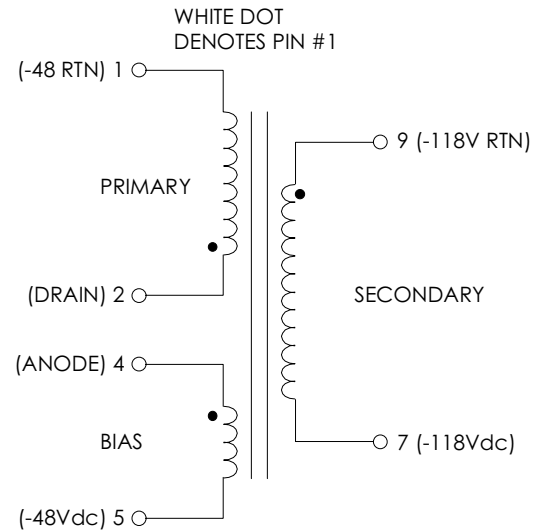


**TABLE 1: ELECTRICAL SPECIFICATIONS AT 25 °C**  
 SWITCHING TRANSFORMER DESIGNED FOR USE WITH POWER INTEGRATIONS  
 PWR-TOP104YAI REFER TO APPLICATION CIRCUIT OF FIGURE 3

PARAMETER	SPEC LIMITS			UNITS
	MIN.	TYP.	MAX.	
PRIMARY INDUCTANCE (2-1) 100 KHZ @ 0.250Vrms	1700	2000	2300	μHY
TURN RATIO'S: PRIMARY (2-1) : SECONDARY (9-7) BIAS (4-5) : PRIMARY (2-1)	—	1: 1.97 1: 3.67	—	± 3% ± 3%
PRI LEAKAGE IND. (SEC SHORTED) 100 KHZ @ 0.250Vrms	—	20.0	30.0	μHY
DCR: PRIMARY (2-1) DCR: BIAS (4-5) DCR: SECONDARY (9-7)	—	—	1.65 0.65 9.50	Ohms Ohms Ohms
HIPOT: PRIMARY & BIAS TO SECONDARY	500	—	—	Vrms
APP CIRCUIT PARAMETERS: (1) DC INPUT VOLTAGE OUTPUT VOLTAGE OUTPUT CURRENT CONTINUOUS (2) LINE REGULATION (-42 TO -58Vac) LOAD REGULATION (0-100%) RIPPLE	-42 — 10 — — —	-48 -118.0 — 4.00 5.00 —	-64 — 130 — — 50.0	Vdc Vdc mA ±% ±% ±mV

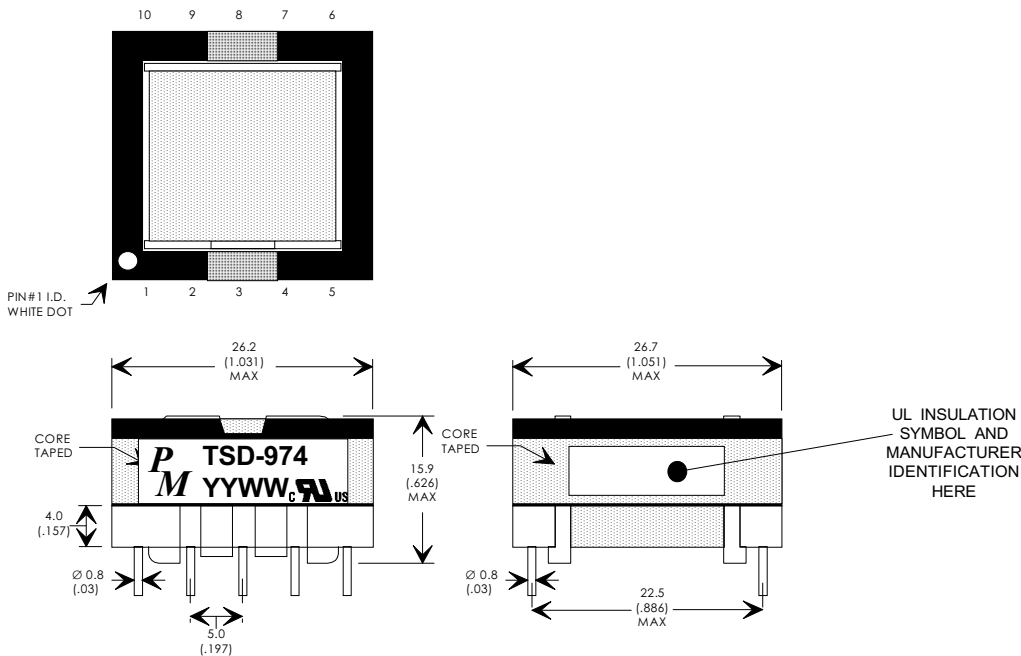
**FIGURE 1: SCHEMATIC DIAGRAM**



**NOTE 1:**  
**REINFORCED INSULATION SYSTEM, UL1950, IEC950, CSA-950:**  
 A) ALL MATERIALS MEET "UL", "CSA" & "IEC" REQUIREMENTS  
 B) VARNISH FINISHED ASSEMBLY.  
 C) UL1950 & CSA-950 CERTIFIED: FILE #E162344.  
 D) UL CLASS (B) 130 INSULATION SYSTEM PM130-H1A  
 (UL FILE #E177139) OR ANY UL AUTHORIZED  
 CLASS (B) INSULATION SYSTEM.

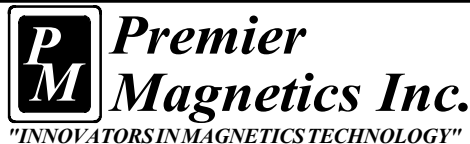
- (1) REFER TO APPLICATION CIRCUIT OF FIGURE 3.
- (2) OUTPUT CLAMP RESISTOR R5 PROVIDES THE 10mA MINIMUM REQUIRED LOAD.

**FIGURE 2: PHYSICAL DIMENSIONS mm (INCHES)**  
**PIN #10 IS CUT-OFF**



REV.	DESCRIPTION OF CHANGES	BY
01/06/97	ORIGINAL RELEASE	AS
03/11/97	UPDATED RELEASE, CORRECTED HEIGHT DIMENSION	AS
04/01/97	UPDATED MAX DCR SPECS.	AS
06/17/98	UPDATED RELEASE, CORRECTED HEIGHT DIMENSION	AS
05/26/99	UPDATED TO UL CLASS (B) 130 INSULATION SYSTEM	MD

EFD25, 10-PIN



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: TSD-974	REVISION: 05/26/99
ENGR: AL SANTOS	REF: PWR-TOP104YAI
APPD: TOM O'NEIL	SHEET: 1 OF 4

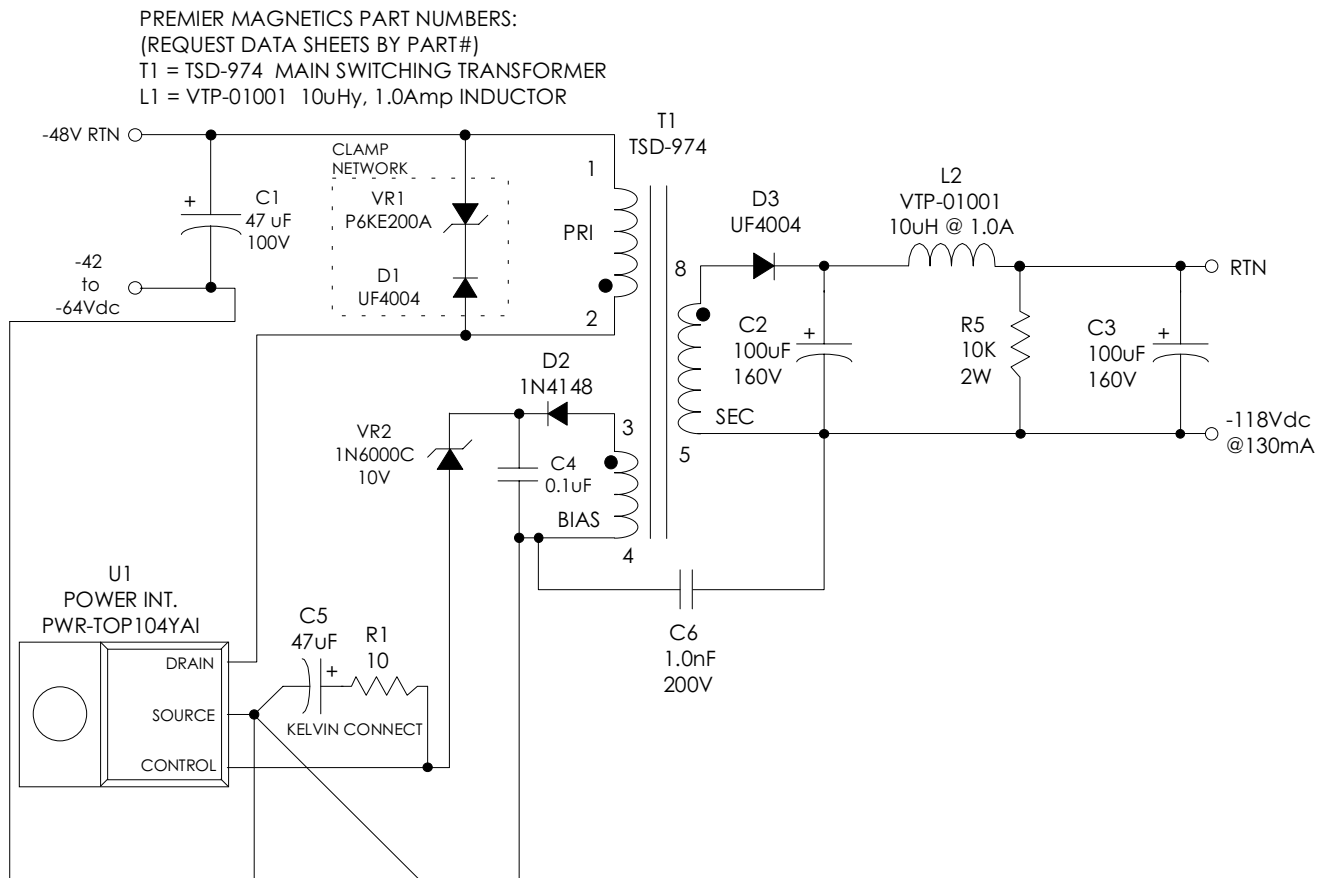
## APPLICATION NOTES

Premier Magnetics' TSD-974 Switch Mode Transformer was designed for use with Power Integrations, Inc. PWR-TOP104YAI 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-974 transformer has been optimized to provide maximum power throughput.

The PWR-TOPXXX series from Power Integrations, Inc. are self contained 100KHz three terminal voltage controlled PWM switching regulators. This series contains all necessary functions for dc/dc and direct off-line switched mode DC power sources. These switching regulators provide a very simple solution to flyback 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 -48Vdc input precision 16W watt application circuit utilizing Power Integrations PWR-TOP104YAI switching regulator in the flyback buck-boost configuration. If the 118V output is to be run unloads a clamp resistor (R5) should be added to prevent possible destructive voltage runaway. The component values listed are intended for reference purposes only.

**FIGURE 3: TYPICAL APPLICATION CIRCUIT**



**Premier  
Magnetics Inc.**  
"INNOVATORS IN MAGNETICS TECHNOLOGY"

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: TSD-974	REVISION: 05/26/99
ENGR: AL SANTOS	REF: PWR-TOP104YAI
APPD: TOM O'NEIL	SHEET: 2 OF 4