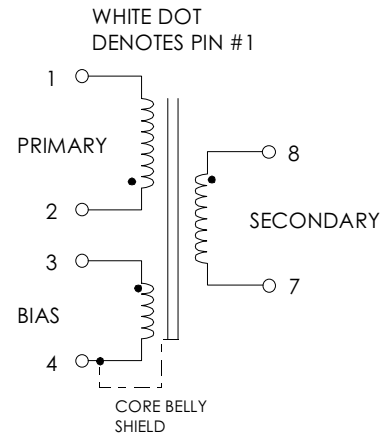


**TABLE 1: ELECTRICAL SPECIFICATIONS AT 25 °C**  
 SWITCHING TRANSFORMER DESIGNED FOR USE WITH POWER INTEGRATIONS  
 TOP220YAI. REFER TO APPLICATION CIRCUIT OF FIGURE 3.  
 (Developed to Power: Echelon's PLT-20 Power Line Transceiver)

PARAMETER	SPEC LIMITS			UNITS
	MIN.	TYP.	MAX.	
PRIMARY INDUCTANCE (2-1) VOLTAGE = 0.250Vrms FREQUENCY = 100 KHZ	3.4	4.0	4.6	mHY
TURN RATIO'S: SEC (8-7) : PRIMARY (2-1) BIAS (3-4) : PRIMARY (2-1)	-----	1:13.50	-----	± 3%
PRI LEAKAGE IND. (SEC SHORTED) VOLTAGE = 0.250Vrms FREQUENCY = 100 KHZ	-----	140	160	μHY
HIPOT: PRIMARY TO SECONDARY BIAS TO SECONDARY	1500 1500	----- -----	----- -----	Vrms Vrms
APP CIRCUIT PARAMETERS: (1) AC LINE VOLTAGE 47/400 Hz OUTPUT VOLTAGE OUTPUT CURRENT CONTINUOUS OUTPUT CURRENT PEAK LINE REGULATION (85 TO 265Vac) LOAD REGULATION 20-100% RIPPLE	85 9.00 0.0 ----- ----- ----- -----	----- 9.75 ----- ----- 0.50 1.00 50.0	265 10.50 0.550 0.600 ----- ----- -----	Vac Vdc Amps Amps ±% ±% ±mV

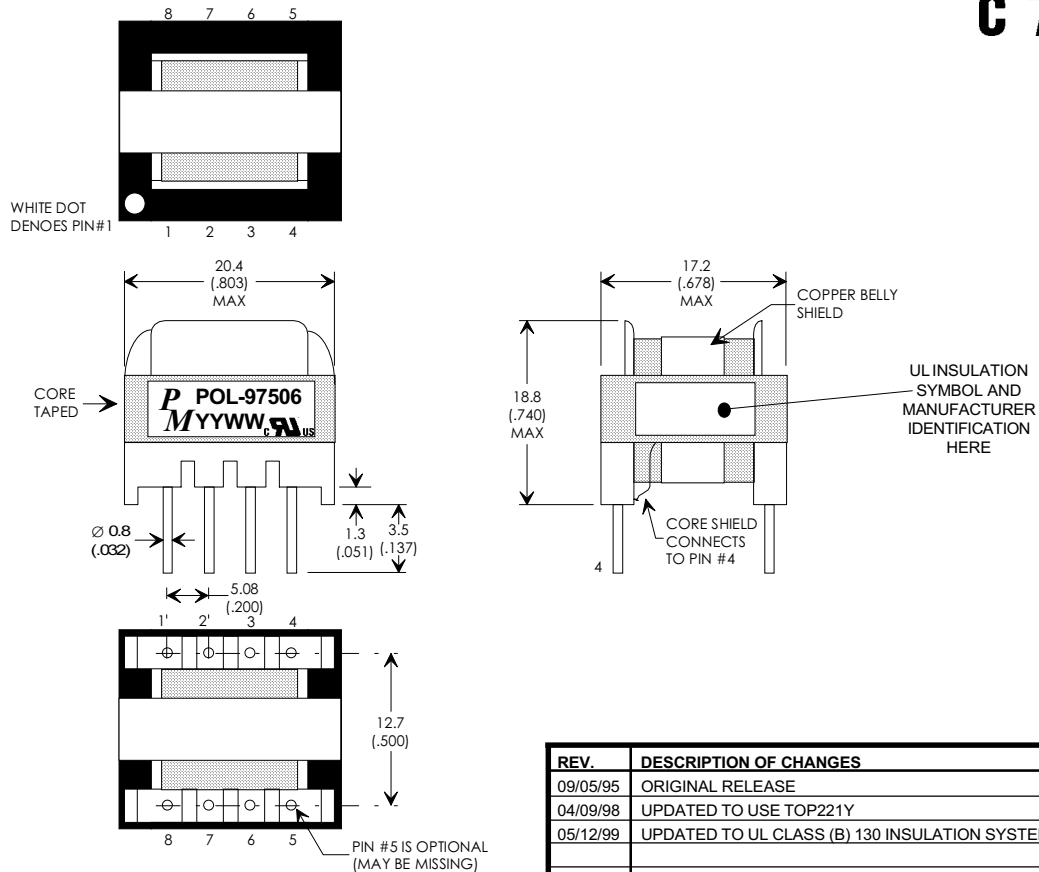
**FIGURE 1: SCHEMATIC DIAGRAM**



**NOTE1: REINFORCED INSULATION SYSTEM, UL 1950, IEC950, CSA-950:**  
 A) ALL MATERIALS MEET "UL", "CSA" & "IEC" REQUIREMENTS  
 B) TRIPLE BASIC INSULATED SECONDARY.  
 C) CORE IS BELLY SHIELDED WITH COPPER FOIL TO MEET THE CONDUCTED EMISSION OF EN50065-1  
 D) VARNISH FINISHED ASSEMBLY.  
 E) UL 1950 & 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.

(1) REFER TO APPLICATION CIRCUIT OF FIGURE 3.

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



EE19/EI19 (E187), 8-PIN HORIZONTAL BOBBIN

REV.	DESCRIPTION OF CHANGES	BY
09/05/95	ORIGINAL RELEASE	TO
04/09/98	UPDATED TO USE TOP221Y	TO
05/12/99	UPDATED TO UL CLASS (B) 130 INSULATION SYSTEM	MD



**Premier  
Magnetics Inc.**

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-97506	REVISION: 05/12/99
DRAWN BY: TOM O'NEIL	REF: PWR-TOP221YAI
SCALE: NONE	SHEET: 1 OF 6

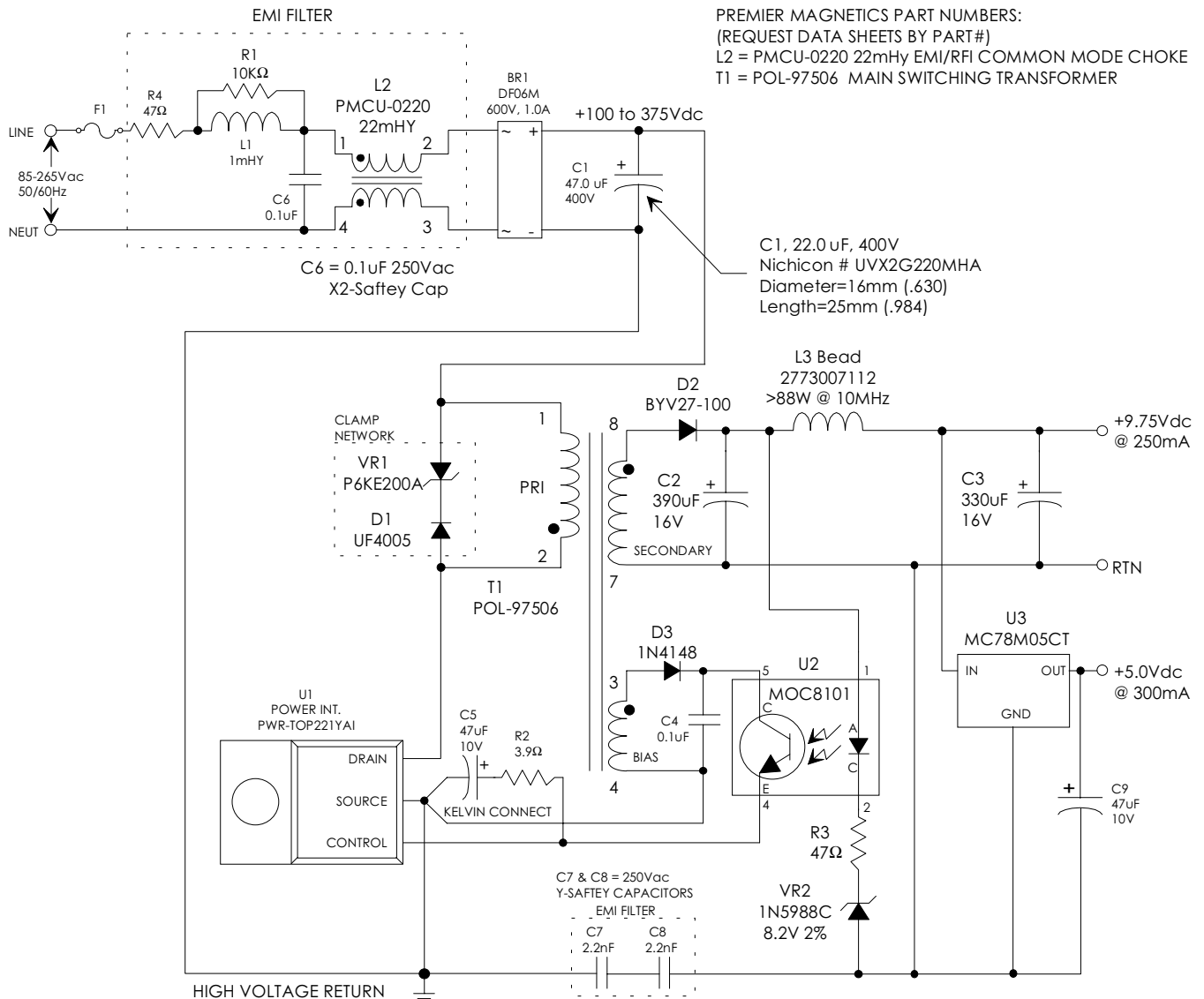
## APPLICATION NOTES

Premier Magnetic's POL-97506 Switch Mode Transformer was developed for use with Power Integrations TOP221YA1 three terminal off-line PWM switching regulator. The power supply application circuit of figure 3 was developed by Power Integrations to power Echelon's PLT-20 Power Line Transceiver. The universal input range of 85 to 285VAC allows use worldwide. Premier's POL-97506 transformer meets all of the requirements as called out by Power Integration Application Design Example No. 1, this detailed application note is available from Power Integrations, Inc.

The main output of this supply is a highly regulated 9.75Vdc capable of 5.4W of total continuous power. This output is then fed to a precision 3-terminal linear regulator to achieve the second 5Vdc output. Echelon's PLT-20 basic power requirements are 9.75Vdc  $\pm$  0.75V @ 250mA maximum, and 5.0Vdc  $\pm$  0.25V @ 80mA maximum. This leaves approximately 220mA of additional output power from the 5Vdc line to support the demands of application specific circuits and other electronics connected to the node.

Below is the basic application circuit utilizing Power Integrations TOP221 switching regulator. The example circuit meets the conducted emission requirements of EN50065-1, which are significantly more demanding than those specified for North America by the FCC and Industry Canada. The component values listed are intended for reference purposes only.

**FIGURE 3: TYPICAL APPLICATION CIRCUIT**



**Premier  
Magnetics Inc.**

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

### TRANSFORMER CONTROL DRAWING

PREMIER P/N: POL-97506	REVISION: 05/12/99
DRAWN BY: TOM O'NEIL	REF: PWR-TOP221YA1
SCALE: NONE	SHEET: 2 OF 6