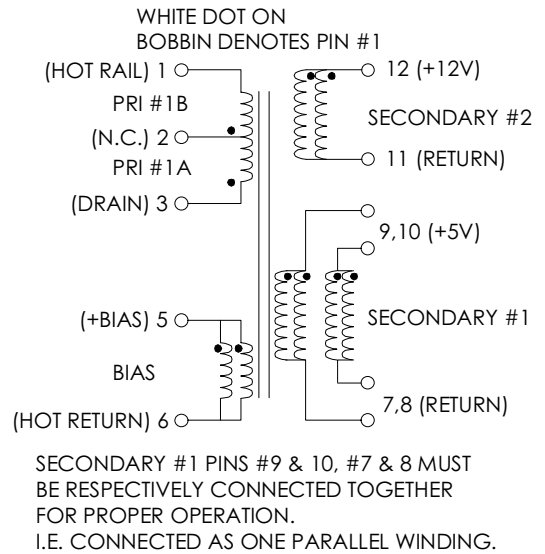


**TABLE 1: ELECTRICAL SPECIFICATIONS AT 25 °C**

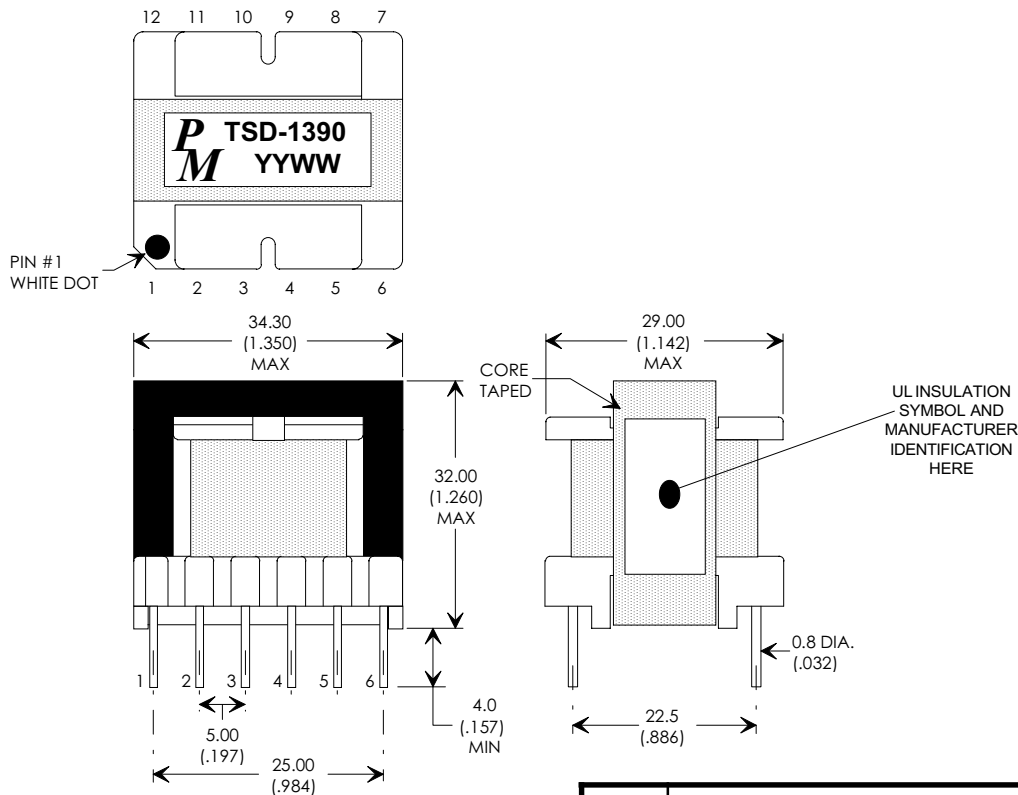
SWITCHING TRANSFORMER DESIGNED FOR USE WITH POWER INTEGRATIONS TOP226Y. REFER TO APPLICATION CIRCUIT OF FIGURE 3.

PARAMETER	SPEC LIMITS			UNITS
	MIN.	TYP.	MAX.	
PRIMARY INDUCTANCE (3-1) 0.250Vrms @ 100 KHZ	729	810	891	μHY
TURN RATIO'S: SEC #1 (9,10-7,8) : PRIMARY (3-1) SEC #2 (12-11) : PRIMARY (3-1) BIAS (5-6) : PRIMARY (3-1)	-----	1:17.667 1: 7.571 1: 7.571	-----	± 4% ± 4% ± 4%
PRI LEAKAGE IND. (SEC SHORTED) 0.250Vrms @ 100 KHZ	-----	-----	16	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 #2 OUTPUT VOLTAGE SEC #2 OUTPUT CURRENT	85 0.200 0.200	----- 5.0 12.0	265 5.00 3.00	Vac 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  $\geq 6.2$ mm CREEPAGE REQUIREMENTS.
- D) VARNISH FINISHED ASSEMBLY.
- E) 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)**

EI33/29/13 -OR- EI33, 12-PIN VERTICAL BOBBIN

REV.	DESCRIPTION OF CHANGES	BY
04/05/99	UPDATE RELEASE, LL TO 16 MICRO	PP
09/29/99	UPDATE TO UL CLASS (B) 130 INSULATION SYSTEM	MD

**FLYBACK TRANSFORMER CONTROL DRAWING**

PREMIER P/N: TSD-1390	REVISION: 09/29/99
DRAWN BY: TOM O'NEIL	REF: TOP226Y
SCALE: NONE	SHEET: 1 OF 6

## APPLICATION NOTES

Premier Magnetics' TSD-1390 Switch Mode Transformer was designed for use with Power Integrations TOP226Y 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-1390 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 55 watt application circuit utilizing Power Integrations TOP226 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 TOP226Y, D3 & D4 are required for efficient and reliable operation.

### **FIGURE 3: TYPICAL APPLICATION CIRCUIT**

### ALUMINUM ELECTROLYTIC FILTER CAPACITOR RATINGS:

C1= 180uF  $\geq$ 400V, Ripple Rated  $\geq$  630mA  
NICHICON 105°C: LGQ2G181MHSA

+12V@3A OUTPUT: C10+C11  $\geq 25V$ , Ripple Rated  $\geq 3400mA$  @ 100KHz @ Max. Op. Temp.  
+5.0V@5A OUTPUT: C6-C8  $\geq 16V$ , Ripple Rated  $\geq 5700mA$  @ 100KHz @ Max. Op. Temp.

C6,C7,C8,C10 & C11 = 1200uF 25V, PANASONIC 105°C: EEUFA1E122  
C9 & C12 = 470uF 25V, PANASONIC 105°C: EEUFA1E471

PREMIER MAGNETICS PART NUMBERS:

(REQUEST DATA SHEETS BY PART#)

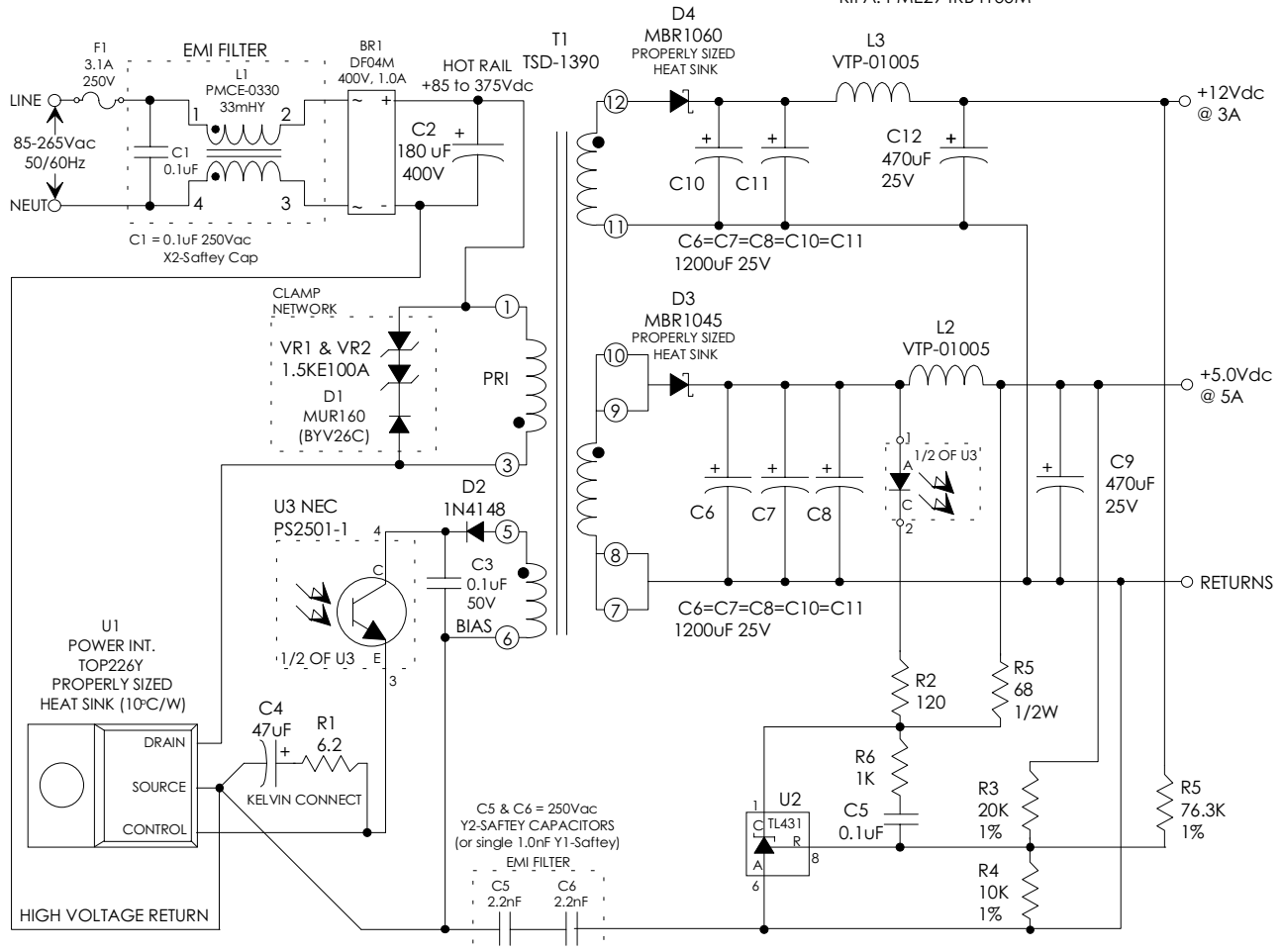
L1 = PMCE-0330 33mHy EMI/RFI CMC

L2=L3 = VTP-01005, 10uHy @ 5A

T1 = TSD-1390 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



***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

### FLYBACK TRANSFORMER CONTROL DRAWING

PREMIER P/N: TSD-1390

REVISION: 09/29/99

DRAWN BY: TOM O'NEIL

REF: TOP226Y

SCALE: NONE

SHEET: 2 OF 6