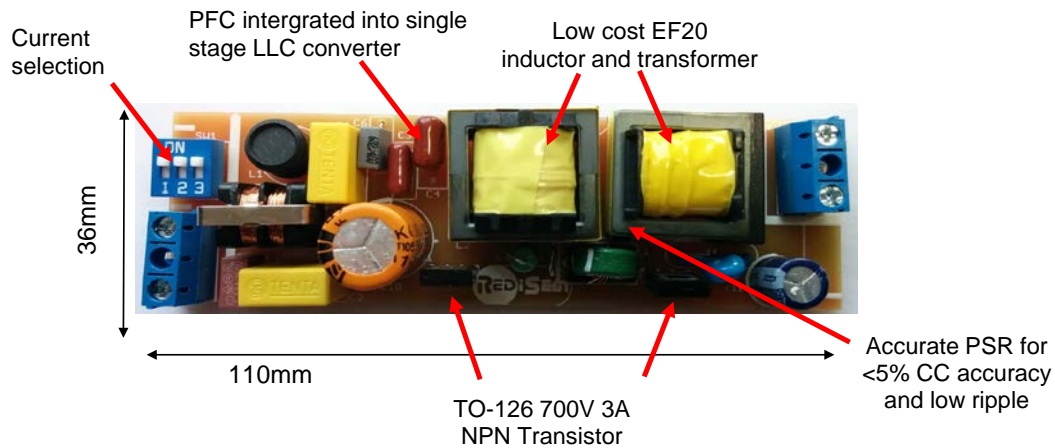




46W Iset 800-1150mA Low Ripple LED driver



RediSem IC	RED2511 SO8 LLC LED Driver IC
Output Power	46W
Output Current	800~1150mA
Line & Load regulation	<1% (198 - 264VAC, 30-42V)
Output Voltage range	42 - 25V
Low Freq. Ripple	1.9% @ 230V full load $I_o=1050mA$
Efficiency	90.5% @ 230V full load $I_o=1050mA$
Input	198-264VAC, 50Hz
Survive input range	170 - 320VAC
PF	0.96 @ 230V full load $I_o=1050mA$
THD	<10% @ 230V full load $I_o=1050mA$
Time to Light	190ms
Size	110mm x 36mm x 24mm
Protection	Short circuit, Open Circuit, Over temp, SELV, 1kV surge
Converter	Dual boost PPFC CC LLC converter
Component Count	59



46W Iset 800-1150mA Low Ripple LED driver

Iout = 1150mA 32V~40V						
Input voltage	198V		230V		264V	
Input Power	41.36	50.99	41.59	50.96	41.82	51.37
Output Power	36.58	45.72	36.67	45.92	36.74	46.16
Output Voltage	32.00	40.00	32.00	40.00	32.00	40.00
Output current	1143mA	1143mA	1146mA	1148mA	1148mA	1154mA
Efficiency	88.43%	89.66%	88.18%	90.11%	87.84%	89.86%
Power Factor	0.97	0.96	0.96	0.97	0.94	0.96
THD	8.9%	23.1%	8.3%	7.3%	15.6%	9.6%

Iout = 1050mA 30V~42V						
Input voltage	198V		230V		264V	
Input Power	35.87	49.23	36.14	49.22	36.45	49.50
Output Power	31.59	44.27	31.71	44.52	31.80	44.69
Output Voltage	30.00	42.00	30.00	42.00	30.00	42.00
Output current	1053mA	1054mA	1057mA	1060mA	1060mA	1064mA
Efficiency	88.07%	89.92%	87.74%	90.45%	87.24%	90.28%
Power Factor	0.97	0.96	0.95	0.97	0.92	0.96
THD	6.8%	20.0%	11.9%	6.8%	19.8%	10.0%

Iset dip switch setting

SW1	SW2	SW3	Iout	Vmin	Vmax
OFF	OFF	OFF	800mA	25.0V	40.0V
OFF	OFF	ON	850mA	25.0V	41.0V
OFF	ON	OFF	900mA	25.0V	42.0V
OFF	ON	ON	950mA	25.0V	42.0V
ON	OFF	OFF	1000mA	27.0V	42.0V
ON	OFF	ON	1050mA	30.0V	42.0V
ON	ON	OFF	1100mA	31.0V	41.0V
ON	ON	ON	1150mA	32.0V	40.0V

Iout = 950mA 25V~42V						
Input voltage	198V		230V		264V	
Input Power	25.00	43.85	27.37	43.95	27.56	44.18
Output Power	23.58	39.73	23.65	39.90	23.70	40.07
Output Voltage	25.00	42.00	25.00	42.00	25.00	42.00
Output current	943mA	946mA	946mA	950mA	948mA	954mA
Efficiency	94.30%	90.61%	86.41%	90.78%	85.99%	90.69%
Power Factor	0.94	0.96	0.91	0.97	0.87	0.95
THD	11.5%	14.8%	19.8%	5.4%	28.1%	13.5%

Iout = 800mA 25V~40V						
Input voltage	198V		230V		264V	
Input Power	22.82	35.01	22.93	35.15	23.03	35.35
Output Power	19.93	31.80	19.98	31.96	20.00	32.12
Output Voltage	25.00	40.00	25.00	40.00	25.00	40.00
Output current	797mA	795mA	799mA	799mA	800mA	803mA
Efficiency	87.31%	90.83%	87.11%	90.92%	86.84%	90.86%
Power Factor	0.92	0.96	0.88	0.95	0.83	0.91
THD	16.8%	13.0%	26.3%	12.1%	34.6%	22.0%

Test	Result	Condition
Peak no-load Voltage	54.00V	230VAC
Load Regulation 42 - 30V (1050mA)	0.28%	230VAC
Time To light	190ms	230VAC

Line regulation

input voltage	198V	264V
output current regulation at 42V (1050mA)	0.57%	-0.38%
output current regulation at 30V (1050mA)	0.38%	-0.28%

Low Frequency Visible Current Ripple

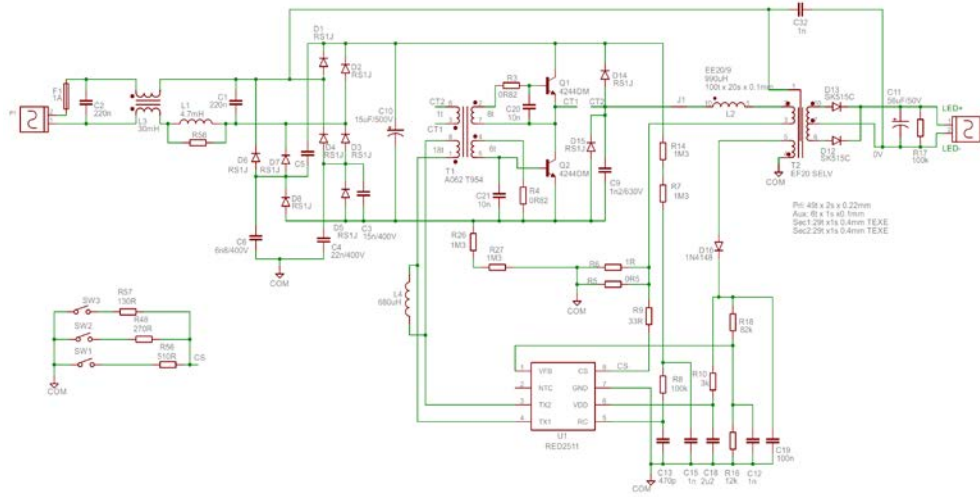
output voltage	Iout = 1150mA		Iout = 1050mA		Iout = 950mA		Iout = 800mA	
	32V	40V	30V	42V	25V	42V	25V	40V
output current	1146mA	1148mA	1057mA	1060mA	946mA	950mA	799mA	799mA
output current (pk-pk)	29mA	44mA	26mA	40mA	22mA	34mA	19mA	28mA
output current ripple (pk-pk/avg/2)	1.27%	1.92%	1.23%	1.89%	1.16%	1.79%	1.19%	1.75%

Thermal Results (cased)	Iout = 1150mA		Iout = 1050mA		Iout = 900mA		Iout = 800mA	
	198V	264V	198V	264V	198V	264V	198V	264V
Ta	46.0C	46.0C	52.0C	52.0C	53.0C	52.0C	52.0C	52.0C
Q1	108.0C	111.0C	98.0C	104.0C	103.0C	95.0C	86.0C	86.0C
Q2	106.0C	107.0C	90.0C	100.0C	92.0C	92.0C	79.0C	82.0C
L2 core	111.0C	117.0C	91.0C	114.0C	96.0C	105.0C	79.0C	90.0C
L2 winding	109.0C	114.0C	88.0C	110.0C	95.0C	103.0C	77.0C	88.0C
T2 core	104.0C	98.0C	92.0C	98.0C	97.0C	92.0C	80.0C	81.0C
T2 winding	106.0C	102.0C	94.0C	100.0C	97.0C	95.0C	80.0C	83.0C



46W Iset 800-1150mA Low Ripple LED driver

Code	Value	Description	Qty	Supplier	Part no.
C1,2	220n	X2 MKP 20% 275VAC	2		
C3	12n	MKP 5% 400VDC	1	Fara	
C4	22n	MKP 5% 400VDC	1	Fara	
C6	6n8	MKP 5% 400VDC	1	Fara	
C10	15u	ELEC 20% 500VDC	1	Ymin	
C11	56u	ELEC 20% 63VDC	1	Aishi RZ range	
C9	1n2	1206 NPO 5% 630VDC	1	Murata	
C12,15	1n	0805 X7R 10% 25VDC	2		
C13	470p	0805 COG 5% 50VDC	1		
C19	100n	0805 X7R 10% 50VDC	1		
C20, C21	10n	0805 X7R 10% 50VDC	2		
C18	2u2	0805 X7R 10% 16VDC	1		
C32	1n	Y-CAP	1		
D1,2,3,4,5,6,5,8,14,15	RS1J	SMA Fast Diode 600VDC	10	TSC/Vishay	
D12,D13	SK515C	Schottky Diode, 150V 5A	2		
D16	LL4148	MiniMELF	1		
F1	1A	Fuse 1A T	1		
L1	4.7mH 8x10	Drum Core	1		
L2	990uH	EF20/9 Main Inductor	1		
L3	30mH	UU9.8 Common Mode	1		
L4	680uH	0410 0.25W Axial	1		
R3,4	0R82	0805 0.06W 1.0%	2		
R5	0R5	1206 0.25W 1.0%	1		
R6	1R	1206 0.25W 1.0%	1		
R7,14,26,27	1M3	0805 0.125W 1.0%	4		
R8	100k	0805 0.06W 1.0%	1		
R9	33R	0805 0.06W 1.0%	1		
R10	1k	0805 0.06W 1.0%	1		
R16	12k	0805 0.06W 1.0%	1		
R17	100k	1206 0.25W 1.0%	1		
R18	82k	0805 0.06W 1.0%	1		
R48	270R	0805 0.125W 1.0%	1		
R56	510R	0805 0.125W 1.0%	1		
R57	130R	0805 0.125W 1.0%	1		
P1,P2	Terminal 2 Pin		2		
Q1,Q2	3DD4244DM	NPN (T _{sa} =2-2.5us) TO126-3A	2	Jilin Huawei	
SW1		DIP switch 3 pole	1		
T1	A062 T9x5x4	Base Drive: 18.6:1 turns	1	ACME	A062T9*5*4C(RX)
T2	EF20	Output Transformer	1		
U1	RED2511	LLC LED controller IC	1	RediSem	
TOTAL			59		



Inductor	
CoreType	EF20/9
Material	PC44
Value	990 uH
Winding	100r x 20s x 0.10mm

Transformer	
Core type	EF20
Material	PC44
Pri	49x 25 x 0.22mm ECW
Aux	6r x 15 x 0.1mm ECW
Sec1	29r x 1s x 0.4mm TEXE
Sec2	29r x 1s x 0.4mm TEXE

次級要雙線並繞