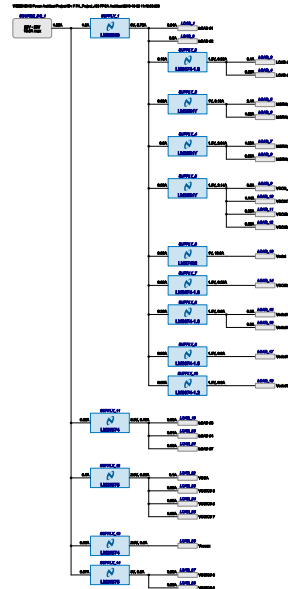
Project Report

Project : 365092/7 : PA_Project_403
 Created : 2010-10-05 11:19:39.950
 Optimize project optFactor=4

Project Summary

- | | |
|-----------------------------------|------------|
| 1. Total System Efficiency | 72.857 % |
| 2. Total System BOM Count | 157.0 |
| 3. Total System Footprint | 5012.0 mm2 |
| 4. Total System BOM Cost | \$39.27 |
| 5. Total System Power Dissipation | 11.806 W |

--> Launch WEBENCH® Power Architect.



Power Supplies

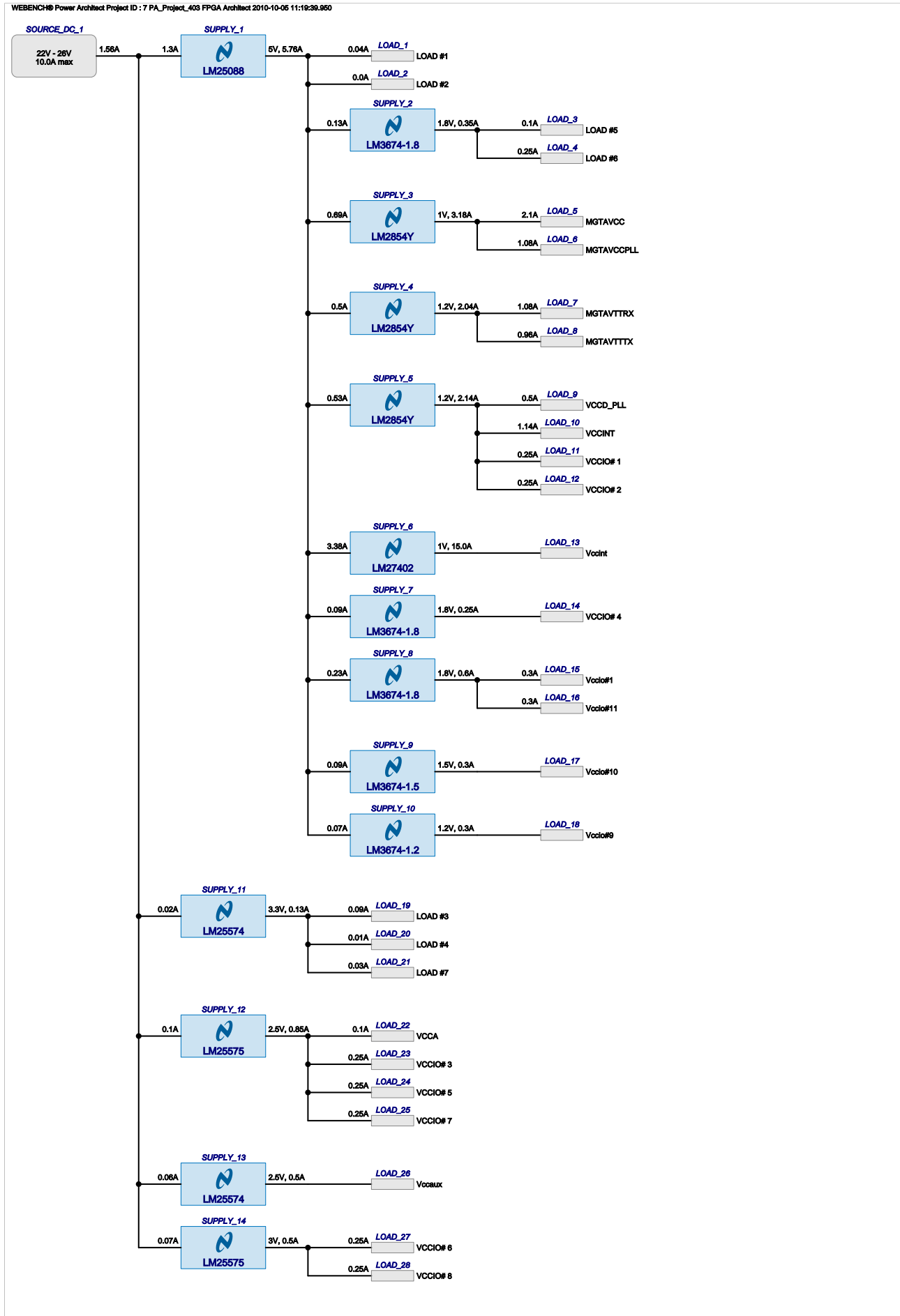
#	Name	NSID	Description	Vout	Iout	Efficiency	Foot-print	Cost	Design	Page
1.	SUPPLY_1	LM25088	Simple Switcher : 42V BUCK CONTROLLER	5 V	5.756 A	85%	913	\$4.03	142	25
2.	SUPPLY_2	LM3674-1.8	Simple Switcher : 2MHz, 600mA Step-Down DC-DC Converter in SOT 23-5 for Ultra Low Voltage Circuits	1.8 V	0.35 A	90.2%	85	\$1.30	133	6
3.	SUPPLY_3	LM2854Y	Simple Switcher : SIMPLE SWITCHER 4A Buck Regulator, 500kHz	1 V	3.18 A	83.6%	317	\$3.78	134	8
4.	SUPPLY_4	LM2854Y	Simple Switcher : SIMPLE SWITCHER 4A Buck Regulator, 500kHz	1.2 V	2.04 A	88.4%	373	\$3.90	135	10
5.	SUPPLY_5	LM2854Y	Simple Switcher : SIMPLE SWITCHER 4A Buck Regulator, 500kHz	1.2 V	2.136 A	88.1%	373	\$3.90	136	12
6.	SUPPLY_6	LM27402	Simple Switcher : High Current Synchronous Buck Controller	1 V	15.0 A	80.8%	979	\$7.49	137	14
7.	SUPPLY_7	LM3674-1.8	Simple Switcher : 2MHz, 600mA Step-Down DC-DC Converter in SOT 23-5 for Ultra Low Voltage Circuits	1.8 V	0.25 A	91.7%	85	\$1.30	138	17
8.	SUPPLY_8	LM3674-1.8	Simple Switcher : 2MHz, 600mA Step-Down DC-DC Converter in SOT 23-5 for Ultra Low Voltage Circuits	1.8 V	0.6 A	86.5%	85	\$1.30	139	19
9.	SUPPLY_9	LM3674-1.5	Simple Switcher : 2MHz, 600mA Step-Down DC-DC Converter in SOT 23-5 for Ultra Low Voltage Circuits	1.5 V	0.3 A	89.5%	85	\$1.30	140	21
10.	SUPPLY_10	LM3674-1.2	Simple Switcher : 2MHz, 600mA Step-Down DC-DC Converter in SOT 23-5 for Ultra Low Voltage Circuits	1.2 V	0.3 A	87.3%	85	\$1.30	141	23
11.	SUPPLY_11	LM25574	Simple Switcher : Fast Transient Response	3.3 V	0.13 A	72%	461	\$2.16	143	28
12.	SUPPLY_12	LM25575	Simple Switcher : Fast Transient Response	2.5 V	0.85 A	79%	395	\$2.66	144	30
13.	SUPPLY_13	LM25574	Simple Switcher : Fast Transient Response	2.5 V	0.5 A	75.8%	315	\$2.21	145	32
14.	SUPPLY_14	LM25575	Simple Switcher : Fast Transient Response	3 V	0.5 A	80.7%	461	\$2.64	146	34

Power Loads

#	Name	VLoad	Iload	Description
1.	LOAD #1	5 V	0.04 A	
2.	LOAD #2	5 V	0.005 A	
3.	LOAD #5	1.8 V	0.1 A	

#	Name	VLoad	ILoad	Description
4.	LOAD #6	1.8 V	0.25 A	
5.	MGTAVCC	1 V	2.1 A	VoutRipple=10 Filter required.
6.	MGTAVCCPLL	1 V	1.08 A	VoutRipple=10 Filter required.
7.	MGTAVTTRX	1.2 V	1.08 A	VoutRipple=10 Filter required.
8.	MGTAVTTTX	1.2 V	0.96 A	VoutRipple=10 Filter required.
9.	VCCD_PLL	1.2 V	0.5 A	VoutRipple=6 Filter required. SoftStart delay=0.05
10.	VCCINT	1.2 V	1.136 A	VoutRipple=6 SoftStart delay=0.05
11.	VCCIO# 1	1.2 V	0.25 A	VoutRipple=10 SoftStart delay=0.05
12.	VCCIO# 2	1.2 V	0.25 A	VoutRipple=10 SoftStart delay=0.05
13.	Vccint	1 V	15 A	VoutRipple=10 SoftStart delay=0.2
14.	VCCIO# 4	1.8 V	0.25 A	VoutRipple=10 SoftStart delay=0.05
15.	Vccio#1	1.8 V	0.3 A	VoutRipple=10 SoftStart delay=0.2
16.	Vccio#11	1.8 V	0.3 A	VoutRipple=10 SoftStart delay=0.2
17.	Vccio#10	1.5 V	0.3 A	VoutRipple=10 SoftStart delay=0.2
18.	Vccio#9	1.2 V	0.3 A	VoutRipple=10 SoftStart delay=0.2
19.	LOAD #3	3.3 V	0.09 A	
20.	LOAD #4	3.3 V	0.01 A	
21.	LOAD #7	3.3 V	0.03 A	
22.	VCCA	2.5 V	0.1 A	VoutRipple=6 Filter required. SoftStart delay=0.05
23.	VCCIO# 3	2.5 V	0.25 A	VoutRipple=10 SoftStart delay=0.05
24.	VCCIO# 5	2.5 V	0.25 A	VoutRipple=10 SoftStart delay=0.05
25.	VCCIO# 7	2.5 V	0.25 A	VoutRipple=10 SoftStart delay=0.05
26.	Vccaux	2.5 V	0.5 A	VoutRipple=10 SoftStart delay=0.2
27.	VCCIO# 6	3 V	0.25 A	VoutRipple=10 SoftStart delay=0.05
28.	VCCIO# 8	3 V	0.25 A	VoutRipple=10 SoftStart delay=0.05

Project diagram



Electrical Procurement BOM

Manufacturer	Part Number	Description	Quantity	Budgetary Price	Footprint (mm2)
AVX	08053C104KAT2A	0805	4	\$0.01	52
AVX	08055C152KAT2A	0805	2	\$0.01	26
Vishay-Semiconductor	6CWQ04FNPBF	DPAK	1	\$0.65	102
Diodes Inc.	B140-13-F	SMA	3	\$0.06	112
Diodes Inc.	B240A-13-F	SMA	1	\$0.09	37
Infineon Technologies	BSC035N04LS G	PG-TDSON-8	1	\$0.52	55
Infineon Technologies	BSC120N03MS G	PG-TDSON-8	4	\$0.24	110
Kemet	C0603C102J5GACTU	0603	1	\$0.01	10
Kemet	C0603C155K9PACTU	0603	1	\$0.05	10
Kemet	C0603C222K5RACTU	0603	1	\$0.01	10
Kemet	C0603C225K9PACTU	0603	1	\$0.02	10
Kemet	C0805C101J5GACTU	0805	1	\$0.01	13
Kemet	C0805C103K5RACTU	0805	1	\$0.01	13
Kemet	C0805C223K5RACTU	0805	4	\$0.01	52
Kemet	C0805C331K5RACTU	0805	1	\$0.01	13
Kemet	C0805C392K5RACTU	0805	1	\$0.01	13
TDK	C1005X5R0J224M	0402	1	\$0.01	8
TDK	C1608Y5V1C105Z	0603	1	\$0.01	10
TDK	C3216X5R0J476M	1206	3	\$0.25	56
TDK	C3216X5R1A106M	1206	6	\$0.05	112
TDK	C3216X7R1C475K	1206	8	\$0.04	150
TDK	C3216X7R1H105K	1206	10	\$0.05	94
TDK	C3225X5R0J107M	1210	1	\$0.81	23
TDK	C3225X5R1C226M	1210	2	\$0.23	23
TDK	C5750X5R1A686M	2220	2	\$1.05	120
Yageo America	CC0805JRNPO9BN121	0805	1	\$0.01	13
Yageo America	CC0805JRNPO9BN560	0805	3	\$0.01	39
Yageo America	CC0805KRX7R9BB271	0805	1	\$0.01	13
Yageo America	CC0805KRX7R9BB272	0805	4	\$0.01	52
Yageo America	CC0805KRX7R9BB391	0805	2	\$0.01	26
Yageo America	CC0805KRX7R9BB561	0805	1	\$0.01	13
Yageo America	CC0805KRX7R9BB681	0805	1	\$0.01	13
Yageo America	CC1206KX7R7BB105	1206	1	\$0.05	19
Yageo America	CC1206KX7R9BB104	1206	1	\$0.01	19
Vishay-Dale	CRCW0603107KFKEA	0603	1	\$0.01	10
Vishay-Dale	CRCW06031M00FKEA	0603	1	\$0.01	10
Vishay-Dale	CRCW060321K0FKEA	0603	1	\$0.01	10
Vishay-Dale	CRCW08051R00FNFA	0805	1	\$0.01	13
Stackpole Electronics Inc	CSR 1/2 0.012 1 I	1206	1	\$0.11	19
Panasonic	EEE-FK1A102P	SM_RADIAL_G	1	\$0.28	172
Panasonic	EEF-UD0D471LR	CAPSMT_6_UD	4	\$0.87	59
Panasonic	ELL-6UH560M	ELL6UH	1	\$0.28	67
Nippon Chemi-Con	EMVA6R3ADA101ME55G	CAPSMT_62_E55	1	\$0.09	53
Panasonic	ERJ-6ENF1001V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF1002V	0805	2	\$0.01	26
Panasonic	ERJ-6ENF1021V	0805	2	\$0.01	26
Panasonic	ERJ-6ENF1051V	0805	2	\$0.01	26
Panasonic	ERJ-6ENF1132V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF1331V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF1432V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF1433V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF1471V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF1502V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF1581V	0805	3	\$0.01	39
Panasonic	ERJ-6ENF1582V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF1621V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF1622V	0805	4	\$0.01	52
Panasonic	ERJ-6ENF1692V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF1781V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF1963V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF2003V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF2262V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF2372V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF3091V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF3651V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF3923V	0805	2	\$0.01	26
Panasonic	ERJ-6ENF4991V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF4992V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF5112V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF5763V	0805	1	\$0.01	13
Panasonic	ERJ-6ENF7682V	0805	1	\$0.01	13
MuRata	GRM1885C1H202JA01D	0603	1	\$0.01	10
MuRata	GRM1885C1H241JA01D	0603	1	\$0.01	10
MuRata	GRM1885C1H431JA01D	0603	1	\$0.01	10

MuRata	GRM188R71C823KA01D	0603	1	\$0.02	10
MuRata	GRM188R71E683KA01D	0603	1	\$0.01	10
MuRata	GRM2165C1H101JA01D	0805	1	\$0.01	13
MuRata	GRM2165C1H182JA01D	0805	1	\$0.02	13
National Semiconductor	LM25088MH-1	MXA16A	1	\$1.40	59
National Semiconductor	LM25574MT	MTC16	2	\$1.48	118
National Semiconductor	LM25575MH	MXA16A	2	\$1.76	118
National Semiconductor	LM27402SQ	MXA16A	1	\$1.68	59
National Semiconductor	LM2854MH-500	MXA16A	3	\$2.40	176
National Semiconductor	LM3674MF-1.2	MF05A	1	\$0.95	24
National Semiconductor	LM3674MF-1.5	MF05A	1	\$0.95	24
National Semiconductor	LM3674MF-1.8	MF05A	3	\$0.95	71
ON Semiconductor	MBR0520LT1G	SOD-123	1	\$0.06	22
Coilcraft	MSS1038-252NLB	MSS1038	1	\$0.48	151
Pulse Engineering	P0751.222NLT	P0751	2	\$0.36	341
Bourns	SDR0302-2R7ML	SDR0302	5	\$0.26	120
Bourns	SRP1040-R47M	SRP1040	1	\$0.63	172
Bourns	SRP1250-100M	SRP1250	1	\$0.67	253
Bourns	SRR1240-331K	SRR1240	1	\$0.43	210
Bourns	SRR1260-680M	SRR1260	1	\$0.43	210
Bourns	SRU1048-330Y	SRU1048	1	\$0.42	144
Total			157	\$39.27	4,684



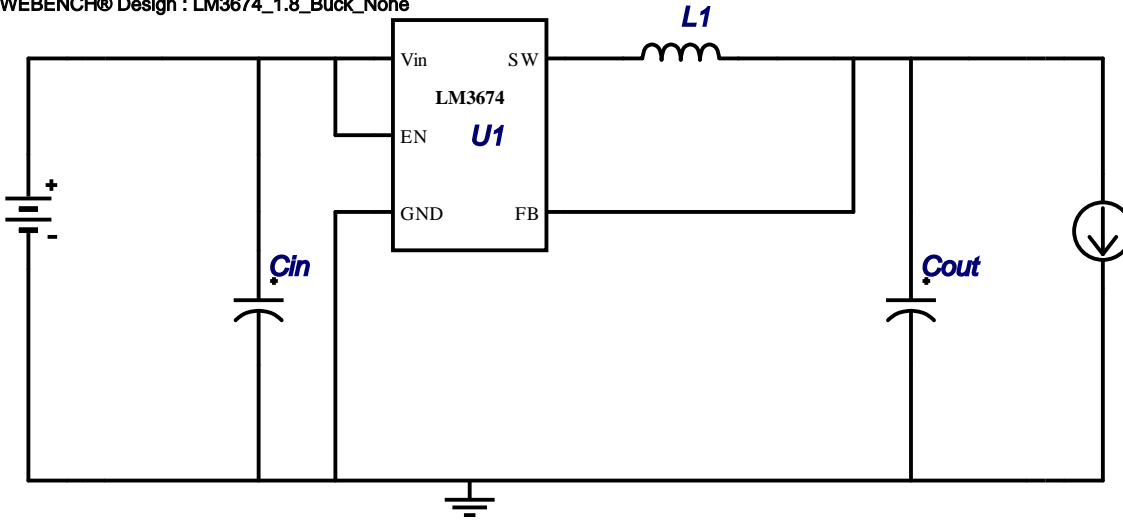
WEBENCH® Design Report

Design : 365092/133 LM3674MF-1.8
 Design 13477 - LM3674MF-1.8

VinMin = 4.5
 VinMax = 5.5
 Vout = 1.8
 Iout = 0.35

Device = LM3674MF-1.8
 Topology = Buck
 Creation date = 10/5/10 11:19:25 AM
 Total BOM Cost = \$1.30
 Total Pd = 0.07 W
 Footprint = 85.0 mm2
 BOM Count = 4

WEBENCH® Design : LM3674_1.8_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Cin	TDK	C3216X7R1C475K Series= X7R	1	\$0.04	Cap= 4.7E-6 F IRMS= 2 A VDC= 16 V	1206 19mm2
2.	Cout	TDK	C3216X5R1A106M Series= X5R	1	\$0.05	Cap= 1.0E-5 F IRMS= 2.7 A VDC= 10 V	1206 19mm2
3.	L1	Bourns	SDR0302-2R7ML	1	\$0.26	L= 2.7E-6 H DCR= 0.1 Ohm	SDR0302 24mm2
4.	U1	National Semiconductor	LM3674MF-1.8	1	\$0.95	Switcher	MF05A 24mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	0.166917478 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.06918928 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	0.469839348 A	Current	Peak switch current in IC
4.	Iin Avg	0.1269 A	Current	Average input current
5.	L Ipp	0.239678696 A	Current	Peak-to-peak inductor ripple current
6.	L1 Irms	0.356773256 A	Current	Inductor ripple current
7.	BOM Count	4.000	General	Total Design BOM count
8.	FootPrint	85.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	2000000.000 Hz	General	Switching frequency
10.	Mode	CCM	General	Conduction Mode
11.	Pout	0.630 W	General	Total output power
12.	Total BOM	\$1.3	General	Total BOM Cost
13.	Duty Cycle	34.980134069 %	Op_point	Duty cycle
14.	Efficiency	90.230 %	Op_point	Steady state efficiency
15.	IC Tj	43.833405422 degC	Op_point	IC junction temperature
16.	ICThetaJA	250.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	0.350 A	Op_point	Iout operating point

#	Name	Value	Category	Description
18.	VIN_OP	5.500 V	Op_point	Vin operating point
19.	Vout p-p	0.001497992 V	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	0.000100301 W	Power	Input capacitor power dissipation
21.	Cout Pd	0.000022021 W	Power	Output capacitor power dissipation
22.	IC Pd	0.055333622 W	Power	IC power dissipation
23.	L Pd	0.012728716 W	Power	Inductor power dissipation
24.	Total Pd	0.068189715 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	0.35 A	Maximum Output Current
3.	Iout1	0.35 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.0 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	5.5 V	Maximum input voltage
8.	VinMin	4.5 V	Minimum input voltage
9.	Vout	1.8 V	Output Voltage
10.	Vout1	1.8 Volt	Output Voltage #1
11.	base_pn	LM3674	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



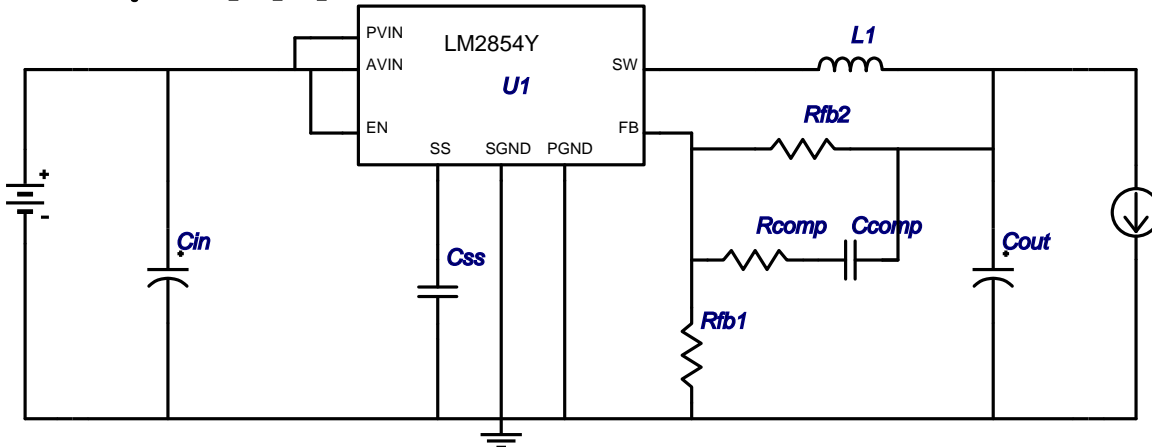
WEBENCH® Design Report

Design : 365092/134 LM2854Y
Design 13478 - LM2854Y

VinMin = 4.5
VinMax = 5.5
Vout = 1.0
Iout = 3.18

Device = LM2854Y
Topology = Buck
Creation date = 10/5/10 11:19:25 AM
Total BOM Cost = \$3.78
Total Pd = 0.62 W
Footprint = 317.0 mm2
BOM Count = 9

WEBENCH® Design : LM2854Y_none_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Ccomp	MuRata	GRM2165C1H101JA01D Series= C0G/NP0	1	\$0.01	Cap= 1.0E-10 F IRMS= 0 A VDC= 50 V	 0805 13mm2
2.	Cin	TDK	C3216X7R1C475K Series= X7R	1	\$0.04	Cap= 4.7E-6 F IRMS= 2 A VDC= 16 V	 1206 19mm2
3.	Cout	TDK	C3225X5R0J107M Series= X5R	1	\$0.81	Cap= 1.0E-4 F IRMS= 3.5 A VDC= 6.3 V	 1210 23mm2
4.	Css	Yageo America	CC0805KRX7R9BB272 Series= X7R	1	\$0.01	Cap= 2.7E-9 F IRMS= 0 A VDC= 50 V	 0805 13mm2
5.	L1	Coilcraft	MSS1038-252NLB	1	\$0.48	L= 2.5E-6 H DCR= 0 Ohm	 MSS1038 151mm2
6.	Rcomp	Panasonic	ERJ-6ENF1781V Series= 225	1	\$0.01	Resistance= 1780 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
7.	Rfb1	Panasonic	ERJ-6ENF5763V Series= 225	1	\$0.01	Resistance= 576000 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
8.	Rfb2	Panasonic	ERJ-6ENF1433V Series= 225	1	\$0.01	Resistance= 143000 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
9.	U1	National Semiconductor	LM2854MH-500	1	\$2.40	Switcher	 MXA16A 59mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	1.287203437 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.214583164 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	3.551668942 A	Current	Peak switch current in IC
4.	Iin Avg	0.6916 A	Current	Average input current
5.	L Ipp	0.743337885 A	Current	Peak-to-peak inductor ripple current
6.	M Irms	1.445003847 A	Current	Q lavg
7.	BOM Count	9.000	General	Total Design BOM count
8.	FootPrint	317.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	500000.000 Hz	General	Switching frequency
10.	M Vds Act	0.04815685 V	General	
11.	Mode	CCM	General	Conduction Mode
12.	Pout	3.180 W	General	Total output power
13.	Total BOM	\$3.78	General	Total BOM Cost
14.	Cross Freq	57543.993733716 Hz	Op_point	Bode plot crossover frequency
15.	Duty Cycle	20.64827458 %	Op_point	Duty cycle
16.	Efficiency	83.600 %	Op_point	Steady state efficiency
17.	IC Tj	47.198261293 degC	Op_point	IC junction temperature
18.	ICThetaJA	35.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
19.	IOUT_OP	3.180 A	Op_point	Iout operating point
20.	Phase Marg	62.105528216 deg	Op_point	Bode Plot Phase Margin
21.	VIN_OP	5.500 V	Op_point	Vin operating point
22.	Vout p-p	0.002379842 V	Op_point	Peak-to-peak output ripple voltage
23.	Cin Pd	0.005964814 W	Power	Input capacitor power dissipation
24.	Cout Pd	0.000092092 W	Power	Output capacitor power dissipation
25.	IC Pd	0.491378894 W	Power	IC power dissipation
26.	L Pd	0.126405 W	Power	Inductor power dissipation
27.	Total Pd	0.6238232 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	3.18 A	Maximum Output Current
3.	Iout1	3.18 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.0 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	5.5 V	Maximum input voltage
8.	VinMin	4.5 V	Minimum input voltage
9.	Vout	1.0 V	Output Voltage
10.	Vout1	1.0 Volt	Output Voltage #1
11.	base_pn	LM2854Y	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



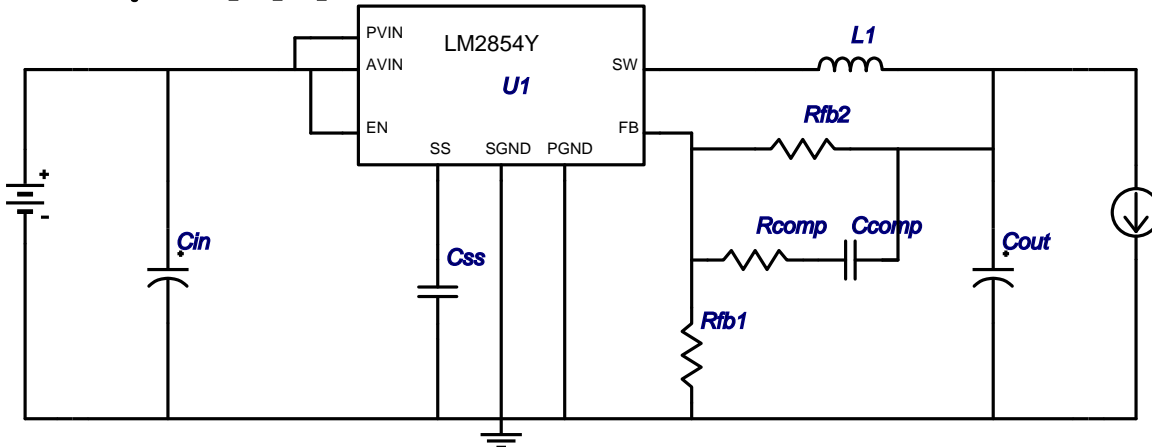
WEBENCH® Design Report

Design : 365092/135 LM2854Y
Design 13479 - LM2854Y

VinMin = 4.5
VinMax = 5.5
Vout = 1.2
Iout = 2.04

Device = LM2854Y
Topology = Buck
Creation date = 10/5/10 11:19:26 AM
Total BOM Cost = \$3.90
Total Pd = 0.32 W
Footprint = 373.0 mm2
BOM Count = 9

WEBENCH® Design : LM2854Y_none_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Ccomp	Yageo America	CC0805JRNPO9BN560 Series= C0G/NP0	1	\$0.01	Cap= 5.6E-11 F IRMS= 0 A VDC= 50 V	 0805 13mm2
2.	Cin	TDK	C3216X7R1C475K Series= X7R	1	\$0.04	Cap= 4.7E-6 F IRMS= 2 A VDC= 16 V	 1206 19mm2
3.	Cout	TDK	C5750X5R1A686M Series= X5R	1	\$1.05	Cap= 6.8E-5 F IRMS= 4.1 A VDC= 10 V	 2220 60mm2
4.	Coss	Yageo America	CC0805KRX7R9BB272 Series= X7R	1	\$0.01	Cap= 2.7E-9 F IRMS= 0 A VDC= 50 V	 0805 13mm2
5.	L1	Pulse Engineering	P0751.222NLT	1	\$0.36	L= 2.2E-6 H DCR= 0 Ohm	 P0751 170mm2
6.	Rcomp	Panasonic	ERJ-6ENF1581V Series= 225	1	\$0.01	Resistance= 1580 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
7.	Rfb1	Panasonic	ERJ-6ENF3923V Series= 225	1	\$0.01	Resistance= 392000 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
8.	Rfb2	Panasonic	ERJ-6ENF2003V Series= 225	1	\$0.01	Resistance= 200000 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
9.	U1	National Semiconductor	LM2854MH-500	1	\$2.40	Switcher	 MXA16A 59mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	0.866954939 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.266962559 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	2.502392716 A	Current	Peak switch current in IC
4.	Iin Avg	0.5037 A	Current	Average input current
5.	L Ipp	0.924785432 A	Current	Peak-to-peak inductor ripple current
6.	M Irms	0.992230956 A	Current	Q lavg
7.	BOM Count	9.000	General	Total Design BOM count
8.	FootPrint	373.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	500000.000 Hz	General	Switching frequency
10.	M Vds Act	0.03059571 V	General	
11.	Mode	CCM	General	Conduction Mode
12.	Pout	2.448 W	General	Total output power
13.	Total BOM	\$3.9	General	Total BOM Cost
14.	Cross Freq	57543.993733716 Hz	Op_point	Bode plot crossover frequency
15.	Duty Cycle	23.657301751 %	Op_point	Duty cycle
16.	Efficiency	88.360 %	Op_point	Steady state efficiency
17.	IC Tj	38.457130702 degC	Op_point	IC junction temperature
18.	ICThetaJA	35.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
19.	IOUT_OP	2.040 A	Op_point	Iout operating point
20.	Phase Marg	58.430133358 deg	Op_point	Bode Plot Phase Margin
21.	VIN_OP	5.500 V	Op_point	Vin operating point
22.	Vout p-p	0.003672043 V	Op_point	Peak-to-peak output ripple voltage
23.	Cin Pd	0.002705799 W	Power	Input capacitor power dissipation
24.	Cout Pd	0.000106904 W	Power	Output capacitor power dissipation
25.	IC Pd	0.241632306 W	Power	IC power dissipation
26.	L Pd	0.07803 W	Power	Inductor power dissipation
27.	Total Pd	0.32246874 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	2.04 A	Maximum Output Current
3.	Iout1	2.04 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.0 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	5.5 V	Maximum input voltage
8.	VinMin	4.5 V	Minimum input voltage
9.	Vout	1.2 V	Output Voltage
10.	Vout1	1.2 Volt	Output Voltage #1
11.	base_pn	LM2854Y	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



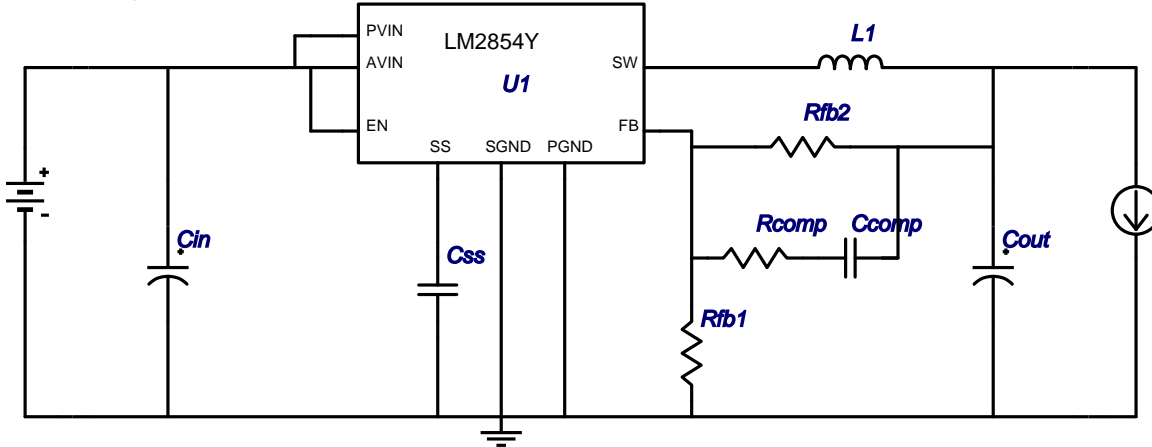
WEBENCH® Design Report

Design : 365092/136 LM2854Y
Design 13480 - LM2854Y

VinMin = 4.5
VinMax = 5.5
Vout = 1.2
Iout = 2.14

Device = LM2854Y
Topology = Buck
Creation date = 10/5/10 11:19:27 AM
Total BOM Cost = \$3.90
Total Pd = 0.35 W
Footprint = 373.0 mm2
BOM Count = 9

WEBENCH® Design : LM2854Y_none_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Ccomp	Yageo America	CC0805JRNPO9BN560 Series= C0G/NP0	1	\$0.01	Cap= 5.6E-11 F IRMS= 0 A VDC= 50 V	 0805 13mm2
2.	Cin	TDK	C3216X7R1C475K Series= X7R	1	\$0.04	Cap= 4.7E-6 F IRMS= 2 A VDC= 16 V	 1206 19mm2
3.	Cout	TDK	C5750X5R1A686M Series= X5R	1	\$1.05	Cap= 6.8E-5 F IRMS= 4.1 A VDC= 10 V	 2220 60mm2
4.	Css	Yageo America	CC0805JRNPO9BN121 Series= C0G/NP0	1	\$0.01	Cap= 1.2E-10 F IRMS= 0 A VDC= 50 V	 0805 13mm2
5.	L1	Pulse Engineering	P0751.222NLT	1	\$0.36	L= 2.2E-6 H DCR= 0 Ohm	 P0751 170mm2
6.	Rcomp	Panasonic	ERJ-6ENF1581V Series= 225	1	\$0.01	Resistance= 1580 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
7.	Rfb1	Panasonic	ERJ-6ENF3923V Series= 225	1	\$0.01	Resistance= 392000 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
8.	Rfb2	Panasonic	ERJ-6ENF1963V Series= 225	1	\$0.01	Resistance= 196000 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
9.	U1	National Semiconductor	LM2854MH-500	1	\$2.40	Switcher	 MXA16A 59mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	0.908670034 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.267745725 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	2.599749199 A	Current	Peak switch current in IC
4.	Iin Avg	0.5292 A	Current	Average input current
5.	L Ipp	0.927498397 A	Current	Peak-to-peak inductor ripple current
6.	M Irms	1.040446964 A	Current	Q lavg
7.	BOM Count	9.000	General	Total Design BOM count
8.	FootPrint	373.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	500000.000 Hz	General	Switching frequency
10.	M Vds Act	0.032260692 V	General	
11.	Mode	CCM	General	Conduction Mode
12.	Pout	2.5632 W	General	Total output power
13.	Total BOM	\$3.9	General	Total BOM Cost
14.	Cross Freq	57543.993733716 Hz	Op_point	Bode plot crossover frequency
15.	Duty Cycle	23.726703188 %	Op_point	Duty cycle
16.	Efficiency	88.060 %	Op_point	Steady state efficiency
17.	IC Tj	39.058203826 degC	Op_point	IC junction temperature
18.	ICThetaJA	35.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
19.	IOUT_OP	2.136 A	Op_point	Iout operating point
20.	Phase Marg	58.389614224 deg	Op_point	Bode Plot Phase Margin
21.	VIN_OP	5.500 V	Op_point	Vin operating point
22.	Vout p-p	0.003682815 V	Op_point	Peak-to-peak output ripple voltage
23.	Cin Pd	0.002972452 W	Power	Input capacitor power dissipation
24.	Cout Pd	0.000107532 W	Power	Output capacitor power dissipation
25.	IC Pd	0.258805824 W	Power	IC power dissipation
26.	L Pd	0.0855468 W	Power	Inductor power dissipation
27.	Total Pd	0.34752564 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	2.136 A	Maximum Output Current
3.	Iout1	2.136 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.05 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	5.5 V	Maximum input voltage
8.	VinMin	4.5 V	Minimum input voltage
9.	Vout	1.2 V	Output Voltage
10.	Vout1	1.2 Volt	Output Voltage #1
11.	base_pn	LM2854Y	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



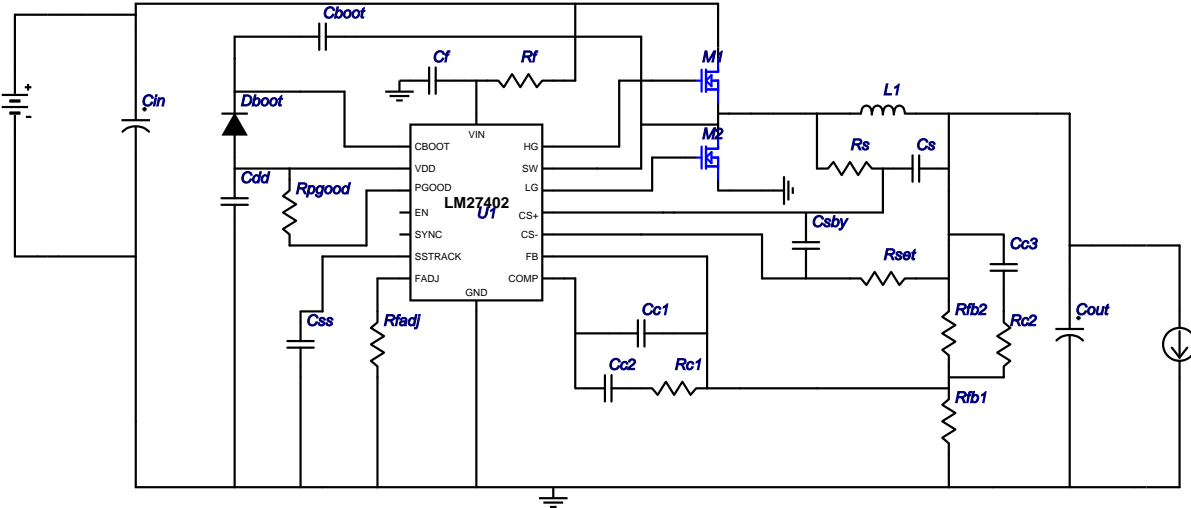
WEBENCH® Design Report

Design : 365092/137 LM27402
Design 13481 - LM27402

VinMin = 4.5
VinMax = 5.5
Vout = 1.0
Iout = 15.0

Device = LM27402
Topology = Buck
Creation date = 10/5/10 11:19:29 AM
Total BOM Cost = \$7.49
Total Pd = 3.57 W
Footprint = 979.0 mm2
BOM Count = 30

WEBENCH® Design : LM27402_none_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Cboot	Yageo America	CC1206KRX7R9BB104 Series= X7R	1	\$0.01	Cap= 1.0E-7 F IRMS= 0 A VDC= 50 V	 1206 19mm2
2.	Cc1	MuRata	GRM2165C1H182JA01D Series= C0G/NP0	1	\$0.02	Cap= 1.8E-9 F IRMS= 0 A VDC= 50 V	 0805 13mm2
3.	Cc2	Yageo America	CC0805JRNP09BN560 Series= C0G/NP0	1	\$0.01	Cap= 5.6E-11 F IRMS= 0 A VDC= 50 V	 0805 13mm2
4.	Cc3	Yageo America	CC0805KRX7R9BB272 Series= X7R	1	\$0.01	Cap= 2.7E-9 F IRMS= 0 A VDC= 50 V	 0805 13mm2
5.	Cdd	Yageo America	CC1206KKX7R7BB105 Series= X7R	1	\$0.05	Cap= 1.0E-6 F IRMS= 0 A VDC= 16 V	 1206 19mm2
6.	Cf	TDK	C1608Y5V1C105Z Series= Y5V	1	\$0.01	Cap= 1.0E-6 F IRMS= 0 A VDC= 16 V	 0603 10mm2
7.	Cin	TDK	C3225X5R1C226M Series= X5R	2	\$0.23	Cap= 2.2E-5 F IRMS= 3.5 A VDC= 16 V	 1210 23mm2
8.	Cout	Panasonic	EEF-UD0D471LR Series= UD	4	\$0.87	Cap= 4.7E-4 F IRMS= 3.4 A VDC= 2 V	 CAPSMT_6_UD 59mm2
9.	Cs	TDK	C1005X5R0J224M Series= X5R	1	\$0.01	Cap= 2.2E-7 F IRMS= 0 A VDC= 6.3 V	 0402 8mm2
10.	Csby	Kemet	C0805C101J5GACTU Series= C0G/NP0	1	\$0.01	Cap= 1.0E-10 F IRMS= 0.5 A VDC= 50 V	 0805 13mm2
11.	Dboot	ON Semiconductor	MBR0520LT1G	1	\$0.06	Diode	

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
12.	L1	Bourns	SRP1040-R47M	1	\$0.63	L= 4.7E-7 H DCR= 0 Ohm	SOD-123 22mm2  SRP1040 172mm2
13.	M1	Infineon Technologies	BSC120N03MS G	2	\$0.24	VdsMax= 30 V IdsMax= 78 Amps	 PG-TDSON-8 55mm2
14.	M2	Infineon Technologies	BSC120N03MS G	2	\$0.24	VdsMax= 30 V IdsMax= 78 Amps	 PG-TDSON-8 55mm2
15.	Rc1	Panasonic	ERJ-6ENF1432V Series= 225	1	\$0.01	Resistance= 14300 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
16.	Rc2	Panasonic	ERJ-6ENF1581V Series= 225	1	\$0.01	Resistance= 1580 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
17.	Rf	Vishay-Dale	CRCW08051R00FNFA Series= CRCW..e3	1	\$0.01	Resistance= 1 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
18.	Rfadj	Panasonic	ERJ-6ENF2372V Series= 225	1	\$0.01	Resistance= 23700 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
19.	Rfb1	Panasonic	ERJ-6ENF1502V Series= 225	1	\$0.01	Resistance= 15000 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
20.	Rfb2	Panasonic	ERJ-6ENF1002V Series= 225	1	\$0.01	Resistance= 10000 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
21.	Rpgood	Panasonic	ERJ-6ENF5112V Series= 225	1	\$0.01	Resistance= 51100 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
22.	Rs	Panasonic	ERJ-6ENF1331V Series= 225	1	\$0.01	Resistance= 1330 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
23.	Rset	Panasonic	ERJ-6ENF3091V Series= 225	1	\$0.01	Resistance= 3090 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
24.	U1	National Semiconductor	LM27402SQ	1	\$1.68	Switcher	 TSSOP_EXP_PAD-16 59mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	5.995415963 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	1.23019117 A	Current	Output capacitor RMS ripple current
3.	I lim	19.482148896 A	Current	Current limit threshold
4.	Iin Avg	3.377 A	Current	Average input current
5.	L Ipp	4.261507219 A	Current	Peak-to-peak inductor ripple current
6.	SW Ipk	17.13075361 A	Current	Peak switch current
7.	BOM Count	30.000	General	Total Design BOM count
8.	FootPrint	979.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	448432.055749129 Hz	General	Switching frequency
10.	Mode	CCM	General	Conduction Mode
11.	Pout	15.000 W	General	Total output power
12.	Total BOM	\$7.49	General	Total BOM Cost
13.	Cross Freq	46575.694290937 Hz	Op_point	Bode plot crossover frequency
14.	Duty Cycle	19.959296182 %	Op_point	Duty cycle
15.	Efficiency	80.760 %	Op_point	Steady state efficiency
16.	IC Tj	42.705448585 degC	Op_point	IC junction temperature
17.	IOUT_OP	15.000 A	Op_point	Iout operating point

#	Name	Value	Category	Description
18.	M1 Tj	42.864943842 degC	Op_point	M1 MOSFET junction temperature
19.	M2 Tj	74.580469808 degC	Op_point	M2 MOSFET junction temperature
20.	Phase Marg	69.224366224 deg	Op_point	Bode Plot Phase Margin
21.	Vin_OP	5.500 V	Op_point	Vin operating point
22.	Vout p-p	0.009609188 V	Op_point	Peak-to-peak output ripple voltage
23.	Cin Pd	0.035945013 W	Power	Input capacitor power dissipation
24.	Cout Pd	0.003405083 W	Power	Output capacitor power dissipation
25.	IC Pd	0.317636215 W	Power	IC power dissipation
26.	L Pd	0.450 W	Power	Inductor power dissipation
27.	M1 Pd	0.546501403 W	Power	M1 MOSFET total power dissipation
28.	M1 PdCond	0.371422264 W	Power	M1 MOSFET conduction losses
29.	M1 PdSw	0.175079139 W	Power	M1 MOSFET switching losses
30.	M2 Pd	2.221206787 W	Power	M2 MOSFET total power dissipation
31.	M2 PdCond	1.978643314 W	Power	M2 MOSFET conduction losses
32.	M2 PdSw	0.242563473 W	Power	M2 MOSFET switching losses
33.	Total Pd	3.5735414 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	15.0 A	Maximum Output Current
3.	Iout1	15.0 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.2 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	5.5 V	Maximum input voltage
8.	VinMin	4.5 V	Minimum input voltage
9.	Vout	1.0 V	Output Voltage
10.	Vout1	1.0 Volt	Output Voltage #1
11.	base_pn	LM27402	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



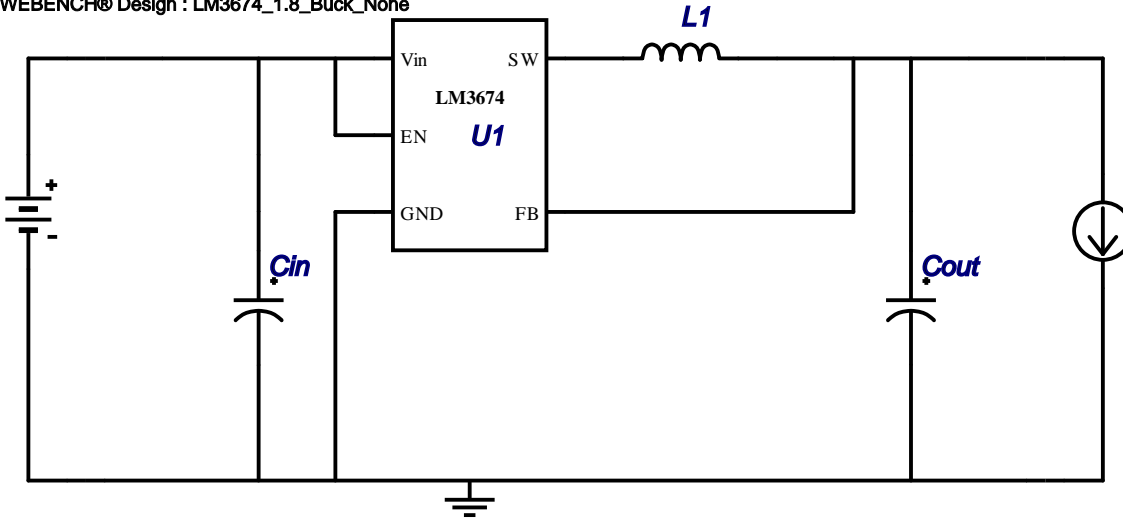
WEBENCH® Design Report

Design : 365092/138 LM3674MF-1.8
 Design 13482 - LM3674MF-1.8

VinMin = 4.5
 VinMax = 5.5
 Vout = 1.8
 Iout = 0.25

Device = LM3674MF-1.8
 Topology = Buck
 Creation date = 10/5/10 11:19:30 AM
 Total BOM Cost = \$1.30
 Total Pd = 0.04 W
 Footprint = 85.0 mm2
 BOM Count = 4

WEBENCH® Design : LM3674_1.8_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Cin	TDK	C3216X7R1C475K Series= X7R	1	\$0.04	Cap= 4.7E-6 F IRMS= 2 A VDC= 16 V	1206 19mm2
2.	Cout	TDK	C3216X5R1A106M Series= X5R	1	\$0.05	Cap= 1.0E-5 F IRMS= 2.7 A VDC= 10 V	1206 19mm2
3.	L1	Bourns	SDR0302-2R7ML	1	\$0.26	L= 2.7E-6 H DCR= 0.1 Ohm	SDR0302 24mm2
4.	U1	National Semiconductor	LM3674MF-1.8	1	\$0.95	Switcher	MF05A 24mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	0.118706204 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.067911859 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	0.367626791 A	Current	Peak switch current in IC
4.	Iin Avg	0.08922 A	Current	Average input current
5.	L Ipp	0.235253581 A	Current	Peak-to-peak inductor ripple current
6.	L1 Irms	0.259059878 A	Current	Inductor ripple current
7.	BOM Count	4.000	General	Total Design BOM count
8.	FootPrint	85.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	2000000.000 Hz	General	Switching frequency
10.	Mode	CCM	General	Conduction Mode
11.	Pout	0.450 W	General	Total output power
12.	Total BOM	\$1.3	General	Total BOM Cost
13.	Duty Cycle	34.334306484 %	Op_point	Duty cycle
14.	Efficiency	91.710 %	Op_point	Steady state efficiency
15.	IC Tj	38.479020598 degC	Op_point	IC junction temperature
16.	ICThetaJA	250.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	0.250 A	Op_point	Iout operating point

#	Name	Value	Category	Description
18.	VIN_OP	5.500 V	Op_point	Vin operating point
19.	Vout p-p	0.001470335 V	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	0.000050728 W	Power	Input capacitor power dissipation
21.	Cout Pd	0.000021215 W	Power	Output capacitor power dissipation
22.	IC Pd	0.033916082 W	Power	IC power dissipation
23.	L Pd	0.006711202 W	Power	Inductor power dissipation
24.	Total Pd	0.040679859 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	0.25 A	Maximum Output Current
3.	Iout1	0.25 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.05 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	5.5 V	Maximum input voltage
8.	VinMin	4.5 V	Minimum input voltage
9.	Vout	1.8 V	Output Voltage
10.	Vout1	1.8 Volt	Output Voltage #1
11.	base_pn	LM3674	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



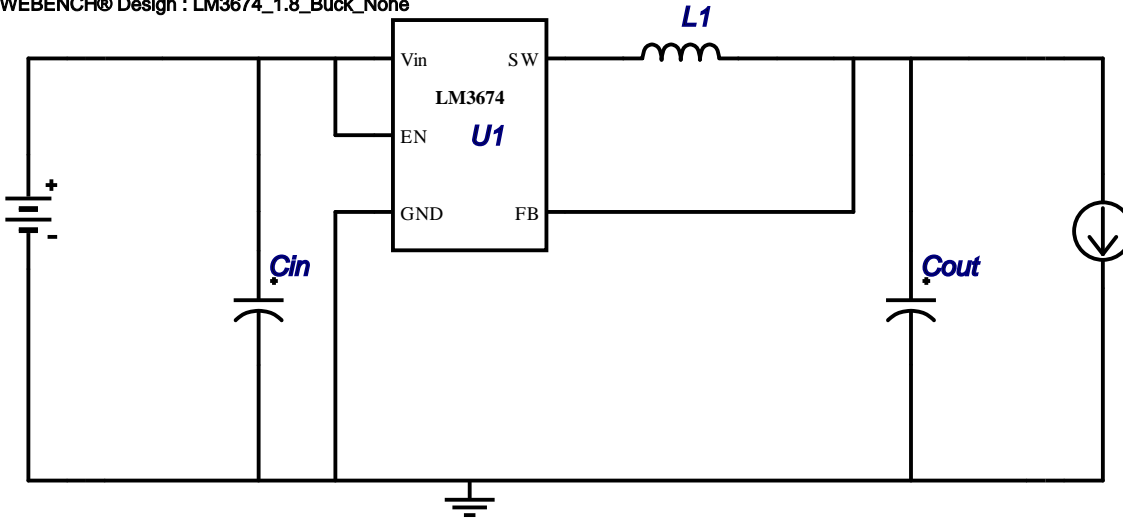
WEBENCH® Design Report

Design : 365092/139 LM3674MF-1.8
 Design 13483 - LM3674MF-1.8

VinMin = 4.5
 VinMax = 5.5
 Vout = 1.8
 Iout = 0.6

Device = LM3674MF-1.8
 Topology = Buck
 Creation date = 10/5/10 11:19:31 AM
 Total BOM Cost = \$1.30
 Total Pd = 0.17 W
 Footprint = 85.0 mm2
 BOM Count = 4

WEBENCH® Design : LM3674_1.8_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Cin	TDK	C3216X7R1C475K Series= X7R	1	\$0.04	Cap= 4.7E-6 F IRMS= 2 A VDC= 16 V	1206 19mm2
2.	Cout	TDK	C3216X5R1A106M Series= X5R	1	\$0.05	Cap= 1.0E-5 F IRMS= 2.7 A VDC= 10 V	1206 19mm2
3.	L1	Bourns	SDR0302-2R7ML	1	\$0.26	L= 2.7E-6 H DCR= 0.1 Ohm	SDR0302 24mm2
4.	U1	National Semiconductor	LM3674MF-1.8	1	\$0.95	Switcher	MF05A 24mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	0.28902951 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.072397856 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	0.725396765 A	Current	Peak switch current in IC
4.	Iin Avg	0.227 A	Current	Average input current
5.	L Ipp	0.25079353 A	Current	Peak-to-peak inductor ripple current
6.	L1 Irms	0.604352091 A	Current	Inductor ripple current
7.	BOM Count	4.000	General	Total Design BOM count
8.	FootPrint	85.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	2000000.000 Hz	General	Switching frequency
10.	Mode	CCM	General	Conduction Mode
11.	Pout	1.080 W	General	Total output power
12.	Total BOM	\$1.3	General	Total BOM Cost
13.	Duty Cycle	36.602299005 %	Op_point	Duty cycle
14.	Efficiency	86.520 %	Op_point	Steady state efficiency
15.	IC Tj	62.865885915 degC	Op_point	IC junction temperature
16.	ICThetaJA	250.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	0.600 A	Op_point	Iout operating point

#	Name	Value	Category	Description
18.	VIN_OP	5.500 V	Op_point	Vin operating point
19.	Vout p-p	0.00156746 V	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	0.000300737 W	Power	Input capacitor power dissipation
21.	Cout Pd	0.000024111 W	Power	Output capacitor power dissipation
22.	IC Pd	0.131463544 W	Power	IC power dissipation
23.	L Pd	0.036524145 W	Power	Inductor power dissipation
24.	Total Pd	0.1682978 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	0.6 A	Maximum Output Current
3.	Iout1	0.6 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.2 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	5.5 V	Maximum input voltage
8.	VinMin	4.5 V	Minimum input voltage
9.	Vout	1.8 V	Output Voltage
10.	Vout1	1.8 Volt	Output Voltage #1
11.	base_pn	LM3674	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



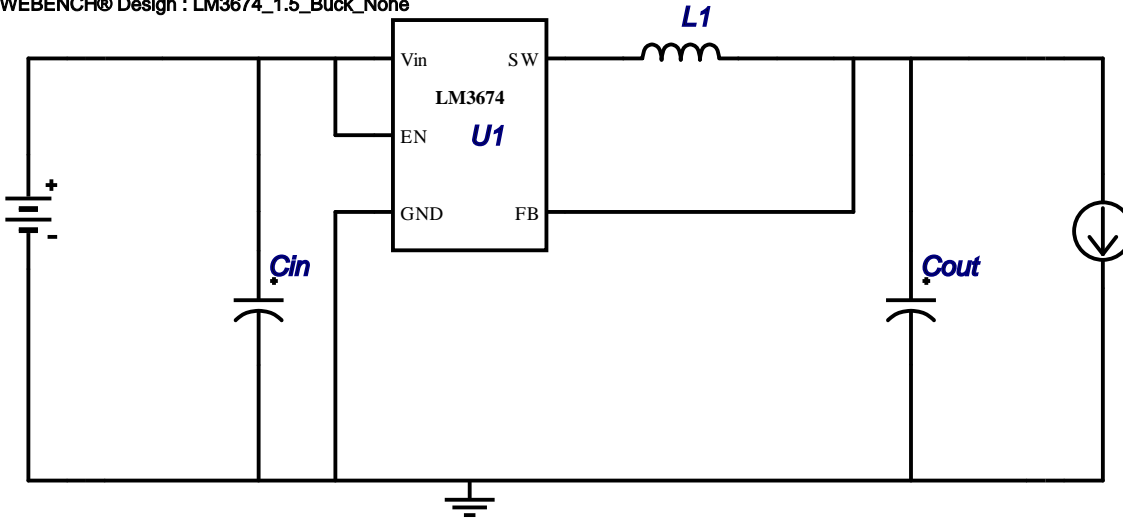
WEBENCH® Design Report

Design : 365092/140 LM3674MF-1.5
 Design 13484 - LM3674MF-1.5

VinMin = 4.5
 VinMax = 5.5
 Vout = 1.5
 Iout = 0.3

Device = LM3674MF-1.5
 Topology = Buck
 Creation date = 10/5/10 11:19:32 AM
 Total BOM Cost = \$1.30
 Total Pd = 0.05 W
 Footprint = 85.0 mm2
 BOM Count = 4

WEBENCH® Design : LM3674_1.5_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Cin	TDK	C3216X7R1C475K Series= X7R	1	\$0.04	Cap= 4.7E-6 F IRMS= 2 A VDC= 16 V	1206 19mm2
2.	Cout	TDK	C3216X5R1A106M Series= X5R	1	\$0.05	Cap= 1.0E-5 F IRMS= 2.7 A VDC= 10 V	1206 19mm2
3.	L1	Bourns	SDR0302-2R7ML	1	\$0.26	L= 2.7E-6 H DCR= 0.1 Ohm	SDR0302 24mm2
4.	U1	National Semiconductor	LM3674MF-1.5	1	\$0.95	Switcher	MF05A 24mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	0.136377986 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.062397775 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	0.408076116 A	Current	Peak switch current in IC
4.	Iin Avg	0.09143 A	Current	Average input current
5.	L Ipp	0.216152232 A	Current	Peak-to-peak inductor ripple current
6.	L1 Irms	0.306420434 A	Current	Inductor ripple current
7.	BOM Count	4.000	General	Total Design BOM count
8.	FootPrint	85.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	2000000.000 Hz	General	Switching frequency
10.	Mode	CCM	General	Conduction Mode
11.	Pout	0.450 W	General	Total output power
12.	Total BOM	\$1.3	General	Total BOM Cost
13.	Duty Cycle	29.180551261 %	Op_point	Duty cycle
14.	Efficiency	89.490 %	Op_point	Steady state efficiency
15.	IC Tj	40.850391075 degC	Op_point	IC junction temperature
16.	ICThetaJA	250.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	0.300 A	Op_point	Iout operating point

#	Name	Value	Category	Description
18.	VIN_OP	5.500 V	Op_point	Vin operating point
19.	Vout p-p	0.001350951 V	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	0.000066956 W	Power	Input capacitor power dissipation
21.	Cout Pd	0.00001791 W	Power	Output capacitor power dissipation
22.	IC Pd	0.043401564 W	Power	IC power dissipation
23.	L Pd	0.009389348 W	Power	Inductor power dissipation
24.	Total Pd	0.052851112 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	0.3 A	Maximum Output Current
3.	Iout1	0.3 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.2 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	5.5 V	Maximum input voltage
8.	VinMin	4.5 V	Minimum input voltage
9.	Vout	1.5 V	Output Voltage
10.	Vout1	1.5 Volt	Output Voltage #1
11.	base_pn	LM3674	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



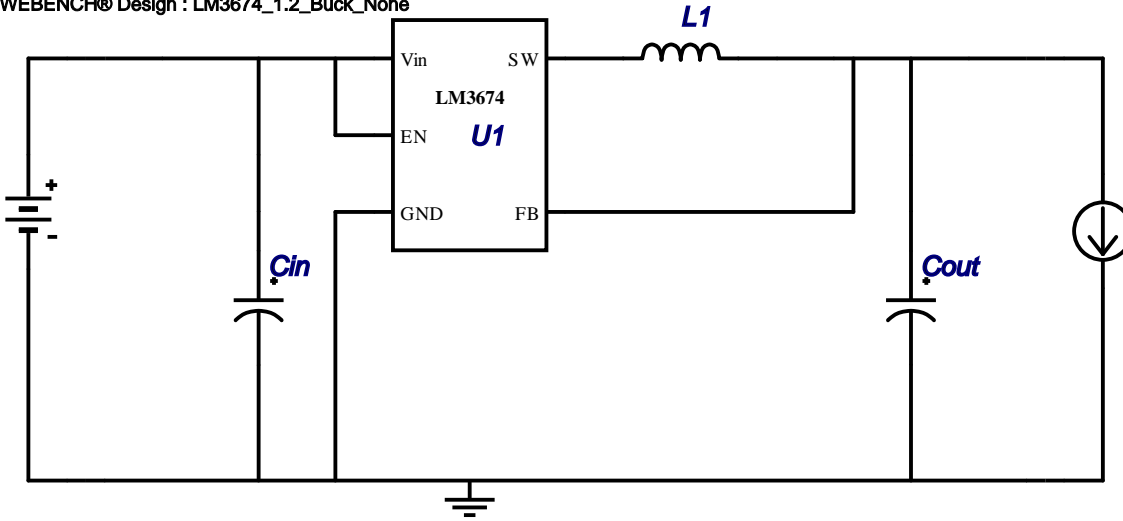
WEBENCH® Design Report

Design : 365092/141 LM3674MF-1.2
 Design 13485 - LM3674MF-1.2

VinMin = 4.5
 VinMax = 5.5
 Vout = 1.2
 Iout = 0.3

Device = LM3674MF-1.2
 Topology = Buck
 Creation date = 10/5/10 11:19:33 AM
 Total BOM Cost = \$1.30
 Total Pd = 0.05 W
 Footprint = 85.0 mm2
 BOM Count = 4

WEBENCH® Design : LM3674_1.2_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Cin	TDK	C3216X7R1C475K Series= X7R	1	\$0.04	Cap= 4.7E-6 F IRMS= 2 A VDC= 16 V	1206 19mm2
2.	Cout	TDK	C3216X5R1A106M Series= X5R	1	\$0.05	Cap= 1.0E-5 F IRMS= 2.7 A VDC= 10 V	1206 19mm2
3.	L1	Bourns	SDR0302-2R7ML	1	\$0.26	L= 2.7E-6 H DCR= 0.1 Ohm	SDR0302 24mm2
4.	U1	National Semiconductor	LM3674MF-1.2	1	\$0.95	Switcher	MF05A 24mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	0.127580289 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.054488834 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	0.394377429 A	Current	Peak switch current in IC
4.	Iin Avg	0.07494 A	Current	Average input current
5.	L Ipp	0.188754858 A	Current	Peak-to-peak inductor ripple current
6.	L1 Irms	0.304908237 A	Current	Inductor ripple current
7.	BOM Count	4.000	General	Total Design BOM count
8.	FootPrint	85.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	2000000.000 Hz	General	Switching frequency
10.	Mode	CCM	General	Conduction Mode
11.	Pout	0.360 W	General	Total output power
12.	Total BOM	\$1.3	General	Total BOM Cost
13.	Duty Cycle	23.704098401 %	Op_point	Duty cycle
14.	Efficiency	87.340 %	Op_point	Steady state efficiency
15.	IC Tj	40.699317456 degC	Op_point	IC junction temperature
16.	ICThetaJA	250.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	0.300 A	Op_point	Iout operating point

#	Name	Value	Category	Description
18.	VIN_OP	5.500 V	Op_point	Vin operating point
19.	Vout p-p	0.001179718 V	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	0.000058596 W	Power	Input capacitor power dissipation
21.	Cout Pd	0.000013658 W	Power	Output capacitor power dissipation
22.	IC Pd	0.04279727 W	Power	IC power dissipation
23.	L Pd	0.009296903 W	Power	Inductor power dissipation
24.	Total Pd	0.052180722 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	0.3 A	Maximum Output Current
3.	Iout1	0.3 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.2 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	5.5 V	Maximum input voltage
8.	VinMin	4.5 V	Minimum input voltage
9.	Vout	1.2 V	Output Voltage
10.	Vout1	1.2 Volt	Output Voltage #1
11.	base_pn	LM3674	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



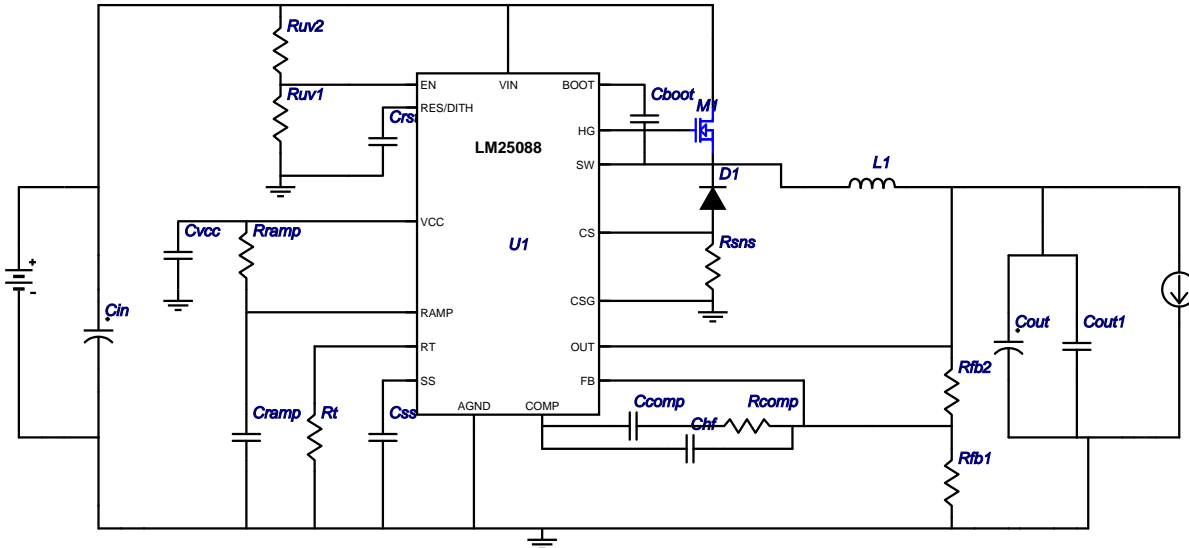
WEBENCH® Design Report

Design : 365092/142 LM25088MH-1
 Design 13486 - LM25088MH-1

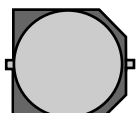

VinMin = 22.0
 VinMax = 26.0
 Vout = 5.0
 Iout = 5.76

Device = LM25088MH-1
 Topology = Buck
 Creation date = 10/5/10 11:19:33 AM
 Total BOM Cost = \$4.03
 Total Pd = 5.07 W
 Footprint = 913.0 mm2
 BOM Count = 24

WEBENCH® Design : LM25088_none_Buck_RESTART



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Cboot	MuRata	GRM188R71C823KA01D Series= X7R	1	\$0.02	Cap= 8.2E-8 F IRMS= 0 A VDC= 16 V	0603 10mm2
2.	Ccomp	Kemet	C0603C102J5GACTU Series= C0G/NP0	1	\$0.01	Cap= 1.0E-9 F IRMS= 0 A VDC= 50 V	0603 10mm2
3.	Cdthr	MuRata	GRM188R71E683KA01D Series= X7R	1	\$0.01	Cap= 6.8E-8 F IRMS= 0 A VDC= 25 V	0603 10mm2
4.	Chf	MuRata	GRM1885C1H241JA01D Series= C0G/NP0	1	\$0.01	Cap= 2.4E-10 F IRMS= 0 A VDC= 50 V	0603 10mm2
5.	Cin	TDK	C3216X7R1H105K Series= X7R	2	\$0.05	Cap= 1.0E-6 F IRMS= 3.2 A VDC= 50 V	1206 19mm2
6.	Cout	Panasonic	EEE-FK1A102P Series= FK	1	\$0.28	Cap= 0.001 F IRMS= 0.8 A VDC= 10 V	 SM_RADIAL_G 172mm2
7.	Cout1	Nippon Chemi-Con	EMVA6R3ADA101ME55G Series= MVA	1	\$0.09	Cap= 1.0E-4 F IRMS= 0.1 A VDC= 6.3 V	 CAPSMT_62_E55 53mm2
8.	Cramp	MuRata	GRM1885C1H431JA01D Series= C0G/NP0	1	\$0.01	Cap= 4.3E-10 F IRMS= 0 A VDC= 50 V	0603 10mm2
9.	Crst	Kemet	C0603C225K9PACTU Series= X5R	1	\$0.02	Cap= 2.2E-6 F IRMS= 0 A VDC= 6.3 V	0603 10mm2
10.	Css	Kemet	C0603C222K5RACTU	1	\$0.01	Cap= 2.2E-9 F	0603 10mm2

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
			Series= X7R			IRMS= 0 A VDC= 50 V	0603 10mm2
11.	Cvcc	Kemet	C0603C155K9PACTU Series= X5R	1	\$0.05	Cap= 1.5E-6 F IRMS= 0 A VDC= 6.3 V	0603 10mm2
12.	D1	Vishay-Semiconductor	6CWQ04FNPBF	1	\$0.65	Diode	 DPAK 102mm2
13.	L1	Bourns	SRP1250-100M	1	\$0.67	L= 1.0E-5 H DCR= 0 Ohm	 SRP1250 253mm2
14.	M1	Infineon Technologies	BSC035N04LS G	1	\$0.52	VdsMax= 40 V IdsMax= 100 Amps	 PG-TDSON-8 55mm2
15.	Rcomp	Vishay-Dale	CRCW0603107KFKEA Series= CRCW..e3	1	\$0.01	Resistance= 107000 Ohm Power= 0.1 W Tolerance= 1 %	0603 10mm2
16.	Rfb1	Panasonic	ERJ-6ENF1621V Series= 225	1	\$0.01	Resistance= 1620 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
17.	Rfb2	Panasonic	ERJ-6ENF4991V Series= 225	1	\$0.01	Resistance= 4990 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
18.	Rramp	Vishay-Dale	CRCW06031M00FKEA Series= CRCW..e3	1	\$0.01	Resistance= 1000000 Ohm Power= 0.1 W Tolerance= 1 %	0603 10mm2
19.	Rsns	Stackpole Electronics Inc	CSR 1/2 0.012 1 I Series= ?	1	\$0.11	Resistance= 0 Ohm Power= 0.5 W Tolerance= 1 %	 1206 19mm2
20.	Rt	Vishay-Dale	CRCW060321K0FKEA Series= CRCW..e3	1	\$0.01	Resistance= 21000 Ohm Power= 0.1 W Tolerance= 1 %	0603 10mm2
21.	Ruv1	Panasonic	ERJ-6ENF3651V Series= 225	1	\$0.01	Resistance= 3650 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
22.	Ruv2	Panasonic	ERJ-6ENF4992V Series= 225	1	\$0.01	Resistance= 49900 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
23.	U1	National Semiconductor	LM25088MH-1	1	\$1.40	Switcher	 MXA16A 59mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	2.35549716 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.448518169 A	Current	Output capacitor RMS ripple current
3.	I lim	16.666666667 A	Current	Current limit threshold
4.	Iin Avg	1.302 A	Current	Average input current
5.	L Ipp	1.553712515 A	Current	Peak-to-peak inductor ripple current
6.	SW Ipk	6.532856257 A	Current	Peak switch current
7.	BOM Count	24.000	General	Total Design BOM count
8.	FootPrint	913.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	287500.000 Hz	General	Switching frequency
10.	Mode	CCM	General	Conduction Mode
11.	Pout	28.780 W	General	Total output power
12.	Total BOM	\$4.03	General	Total BOM Cost
13.	D1 Tj	111.977323193 degC	Op_Point	D1 junction temperature
14.	Duty Cycle	21.27106419 %	Op_point	Duty cycle
15.	Efficiency	85.030 %	Op_point	Steady state efficiency
16.	IC Tj	52.9424 degC	Op_point	IC junction temperature
17.	IOUT_OP	5.756 A	Op_point	Iout operating point

#	Name	Value	Category	Description
18.	M1 Tj	35.660331686 degC	Op_point	M1 MOSFET junction temperature
19.	VIN_OP	26.000 V	Op_point	Vin operating point
20.	Vout p-p	0.124298837 V	Op_point	Peak-to-peak output ripple voltage
21.	Cin Pd	0.027741834 W	Power	Input capacitor power dissipation
22.	Cout Pd	0.016093484 W	Power	Output capacitor power dissipation
23.	Diode1 Pd	3.036197155 W	Power	Diode1 power dissipation
24.	IC Pd	0.57356 W	Power	IC power dissipation
25.	L Pd	1.05606771 W	Power	Inductor power dissipation
26.	M1 Pd	0.112517256 W	Power	M1 MOSFET total power dissipation
27.	M1 PdCond	0.038573258 W	Power	M1 MOSFET conduction losses
28.	M1 PdSw	0.073943998 W	Power	M1 MOSFET switching losses
29.	Rsns Pd	0.246428866 W	Power	Current Limit Sense Resistor Power Dissipation
30.	Total Pd	5.0676444 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	5.756 A	Maximun Output Current
3.	Iout1	5.756 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.0 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	26.0 V	Maximum input voltage
8.	VinMin	22.0 V	Minimum input voltage
9.	Vout	5.0 V	Output Voltage
10.	Vout1	5.0 Volt	Output Voltage #1
11.	base_pn	LM25088	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



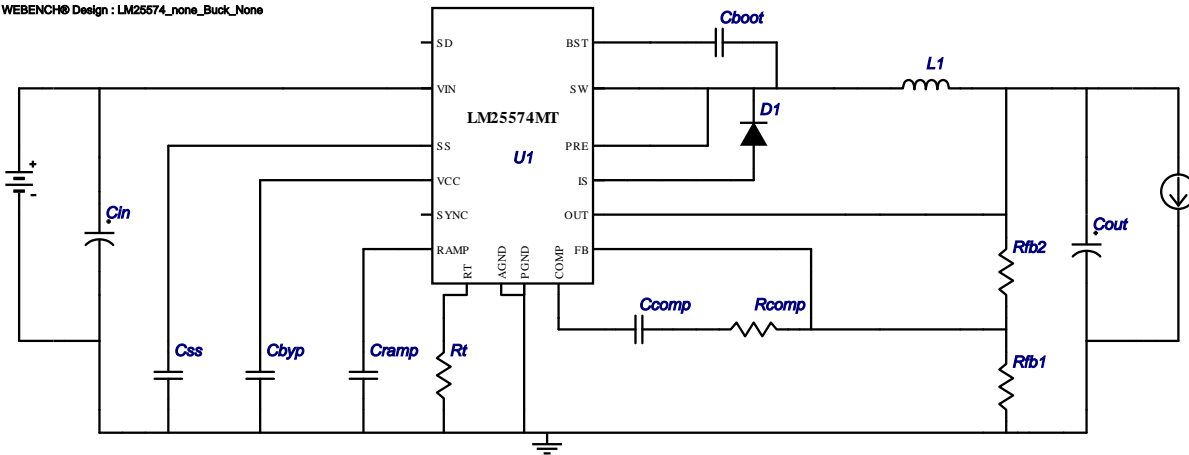
WEBENCH® Design Report

Design : 365092/143 LM25574MT
 Design 13487 - LM25574MT

VinMin = 22.0
 VinMax = 26.0
 Vout = 3.3
 Iout = 0.13

Device = LM25574MT
 Topology = Buck
 Creation date = 10/5/10 11:19:35 AM
 Total BOM Cost = \$2.16
 Total Pd = 0.17 W
 Footprint = 461.0 mm2
 BOM Count = 14

WEBENCH® Design : LM25574_none_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Cboot	Kemet	C0805C223K5RACTU Series= X7R	1	\$0.01	Cap= 2.2E-8 F IRMS= 0.6 A VDC= 50 V	 0805 13mm2
2.	Cbyp	AVX	08053C104KAT2A Series= X7R	1	\$0.01	Cap= 1.0E-7 F IRMS= 0 A VDC= 25 V	 0805 13mm2
3.	Ccomp	Yageo America	CC0805KRX7R9BB561 Series= X7R	1	\$0.01	Cap= 5.6E-10 F IRMS= 0 A VDC= 50 V	 0805 13mm2
4.	Cin	TDK	C3216X7R1H105K Series= X7R	1	\$0.05	Cap= 1.0E-6 F IRMS= 3.2 A VDC= 50 V	 1206 19mm2
5.	Cout	TDK	C3216X5R1A106M Series= X5R	1	\$0.05	Cap= 1.0E-5 F IRMS= 2.7 A VDC= 10 V	 1206 19mm2
6.	Cramp	AVX	08055C152KAT2A Series= X7R	1	\$0.01	Cap= 1.5E-9 F IRMS= 0 A VDC= 50 V	 0805 13mm2
7.	Css	Kemet	C0805C103K5RACTU Series= X7R	1	\$0.01	Cap= 1.0E-8 F IRMS= 0.4 A VDC= 50 V	 0805 13mm2
8.	D1	Diodes Inc.	B140-13-F	1	\$0.06	Diode	 SMA 37mm2
9.	L1	Bourns	SRR1240-331K	1	\$0.43	L= 3.3E-4 H DCR= 1 Ohm	 SRR1240 210mm2
10.	Rcomp	Panasonic	ERJ-6ENF7682V Series= 225	1	\$0.01	Resistance= 76800 Ohm	 0805 13mm2

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
11.	Rfb1	Panasonic	ERJ-6ENF1002V Series= 225	1	\$0.01	Power= 0.1 W Tolerance= 1 % Resistance= 10000 Ohm	 0805 13mm2
12.	Rfb2	Panasonic	ERJ-6ENF1692V Series= 225	1	\$0.01	Power= 0.1 W Tolerance= 1 % Resistance= 16900 Ohm	 0805 13mm2
13.	Rt	Panasonic	ERJ-6ENF1622V Series= 225	1	\$0.01	Power= 0.1 W Tolerance= 1 % Resistance= 16200 Ohm	 0805 13mm2
14.	U1	National Semiconductor	LM25574MT	1	\$1.48	Power= 0.1 W Tolerance= 1 % Switcher	 MTC16 59mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	0.044903177 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.007890184 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	0.143624813 A	Current	Peak switch current in IC
4.	Iin Avg	0.02291 A	Current	Average input current
5.	L Ipp	0.027332397 A	Current	Peak-to-peak inductor ripple current
6.	M Irms	0.049263093 A	Current	Q lavg
7.	BOM Count	14.000	General	Total Design BOM count
8.	FootPrint	461.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	361402.240693892 Hz	General	Switching frequency
10.	M Vds Act	0.037739138 V	General	
11.	Mode	CCM	General	Conduction Mode
12.	Pout	0.429 W	General	Total output power
13.	Total BOM	\$2.16	General	Total BOM Cost
14.	D1 Tj	43.916488123 degC	Op_Point	D1 junction temperature
15.	Duty Cycle	14.360073086 %	Op_point	Duty cycle
16.	Efficiency	72.030 %	Op_point	Steady state efficiency
17.	IC Tj	38.394118813 degC	Op_point	IC junction temperature
18.	ICThetaJA	90.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
19.	IOUT_OP	0.130 A	Op_point	Iout operating point
20.	VIN_OP	26.000 V	Op_point	Vin operating point
21.	Vout p-p	0.000953683 V	Op_point	Peak-to-peak output ripple voltage
22.	Cin Pd	0.000020163 W	Power	Input capacitor power dissipation
23.	Cout Pd	0.000000286 W	Power	Output capacitor power dissipation
24.	Diode Pd	0.055665952 W	Power	Diode power dissipation
25.	IC Pd	0.093267987 W	Power	IC power dissipation
26.	L Pd	0.0176605 W	Power	Inductor power dissipation
27.	Total Pd	0.166606102 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	0.13 A	Maximun Output Current
3.	Iout1	0.13 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.0 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	26.0 V	Maximum input voltage
8.	VinMin	22.0 V	Minimum input voltage
9.	Vout	3.3 V	Output Voltage
10.	Vout1	3.3 Volt	Output Voltage #1
11.	base_pn	LM25574	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



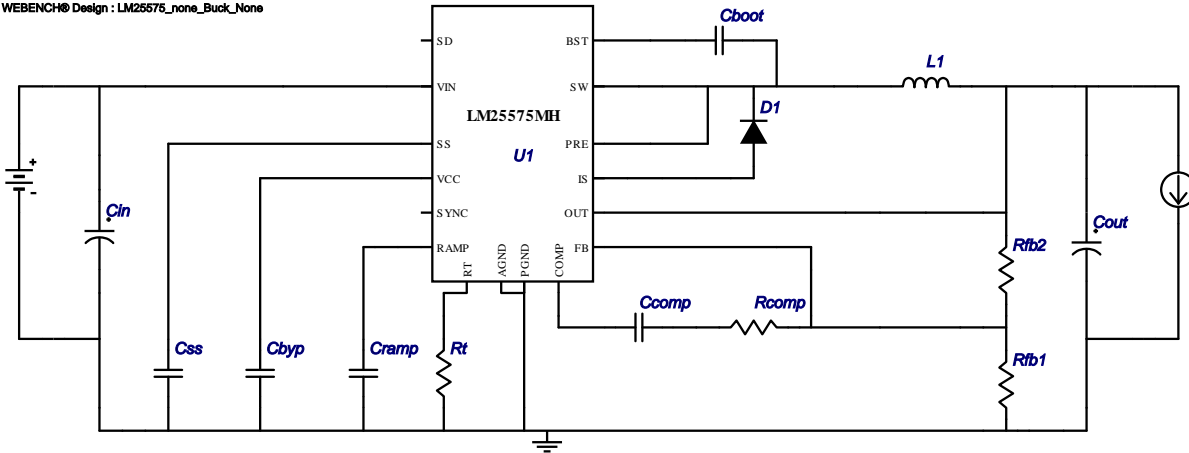
WEBENCH® Design Report

Design : 365092/144 LM25575MH
 Design 13488 - LM25575MH

VinMin = 22.0
 VinMax = 26.0
 Vout = 2.5
 Iout = 0.85

Device = LM25575MH
 Topology = Buck
 Creation date = 10/5/10 11:19:36 AM
 Total BOM Cost = \$2.66
 Total Pd = 0.56 W
 Footprint = 395.0 mm2
 BOM Count = 14

WEBENCH® Design : LM25575_none_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Cboot	Kemet	C0805C223K5RACTU Series= X7R	1	\$0.01	Cap= 2.2E-8 F IRMS= 0.6 A VDC= 50 V	 0805 13mm2
2.	Cbyp	AVX	08053C104KAT2A Series= X7R	1	\$0.01	Cap= 1.0E-7 F IRMS= 0 A VDC= 25 V	 0805 13mm2
3.	Ccomp	Kemet	C0805C392K5RACTU Series= X7R	1	\$0.01	Cap= 3.9E-9 F IRMS= 0.4 A VDC= 50 V	 0805 13mm2
4.	Cin	TDK	C3216X7R1H105K Series= X7R	1	\$0.05	Cap= 1.0E-6 F IRMS= 3.2 A VDC= 50 V	 1206 19mm2
5.	Cout	TDK	C3216X5R0J476M Series= X5R	1	\$0.25	Cap= 4.7E-5 F IRMS= 4.1 A VDC= 6.3 V	 1206 19mm2
6.	Cramp	Kemet	C0805C331K5RACTU Series= X7R	1	\$0.01	Cap= 3.3E-10 F IRMS= 0.2 A VDC= 50 V	 0805 13mm2
7.	Css	Yageo America	CC0805KRX7R9BB391 Series= X7R	1	\$0.01	Cap= 3.9E-10 F IRMS= 0 A VDC= 50 V	 0805 13mm2
8.	D1	Diodes Inc.	B240A-13-F	1	\$0.09	Diode	 SMA 37mm2
9.	L1	Bourns	SRU1048-330Y	1	\$0.42	L= 3.3E-5 H DCR= 0.1 Ohm	 SRU1048 144mm2
10.	Rcomp	Panasonic	ERJ-6ENF1132V Series= 225	1	\$0.01	Resistance= 11300 Ohm Power= 0.1 W	 0805 13mm2

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
11.	Rfb1	Panasonic	ERJ-6ENF1021V Series= 225	1	\$0.01	Tolerance= 1 % Resistance= 1020 Ohm Power= 0.1 W	 0805 13mm2
12.	Rfb2	Panasonic	ERJ-6ENF1051V Series= 225	1	\$0.01	Tolerance= 1 % Resistance= 1050 Ohm Power= 0.1 W	 0805 13mm2
13.	Rt	Panasonic	ERJ-6ENF1622V Series= 225	1	\$0.01	Tolerance= 1 % Resistance= 16200 Ohm Power= 0.1 W	 0805 13mm2
14.	U1	National Semiconductor	LM25575MH	1	\$1.76	Switcher	 MXA16A 59mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	0.266675861 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.064648932 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	0.96163614 A	Current	Peak switch current in IC
4.	Iin Avg	0.1034 A	Current	Average input current
5.	L Ipp	0.223950469 A	Current	Peak-to-peak inductor ripple current
6.	M Irms	0.286558552 A	Current	Q Iavg
7.	BOM Count	14.000	General	Total Design BOM count
8.	FootPrint	395.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	361402.240693892 Hz	General	Switching frequency
10.	M Vds Act	0.1043501 V	General	
11.	Mode	CCM	General	Conduction Mode
12.	Pout	2.125 W	General	Total output power
13.	Total BOM	\$2.66	General	Total BOM Cost
14.	D1 Tj	39.417414655 degC	Op_Point	D1 junction temperature
15.	Duty Cycle	11.365509133 %	Op_point	Duty cycle
16.	Efficiency	79.050 %	Op_point	Steady state efficiency
17.	IC Tj	36.7902229 degC	Op_point	IC junction temperature
18.	ICThetaJA	50.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
19.	IOUT_OP	0.850 A	Op_point	Iout operating point
20.	VIN_OP	26.000 V	Op_point	Vin operating point
21.	Vout p-p	0.001707841 V	Op_point	Peak-to-peak output ripple voltage
22.	Cin Pd	0.00071116 W	Power	Input capacitor power dissipation
23.	Cout Pd	0.000008359 W	Power	Output capacitor power dissipation
24.	Diode Pd	0.376696586 W	Power	Diode power dissipation
25.	IC Pd	0.135804458 W	Power	IC power dissipation
26.	L Pd	0.05006925 W	Power	Inductor power dissipation
27.	Total Pd	0.5632198 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	0.85 A	Maximun Output Current
3.	Iout1	0.85 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.05 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	26.0 V	Maximum input voltage
8.	VinMin	22.0 V	Minimum input voltage
9.	Vout	2.5 V	Output Voltage
10.	Vout1	2.5 Volt	Output Voltage #1
11.	base_pn	LM25575	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



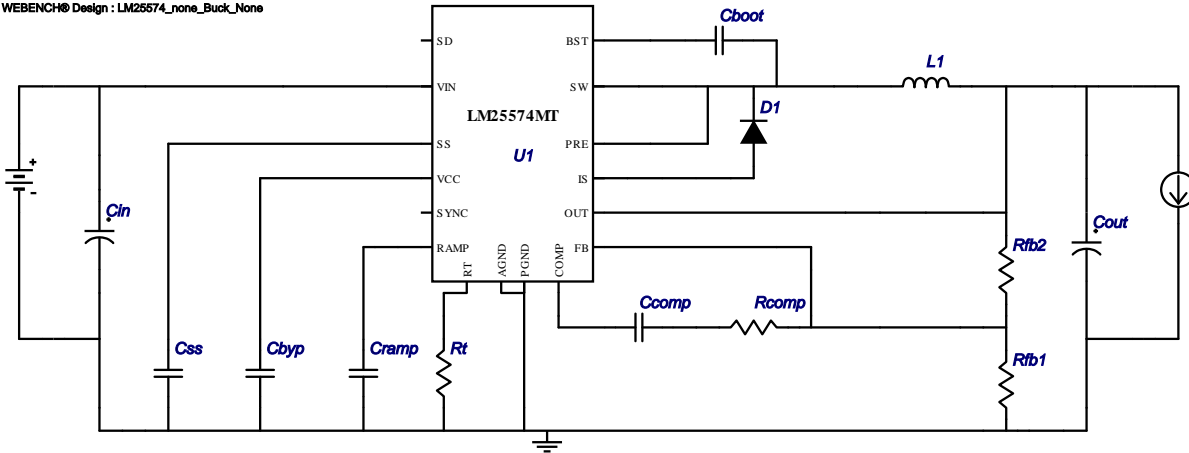
WEBENCH® Design Report

Design : 365092/145 LM25574MT
Design 13489 - LM25574MT

VinMin = 22.0
VinMax = 26.0
Vout = 2.5
Iout = 0.5




Device = LM25574MT
Topology = Buck
Creation date = 10/5/10 11:19:37 AM
Total BOM Cost = \$2.21
Total Pd = 0.4 W
Footprint = 315.0 mm²
BOM Count = 14

WEBENCH® Design : LM25574_none_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Cboot	Kemet	C0805C223K5RACTU Series= X7R	1	\$0.01	Cap= 2.2E-8 F IRMS= 0.6 A VDC= 50 V	 0805 13mm2
2.	Cbyp	AVX	08053C104KAT2A Series= X7R	1	\$0.01	Cap= 1.0E-7 F IRMS= 0 A VDC= 25 V	 0805 13mm2
3.	Ccomp	MuRata	GRM1885C1H202JA01D Series= C0G/NP0	1	\$0.01	Cap= 2.0E-9 F IRMS= 0 A VDC= 50 V	 0603 10mm2
4.	Cin	TDK	C3216X7R1H105K Series= X7R	1	\$0.05	Cap= 1.0E-6 F IRMS= 3.2 A VDC= 50 V	 1206 19mm2
5.	Cout	TDK	C3216X5R0J476M Series= X5R	1	\$0.25	Cap= 4.7E-5 F IRMS= 4.1 A VDC= 6.3 V	 1206 19mm2
6.	Cramp	Yageo America	CC0805KRX7R9BB271 Series= X7R	1	\$0.01	Cap= 2.7E-10 F IRMS= 0 A VDC= 50 V	 0805 13mm2
7.	Css	AVX	08055C152KAT2A Series= X7R	1	\$0.01	Cap= 1.5E-9 F IRMS= 0 A VDC= 50 V	 0805 13mm2
8.	D1	Diodes Inc.	B140-13-F	1	\$0.06	Diode	 SMA 37mm2
9.	L1	Panasonic	ELL-6UH560M	1	\$0.28	L= 5.6E-5 H DCR= 0.2 Ohm	 ELL6UH 67mm2
10.	Rcomp	Panasonic	ERJ-6ENF2262V Series= 225	1	\$0.01	Resistance= 22600 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
11.	Rfb1	Panasonic	ERJ-6ENF1021V	1	\$0.01	Resistance= 1020 Ohm	

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
			Series= 225			Power= 0.1 W Tolerance= 1 %	0805 13mm2
12.	Rfb2	Panasonic	ERJ-6ENF1051V Series= 225	1	\$0.01	Resistance= 1050 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
13.	Rt	Panasonic	ERJ-6ENF1622V Series= 225	1	\$0.01	Resistance= 16200 Ohm Power= 0.1 W Tolerance= 1 %	 0805 13mm2
14.	U1	National Semiconductor	LM25574MT	1	\$1.48	Switcher	 MTC16 59mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	0.156929759 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.038133302 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	0.565848801 A	Current	Peak switch current in IC
4.	Iin Avg	0.06347 A	Current	Average input current
5.	L Ipp	0.132097634 A	Current	Peak-to-peak inductor ripple current
6.	M Irms	0.168644828 A	Current	Q lavg
7.	BOM Count	14.000	General	Total Design BOM count
8.	FootPrint	315.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	361402.240693892 Hz	General	Switching frequency
10.	M Vds Act	0.129691549 V	General	
11.	Mode	CCM	General	Conduction Mode
12.	Pout	1.250 W	General	Total output power
13.	Total BOM	\$2.21	General	Total BOM Cost
14.	D1 Tj	85.389730496 degC	Op_Point	D1 junction temperature
15.	Duty Cycle	11.376431207 %	Op_point	Duty cycle
16.	Efficiency	75.750 %	Op_point	Steady state efficiency
17.	IC Tj	40.851491275 degC	Op_point	IC junction temperature
18.	ICThetaJA	90.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
19.	IOUT_OP	0.500 A	Op_point	Iout operating point
20.	VIN_OP	26.000 V	Op_point	Vin operating point
21.	Vout p-p	0.001007373 V	Op_point	Peak-to-peak output ripple voltage
22.	Cin Pd	0.000246269 W	Power	Input capacitor power dissipation
23.	Cout Pd	0.000002908 W	Power	Output capacitor power dissipation
24.	Diode Pd	0.221558922 W	Power	Diode power dissipation
25.	IC Pd	0.120572125 W	Power	IC power dissipation
26.	L Pd	0.05775 W	Power	Inductor power dissipation
27.	Total Pd	0.40017835 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	0.5 A	Maximun Output Current
3.	Iout1	0.5 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.2 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	26.0 V	Maximum input voltage
8.	VinMin	22.0 V	Minimum input voltage
9.	Vout	2.5 V	Output Voltage
10.	Vout1	2.5 Volt	Output Voltage #1
11.	base_pn	LM25574	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricefactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature



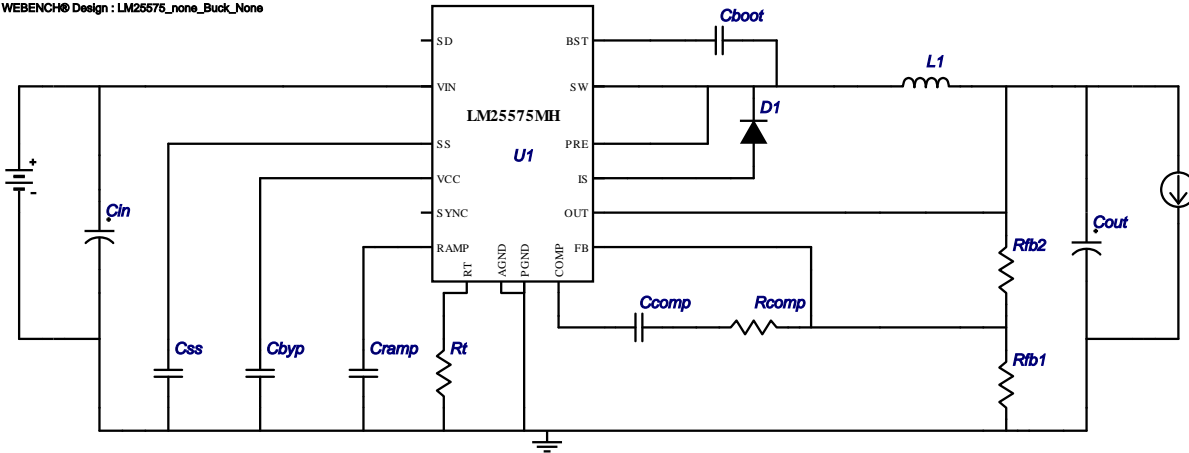
WEBENCH® Design Report

Design : 365092/146 LM25575MH
 Design 13490 - LM25575MH

VinMin = 22.0
 VinMax = 26.0
 Vout = 3.0
 Iout = 0.5

Device = LM25575MH
 Topology = Buck
 Creation date = 10/5/10 11:19:38 AM
 Total BOM Cost = \$2.64
 Total Pd = 0.36 W
 Footprint = 461.0 mm2
 BOM Count = 14

WEBENCH® Design : LM25575_none_Buck_None



BOM

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
1.	Cboot	Kemet	C0805C223K5RACTU Series= X7R	1	\$0.01	Cap= 2.2E-8 F IRMS= 0.6 A VDC= 50 V	 0805 13mm2
2.	Cbyp	AVX	08053C104KAT2A Series= X7R	1	\$0.01	Cap= 1.0E-7 F IRMS= 0 A VDC= 25 V	 0805 13mm2
3.	Ccomp	Yageo America	CC0805KRX7R9BB272 Series= X7R	1	\$0.01	Cap= 2.7E-9 F IRMS= 0 A VDC= 50 V	 0805 13mm2
4.	Cin	TDK	C3216X7R1H105K Series= X7R	1	\$0.05	Cap= 1.0E-6 F IRMS= 3.2 A VDC= 50 V	 1206 19mm2
5.	Cout	TDK	C3216X5R0J476M Series= X5R	1	\$0.25	Cap= 4.7E-5 F IRMS= 4.1 A VDC= 6.3 V	 1206 19mm2
6.	Cramp	Yageo America	CC0805KRX7R9BB681 Series= X7R	1	\$0.01	Cap= 6.8E-10 F IRMS= 0 A VDC= 50 V	 0805 13mm2
7.	Css	Yageo America	CC0805KRX7R9BB391 Series= X7R	1	\$0.01	Cap= 3.9E-10 F IRMS= 0 A VDC= 50 V	 0805 13mm2
8.	D1	Diodes Inc.	B140-13-F	1	\$0.06	Diode	 SMA 37mm2
9.	L1	Bourns	SRR1260-680M	1	\$0.43	L= 6.8E-5 H DCR= 0.1 Ohm	 SRR1260 210mm2
10.	Rcomp	Panasonic	ERJ-6ENF1582V Series= 225	1	\$0.01	Resistance= 15800 Ohm	 0805 13mm2

#	Name	Manufacturer	Part Number	Qty	Price	Properties	Footprint
11.	Rfb1	Panasonic	ERJ-6ENF1001V Series= 225	1	\$0.01	Power= 0.1 W Tolerance= 1 % Resistance= 1000 Ohm	0805 13mm2
12.	Rfb2	Panasonic	ERJ-6ENF1471V Series= 225	1	\$0.01	Power= 0.1 W Tolerance= 1 % Resistance= 1470 Ohm	0805 13mm2
13.	Rt	Panasonic	ERJ-6ENF1622V Series= 225	1	\$0.01	Power= 0.1 W Tolerance= 1 % Resistance= 16200 Ohm	0805 13mm2
14.	U1	National Semiconductor	LM25575MH	1	\$1.76	Power= 0.1 W Tolerance= 1 % Switcher	 MXA16A 59mm2

Op Vals

#	Name	Value	Category	Description
1.	Cin IRMS	0.167143823 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	0.035771933 A	Current	Output capacitor RMS ripple current
3.	IC Ipk	0.561771175 A	Current	Peak switch current in IC
4.	Iin Avg	0.0715 A	Current	Average input current
5.	L Ipp	0.123917611 A	Current	Peak-to-peak inductor ripple current
6.	M Irms	0.181937607 A	Current	Q lavg
7.	BOM Count	14.000	General	Total Design BOM count
8.	FootPrint	461.000 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	361402.240693892 Hz	General	Switching frequency
10.	M Vds Act	0.065987221 V	General	
11.	Mode	CCM	General	Conduction Mode
12.	Pout	1.500 W	General	Total output power
13.	Total BOM	\$2.64	General	Total BOM Cost
14.	D1 Tj	84.22467677 degC	Op_point	D1 junction temperature
15.	Duty Cycle	13.240517167 %	Op_point	Duty cycle
16.	Efficiency	80.690 %	Op_point	Steady state efficiency
17.	IC Tj	35.575887126 degC	Op_point	IC junction temperature
18.	ICThetaJA	50.000 degC/W	Op_point	IC junction-to-ambient thermal resistance
19.	IOUT_OP	0.500 A	Op_point	Iout operating point
20.	VIN_OP	26.000 V	Op_point	Vin operating point
21.	Vout p-p	0.000944993 V	Op_point	Peak-to-peak output ripple voltage
22.	Cin Pd	0.000279371 W	Power	Input capacitor power dissipation
23.	Cout Pd	0.000002559 W	Power	Output capacitor power dissipation
24.	Diode Pd	0.216898707 W	Power	Diode power dissipation
25.	IC Pd	0.111517743 W	Power	IC power dissipation
26.	L Pd	0.03025 W	Power	Inductor power dissipation
27.	Total Pd	0.3589729 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	ErrorFeature	I	Error feature
2.	Iout	0.5 A	Maximun Output Current
3.	Iout1	0.5 Amps	Output Current #1
4.	NumOutPuts	2.0	Number of Output
5.	SoftStart	0.05 ms	Soft Start Time (ms)
6.	SyncFeature	I	External Sync feature
7.	VinMax	26.0 V	Maximum input voltage
8.	VinMin	22.0 V	Minimum input voltage
9.	Vout	3.0 V	Output Voltage
10.	Vout1	3.0 Volt	Output Voltage #1
11.	base_pn	LM25575	National Based Product Number
12.	customfreq	Y	Use Customer Frequency
13.	onOff	I	On/Off feature
14.	optfactor	4.0	Optimization factor to tune up the design
15.	pricfactor	2.0	Price factor to tune up the design cost
16.	ta	30.0 degC	Ambient temperature