

Calculations

Input Voltage	Min	Max	Typ
	50	80	73.5

Output Voltage	Vout1	Vout2	Vout3
	15	5	5

Power	Pout 1	Pout2	Pout 3
	5	0.25	0.25

Ptotal	5.5	Choose	5
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Duty Cycle Dmax

Dmax	0.505
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Fmax	70000
Tr	0.000002
Dmag	0.425

Peak Transformer current

Ippk	0.495049505
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Primary Inductance

Lpm	0.000728643
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Turns Ratio calculation

VQAON (MOSFET drop)	0.5
VRCS (sense resistor Drop)	0.7
VDG(Diode Drop)	0.7

15V	
Nps (Np: Ns ratio)	2.179692769

5V	
Nps (Np: Ns ratio)	6.00371517

5V	
Nps (Np: Ns ratio)	6.00371517

NAS	3
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Transformer Primary RMS current

Iprms	0.203111116
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Calculation of Transformer Secondary RMS Current (ISRMS)

15V secondary Peak	1.568627451
15V secondary RMS	0.590409924
5V secondary Peak	0.235294118
5V secondary RMS	0.088561489
5V secondary Peak	0.235294118
5V secondary RMS	0.088561489

Primary side regulation

RS1	88833.88339
RS2	28217.82178

Current sensing

Threshold in datasheet	0.75
I _{pk}	1
V _{th}	1.37

Output Diodes

15V diode

VD15V	51.70242024
ID15V	1.568627451

5V diode

VD5V	18.32508251
ID5V	0.235294118

5V diode

VD5V	18.32508251
ID5V	0.235294118

Output Capacitors

15V	
ESR Cout _15V	0.06375

Vripple	0.1
Cout	0.00004

40uF

Snubber Calculation

Vspike 85.67391304
I

RCS

VCCR 0.33
NPS
IOCC
nx'former(efficiency)

efficiency
0.8

Calculating Primary Turns

Primary Inductance	0.000728643
Ipmax	0.495049505
Ac for EF20	0.0000332
B	0.15
Nprimary	72.43258749

AirGap

Nprimary	72.43258749
Ipmax	0.495049505
Uo	0.0000016
Bmax	0.15
Length og Airgap	0.000382482

Nprimary	72.43258749
Nsecondary15V	33.23064082
Nsecondary5V	12
Nsecondary5V	12