

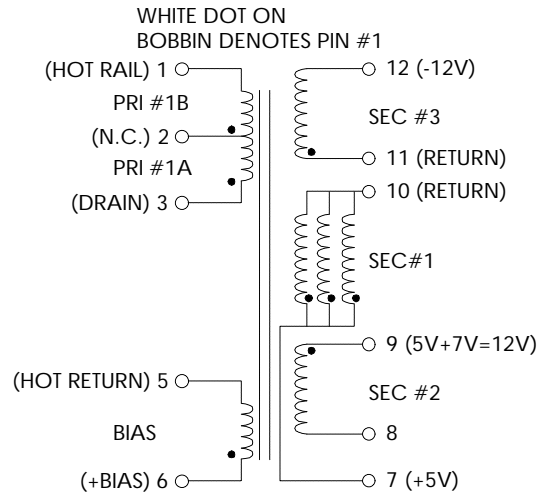
**TABLE 1: ELECTRICAL SPECIFICATIONS AT 25 °C**

SWITCHING TRANSFORMER DESIGNED FOR USE WITH POWER INTEGRATIONS TOP225Y. REFER TO APPLICATION CIRCUIT OF FIGURE 3.

PARAMETER	SPEC LIMITS			UNITS
	MIN.	TYP.	MAX.	
PRIMARY INDUCTANCE (3-1) 0.250Vrms @ 100 KHZ	729	810	891	μHY
TURN RATIO'S: SEC#1 (7-10) : PRIMARY (3-1) SEC#2 (9-8) : PRIMARY (3-1) SEC#3 (11-12) : PRIMARY (3-1) BIAS (6-5) : PRIMARY (3-1)	-----	1:17.67 1:13.25 1: 7.57 1: 7.57	-----	± 4% ± 4% ± 4% ± 4%
PRI LEAKAGE IND. (SEC SHORTED) 0.250Vrms @ 100 KHZ	-----	-----	24	μHY
HIPOT: PRIMARY & BIAS TO SECONDARIES PRIMARY TO BIAS	3000 600	----- -----	----- -----	Vrms Vrms
APP CIRCUIT PARAMETERS: (1) AC INPUT LINE VOLTAGE 47/400 Hz SEC #1 OUTPUT VOLTAGE SEC #1 OUTPUT CURRENT SEC #1+#2 OUTPUT VOLTAGE SEC #2 OUTPUT CURRENT SEC #3 OUTPUT VOLTAGE SEC #3 OUTPUT CURRENT	85 0.200 0.200 0.020	----- 5.0 ----- 12.0 ----- 12.0 -----	265 6.00 1.00 0.100	Vac Vdc Amps Vdc Amps Vdc Amps

(1) REFER TO APPLICATION CIRCUIT OF FIGURE 3.

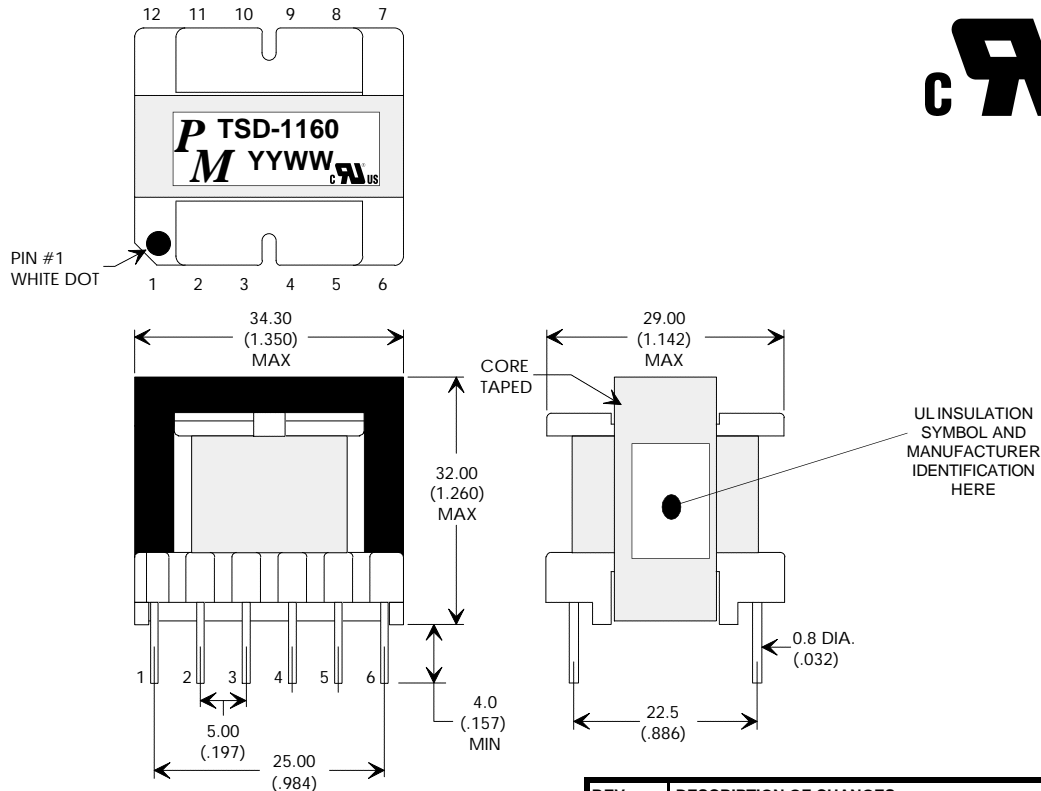
**FIGURE 1: SCHEMATIC DIAGRAM**



**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)**



REV.	DESCRIPTION OF CHANGES	BY
02/26/98	ORIGINAL RELEASE	TO
03/26/98	UPDATED TABLE 1	TO
08/11/99	UPDATE TO UL CLASS (B) 130 INSULATION SYSTEM	MD
01/03/00	UPDATE TO UL RECOGNIZED	MD

EI33/29/13 -OR- EI33, 12-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

**FLYBACK TRANSFORMER CONTROL DRAWING**

PREMIER P/N: TSD-1160	REVISION: 01/03/00
DRAWN BY: TOM O'NEIL	REF: TOP225Y
SCALE: NONE	SHEET: 1 OF 6

## APPLICATION NOTES

Premier Magnetics' TSD-1160 Switch Mode Transformer was designed for use with Power Integrations TOP225Y 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-1160 transformer has been optimized to provide maximum power throughput.

The TOPXXX 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 PWR-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 43 watt application circuit utilizing Power Integrations TOP225 switching regulator in the flyback buck-boost configuration. The component values listed are intended for reference purposes only. A properly sized heat sink for the TOP225Y is required for efficient and reliable operation.

**FIGURE 3: TYPICAL APPLICATION CIRCUIT**

**ALUMINUM ELECTROLYTIC FILTER CAPACITOR RATINGS:**

C1 = 0.1uF 250Vac, X2-Safety Cap  
 +12V@1A OUTPUT: C10 ≥25V, Ripple Rated ≥ 1140mA @ 100KHz @ Max. Op. Temp.  
 C10 = 330uF 35V, PANASONIC 105°C: EEUFA1V391  
 C11 = 220uF 35V, PANASONIC 105°C: EEUFA1V220

-12V@.1A OUTPUT: C12 ≥25V, Ripple Rated ≥ 114mA @ 100KHz @ Max. Op. Temp.  
 C12 = 220uF 35V, PANASONIC 105°C: ECA1VFG221

+5.0V@6A OUTPUT: C6-C8 ≥16V, Ripple Rated ≥ 6840mA @ 100KHz @ Max. Op. Temp.  
 C6,C7,C8 = 1200uF 35V, PANASONIC 105°C: EEUFA1V122  
 C9 = 220uF 35V, PANASONIC 105°C: ECA1VFG221

**PREMIER MAGNETICS PART NUMBERS:**

(REQUEST DATA SHEETS BY PART#)  
 L1 = PMCU-0330 33mHy EMI/RFI CMC  
 L2 = VTP-01005, 8uHy @ 6A  
 L3 = VTP-01001 10uHy, 1.0 AMP INDUCTOR  
 T1 = TSD-1160 MAIN SWITCHING TRANSFORMER

NOTE: C5 & C6 Can be replaced by a single 1.0nF Y1 Safety capacitor rated for connection between primary and secondary.  
 MURATA: DE1110E102M  
 ROEDERSTEIN: WKP102MCPE  
 RIFA: PME294RB4100M

