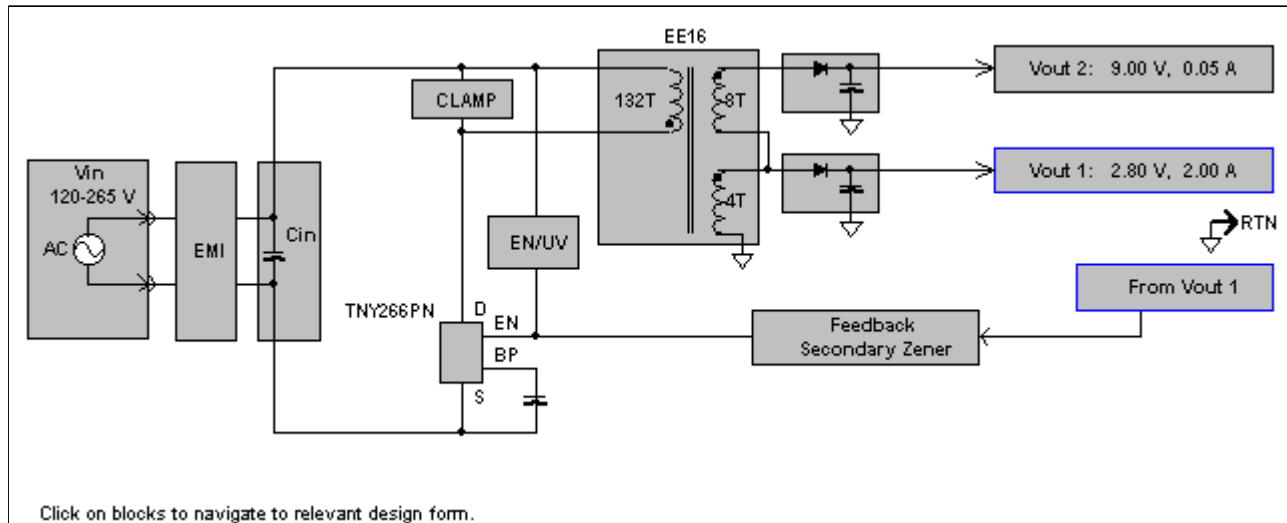


Design Passed (No Optimization)

Design Report



Design Results

Power Supply Input

Var	Value	Units	Description
VACMIN	120	V	Minimum Input AC Voltage (Manual Input)
VACMAX	265	V	Maximum Input AC Voltage (Manual Input)
FL	50	Hz	Line Frequency (Manual Input)
TC	2.35	ms	Diode Conduction Time
Z	0.70		Loss Allocation Factor
η	66.0	%	Efficiency Estimate
IAVG	0.09	A	Average Diode Bridge Current
Input Rectifier	1N4007		Recommended Input Diodes
VMIN	128.2	V	Minimum DC Input Voltage
VMAX	374.8	V	Maximum DC Input Voltage

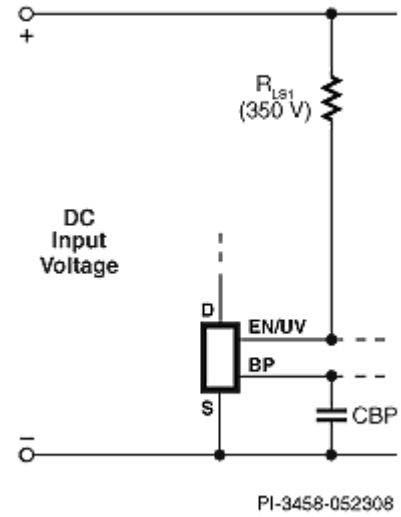
PI-4901-111507

EMI Filter

Var	Value	Units	Description
CIN1	18.00	μ F	Input Bulk Capacitor
LCM	6.00	mH	Common Mode Choke
CX	0.10	μ F	X Capacitor

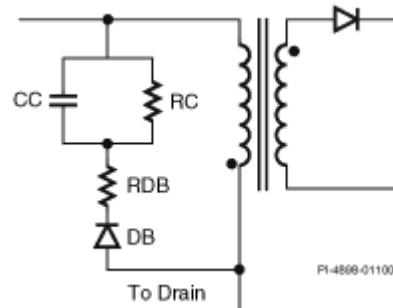
Device Variables

<i>Var</i>	<i>Value</i>	<i>Units</i>	<i>Description</i>
Device	TNY266PN		PI Device Name
PO	7.25	W	Total Output Power
VDRAIN Estimated	588.90	V	Actual Estimated Drain Voltage
VDS	7.64	V	On state Drain to Source Voltage
FSMIN	120000	Hz	Minimum Switching Frequency
KP	0.83		Continuous/Discontinuous Operating Ratio
CBP	0.10	μF	BYPASS pin capacitor
ILIMITMIN	0.33	A	Current Limit Minimum
ILIMITMAX	0.38	A	Current Limit Maximum
IRMS	0.15	A	Primary RMS Current (at VMIN)
P_NO_LOAD	300	mW	Estimated No Load Input Power
DMAX	0.47		Maximum Duty Cycle
RLS	2.8	MΩ	Line sense resistor



▼ Clamp Components

<i>Var</i>	<i>Value</i>	<i>Units</i>	<i>Description</i>
DB	FR106		Recommended Blocking Diode
RC	56.00	kΩ	Clamping resistor
CC	3.300	nF	Clamp Capacitor (Manual Input)
RDB	1.00	Ω	Damping Resistor for Clamp Circuit (Manual Input)
VCLAMP	176.66	V	Estimated average clamping voltage
Clamp Loss	0.56	W	Clamp Dissipation



▼ Transformer Construction Parameters

<i>Var</i>	<i>Value</i>	<i>Units</i>	<i>Description</i>
Core Type	EE16		Core Type
Core Material	NC-2H (Nicera) or Equivalent		Core Material
Bobbin Reference	Generic, 4 pri. + 4 sec.		Bobbin Reference
Bobbin Orientation	Horizontal		Bobbin type

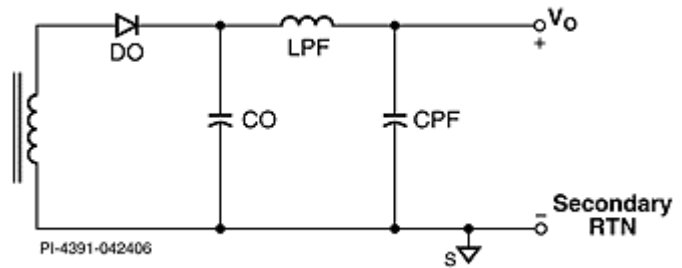
Primary Pins	4		Number of Primary pins used
Secondary Pins	3		Number of Secondary pins used
LPmin	1603	μH	Minimum Primary Inductance
NP	131.7		Calculated Primary Winding Total Number of Turns
NSM	4		Secondary Main Number of Turns
CMA	276	Cmils/A	Primary Winding Current Capacity
VOR	105.84	V	Reflected Output Voltage
BW	8.50	mm	Bobbin Winding Width
ML	0.00	mm	Safety Margin on Left Width
MR	0.00	mm	Safety Margin on Right Width
FF	73	%	Actual Transformer Fit Factor. 100% signifies fully utilized winding window
AE	19.20	mm ²	Core Cross Sectional Area
ALG	92	nH/T ²	Gapped Core Effective Inductance
BM	2481	Gauss	Maximum Flux Density
BAC	887	Gauss	AC Flux Density for Core Loss
LG	0.240	mm	Estimated Gap Length
L_LKG	100.0	μH	Primary Leakage Inductance (Manual Input)
LSEC	30	nH	Secondary Trace Inductance (Manual Input)

▼ Primary Winding Section 1

Var	Value	Units	Description
NP1	132		Rounded (Integer) Number of Primary winding turns in the first section of primary
Wire Size	34	AWG	Wire size of primary winding
Winding Type	Single (x1)		Primary winding number of parallel wire strands
L	2.96		Primary Number of Layers
DC Copper Loss	0.08	W	Primary DC Losses
PIN_S	2		Starting pin(s) for first section of primary winding
PIN_T	1		Termination pin(s) for first section of primary winding

▼ Output 1

Var	Value	Units	Description
VO	2.80	V	Output Voltage
IO	2.00	A	Output Current
VOUT_ACTUAL	2.80	V	Actual Output Voltage
NS	4		Secondary Number of Turns
Wire Size	26	AWG	Wire size of secondary winding
Winding Type	Trifilar (x3)		Output winding number of parallel strands
L_S_OUT	0.85		Secondary Output Winding Layers
DC Copper Loss	0.13	W	Secondary DC Losses
Start Pin	5		Starting pin(s) for Output winding



(s)			
Termination Pin(s)	6		Termination pin(s) for Output winding
VD	0.53	V	Output Winding Diode Forward Voltage Drop
PIVS	14	V	Output Rectifier Maximum Peak Inverse Voltage
ISP	8.27	A	Peak Secondary Current
ISRMS	3.82	A	Secondary RMS Current
DO	1N5822		Recommended Output Diode
CO	2700 x 1	μF	Output Capacitor
IRIPPLE	3.25	A	Output Capacitor RMS Ripple Current
Expected Lifetime	40684	hr	Expected Lifetime of Output Capacitor
LPF	2.2 - 10	μH	Post Filter Inductor
CPF	100 - 680	μF	Post Filter Capacitor

▼ Output 2

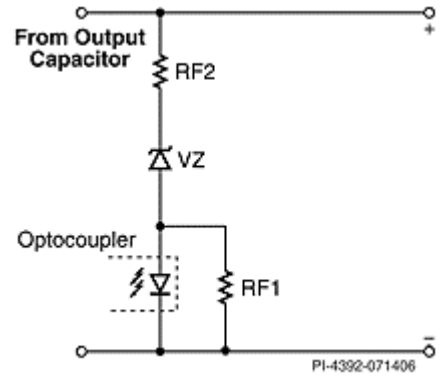
<i>Var</i>	<i>Value</i>	<i>Units</i>	<i>Description</i>
VO	9.00	V	Output Voltage
IO	0.05	A	Output Current
VOUT_ACTUAL	8.90	V	Actual Output Voltage
NS	8		Secondary Number of Turns
Wire Size	32	AWG	Wire size of secondary winding (Manual Input)
Winding Type	Single (x1)		Output winding number of parallel strands (Manual Input)
L_S_OUT	0.38		Secondary Output Winding Layers
DC Copper Loss	0.00	W	Secondary DC Losses
Start Pin (s)	7		Starting pin(s) for Output winding
Termination Pin(s)	5		Termination pin(s) for Output winding
VD	1.30	V	Output Winding Diode Forward Voltage Drop
PIVS	43	V	Output Rectifier Maximum Peak Inverse Voltage
ISP	0.21	A	Peak Secondary Current
ISRMS	0.10	A	Secondary RMS Current
DO	FR106		Recommended Output Diode
CO	3300 x 1	μF	Output Capacitor
IRIPPLE	0.08	A	Output Capacitor RMS Ripple Current
Expected Lifetime	29741	hr	Expected Lifetime of Output Capacitor

PI-4396-042406

▼ Feedback Circuit

<i>Var</i>	<i>Value</i>	<i>Units</i>	<i>Description</i>
RF1	100.00	Ω	Zener Biasing resistor
RF2	0.0	Ω	Zener Compensation resistor

Rated Voltage	2.4	V	Zener Rated Voltage
Zener Test Current	5.0	mA	Zener Test Current



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.

Errors, Warnings, Information

<i>Description</i>	<i>Fix</i>	<i>Show me</i>	<i>Ref. #</i>
--------------------	------------	----------------	---------------