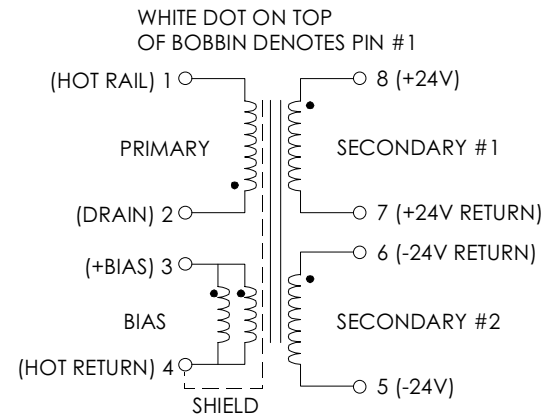


**TABLE 1: ELECTRICAL SPECIFICATIONS AT 25 °C**  
SWITCHING TRANSFORMER DESIGNED FOR USE WITH POWER INTEGRATIONS  
TOP224P. REFER TO APPLICATION CIRCUIT OF FIGURE 3.

| PARAMETER                                                                                                                                                                                                                                                                  | SPEC LIMITS                                              |                                                                   |                                                                           | UNITS                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------|
|                                                                                                                                                                                                                                                                            | MIN.                                                     | TYP.                                                              | MAX.                                                                      |                                                           |
| PRIMARY INDUCTANCE (2-1)<br>VOLTAGE = 0.250Vrms<br>FREQUENCY = 100 KHZ                                                                                                                                                                                                     | 585                                                      | 650                                                               | 715                                                                       | μHY                                                       |
| TURN RATIO'S:<br>BIAS (3-4) : PRIMARY (2-1)<br>SEC #1 (8-7) : PRIMARY (2-1)<br>SEC #2 (6-5) : PRIMARY (2-1)                                                                                                                                                                | -----                                                    | 1: 8.375<br>1: 4.250<br>1: 4.250                                  | -----                                                                     | ± 4%<br>± 4%<br>± 4%                                      |
| PRI LEAKAGE IND. (SEC SHORTED)<br>VOLTAGE = 0.250Vrms<br>FREQUENCY = 100 KHZ                                                                                                                                                                                               | -----                                                    | -----                                                             | 44                                                                        | μHY                                                       |
| HIPOT:<br>PRIMARY & BIAS TO SECONDARIES                                                                                                                                                                                                                                    | 3000                                                     | -----                                                             | -----                                                                     | Vrms                                                      |
| APP CIRCUIT PARAMETERS: (1)<br>AC LINE VOLTAGE 47/400 Hz<br>SEC #1 OUTPUT VOLTAGE<br>OUTPUT CURRENT CONTINUOUS<br>SEC #1 OUTPUT VOLTAGE<br>OUTPUT CURRENT CONTINUOUS<br>PEAK CURRENT OUT, EACH SEC.<br>LINE REGULATION (85 TO 265Vac)<br>LOAD REGULATION 10-100%<br>RIPPLE | 85<br>50<br>50<br>50<br>-----<br>-----<br>-----<br>----- | -----<br>+24.0<br>-----<br>-24.0<br>-----<br>0.20<br>0.20<br>50.0 | 265<br>-----<br>+400<br>-----<br>-400<br>-----<br>-----<br>-----<br>----- | Vac<br>Vdc<br>mA<br>Vdc<br>mA<br>mAmps<br>±%<br>±%<br>±mV |

(1) REFER TO RD5 APPLICATION CIRCUIT OF FIGURE 3.

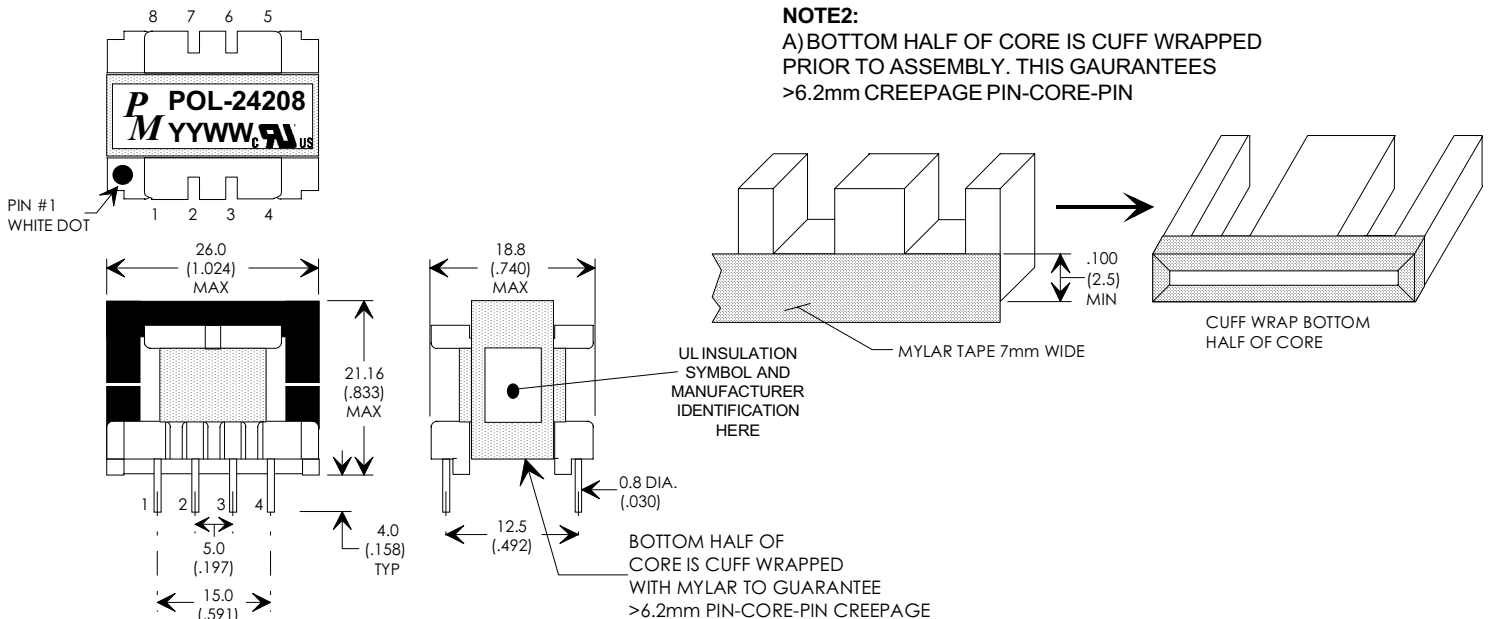
**FIGURE 1: SCHEMATIC DIAGRAM**



**NOTE1:**  
**REINFORCED INSULATION SYSTEM, UL1950, IEC950, CSA-950:**  
A) ALL MATERIALS MEET "UL", "CSA" & "IEC" REQUIREMENTS  
B) TRIPLE BASIC INSULATED SECONDARY.  
C) DESIGNED TO MEET >6.2mm CREEPAGE REQUIREMENTS.  
D) VARNISH FINISHED ASSEMBLY.  
E) UL1950 & CSA-950 CERTIFIED: FILE #E162344.  
F) UL CLASS (B) 130 INSULATION SYSTEM PM130-R1, PM130-H1, PM130-H1A (UL FILE #E177139) OR ANY UL AUTHORIZED CLASS (B) INSULATION SYSTEM.



**FIGURE 2: PHYSICAL DIMENSIONS mm (INCHES)**



**NOTE2:**  
A) BOTTOM HALF OF CORE IS CUFF WRAPPED PRIOR TO ASSEMBLY. THIS GAURANTEES >6.2mm CREEPAGE PIN-CORE-PIN

| REV.     | DESCRIPTION OF CHANGES                       | BY |
|----------|----------------------------------------------|----|
| 06/24/98 | ORIGINAL RELEASE                             | PP |
| 02/18/99 | UPDATE PER SAMPLE                            | PP |
| 04/28/99 | UPDATE TO UL CLASS (B) 130 INSULATION SYSTEM | MD |
|          |                                              |    |
|          |                                              |    |

EE25.4 (FEI25, FEE25, EE2425), 8-PIN VERTICAL BOBBIN



UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN MM  
DIMENSIONAL TOLERANCES ARE:  
DECIMALS ANGLES  
.X ± .25 ±0° 30'  
.XX ± .15  
DO NOT SCALE DRAWING

**TRANSFORMER CONTROL DRAWING**

|                        |                    |
|------------------------|--------------------|
| PREMIER P/N: POL-24208 | REVISION: 04/28/99 |
| ENGR: PETER PHAM       | REF: TOP224P       |
| SCALE: NONE            | SHEET: 1 OF6       |

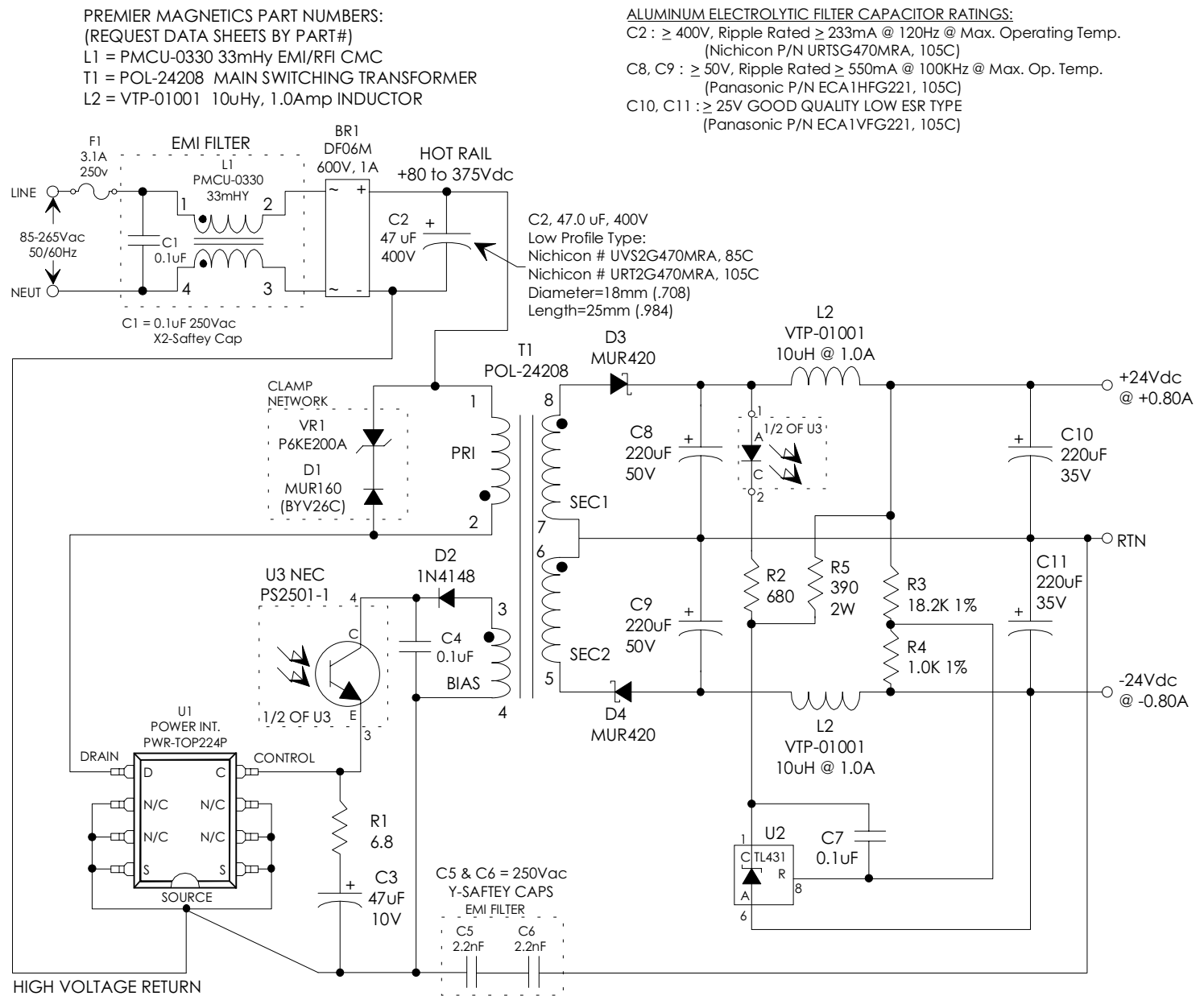
## APPLICATION NOTES

Premier Magnetics' POL-24208 Switch Mode Transformer was designed for use with Power Integrations, Inc. PWR-TOP224P three terminal off-line PWM switching regulator in the Flyback Buck-Boost circuit configuration. This conversion topology can provide isolated multiple outputs with efficiencies up to 90%. Premier's POL-24208 transformer has been optimized to provide maximum power throughput.

The TOPSwitch-II series from Power Integrations, Inc. are self contained 100KHz three terminal voltage controlled PWM switching regulators. This series contains all necessary functions for an off-line switched mode control DC power source. These switching regulators provide a very simple solution to off-line designs. The inductors and transformer used with the TOPXXX are critical to the performance of the circuit. They define the overall efficiency, output power and overall physical size.

Below is a universal input high precision 20 watt application circuit utilizing Power Integrations TOP224 switching regulator in the flyback buck-boost configuration. The component values listed are intended for reference purposes only.

**FIGURE 3: TYPICAL APPLICATION CIRCUIT**



**Premier  
Magnetics Inc.**

"INNOVATORS IN MAGNETICS TECHNOLOGY"

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN MM  
DIMENSIONAL TOLERANCES ARE:  
DECIMALS ANGLES  
.X  $\pm .25$   $\pm 0^\circ 30'$   
.XX  $\pm .15$   
DO NOT SCALE DRAWING

### TRANSFORMER CONTROL DRAWING

|                        |                    |
|------------------------|--------------------|
| PREMIER P/N: POL-24208 | REVISION: 04/28/99 |
| ENGR: PETER PHAM       | REF: TOP224P       |
| SCALE: NONE            | SHEET: 2 OF 6      |