

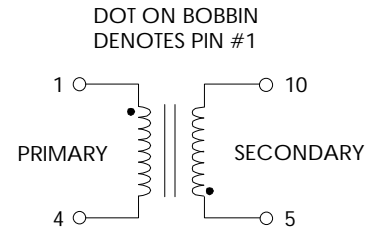
**TABLE 1: ELECTRICAL SPECIFICATIONS AT 25 °C**

SWITCHING TRANSFORMER DESIGNED FOR USE WITH POWER INTEGRATIONS  
 TNY-254 REFER TO APPLICATION CIRCUIT OF FIGURE 3.

PARAMETER	SPEC LIMITS			UNITS
	MIN.	TYP.	MAX.	
PRIMARY INDUCTANCE (4-1) FREQ. = 100 KHZ @ 0.250Vrms	3240	3600	3960	μHY
TURNRATIO'S: SECONDARY (10-8) : PRIMARY (4-1)	-----	1: 9.79	-----	± 4%
PRI LEAKAGE IND. (10-5 SHORTED) FREQ. = 100 KHZ @ 0.250Vrms	-----	-----	110	μHY
HIPOT: PRIMARY TO SECONDARY	3000	-----	-----	Vrms
APP CIRCUIT PARAMETERS: (1)				
AC INPUT VOLTAGE	85	-----	265	Vac
DCHOT RAIL VOLTAGE	110	-----	375	Vdc
OUTPUT VOLTAGE		5.0		Vdc
OUTPUT CURRENT CONTINUOUS	50	-----	500	mA
LINE REGULATION (85 TO 265Vac)	-----	0.50	-----	±%
LOAD REGULATION 10-100%	-----	0.30	-----	±%
RIPPLE	-----	75.0	-----	±mV

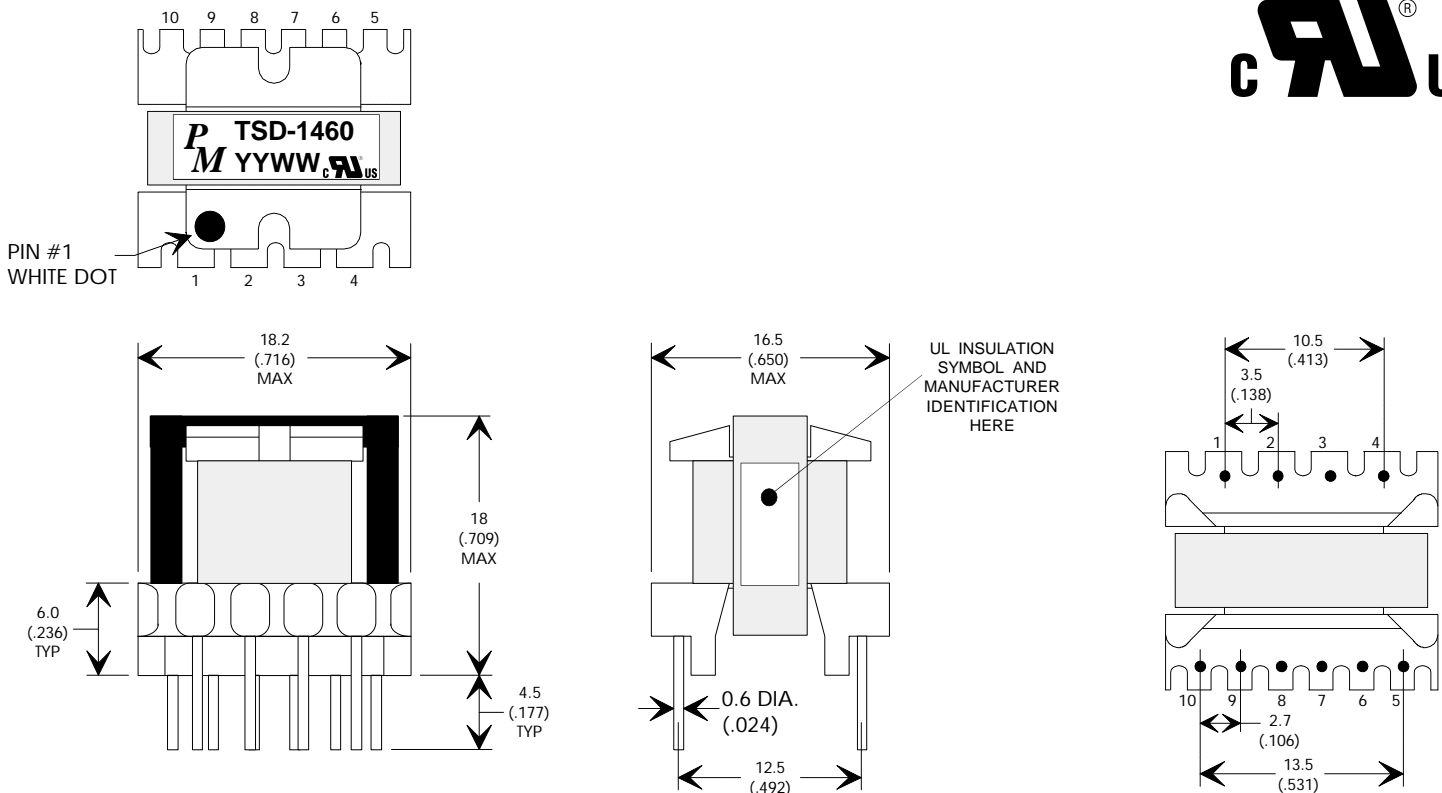
(1) REFER TO APPLICATION CIRCUIT OF FIGURE 3.

**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)**



EE16/EI16, 10-PIN VERTICAL



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

REV.	DESCRIPTION OF CHANGES	BY
09/19/99	UPDATE RELEASE	PP
10/04/99	UPDATE TO UL CLASS (B) INSULATION SYSTEM	MD
10/29/99	CORRECT MARKING PART NUMBER	PP
01/12/00	UPDATE TO UL RECOGNIZED FILE #E162344	MD
12/10/01	UPDATED NEW DIMENSIONS ON DRAWING	MP

**FLYBACK TRANSFORMER CONTROL DRAWING**

PREMIER P/N: TSD-1460	REVISION: 12/10/01
DRAWN BY: PETER PHAM	REF: TNY-254
SCALE: NONE	SHEET: 1 OF 6

# APPLICATION NOTES

Premier Magnetics' TSD-1460 Switch Mode Transformer was designed for use with Power Integrations, Inc. TNY254 off-line switchmode regulator in the Flyback Buck-Boost circuit configuration. This conversion topology will provide an isolated output with efficiencies up to 90%. Premier's TSD-1460 transformer has been optimized to provide maximum power throughput.

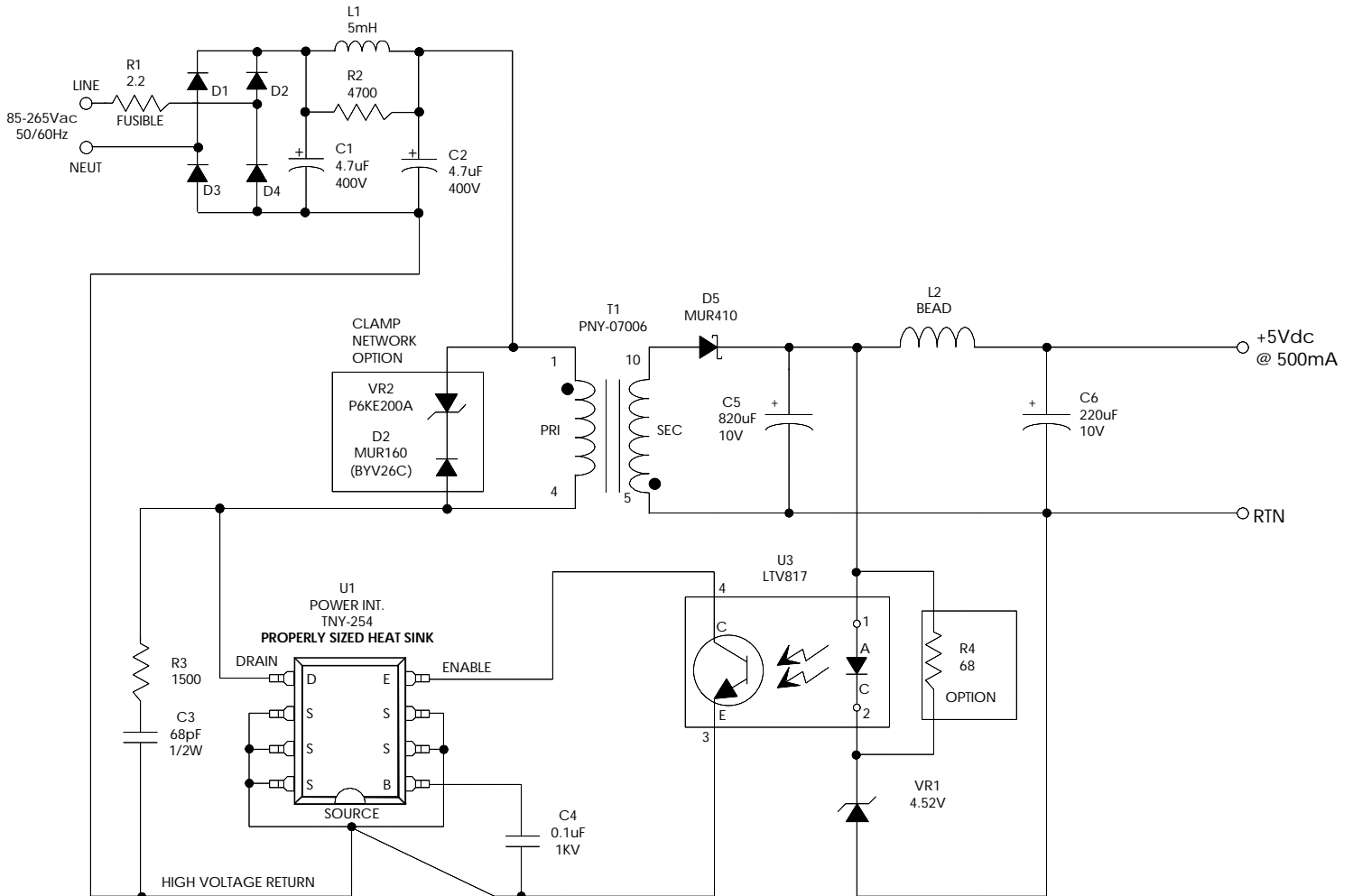
The TNYXXX series from Power Integrations, Inc. are self contained 40 or 130KHz switching regulators. This series contains all necessary functions for an off-line switched mode control DC power source. These switching regulators provide a very simple solution to off-line low power designs less than 5W and off high volate DC Bus designs less than 10W. The inductors and transformer used with the TNYXXX 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 2.5 watt application circuit utilizing Power Integrations TNY254 switching regulator in the flyback buck-boost configuration. The component values listed are intended for reference purposes only. Proper thermal management of the TNY254 & D5 is required for reliable operation. The TNY254 should be mounted on  $\geq 0.75$  in<sup>2</sup>, 2oz copper clad to provide a proper heat sink starting point for evaluation. The component values listed are intended for reference purposes only. Careful evaluation by the end user is required and should be based on the actual application & it's associated environmental conditions.

**FIGURE 3: TYPICAL APPLICATION CIRCUIT**

PREMIER MAGNETICS PART NUMBERS:  
(REQUEST DATA SHEETS BY PART#)  
T1 = PNY-07006 MAIN SWITCHING TRANSFORMER

ALUMINUM ELECTROLYTIC FILTER CAPACITOR RATINGS:  
C5 :  $\geq 10V$ , Ripple Rated  $\geq 750mA$  @ Max. Op. Temp.  
(Panasonic P/N EEUFA1A821, 105C)  
C6 :  $\geq 10V$ , (Panasonic P/N ECA1AFG221, 105C)  
D1-D4: 600V, 1A (General Instrument P/N 1N4005)



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

FLYBACK TRANSFORMER CONTROL DRAWING	
PREMIER P/N: TSD-1460	REVISION: 12/10/01
DRAWN BY: PETER PHAM	REF: TNY-254
SCALE: NONE	SHEET: 2 OF 6