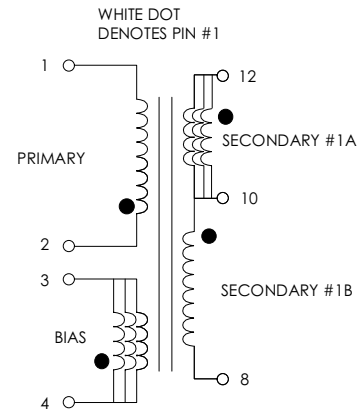


**TABLE 1: ELECTRICAL SPECIFICATIONS AT 25 °C**

SWITCHING TRANSFORMER DESIGNED FOR USE WITH POWER INTEGRATIONS TOP222Y. REFER TO APPLICATION CIRCUIT OF FIGURE 3.

PARAMETER	SPEC LIMITS			UNITS
	MIN.	TYP.	MAX.	
PRIMARY INDUCTANCE (2-1) VOLTAGE = 0.250Vrms FREQUENCY = 100 KHZ	1050	1165	1275	μHY
TURN RATIO'S: SEC (12-8) : PRIMARY (2-1) SEC#1B (10-8) : PRIMARY (2-1) BIAS (4-3) : PRIMARY (2-1)	-----	1: 1.256 1: 1.361 1: 7.0	-----	± 4% ± 4% ± 4%
PRI LEAKAGE IND. (SEC SHORTED) VOLTAGE = 0.250Vrms FREQUENCY = 100 KHZ	-----	-----	33	μHY
HIPOT: PRIMARY TO SECONDARY BIAS TO SECONDARY	3000 3000	----- -----	----- -----	Vrms Vrms
APP CIRCUIT PARAMETERS: (1) AC LINE VOLTAGE 47/400 Hz OUTPUT VOLTAGE OUTPUT CURRENT CONTINUOUS OUTPUT VOLTAGE OUTPUT CURRENT CONTINUOUS LINE REGULATION (85 TO 265Vac) LOAD REGULATION 10-100% RIPPLE	85 ----- .01 ----- .01 ----- ----- ----- -----	----- 65.0 ----- 65.0 ----- 0.20 0.20 50.0	265 ----- .100 ----- 1.00 ----- ----- -----	Vac Vdc Amps Vdc Amps ±% ±% ±mV

**FIGURE 1: SCHEMATIC DIAGRAM**

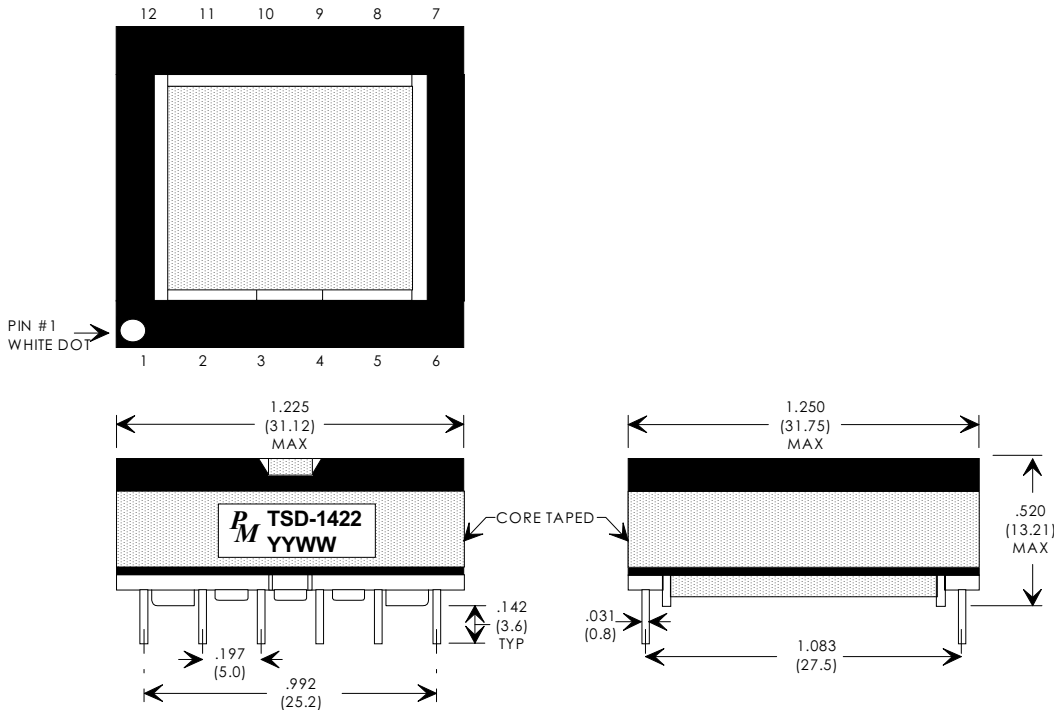


**NOTE1:**

- REINFORCED INSULATION, UL1950, IEC950, CSA-950:**  
 A) ALL MATERIALS MEET "UL", "CSA" & "IEC" REQUIREMENTS  
 B) ALL MATERIALS RATED 130 °C (CLASS B) OR BETTER.  
 C) DESIGNED FOR >6.0mm CREEPAGE REQUIREMENTS.  
 D) VARNISH FINISHED ASSEMBLY.

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

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



EFD30 12-PINS HORZ BOBBIN

REV.	DESCRIPTION OF CHANGES	BY
06/28/99	ORIGINAL RELEASE	PP
07/13/99	CUSTOMER CHANGED DESIGN TO EFD30 CORE	PP
08/06	CORRECT T/R TEST	PP



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

**FLYBACK TRANSFORMER CONTROL DRAWING**

PREMIER P/N: TSD-1422	REVISION: 08/06/99
ENGR: PETER PHAM	REF: TOP223Y
SCALE: NONE	SHEET: 1 OF 4

## APPLICATION NOTES

Premier Magnetics' TSD-1422 Switch Mode Transformer was designed for use with Power Integrations, Inc. PWR-TOP223Y 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 TSD-1422 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 12 watt application circuit utilizing Power Integrations TOP223 switching regulator in the flyback buck-boost configuration. The component values listed are intended for reference purposes only. Please refer to Power Integrations application notes for the RD5 demo board for more information.

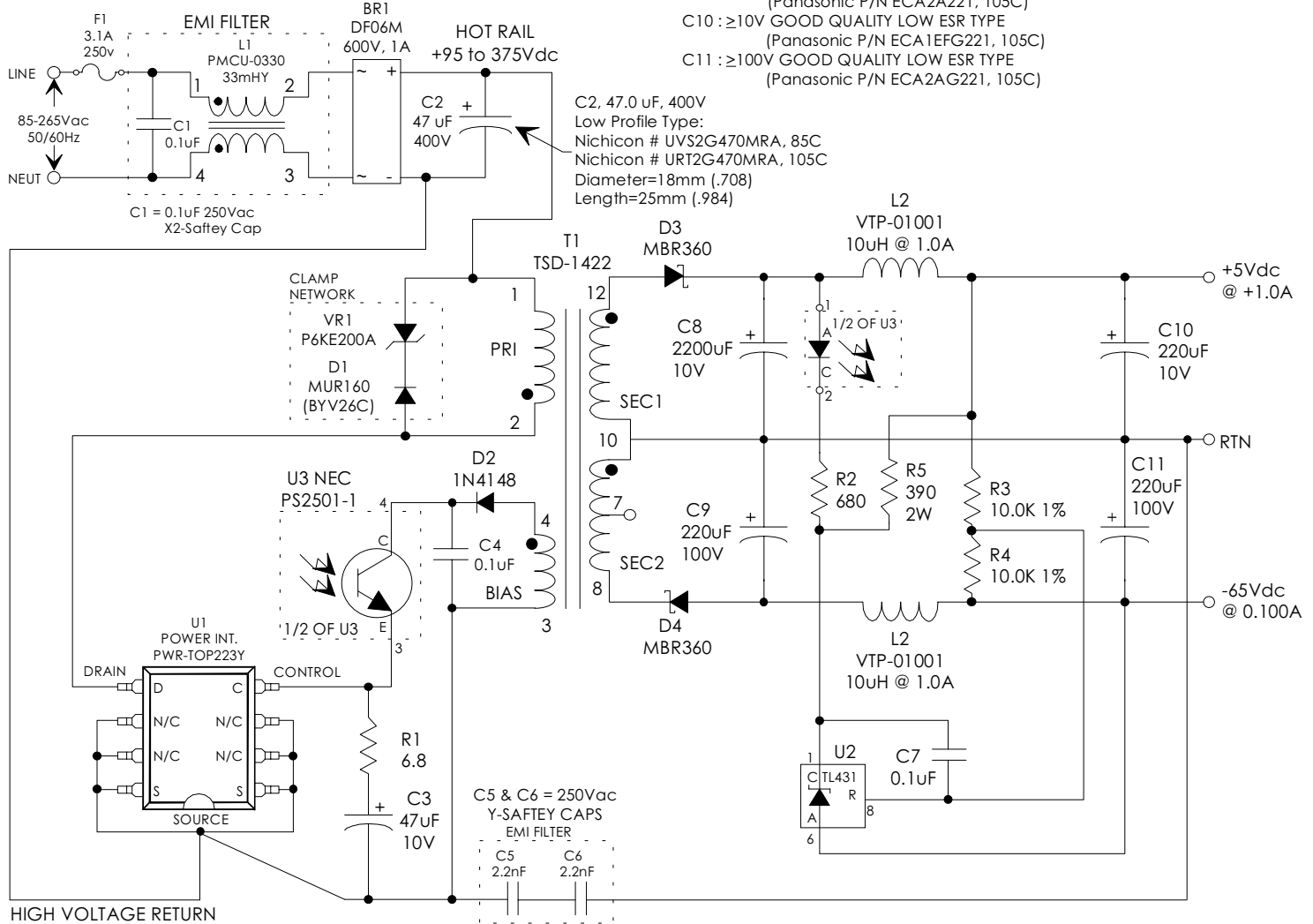
**FIGURE 3: TYPICAL APPLICATION CIRCUIT**

PREMIER MAGNETICS PART NUMBERS:  
(REQUEST DATA SHEETS BY PART#)

L1 = PMCU-0330 33mHy EMI/RFI CMC  
T1 = TSD-1422 MAIN SWITCHING TRANSFORMER  
L2 = VTP-01001 10uHy, 1.0Amp INDUCTOR

ALUMINUM ELECTROLYTIC FILTER CAPACITOR RATINGS:

C2 :  $\geq 400V$ , Ripple Rated  $\geq 233mA$  @ 120Hz @ Max. Operating Temp.  
(Nichicon P/N URTSG470MRA, 105C)  
C8 :  $\geq 10V$ , Ripple Rated  $\geq 1280mA$  @ 100KHz @ Max. Op. Temp.  
(Panasonic P/N ECA1AFG222, 105C)  
C9 :  $\geq 100V$ , Ripple Rated  $\geq 280mA$  @ 100KHz @ Max. Op. Temp.  
(Panasonic P/N ECA2A221, 105C)  
C10 :  $\geq 10V$  GOOD QUALITY LOW ESR TYPE  
(Panasonic P/N ECA1EFG221, 105C)  
C11 :  $\geq 100V$  GOOD QUALITY LOW ESR TYPE  
(Panasonic P/N ECA2AG221, 105C)



PREMIER P/N: TSD-1422	REVISION: 08/06/99
ENGR: PETER PHAM	REF: TOP223Y
SCALE: NONE	SHEET: 2 OF 4