

**Schematic components that have been frozen by the user will appear with blue reference designators.**  
 For any information regarding user added Shield or Screen and additional EMI features implemented in the Transformer, review Magnetics Designer.

## Power Supply Input

| Var       | Value   | Units | Description  |
|-----------|---------|-------|--|
| VACMIN    | 65      | V     | Minimum Input AC Voltage (Manual Overwrite)                                      |
| VACNOM    | 115     | V     | Nominal AC Voltage (For universal designs low line nominal voltage is displayed) |
| VACMAX    | 265     | V     | Maximum Input AC Voltage (Manual Overwrite)                                      |
| FL        | 50      | Hz    | Line Frequency (Manual Overwrite)  |
| $\eta$    | 89.0    | %     | Efficiency Estimate (Target)   |
| TC        | 3.00    | ms    | Input Rectifier Conduction Time  |
| Z         | 0.48    |       | Loss Allocation Factor   |
| VMIN      | 54.5    | V     | Minimum DC Input Voltage   |
| VMAX      | 374.8   | V     | Maximum DC Input Voltage   |
| ENCLOSURE | Adapter |       | Enclosure  |
| TAMB      | 60      | °C    | Maximum Operating Ambient air Temperature  |

## Input Section

| Var              | Value | Units    | Description                                     |
|------------------|-------|----------|---|
| Fuse             | 1.00  | A        | Input Fuse Rated Current                        |
| I <sub>AVG</sub> | 0.36  | A        | Average Diode Bridge Current (DC Input Current) |
| Thermistor       | 6.00  | $\Omega$ | Input Thermistor                                |

## Device Variables

| Var                | Value         | Units    | Description  |
|--------------------|---------------|----------|--|
| Device             | INN3675C-H601 |          | PI Device Name   |
| Current Limit Mode | Standard      |          | Device Current Limit Mode  |
| BVDSS              | 725           | V        | Drn-Src Bkdn Voltage   |
| ILIMITMIN          | 0.883         | A        | Minimum Current Limit  |
| ILIMITTYP          | 0.950         | A        | Typical Current Limit  |
| ILIMITMAX          | 1.016         | A        | Maximum Current Limit  |
| RDSON              | 3.02          | $\Omega$ | PI Device RDSON (100°C)  |
| RDSON_25C          | 1.95          | $\Omega$ | PI Device RDSON (25°C)   |
| PO                 | 18.00         | W        | Total Output Power   |
| VOR                | 105.82        | V        | Reflected Output Voltage   |
| VDS                | 1.08          | V        | On state Drain to Source Voltage                                 |
| FS                 | 75100         | Hz       | Switching Frequency (at VMIN and Full Load)                      |
| KP                 | 0.732         |          | Continuous/Discontinuous Operating Ratio (at VMIN and Full Load) |
| D <sub>MAX</sub>   | 0.665         |          | Maximum Duty Cycle (at VMIN and Full Load)                       |
| TIME_OFF           | 4.47          | $\mu$ s  | Expected Device Off-time (at VMIN and Full Load)                 |
| TIME_ON            | 13.13         | $\mu$ s  | Primary controller on-time                                       |
| I <sub>P</sub>     | 0.947         | A        | Peak Primary Current (at VMIN and Full Load)                     |
| I <sub>R</sub>     | 0.821         | A        | Primary Ripple Current (at VMIN and Full Load)                   |

|                |                                |                 |   |
|----------------|--------------------------------|-----------------|---|
| IRMS           | 0.479                          | A               | Primary RMS Current (at VMIN and Full Load)   |
| UVOV_PRIORITY  | Overvoltage                    |                 | Input Undervoltage/Overvoltage Priority type  |
| RTH_DEVICE     | 75.53                          | °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 | 104                            | mm <sup>2</sup> | PI Device Heatsink Area                       |

### Clamp Circuit

| Var              | Value     | Units | Description                           |
|------------------|-----------|-------|---------------------------------------|
| Clamp Type       | RCD Clamp |       | Clamp Circuit Type                    |
| VCLAMP_ESTIMATED | 269.25    | V     | Estimated Clamping Voltage above VMAX |
| VDRAIN Estimated | 644.02    | V     | Estimated Drain Voltage               |

### Primary Bias Variables

| Var          | Value           | Units | Description                                 |
|--------------|-----------------|-------|---|
| VBMIN        | 12.0            | V     | Minimum Bias Voltage                        |
| VBMAX        | 31.5            | V     | Maximum Bias Voltage                        |
| Circuit Type | Simple Resistor |       | Bias Circuit Type                           |
| PIVB         | 81              | V     | Bias Rectifier Maximum Peak Inverse Voltage |
| NB           | 9               |       | Primary Bias Winding Number of Turns        |

### Transformer Construction Parameters

| Var           | Value             | Units             | Description   |
|---------------|-------------------|-------------------|---|
| Core Type     | EF20 (PC40EF20-Z) |                   | Core Type (Manual Overwrite)  |
| Core Material | PC40              |                   | Core Material (Manual Overwrite)  |
| LP_nom        | 781               | µH                | Nominal Primary Inductance  |
| LP_Tol        | 5.0               | %                 | Primary Inductance Tolerance  |
| NP            | 68.0              |                   | Calculated Primary Winding Total Number of Turns                            |
| NSM           | 16                |                   | Secondary Main Number of Turns (Manual Overwrite)                           |
| CMA           | 266.81            | Cmils/A           | Primary Winding Current Capacity  |
| BW            | 12.50             | mm                | Bobbin Winding Width  |
| FF            | 43.89             | %                 | Actual Transformer Fit Factor. 100% signifies fully utilized winding window |
| AE            | 33.50             | mm <sup>2</sup>   | Core Cross Sectional Area   |
| ALG           | 169               | nH/T <sup>2</sup> | Gapped Core Specific Inductance   |
| BM            | 3365              | Gauss             | Maximum Flux Density  |
| BP            | 3743              | Gauss             | Peak Flux Density   |
| BAC           | 1682              | Gauss             | AC Flux Density for Core Loss   |
| LG            | 0.223             | mm                | Estimated Gap Length  |
| L_LKG         | 16.74             | µH                | Estimated primary leakage inductance  |
| LSEC          | 20                | 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 |

|   |      |                                    |
|---|------|------------------------------------|
| L | 1.86 | Primary Winding - Number of Layers |
|---|------|------------------------------------|

## Output 1

| Var                     | Value                          | Units           | Description  |
|-------------------------|--------------------------------|-----------------|--|
| VO                      | 24.00                          | V               | Typical Output Voltage                               |
| IO                      | 0.750                          | A               | Output Current                                       |
| VOUT_ACTUAL             | 24.00                          | V               | Actual Output Voltage                                |
| Cable Drop Compensation | 0                              | mV              | Cable Drop Compensation                              |
| NS                      | 16                             |                 | Secondary Number of Turns                            |
| L_S_OUT                 | 1.00                           |                 | Secondary Output Winding Layers                      |
| VD                      | 0.90                           | V               | Output Winding Diode Forward Voltage Drop            |
| PIVS                    | 112.18                         | V               | Output Rectifier Maximum Peak Inverse Voltage        |
| ISP                     | 4.026                          | A               | Peak Secondary Current                               |
| ISRMS                   | 1.445                          | A               | Secondary RMS Current                                |
| ISRMS_WINDING           | 1.445                          | A               | Secondary Winding RMS Current                        |
| CMAS                    | 280                            | Cmils/A         | Secondary Winding Current Capacity                   |
| RTH_RECTIFIER           | 53.86                          | °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           | 145                            | mm <sup>2</sup> | Output Rectifier Heatsink Area                       |
| CO                      | 68 x 1                         | µF              | Output Capacitor - Capacitance                       |
| IRIPPLE                 | 1.235                          | A               | Output Capacitor - RMS Ripple Current                |
| Expected Lifetime       | 104817                         | hr              | Output Capacitor - Expected Lifetime                 |

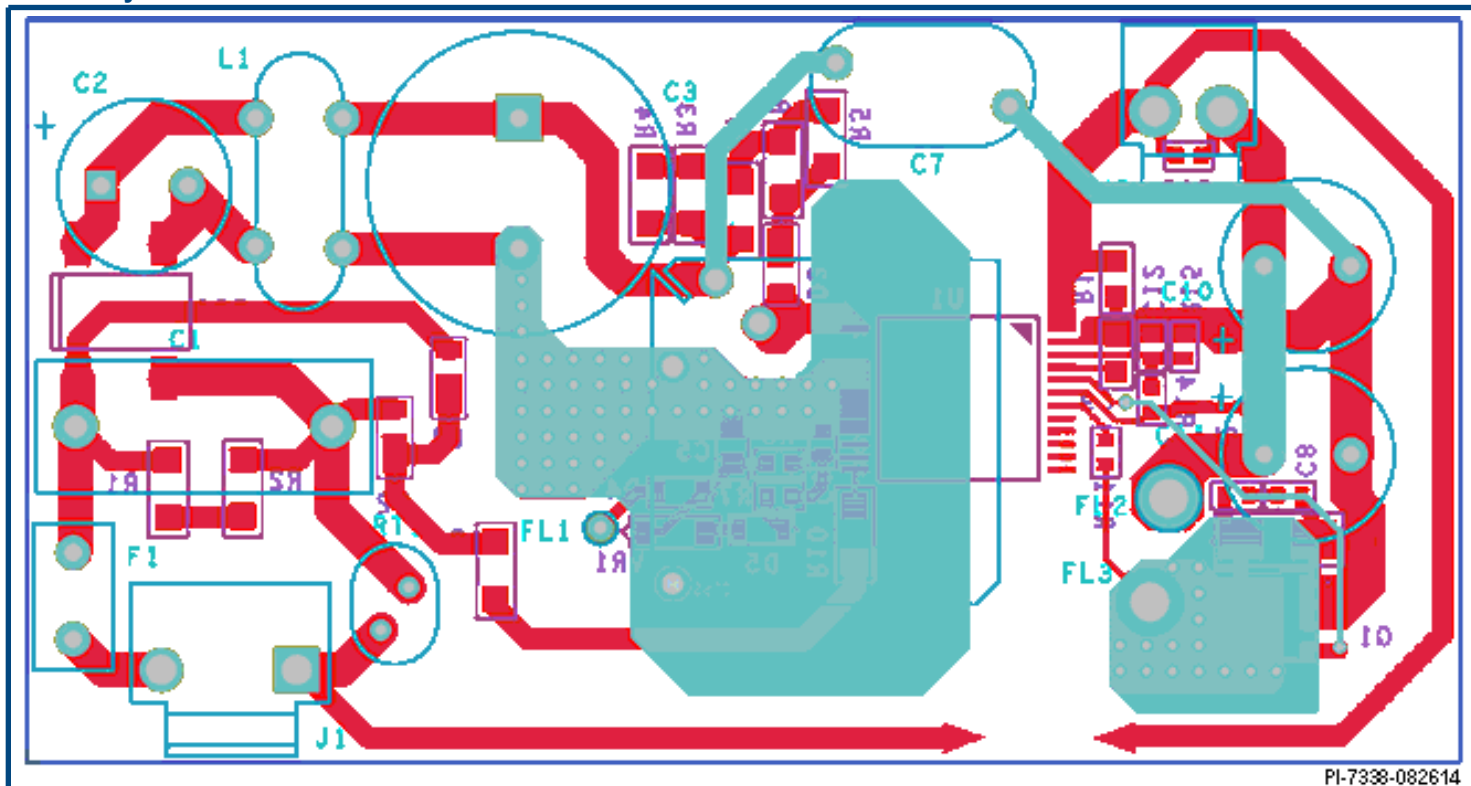
## Feedback Circuit

| Var                 | Value | Units | Description                 |
|---------------------|-------|-------|-----------------------------|
| DUAL_OUTPUT_FB_FLAG | NO    |       | Get feedback from 2 outputs |

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.

## Board Layout Recommendations



PI-7338-082614

Click on the "Show me" icon to highlight relevant areas on the sample layout.

|   | Description   | Show Me |
|---|---|---------|
| 1 | Minimize loop area formed by secondary winding, the output rectifier and the output filter capacitor  |         |
| 2 | Y-capacitor connected directly to the DC pin of the primary and secondary GND   |         |
| 3 | Minimize loop area formed by drain, clamp and transformer   |         |
| 4 | Maximize hatched area for heat-sinking  |         |
| 5 | Minimize loop area formed by drain, input capacitor and transformer   |         |
| 6 | Spark gaps with adequate creepage help in steering away the destructive energy created during an ESD event through the protection components such as the Y-cap. |         |
| 7 | The BYPASS pin capacitor should be located as close as possible to the BYPASS and SOURCE pins   |         |

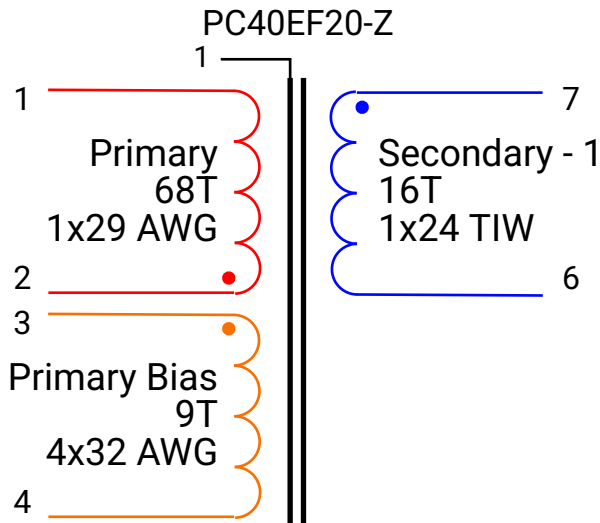
## Bill Of Materials

| Ite m # | Quantity | Part Ref       | Value                | Description   | Mfg                      | Mfg Part Number      |
|---------|----------|----------------|----------------------|---|--------------------------|----------------------|
| 1       | 1        | C1             | 22 $\mu$ F           | 22 $\mu$ F, 400 V, High Voltage Al Electrolytic, (21.5 mm x 12.5 mm)                    | Nichicon                 | UCS2G220MHD          |
| 2       | 1        | C2             | 27 $\mu$ F           | 27 $\mu$ F, 400 V, High Voltage Al Electrolytic, (18 mm x 18 mm)                        | Rubycon                  | 400BXW27MEFR18X16    |
| 3       | 1        | C3             | 0.39 nF              | 0.39 nF, 630 V, High Voltage Ceramic  | Murata                   | GRM31A5C2J391JW01D   |
| 4       | 1        | C4             | 0.47 $\mu$ F         | 0.47 $\mu$ F, 25 V, Ceramic, X7R  | Kemet                    | C0805C474K3RAC7800   |
| 5       | 1        | C5             | 2.2 $\mu$ F          | 2.2 $\mu$ F, 16 V, Ceramic, X7R   | TDK                      | CGA4J3X7R1C225K125AB |
| 6       | 1        | C6             | 0.22 nF              | 0.22 nF, 250 VAC, Ceramic, Y Class  | Vishay                   | VJ2008A221JXUSTX1    |
| 7       | 1        | C7             | 22 pF                | 22 pF, 630 V, High Voltage Ceramic  | Murata                   | GRM31A5C2J220JW01D   |
| 8       | 1        | C8             | 22 $\mu$ F           | 22 $\mu$ F, 35 V, Electrolytic, Gen Purpose, 100 m $\Omega$ , (5 mm x 5.8 mm)           | Panasonic                | EEH-ZA1V220R         |
| 9       | 1        | C9             | 68 $\mu$ F           | 68 $\mu$ F, 50 V, Al Organic Polymer, 32 m $\Omega$ , (12 mm x 10 mm)                   | Kemet                    | A759MS686M1HAAE032   |
| 10      | 1        | C10            | 330 pF               | 330 pF, 50 V, Ceramic, C0G  | TDK                      | FK18C0G1H331J        |
| 11      | 1        | C11            | 1 nF                 | 1 nF, 50 V, Ceramic, C0G  | Kemet                    | C410C102J5G5TA7200   |
| 12      | 4        | D1, D2, D3, D4 | RS2KA-13-F           | 800 V, 1.5 A, Standard Recovery, DO-214AC   | Diodes Inc.              | RS2KA-13-F           |
| 13      | 1        | D5             | DFLR1800-7           | 800 V, 1 A, Standard Recovery, POWERDI123   | Diodes Inc.              | DFLR1800-7           |
| 14      | 1        | D6             | RS1B-E3/61T          | 100 V, 1 A, Standard Recovery, DO-214AC   | Vishay                   | RS1B-E3/61T          |
| 15      | 1        | D7             | ES2C-E3/52T          | 150 V, 2 A, Ultrafast Recovery, 30 ns, DO-214AA   | Vishay                   | ES2C-E3/52T          |
| 16      | 1        | F1             | 1 A                  | 250 VAC, 1 A, Radial TR5, Time Lag Fuse   | Littelfuse / Wickmann(R) | 37411000410          |
| 17      | 1        | L1             | 6 mH                 | 6 mH, 1.6 A   | Panasonic                | ELF18N016            |
| 18      | 1        | R1             | 330 k $\Omega$       | 330 k $\Omega$ , 5 %, 0.5 W, Thick Film   | Generic                  |                      |
| 19      | 1        | R2             | 33 $\Omega$          | 33 $\Omega$ , 5 %, 0.125 W, Thick Film  | Generic                  |                      |
| 20      | 1        | R3             | 14.7 k $\Omega$      | 14.7 k $\Omega$ , 1 %, 0.125 W, Thick Film  | Generic                  |                      |
| 21      | 1        | R4             | 47 $\Omega$          | 47 $\Omega$ , 5 %, 0.125 W, Thick Film  | Generic                  |                      |
| 22      | 2        | R5, R6         | 1.78 M $\Omega$      | 1.78 M $\Omega$ , 1 %, 0.25 W, Thick Film   | Generic                  |                      |
| 23      | 1        | R7             | 40.2 m $\Omega$      | 40.2 m $\Omega$ , 1 %, 0.125 W, Metal Film  | Generic                  |                      |
| 24      | 1        | R8             | 470 $\Omega$         | 470 $\Omega$ , 5 %, 0.25 W, Thick Film  | Generic                  |                      |
| 25      | 1        | R9             | 562 k $\Omega$       | 562 k $\Omega$ , 1 %, 0.125 W, Thick Film   | Generic                  |                      |
| 26      | 1        | R10            | 29.4 k $\Omega$      | 29.4 k $\Omega$ , 1 %, 0.125 W, Thick Film  | Generic                  |                      |
| 27      | 1        | R11            | 10 k $\Omega$        | 10 k $\Omega$ , 1 %, 0.125 W, Thick Film  | Generic                  |                      |
| 28      | 1        | RT1            | 6 $\Omega$           | NTC Thermistor 6 $\Omega$ , 4 A   | TDK                      | B57235S0609M000V9    |
| 29      | 1        | T1             | EF20<br>(PC40EF20-Z) | PC40 Core Material<br>Refer to Manufacturer datasheet for a number of parts to purchase | TDK                      | PC40EF20-Z           |
| 30      | 1        | T1 Bobbin      | EF20 - 1<br>(P5-S5)  | Bobbin Material : GFR polyterephthalate   | EPCOS (TDK)              | B66206               |
| 31      | 1        | T1 Core Acc.1  | B66206               | Yoke . Stainless spring steel   | EPCOS (TDK)              | B66206               |

|    |   |    |               |   |                    |               |
|----|---|----|---------------|---|--------------------|---------------|
| 32 | 1 | U1 | INN3675C-H601 | InnoSwitch3-EP, INN3675C-H601, inSOP-24D  | Power Integrations | INN3675C-H601 |
| 33 | 1 |    |               | 104 mm <sup>2</sup> area on Copper PCB. 2 oz (70 μm) thickness. Heatsink for use with Device U1.    | Custom             |               |
| 34 | 1 |    |               | 145 mm <sup>2</sup> area on Copper PCB. 2 oz (70 μm) thickness. Heatsink for use with Rectifier D7. | Custom             |               |

# TRANSFORMER CONSTRUCTION REPORT

## Electrical Diagram



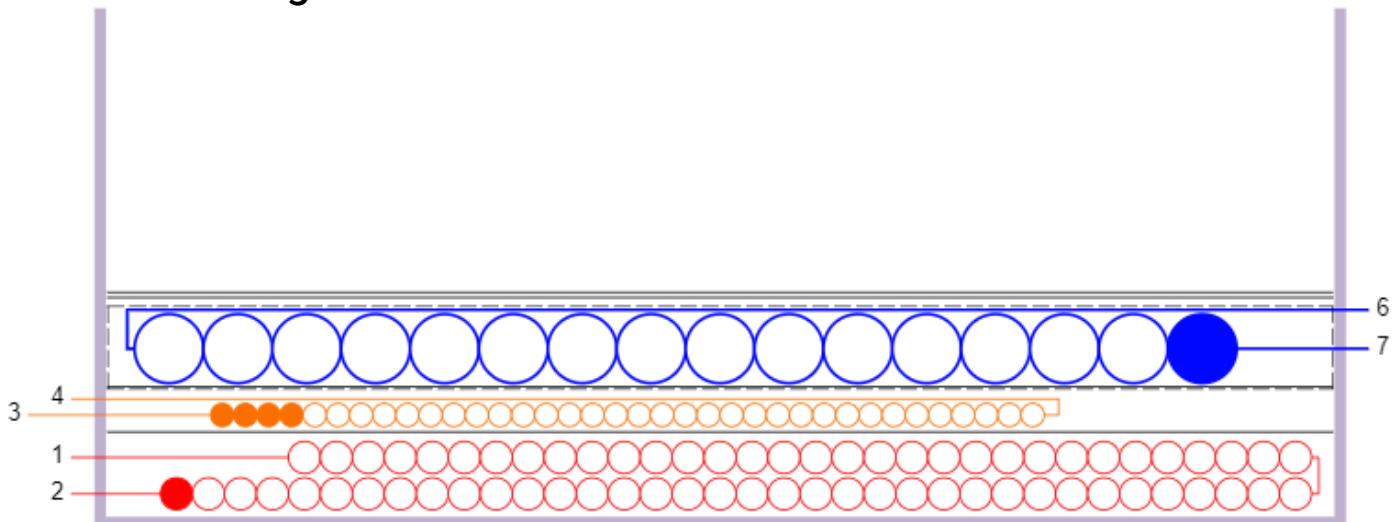
## Winding info

Stack Fill Factor: 43.89%;  
 Total Transformer Loss: 0.509 W  
 Core Loss: 0.143 W;  
 Copper Loss: 0.366 W  
 Primary: 170.3 mW;  
 Secondary: 196.03 mW;  
 Total Copper Weight: 2.82g

|  |
|--|
| <p>17.57%H; Primary; IRMS = 0.48A;<br/>         1.86L; 68T; 1x29 AWG; CMA = 266.81 Cmil/A; LENw = 220.6 cm;<br/>         RDC = 750.93 mΩ; RAC = 842.83 mΩ; WeightCU = 1.28 g; Pw = 170.3 mW;</p> |
| <p>6.78%H; Primary Bias; IRMS = 0.01A;<br/>         0.77L; 9T; 4x32 AWG; LENw = 32.9 cm;</p>   |
| <p>19.53%H; Secondary - 1; IRMS = 1.44A;<br/>         1L; 16T; 1x24 TIW; CMA = 280.14 Cmil/A; LENw = 63 cm;<br/>         RDC = 67.68 mΩ; RAC = 78.94 mΩ; WeightCU = 1.16 g; Pw = 196.03 mW;</p>  |

All losses shown correspond to the nominal current limit and primary winding inductance at the minimum AC voltage.

## Mechanical Diagram





## Building Instructions

# LIST OF MATERIALS

| Item | Description   |
|------|---|
| [1]  | Core: PC40EF20-Z, PC40, gapped for ALG of 169 nH / T <sup>2</sup>   |
| [2]  | Bobbin: GFR polyterephthalate B66206  |
| [3]  | Tinned copper wire 0.5mm  |
| [4]  | Varnish   |
| [5]  | Single core wire: 29 AWG (0.287mm), insulation Heavy Build (OD: 0.330mm) IEC 60317-56, IEC 60950 Annex U  |
| [6]  | Separation Tape: Polyester film [1 mil (25.4 micrometers) base thickness], 12.5 mm wide   |
| [7]  | Single core wire: 32 AWG (0.203mm), insulation Heavy Build (OD: 0.239mm) IEC 60317-56, IEC 60950 Annex U  |
| [8]  | Triple Insulated Wire: 24 AWG (0.511mm), insulation TEX-E (OD: 0.711mm) UL 2353 UL 1950/ IEC 60950-1, Annex U (UL 1411/UL 60950-1) 1000V Vrms, class B, reinforced insulation |

## WINDING INSTRUCTIONS

### 1. Primary

Start with 1 lead(s) of Item [5] from Pin 2, and wind 68 turns in Clockwise direction in total of 2 layer(s). Wind one layer from left to right. At the end of 1st layer, continue to wind the next layer towards the beginning of the previous layer. Finish this winding on Pin 1. Add 1 layer(s) of tape, Item [6], on the top.

### 2. Primary Bias

Start with 4 lead(s) of Item [7] from Pin 3, and wind 9 turns in Clockwise direction in total of 1 layer(s). Wind one layer from left to right. Finish this winding on Pin 4. Add 1 layer(s) of tape, Item [6], on the top.

### 3. Secondary - 1

Start with 1 lead(s) of Item [8] from Pin 7, and wind 16 turns in Clockwise direction in total of 1 layer(s). Wind one layer from right to left. Finish this winding on Pin 6. Add 2 layer(s) of tape, Item [6], on the top.

## BUILDING PREPARATIONS

1. Gap the core halves to get 781 uH +/- 5.0%.

## FINISHING INSTRUCTIONS

1. Using a piece of wire, Item [3], connect the core to Pin 1.
2. Varnish with Item [4]

## ELECTRICAL PARAMETERS

| Parameter | Condition | Spec |
|-----------|-----------|------|
|           |           |      |

|                            |   |                |
|----------------------------|---|----------------|
| Electrical Strength        | 60 Hz 1 second, from pins 1,2,3,4 to pins 6,7.  | 3000 VAC       |
| Nominal Primary Inductance | Measured at 1 V pk-pk, typical switching frequency, between pin 2 to pin 1, with all other Windings open. | 781 uH +- 5.0% |
| Maximum Primary Leakage    | Measured between Pin 2 to Pin 1, with all other Windings shorted.   | 16.74 uH       |

## Comments:

Achieving compliance to applicable safety standard may require additional considerations for transformer construction, manufacturing and methods used for termination of wires.

It is the responsibility of the user to verify that all applicable safety requirements are met and make additional changes as applicable.

# Winding Parameters

|                             |             |              |               |
|-----------------------------|-------------|--------------|---------------|
| Type                        | Power       | Bias         | Power         |
| Name                        | Primary     | Primary Bias | Secondary - 1 |
| Turns                       | 68          | 9            | 16            |
| Layers                      | 1.86        | 0.77         | 1             |
| Color                       | Red         | Orange       | Blue          |
| Wire Type                   | Single Core | Single Core  | Single Core   |
| Wire Size, AWG              | 29          | 32           | 24            |
| Wire Grade                  | Heavy Build | Heavy Build  | TIW           |
| Filar                       | 1           | 4            | 1             |
| Wire Tolerance, %           | 0           | 0            | 0             |
| Split                       | False       | False        | False         |
| Spread                      | NO          | NO           | NO            |
| Arrangement                 | Independent | Independent  | Independent   |
| Direction                   | Clockwise   | Clockwise    | Clockwise     |
| Z winding                   | NO          | NO           | NO            |
| Opposite start              | NO          | NO           | NO            |
| Winding Start               | Pin         | Pin          | Pin           |
| Winding End                 | Pin         | Pin          | Pin           |
| Start Pin                   | 2           | 3            | 7             |
| End Pin                     | 1           | 4            | 6             |
| Sleeving                    | None        | None         | None          |
| Connection                  | Floating    | Floating     | Floating      |
| Margin Left                 | 0           | 0            | 0             |
| Margin Right                | 0           | 0            | 0             |
| Tape Between Layers         | NO          | NO           | NO            |
| Tape Between Lead & Winding | NO          | NO           | NO            |
| Tape on top                 | 1           | 1            | 2             |
| Tape Thickness, mm          | 0.0254      | 0.0254       | 0.0254        |
| CMA, Cmil/A                 | 266.81      | 25549.63     | 280.14        |

## Core/Coil Former Parameters

|                          |                   |
|--------------------------|-------------------|
| Core Type                | EF20 (PC40EF20-Z) |
| Part Number              | PC40EF20-Z        |
| Core Material            | PC40              |
| Coil Former Part Number  | B66206            |
| Bobbin type              | Horizontal        |
| Available Pins           | 10                |
| Total BW, mm             | 12.5              |
| BFW, mm                  | 3.9               |
| Bobbin Window Length, mm | 12.5              |
| X-Tolerance, %           | 0                 |
| Maximum Stack Height, mm | 3.9               |
| Y-Tolerance, %           | 0                 |
| External shielding       | Core AC Grounded  |
| Core connect to          | 1                 |

## Design Specifications

|  |        |
|--|--------|
| Magnetizing Inductance Tolerance (LP_Tol), % | 5.0    |
| Frequency (FS), Hz                           | 75100  |
| Reflected Output Voltage (VOR), V            | 105.82 |
| Main Turns (NSM)                             | 16     |

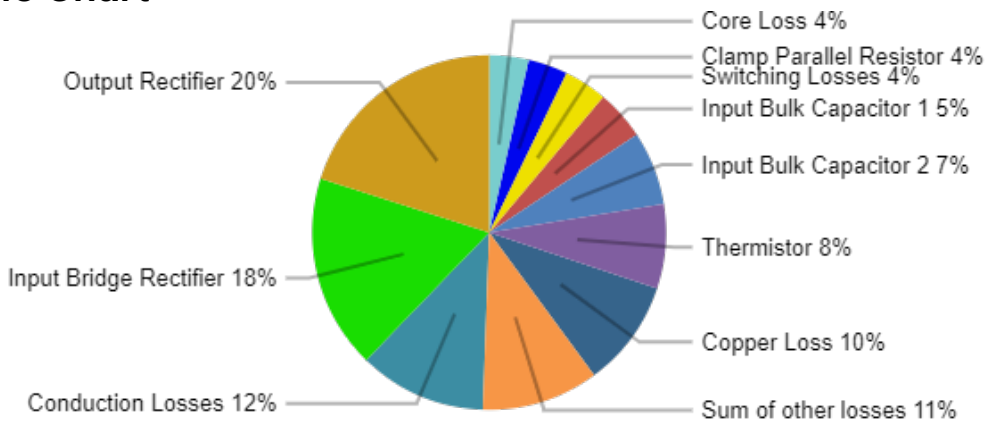
|                  |        |
|------------------|--------|
| Set-Point        | 1      |
| ILIMIT Tolerance | Min    |
| LP Tolerance     | Min    |
| VACMIN [V]       | 65     |
| VMIN [V]         | 54.5   |
| INDUCTANCE [uH]  | 741.49 |
| ILIMIT [A]       | 0.88   |
| PO [W]           | 18.00  |
| VO [V]           | 24.90  |
| IO [A]           | 0.750  |
| FS [Hz]          | 75100  |
| VOR [V]          | 105.82 |
| DMAX             | 0.665  |
| KP               | 0.745  |
| TIME_ON [μs]     | 8.85   |
| TIME_OFF [μs]    | 4.47   |
| IAVG [A]         | 0.36   |
| IP [A]           | 0.856  |
| IRMS [A]         | 0.463  |
| ISP [A]          | 3.637  |
| IRIPPLE [A]      | 1.179  |
| BM [Gauss]       | 2786   |
| BP [Gauss]       | 2943   |
| BAC [Gauss]      | 1393   |
| ISRMS [A]        | 1.397  |
| NP               | 68.0   |
| N_ACTUAL [%]     | 82.96  |

# Design Evaluation

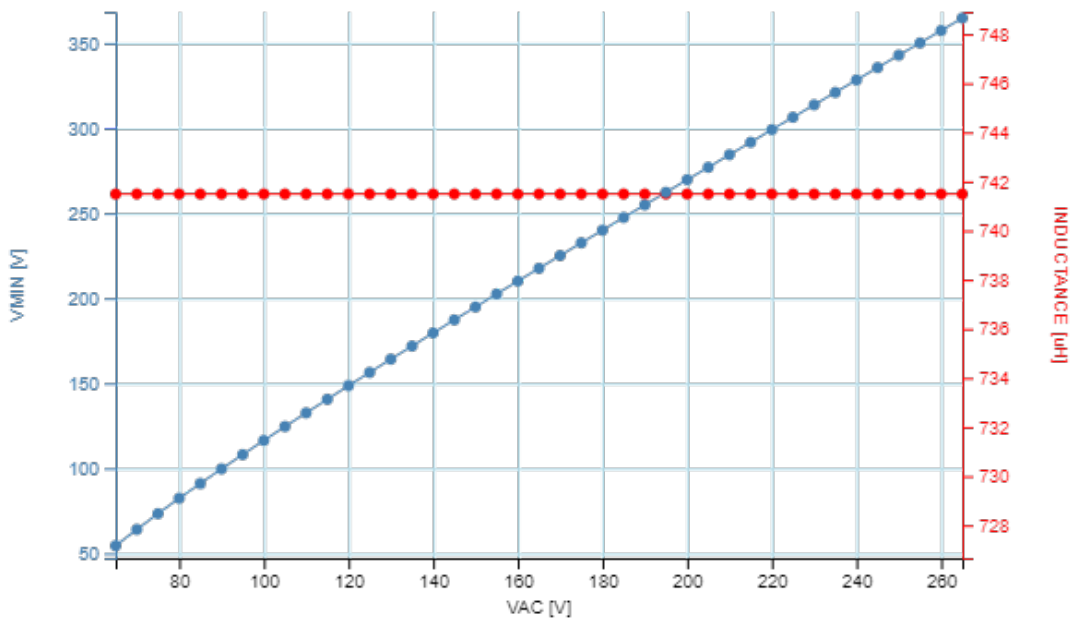
LOAD [%] 100  
 VAC [V] 65  
 Set-Point 1  
 ILIMIT Tolerance MIN  
 LP Tolerance MIN

| Components              | Loss (W) | Rth (C/W) | Temp. Rise (C) |
|-------------------------|----------|-----------|----------------|
| Total Losses            | 3.696    |           |                |
| INPUT STAGE             | 1.459    |           |                |
| Common Mode Choke       | 0.103    |           |                |
| Thermistor              | 0.284    |           |                |
| Input Bridge Rectifier  | 0.655    |           |                |
| Input Bulk Capacitor 1  | 0.169    |           |                |
| Input Bulk Capacitor 2  | 0.249    |           |                |
| PI DEVICE               | 0.662    |           |                |
| Switching Losses        | 0.145    |           |                |
| Conduction Losses       | 0.431    |           |                |
| Self Consumption        | 0.087    |           |                |
| PRIMARY CLAMP CIRCUIT   | 0.238    |           |                |
| Clamp Parallel Resistor | 0.134    |           |                |
| Clamp Series Resistor   | 0.015    |           |                |
| Clamp Blocking Diode    | 0.089    |           |                |
| PRIMARY BIAS            | 0.031    |           |                |
| Diode                   | 0.002    |           |                |
| Resistor                | 0.029    |           |                |
| CONTROLLER CIRCUIT      | 0.025    |           |                |
| Line Sense Resistor 1   | 0.001    |           |                |
| Line Sense Resistor 2   | 0.001    |           |                |
| Current Sense Resistor  | 0.023    |           |                |
| Upper Feedback Resistor | 0.001    |           |                |
| Lower Feedback Resistor | 0.000    |           |                |
| TRANSFORMER             | 0.495    |           |                |
| Copper Loss             | 0.362    |           |                |
| Core Loss               | 0.133    |           |                |
| SECONDARY RECTIFIER     | 0.745    |           |                |
| Output Rectifier        | 0.743    |           |                |
| Snubber Resistor        | 0.003    |           |                |
| OUTPUT CAP              | 0.041    |           |                |
| Output Capacitor(s)     | 0.041    |           |                |

## Pie Chart



## Line Chart



Note: Design parameters shown in the tool are based on calculations and approximations. Actual results will vary. Power supply designed using the tool should be tested to verify actual parameter values.





|  | <b>Description</b>                 | <b>Fix</b>                                       | <b>Ref. #</b> |
|--|------------------------------------|--|---------------|
|  | <i>UV threshold above VIN_MIN.</i> | <i>Reduce maximum under-voltage (VUVON_MAX).</i> | 117           |