## 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 | 0.63 | | Loss Allocation Factor |
| η | 99.0 | % | Efficiency Estimate (Target) (Manual Overwrite) |
| VMIN | 84.0 | V | Minimum DC Input Voltage |
| VMAX | 374.8 | V | Maximum DC Input Voltage |

## Input Section

| Var | Value | Units | Description |
|---|---|---|---|
| Fuse | 2.00 | A | Input Fuse Rated Current |
| IAVG | 1.44 | A | Average Diode Bridge Current (DC Input Current) |
| Thermistor | 2.00 | Ω | Input Thermistor |

## Device Variables

| Var | Value | Units | Description |
|---|---|---|---|
| Device | TOP271EG | | PI Device Name (Manual Overwrite) |
| BVDSS | 725 | V | Drn-Src Bkdn Voltage |
| Current Limit Mode | Default | | Device Current Limit Mode |
| OVP_FLAG | NO | | Output Overvoltage Protection Enabled |
| PO | 120.07 | W | Total Output Power |
| VDRAIN Estimated | 609.46 | V | Estimated Drain Voltage |
| VDS | 8.71 | V | On state Drain to Source Voltage |
| FS | 132000 | Hz | Switching Frequency (at VMIN and Full Load) |
| KP | 0.500 | | Continuous/Discontinuous Operating Ratio (at VMIN and Full Load) (Manual Overwrite) |
| DMAX | 0.642 | | Maximum Duty Cycle (at VMIN and Full Load) |
| KI | 0.70 | | Current Limit Reduction Factor (Manual Overwrite) |
| ILIMITEXT | 3.37 | A | Programmed Current Limit |
| ILIMITMIN | 4.808 | A | Minimum Current Limit |
| ILIMITMAX | 5.532 | A | Maximum Current Limit |
| PLIM_FLAG | NO | | Enable Overload Power Limiting (Manual Overwrite) |
| IP | 2.998 | A | Peak Primary Current (at VMIN and Full Load) |
| IRMS | 1.835 | A | Primary RMS Current (at VMIN and Full Load) |
| RTH_DEVICE | 9.79 | °C/W | PI Device Heatsink Maximum Thermal Resistance |
| DEV_HSINK_TYPE | Aluminum Extruded | | PI Device Heatsink Type |
| DEV_HSINK_PN | 508222B00000G | | PI Device (Extruded) Heatsink Part Number |

## Clamp Circuit

| Var | Value | Units | Description |
|---|---|---|---|
| Clamp Type | RCD + Zener Clamp | | Clamp Circuit Type |
| VCLAMP | 99.69 | V | Average Clamping Voltage |
| Estimated Clamp Loss | 2.160 | W | Clamp total power loss |
| VC_MARGIN | 115.23 | V | Clamp Voltage Safety Margin |

## Primary Bias Variables

| Var | Value | Units | Description |
|---|---|---|---|
| VB | 12.0 | V | Bias Voltage |
| IB | 0.006 | A | Bias Current |
| PIVB | 53 | V | Bias Rectifier Maximum Peak Inverse Voltage |
| NB | 3 | | Primary Bias Winding Number of Turns |

## Transformer Construction Parameters

| Var | Value | Units | Description |
|---|---|---|---|
| Core Type | EEQ3014 | | Core Type (Manual Overwrite) |
| Core Material | 3C95 | | Core Material (Manual Overwrite) |
| Bobbin Reference | Generic, 6 pri. + 6 sec. | | Bobbin Reference |
| Bobbin Orientation | Vertical | | Bobbin type |
| Primary Pins | 5 | | Number of Primary pins used |
| Secondary Pins | 2 | | Number of Secondary pins used |
| USE_SHIELDS | NO | | Use shield Windings |
| LP_nom | 290 | µH | Nominal Primary Inductance |
| LP_Tol | 10.0 | % | Primary Inductance Tolerance |
| NP | 27.2 | | Calculated Primary Winding Total Number of Turns |
| NSM | 5 | | Secondary Main Number of Turns (Manual Overwrite) |
| CMA | 349.28 | Cmils/A | Primary Winding Current Capacity |
| VOR | 135.00 | V | Reflected Output Voltage |
| BW | 8.40 | mm | Bobbin Winding Width |
| ML | 0.00 | mm | Safety Margin on Left Width |
| MR | 0.00 | mm | Safety Margin on Right Width |
| **FF** | **126.68** | **%** | **Actual Transformer Fit Factor. 100% signifies fully utilized winding window.<br>See Warnings section for detail** |
| AE | 133.00 | mm² | Core Cross Sectional Area |
| ALG | 352 | nH/T² | Gapped Core Specific Inductance |
| BM | 2160 | Gauss | Maximum Flux Density |
| BP | 3804 | Gauss | Peak Flux Density |
| BAC | 540 | Gauss | AC Flux Density for Core Loss |
| LG | 0.442 | mm | Estimated Gap Length |
| L_LKG | 4.35 | µH | Estimated primary leakage inductance |
| LSEC | 20 | nH | Secondary Trace Inductance |

## Primary Winding Section 1

| Var | Value | Units | Description |
|---|---|---|---|
| NP1 | 14 | | Number of Primary Winding Turns in the First Section of Primary |
| Wire Size | 25 | AWG | Primary Winding - Wire Size (Manual Overwrite) |
| Winding Type | Bifilar (x2) | | Primary Winding - Number of Parallel Wire Strands (Manual Overwrite) |
| L | 1.68 | | Primary Winding - Number of Layers |
| DC Copper Loss | 0.19 | W | Primary Section 1 DC Losses |

## Primary Winding Section 2

| Var | Value | Units | Description |
|---|---|---|---|
| NP2 | 14 | | Rounded (Integer) Number of Primary winding turns in the second section of primary |
| Wire Size | 25 | AWG | Primary Winding - Wire Size (Manual Overwrite) |

| | | | |
|---|---|---|---|
| Winding Type | Bifilar (x2) | | Primary Winding - Number of Parallel Wire Strands (Manual Overwrite) |
| L2 | 1.68 | | Primary Number of Layers in 2nd split winding |

## Output 1

| *Var* | *Value* | *Units* | *Description* |
|---|---|---|---|
| VO | 24.00 | V | Typical Output Voltage |
| IO | 5.00 | A | Output Current |
| VOUT_ACTUAL | 24.00 | V | Actual Output Voltage |
| NS | 5 | | Secondary Number of Turns |
| Wire Size | 24 | AWG | Wire size of secondary winding (Manual Overwrite) |
| Winding Type | Quadfilar (x4) | | Output winding number of parallel strands (Manual Overwrite) |
| L_S_OUT | 1.79 | | Secondary Output Winding Layers |
| DC Copper Loss | 0.54 | W | Secondary DC Losses |
| VD | 0.78 | V | Output Winding Diode Forward Voltage Drop |
| VD | 0.78 | V | Output Winding Diode Forward Voltage Drop |
| PIVS | 90.92 | V | Output Rectifier Maximum Peak Inverse Voltage |
| ISP | 16.325 | A | Peak Secondary Current |
| ISRMS | 7.461 | A | Secondary RMS Current |
| ISRMS_WINDING | 7.461 | A | Secondary Winding RMS Current |
| CMAS | 217 | Cmils/A | Secondary Winding Current Capacity |
| RTH_RECTIFIER | 13.76 | °C/W | Output Rectifier Heatsink Maximum Thermal Resistance |
| OR_HSINK_TYPE | Custom Aluminum | | Output Rectifier Heatsink Type |
| OR_HSINK_AREA | 7132 | mm² | Output Rectifier Heatsink Area |
| CO | 3000 x 1 | µF | Output Capacitor - Capacitance (Manual Overwrite) |
| IRIPPLE | 5.538 | A | Output Capacitor - RMS Ripple Current |
| Expected Lifetime | 98212 | hr | Output Capacitor - Expected Lifetime (Manual Overwrite) |

## Feedback Circuit

| *Var* | *Value* | *Units* | *Description* |
|---|---|---|---|
| DUAL_OUTPUT_FB_FLAG | NO | | Get feedback from 2 outputs |
| SF_FLAG | NO | | Soft Finish Circuits use flag |
| TYPE_3CTRL_FLAG | YES | | Phase Boost Network flag |

**High output current Flyback design.**

**Use parallel low ESR output capacitors, reduce secondary ripple currents by reducing VOR and KP.**

**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.**