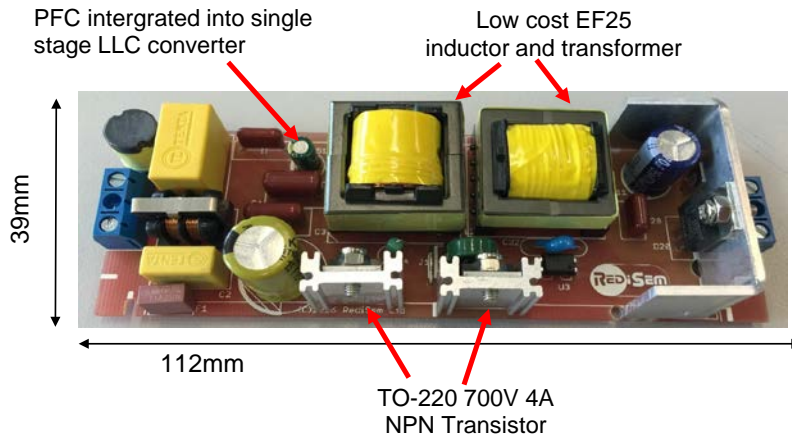




RED2541 60W CV 24V 2.5A LED driver with PFC



RediSem IC	RED2541 SO8 LLC LED Driver IC
Output Power	60W
Output Voltage	24V constant voltage
Line regulation	0.04% (198 - 264VAC)
Load Regulation	0.04% (2.5A - 0A)
Output Current range	2.5A - 0A
Low Freq. Ripple	0.34% @ 230V full load
Efficiency	90.76% @ 230V full load
Input	198-264VAC, 50Hz
Survive input range	170 - 320VAC
PF	0.98 @ 230V full load
THD	7.1% @ 230V full load
Time to Light	560ms
Size	112mm x 39mm x 23mm
Protection	Short circuit, Over Load, Over temperature, SELV
Converter	Dual boost PPFC CV LLC converter
Component Count	74



RED2541 60W CV 24V 2.5A LED driver with PFC

Input voltage	198V		230V		264V	
Input Power	66.13	52.71	66.35	52.80	66.64	53.05
Output Power	59.90	47.90	59.90	47.92	59.88	47.90
Output Voltage	23.96	23.95	23.96	23.96	23.95	23.95
Output current	2500mA	2000mA	2500mA	2000mA	2500mA	2000mA
Efficiency	90.58%	90.87%	90.28%	90.76%	89.85%	90.29%
Power Factor	0.98	0.97	0.98	0.96	0.96	0.93
THD	11.40%	15.30%	7.10%	16.00%	17.40%	26.90%
LF Voltage Ripple in V (Pk-to-Pk)	0.110	0.083	0.081	0.079	0.080	0.079
LF Voltage Ripple (pk-pk) in %	0.5%	0.3%	0.3%	0.3%	0.3%	0.3%

Output low frequency ripple @ 230Vac

output current	2.5A	0.1A	0A
LF Voltage Ripple in V (Pk-to-Pk)	81mV	72mV	55mV
LF Voltage Ripple (pk-pk) in %	0.34%	0.30%	0.23%

Line regulation

input voltage	198V	230V	264V	Max
output voltage at 2500mA	23.96V	23.96V	23.95V	
output voltage regulation at 2500mA	0.00%	0.00%	0.04%	0.04%
output voltage at 2000mA	23.95V	23.96V	23.95V	
output voltage regulation at 2000mA	0.04%	0.00%	0.04%	0.04%

Load regulation

input voltage	198V	230V	264V	Max
output load regulation	0.04%	0.00%	0.00%	0.04%

Time to light

Time to light	560ms
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Misc

Standby Power @ 230Vac	240mW
Over Current Protection @ 230Vac	2.7A
Short Circuit Protection	pass
Over Temperature Protection	pass
Conduction EMI	pass

Thermal Results (cased)	198V	264V
	2.5A 24V	2.5A 24V
Ta	56.6C	58.1C
Q1	98.0C	118.2C
Q2	89.7C	105.8C
L2 core	96.9C	112.5C
L2 winding	87.4C	99.5C
T2 core	100.6C	110.1C
T2 winding	94.1C	101.4C
D20	94.2C	98.0C



RED2541 60W CV 24V 2.5A LED driver with PFC

Code	Value	Description	Qty	Supplier
C11	330n	C2 MKP 22V 270VAC	1	Taida
C12	220n	C2 MKP 22V 270VAC	1	Taida
C3	33n	MKP 25V 400VDC	1	Faia
C4	56n	MKP 25V 400VDC	1	Faia
C5	10n	MKP 25V 400VDC	1	Faia
C6	148	1206 NPO 25V 830VDC	1	Murata
C7	220	ELEC 20V 500VDC	1	Xona
C8	470u	ELEC 20V 35VDC	1	Walt
C9	100	ELEC 20V 50VDC	1	Samsara
C10	680n	0805 X7R 10% 50VDC	1	Samsara
C13	470n	0805 X7R 10% 50VDC	1	Samsara
C14	10	0805 X7R 10% 50VDC	1	Samsara
C15	100n	0805 X7R 10% 50VDC	1	Samsara
C16	22n	MKP 25V 100VDC	1	Faia
C17	1n	PC48P	1	Samsara
C18	200	0805 X7R 10% 50VDC	1	Samsara
C19	470n	0805 X7R 10% 50VDC	1	Samsara
C20	4u7	ELEC 20V 16VDC	1	Samsara
C21	82uJ	BMA Fast Diode 60VDC	4	TSC/Verkey
C22	82uJ	BMA Fast Diode 60VDC 1A	5	TSC/Verkey
C23	14448	MoMELF	1	Wabac
C24	SR0306001	TO220 80V 20A Schottky Diode	1	
F1	1A	Fuse	1	
L1	2.2mH	1812 SMD Power Core	1	
L2	500uH	EP2511 Main Inductor	1	
L3	30uH	1.4x1.4 Ferrite Core	1	
L4	470uH	SA10.0 25V 5uH	1	
R1	0817	0805 0.05W 1.0%	2	
R2	0818	0805 0.05W 1.0%	1	
R3	0815	1206 0.25W 1.0%	1	
R4	400n	0805 0.05W 1.0%	3	
R5	100n	0805 0.05W 1.0%	1	
R6	681	0805 0.05W 1.0%	1	
R7	497	0805 0.05W 1.0%	1	
R8	7k	0805 0.05W 1.0%	1	
R9	200n	0805 0.05W 1.0%	2	
R10	1M	0805 0.05W 1.0%	1	
R11	100k	0805 0.05W 1.0%	1	
R12	220k	0805 0.05W 1.0%	1	
R13	30k	0805 0.05W 1.0%	1	
R14	1k	0805 0.05W 1.0%	1	
R15	30k	0805 0.05W 1.0%	1	
R16	1k	0805 0.05W 1.0%	1	
R17	47k	0805 0.05W 1.0%	1	
R18	200k	0805 0.05W 1.0%	1	
R19	200k	Tantalum 2 Pin	2	
Q1,Q2	13006ED	TO220 4A NPN Transistor (T _{th} =2.5us)	2	Jin Sivo
T1	A0627P5*4G(R3)	Base Drive, 18.6:1 turns	1	ACME
T2	EP25	Output Transformer	1	
U1	RED2541	1.1 F.F. LED controller IC	1	RedStar
U2	PC42TB	Photo-coupler	1	3MAGC
U3	14441	Single 100Vdc Regulator	1	

Parameter	
Input Voltage	110V/220V
Output Voltage	24V
Output Current	2.5A
Efficiency	96% @ 50% Load

Transformer	
Core Size	1812
Material	PC4
Winding	0.15mm x 0.15mm
Wires	18 x 1.1 x 0.15mm TFE
Wires	18 x 1.1 x 0.15mm TFE

次级多绕组自耦

