

ENTER APPLICATION VARIABLES

INPUT	INFO	OUTPUT	UNIT	
VACMIN	85		Volts	Minimum AC Input Voltage
VACMAX	265		Volts	Maximum AC Input Voltage
fL	47		Hertz	AC Mains Frequency
VO	12		Volts	Output Voltage
PO	5		Watts	Output Power
n	0.67			Efficiency Estimate
Z	0.5			Loss Allocation Factor
IC	3		mSeconds	Bridge Rectifier Conduction Time Estimate
CIN	22		uFarads	Input Filter Capacitor

ENTER TinySwitch-II VARIABLES

TNY-II	TNY264	Power Out	Universal	115 Doubled/230V
Chosen Device	TNY264	6W	6W	9W
ILIMITMIN		0.233	Amps	TINYSwitch Minimum Current Limit
ILIMITMAX		0.267	Amps	TINYSwitch Maximum Current Limit
fS		132000	Hertz	TINYSwitch Switching Frequency
fSmin		120000	Hertz	TINYSwitch Minimum Switching Frequency (inc. jitter)
fSmax		144000	Hertz	TINYSwitch Maximum Switching Frequency (inc. jitter)
VOR	93		Volts	Reflected Output Voltage
VDS	10		Volts	TINYSwitch on-state Drain to Source Voltage
VD	0.5		Volts	Output Winding Diode Forward Voltage Drop
KP		0.72		Ripple to Peak Current Ratio (0.6<KRP<1.0 : 1.0<KDP<6.0)

ENTER TRANSFORMER CORE/CONSTRUCTION VARIABLES

Core Type	EF12.6	P/N:	generic	
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Bobbin	EF12.6_BOBBIN	P/N:	*	
AE		0.13	cm^2	Core Effective Cross Sectional Area
LE		2.96	cm	Core Effective Path Length
AL		810	nH/T^2	Ungapped Core Effective Inductance
BW		7.5	mm	Bobbin Physical Winding Width
M	0		mm	Safety Margin Width (Half the Primary to Secondary Creepage Distance)
L	3			Number of Primary Layers
NS	20			Number of Secondary Turns

DC INPUT VOLTAGE PARAMETERS

VMIN	96	Volts	Minimum DC Input Voltage
VMAX	375	Volts	Maximum DC Input Voltage

CURRENT WAVEFORM SHAPE PARAMETERS

DMAX	0.52		Maximum Duty Cycle
Iavg	0.08	Amps	Average Primary Current
IP	0.23	Amps	Minimum Peak Primary Current
IR	0.17	Amps	Primary Ripple Current
IRMS	0.11	Amps	Primary RMS Current

TRANSFORMER PRIMARY DESIGN PARAMETERS

LP	2079	uHenries	Primary Inductance
NP	149		Primary Winding Number of Turns
ALG	94	nH/T^2	Gapped Core Effective Inductance
BM	2870	Gauss	Flux Density, IP (BP<3000)
BAC	898	Gauss	AC Flux Density for Core Loss Curves (0.5 X Peak to Peak)
ur	1468		Relative Permeability of Ungapped Core
LG	0.15	mm	Gap Length (Lg > 0.1 mm)
BWE	22.5	mm	Effective Bobbin Width
OD	0.15	mm	Maximum Primary Wire Diameter including insulation
INS	0.03	mm	Estimated Total Insulation Thickness (= 2 * film thickness)
DIA	0.12	mm	Bare conductor diameter
AWG	37	AWG	Primary Wire Gauge (Rounded to next smaller standard AWG value)
CM	20	Cmils	Bare conductor effective area in circular mils
CMA	Warning	178	Cmils/Amp !!!!!!!!! INCREASE CMA>200 (increase L(primary layers),decrease NS,larger Cc

TRANSFORMER SECONDARY DESIGN PARAMETERS (SINGLE OUTPUT / SINGLE OUTPUT EQUIVALENT)

Lumped parameters			
ISP	1.73	Amps	Peak Secondary Current
ISRMS	0.81	Amps	Secondary RMS Current
IO	0.42	Amps	Power Supply Output Current
IRIPPLE	0.70	Amps	Output Capacitor RMS Ripple Current
CMS	162	Cmils	Secondary Bare Conductor minimum circular mils
AWGS	27	AWG	Secondary Wire Gauge (Rounded up to next larger standard AWG value)
DIAS	0.36	mm	Secondary Minimum Bare Conductor Diameter
ODS	0.38	mm	Secondary Maximum Outside Diameter for Triple Insulated Wire
INSS	0.01	mm	Maximum Secondary Insulation Wall Thickness

VOLTAGE STRESS PARAMETERS

VDRAIN	590	Volts	Maximum Drain Voltage Estimate (Includes Effect of Leakage Inductance)
PIVS	62	Volts	Output Rectifier Maximum Peak Inverse Voltage