


Power Supply Input

Var	Value	Units	Description
VACMIN	85	V	Minimum Input AC Voltage
VACMAX	265	V	Maximum Input AC Voltage
FL	50	Hz	Line Frequency
TC	2.69	ms	Input Rectifier Conduction Time
Z	0.47		Loss Allocation Factor
η	71.0	%	Efficiency Estimate (Target)
VMIN	83.0	V	Minimum DC Input Voltage
VMAX	374.8	V	Maximum DC Input Voltage

Input Section

Var	Value	Units	Description
RFUSE	10.00	Ω	Fusible Resistor. See Information section for detail
IAVG	0.08	A	Average Diode Bridge Current (DC Input Current)

Device Variables

Var	Value	Units	Description
Device	TNY285DG 		PI Device Name
BVDSS	700	V	Drn-Src Bkdn Voltage
Current Limit Mode	Increased		Device Current Limit Mode
PO	5.00	W	Total Output Power
VDRAIN Estimated	494.77	V	Estimated Drain Voltage
VDS	10.83	V	On state Drain to Source Voltage
I2F_MIN	14.55	A ² kHz	Minimum I2F
I2F_MAX	18.76	A ² kHz	Maximum I2F
FS_AT_ILIMMIN	136935	Hz	Switching Frequency at Current Limit Minimum
KP	1.297		Continuous/Discontinuous Operating Ratio (at VMIN and Full Load)
KP_TRANSIENT	1.30		Transient Ripple to Peak Current Ratio
DMAX	0.507		Maximum Duty Cycle (at VMIN and Full Load)
ILIMITMIN	0.326	A	Minimum Current Limit
ILIMITMAX	0.388	A	Maximum Current Limit
IRMS	0.141	A	Primary RMS Current (at VMIN and Full Load)
RTH_DEVICE	92.87	°C/W	PI Device Heatsink Maximum Thermal Resistance
DEV_HSINK_TYPE	2 Oz (70 μ) 2-Sided Copper PCB		PI Device Heatsink Type
DEV_HSINK_AREA	52	mm ²	PI Device Heatsink Area

Clamp Circuit

Var	Value	Units	Description
Clamp Type	Zener Clamp		Clamp Circuit Type
VCLAMP	24.00	V	Average Clamping Voltage
Estimated Clamp Loss	0.000	W	Clamp total power loss

Transformer Construction Parameters

Var	Value	Units	Description
Core Type	EE13 		Core Type
Core Material	3F3 		Core Material
Bobbin Reference	Generic, 4 pri. + 4 sec.		Bobbin Reference
Bobbin Orientation	Horizontal		Bobbin type

Var	Value	Units	Description
Primary Pins	2		Number of Primary pins used
Secondary Pins	4		Number of Secondary pins used
USE_SHIELDS	NO		Use shield Windings
LP_nom	841	μH	Nominal Primary Inductance
LP_Tol	10.0	%	Primary Inductance Tolerance
NP	67.4		Calculated Primary Winding Total Number of Turns
NSM	4		Secondary Main Number of Turns
CMA	357.49	Cmils/A	Primary Winding Current Capacity
VOR	96.00	V	Reflected Output Voltage
BW	7.40	mm	Bobbin Winding Width
ML	0.00	mm	Safety Margin on Left Width
MR	0.00	mm	Safety Margin on Right Width
FF	66.73	%	Actual Transformer Fit Factor. 100% signifies fully utilized winding window
AE	17.10	mm ²	Core Cross Sectional Area
ALG	167	nH/T ²	Gapped Core Specific Inductance
BM	2662	Gauss	Maximum Flux Density
BAC	1271	Gauss	AC Flux Density for Core Loss
LG	0.110	mm	Estimated Gap Length
L_LKG	33.64	μH	Estimated primary leakage inductance
LSEC	15	nH	Secondary Trace Inductance

Primary Winding Section 1

Var	Value	Units	Description
NP1	68		Number of Primary Winding Turns in the First Section of Primary
Wire Size	33	AWG	Primary Winding - Wire Size
Winding Type	Single (x1)		Primary Winding - Number of Parallel Wire Strands
L	1.98		Primary Winding - Number of Layers
DC Copper Loss	0.03	W	Primary Section 1 DC Losses

Output 1

Var	Value	Units	Description
VO	5.00	V	Typical Output Voltage
IO	0.80	A	Output Current
VOUT_ACTUAL	5.00	V	Actual Output Voltage
NS	4		Secondary Number of Turns
Wire Size	25	AWG	Wire size of secondary winding
Winding Type	Single (x1)		Output winding number of parallel strands
L_S_OUT	0.35		Secondary Output Winding Layers
DC Copper Loss	0.04	W	Secondary DC Losses
VD	0.70	V	Output Winding Diode Forward Voltage Drop
VD	0.70	V	Output Winding Diode Forward Voltage Drop
PVS	27.05	V	Output Rectifier Maximum Peak Inverse Voltage
ISP	4.392	A	Peak Secondary Current
IS RMS	1.564	A	Secondary RMS Current
IS RMS_WINDING	1.564	A	Secondary Winding RMS Current
CMAS	205	Cmils/A	Secondary Winding Current Capacity
RTH_RECTIFIER	101.76	°C/W	Output Rectifier Heatsink Maximum Thermal Resistance
OR_HSINK_TYPE	2 Oz (70 μ) 2-Sided Copper PCB		Output Rectifier Heatsink Type
OR_HSINK_AREA	52	mm ²	Output Rectifier Heatsink Area
CO	1000 x 1	μF	Output Capacitor - Capacitance
IRIPPLE	1.344	A	Output Capacitor - RMS Ripple Current
Expected Lifetime	34685	hr	Output Capacitor - Expected Lifetime

Output 2

Var	Value	Units	Description
VO	5.00	V	Typical Output Voltage
IO	0.20	A	Output Current
VOUT_ACTUAL	5.00	V	Actual Output Voltage
NS	4		Secondary Number of Turns
Wire Size	31	AWG	Wire size of secondary winding
Winding Type	Single (x1)		Output winding number of parallel strands
L_S_OUT	0.23		Secondary Output Winding Layers
DC Copper Loss	0.01	W	Secondary DC Losses
VD	0.70	V	Output Winding Diode Forward Voltage Drop
VD	0.70	V	Output Winding Diode Forward Voltage Drop
PVS	27.05	V	Output Rectifier Maximum Peak Inverse Voltage
ISP	1.098	A	Peak Secondary Current
IS RMS	0.391	A	Secondary RMS Current
IS RMS_WINDING	0.391	A	Secondary Winding RMS Current
CMAS	203	Cmils/A	Secondary Winding Current Capacity
RTH_RECTIFIER	419.03	°C/W	Output Rectifier Heatsink Maximum Thermal Resistance
OR_HSINK_TYPE	2 Oz (70 μ) 2-Sided Copper PCB		Output Rectifier Heatsink Type
OR_HSINK_AREA	52	mm ²	Output Rectifier Heatsink Area
CO	220 x 1	μF	Output Capacitor - Capacitance
IRIPPLE	0.336	A	Output Capacitor - RMS Ripple Current
Expected Lifetime	19854	hr	Output Capacitor - Expected Lifetime

The regulation and tolerances do not account for thermal drifting and component tolerance of the output diode forward voltage drop and voltage drops across the LC post filter. The actual voltage values are estimated at full load only.

Please verify cross regulation performance on the bench.