

Power Supply Input

| <i>Var</i> | <i>Value</i> | <i>Units</i> | <i>Description</i> |
|------------|--------------|--------------|---------------------------------|
| 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 | 0.46 | | Loss Allocation Factor |
| η | 70.0 | % | Efficiency Estimate (Target) |
| VMIN | 81.7 | V | Minimum DC Input Voltage |
| VMAX | 374.8 | V | Maximum DC Input Voltage |

Input Section

| <i>Var</i> | <i>Value</i> | <i>Units</i> | <i>Description</i> |
|------------|--------------|--------------|---|
| RFUSE | 10.00 | Ω | Fusible Resistor. See Information section for detail |
| IAVG | 0.06 | A | Average Diode Bridge Current (DC Input Current) |
| MOV_VRATED | 275 | V | MOV Rated Voltage |

Device Variables

| <i>Var</i> | <i>Value</i> | <i>Units</i> | <i>Description</i> |
|--------------------|--|--------------------|--|
| Device | TNY284DG ▼ | | PI Device Name |
| BVDSS | 700 | V | Drn-Src Bkdn Voltage |
| Current Limit Mode | Increased | | Device Current Limit Mode |
| PO | 3.50 | W | Total Output Power |
| VDRAIN Estimated | 484.77 | V | Estimated Drain Voltage |
| VDS | 11.73 | V | On state Drain to Source Voltage |
| I2F_MIN | 5.24 | A ² kHz | Minimum I2F |
| I2F_MAX | 6.75 | A ² kHz | Maximum I2F |
| FS_AT_ILIMMIN | 136375 | Hz | Switching Frequency at Current Limit Minimum |
| KP | 0.858 | | Continuous/Discontinuous Operating Ratio (at VMIN and Full Load) |
| KP_TRANSIENT | 0.70 | | Transient Ripple to Peak Current Ratio |
| DMAX | 0.566 | | Maximum Duty Cycle (at VMIN and Full Load) |
| ILIMITMIN | 0.196 | A | Minimum Current Limit |
| ILIMITMAX | 0.233 | A | Maximum Current Limit |
| IRMS | 0.095 | A | Primary RMS Current (at VMIN and Full Load) |
| RTH_DEVICE | 141.83 | °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

| <i>Var</i> | <i>Value</i> | <i>Units</i> | <i>Description</i> |
|----------------------|--------------------|--------------|--------------------------|
| Clamp Type | Zener Clamp | | Clamp Circuit Type |
| VCLAMP | 18.87 | V | Average Clamping Voltage |
| Estimated Clamp Loss | 0.13 | 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 | 3F3 ▼ | | Core Material |
| Bobbin Reference | Generic, 4 pri. + 4 sec. | | Bobbin Reference |
| Bobbin Orientation | Horizontal | | Bobbin type |
| Primary Pins | 2 | | Number of Primary pins used |
| Secondary Pins | 4 | | Number of Secondary pins used |

| Var | Value | Units | Description |
|-------------|--------------|-------------------|---|
| USE_SHIELDS | NO ▼ | | Use shield Windings |
| LP_nom | 1814 | μH | Nominal Primary Inductance |
| LP_Tol | 10.0 | % | Primary Inductance Tolerance |
| NP | 97.6 | | Calculated Primary Winding Total Number of Turns |
| NSM | 6 | | Secondary Main Number of Turns |
| CMA | 337 | Cmils/A | Primary Winding Current Capacity |
| VOR | 91.13 | 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 | 60.76 | % | Actual Transformer Fit Factor. 100% signifies fully utilized winding window |
| AE | 19.20 | mm ² | Core Cross Sectional Area |
| ALG | 171 | nH/T ² | Gapped Core Specific Inductance |
| BM | 2112 | Gauss | Maximum Flux Density |
| BAC | 758 | Gauss | AC Flux Density for Core Loss |
| LG | 0.120 | mm | Estimated Gap Length |
| L_LKG | 72.56 | μH | Estimated primary leakage inductance |
| LSEC | 15 | nH | Secondary Trace Inductance |

Primary Winding Section 1

| Var | Value | Units | Description |
|----------------|--------------|--------------|---|
| NP1 | 98 | | Number of Primary Winding Turns in the First Section of Primary |
| Wire Size | 35 | AWG | Primary Winding - Wire Size |
| Winding Type | Single (x1) | | Primary Winding - Number of Parallel Wire Strands |
| L | 1.96 | | 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 | 0.60 | A | Output Current |
| VOUT_ACTUAL | 5.00 | V | Actual Output Voltage |
| NS | 6 | | Secondary Number of Turns |
| Wire Size | 26 | AWG | Wire size of secondary winding |
| Winding Type | Single (x1) | | Output winding number of parallel strands |
| L_S_OUT | 0.42 | | Secondary Output Winding Layers |
| DC Copper Loss | 0.04 | W | Secondary DC Losses |
| OD_VD | 0.60 | V | Output Winding Diode Forward Voltage Drop |
| PIVS | 27.94 | V | Output Rectifier Maximum Peak Inverse Voltage |
| ISP | 2.734 | A | Peak Secondary Current |
| ISRMS | 1.121 | A | Secondary RMS Current |
| RTH_RECTIFIER | 156.55 | °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 | 680 x 1 | μF | Output Capacitor - Capacitance |
| IRIPPLE | 0.947 | A | Output Capacitor - RMS Ripple Current |
| Expected Lifetime | 25607 | hr | Output Capacitor - Expected Lifetime |

Output 2

| Var | Value | Units | Description |
|----------------|--------------|--------------|---|
| VO | 5.00 | V | Typical Output Voltage |
| IO | 0.10 | A | Output Current |
| VOUT_ACTUAL | 5.00 | V | Actual Output Voltage |
| NS | 6 | | Secondary Number of Turns |
| Wire Size | 32 | AWG | Wire size of secondary winding |
| Winding Type | Single (x1) | | Output winding number of parallel strands |
| L_S_OUT | 0.28 | | Secondary Output Winding Layers |
| DC Copper Loss | 0.01 | W | Secondary DC Losses |

| Var | Value | Units | Description |
|-------------------|---------------------------------------|-----------------|--|
| OD_VD | 0.60 | V | Output Winding Diode Forward Voltage Drop |
| PIVS | 27.94 | V | Output Rectifier Maximum Peak Inverse Voltage |
| ISP | 0.456 | A | Peak Secondary Current |
| ISRMS | 0.187 | A | Secondary RMS Current |
| RTH_RECTIFIER | 1026.90 | °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 | 100 x 1 | μF | Output Capacitor - Capacitance |
| IRIPPLE | 0.158 | A | Output Capacitor - RMS Ripple Current |
| Expected Lifetime | 24271 | 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.