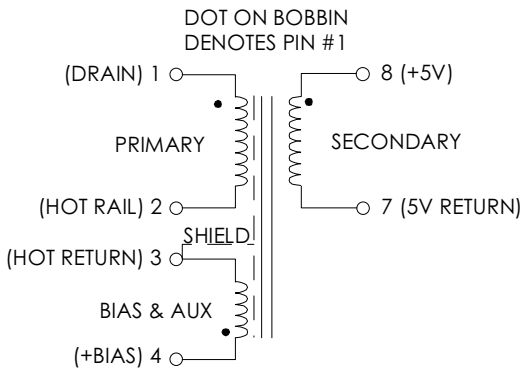
TABLE 1: ELECTRICAL SPECIFICATIONS AT 25 °C

SWITCHING TRANSFORMER DESIGNED FOR USE WITH POWER INTEGRATIONS PWR-TOP209PFI REFER TO APPLICATION CIRCUIT OF FIGURE 3.

PARAMETER	SPEC LIMITS MIN.	TYP.	MAX.	UNITS
PRIMARY INDUCTANCE (1-2) FREQ. = 100 KHZ @ 0.250Vrms	9.00	10.00	11.00	mHY
TURN RATIO'S:				
SECONDARY (8-7) : PRIMARY (1-2)	--------	1:23.43	--------	± 3%
BIAS (4-3) : PRIMARY (1-2)	--------	1: 8.63	--------	± 3%
PRI LEAKAGE IND. (8-7 SHORTED) FREQ. = 100 KHZ @ 0.250Vrms	--------	--------	250.0	µHY
HIPOT:				
PRIMARY & BIAS TO SECONDARY	3000	--------	--------	Vrms
PRIMARY TO BIAS	600	--------	--------	Vrms
APP CIRCUIT PARAMETERS: (1)				
DC HOT RAIL VOLTAGE	98	--------	375	Vdc
SEC OUTPUT VOLTAGE @ 10-50mA	--------	5.0	--------	Vdc
BIAS OUTPUT & AUXILIARY (2)	--------	15.0	--------	Vdc
AUX OUTPUT CURRENT	10	--------	120	mA
LINE REGULATION (85 TO 265Vac)	--------	1.00	--------	±%
LOAD REGULATION 10-100%	--------	3.00	--------	±%
RIPPLE	--------	100.0	--------	±mV

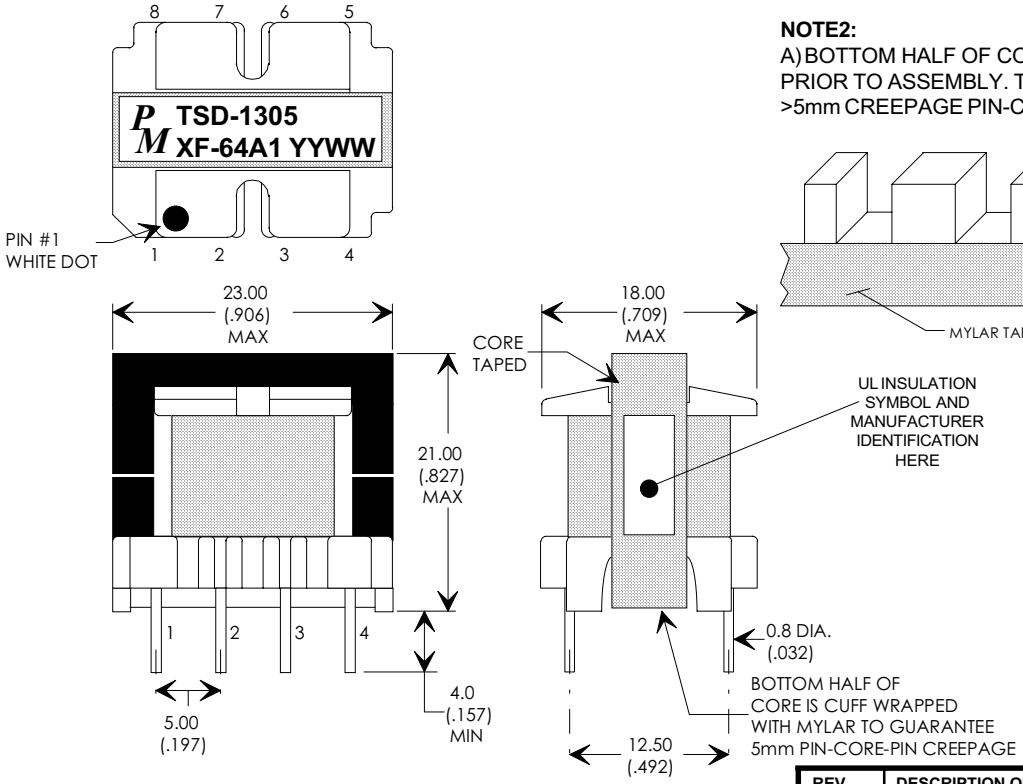
(1) REFER TO APPLICATION CIRCUIT OF FIGURE 3.
(2) THE BIAS OUTPUT IS ALSO USED AS A PRIMARY SIDE AUX. POWER SOURCE

FIGURE 1: SCHEMATIC DIAGRAM

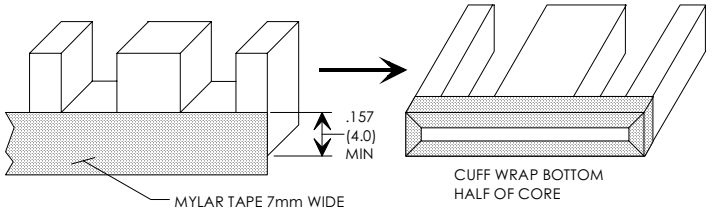


NOTE1:
REINFORCED INSULATION SYSTEM, UL1950, IEC950, CSA-950:
A) ALL MATERIALS MEET "UL", "CSA" & "IEC" REQUIREMENTS
B) TRIPLE BASIC INSULATED SECONDARY.
C) DESIGNED TO MEET ≥5mm CREEPAGE REQUIREMENTS.
D) VARNISH FINISHED ASSEMBLY.
E) UL CLASS (B) 130 INSULATION SYSTEM PM130-R1, PM130-H1, PM130-H1A (UL FILE #E177139) OR ANY UL AUTHORIZED CLASS (B) INSULATION SYSTEM.

FIGURE 2: PHYSICAL DIMENSIONS mm (INCHES)



NOTE2:
A) BOTTOM HALF OF CORE IS CUFF WRAPPED PRIOR TO ASSEMBLY. THIS GAURANTEES >5mm CREEPAGE PIN-CORE-PIN



REV.	DESCRIPTION OF CHANGES	BY
10/28/98	ORIGINAL RELEASE	PP
09/13/99	UPDATE TO UL CLASS (B) 130 INSULATION SYSTEM	MD

EI22/19/6, 8-PIN VERTICAL BOBBIN

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

FLYBACK TRANSFORMER CONTROL DRAWING

PREMIER P/N: TSD-1305	REVISION: 09/13/99
DRAWN BY: PETER PHAM	REF: XF-000064-00 A1
SCALE: NONE	SHEET: 1 OF 6

APPLICATION NOTES

Premier Magnetic's TSD-1305 Switch Mode Transformer was designed for use with Power Integrations, Inc. PWR-TOP209PFI 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-1305 transformer has been optimized to provide maximum power throughput.

The PWR-TOP209 from Power Integrations, Inc. is a self contained 70KHz three terminal voltage controlled PWM switching regulators. This part contains all necessary functions for an off-line switched mode control DC power source. This switching regulator provides a very simple solution for 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.

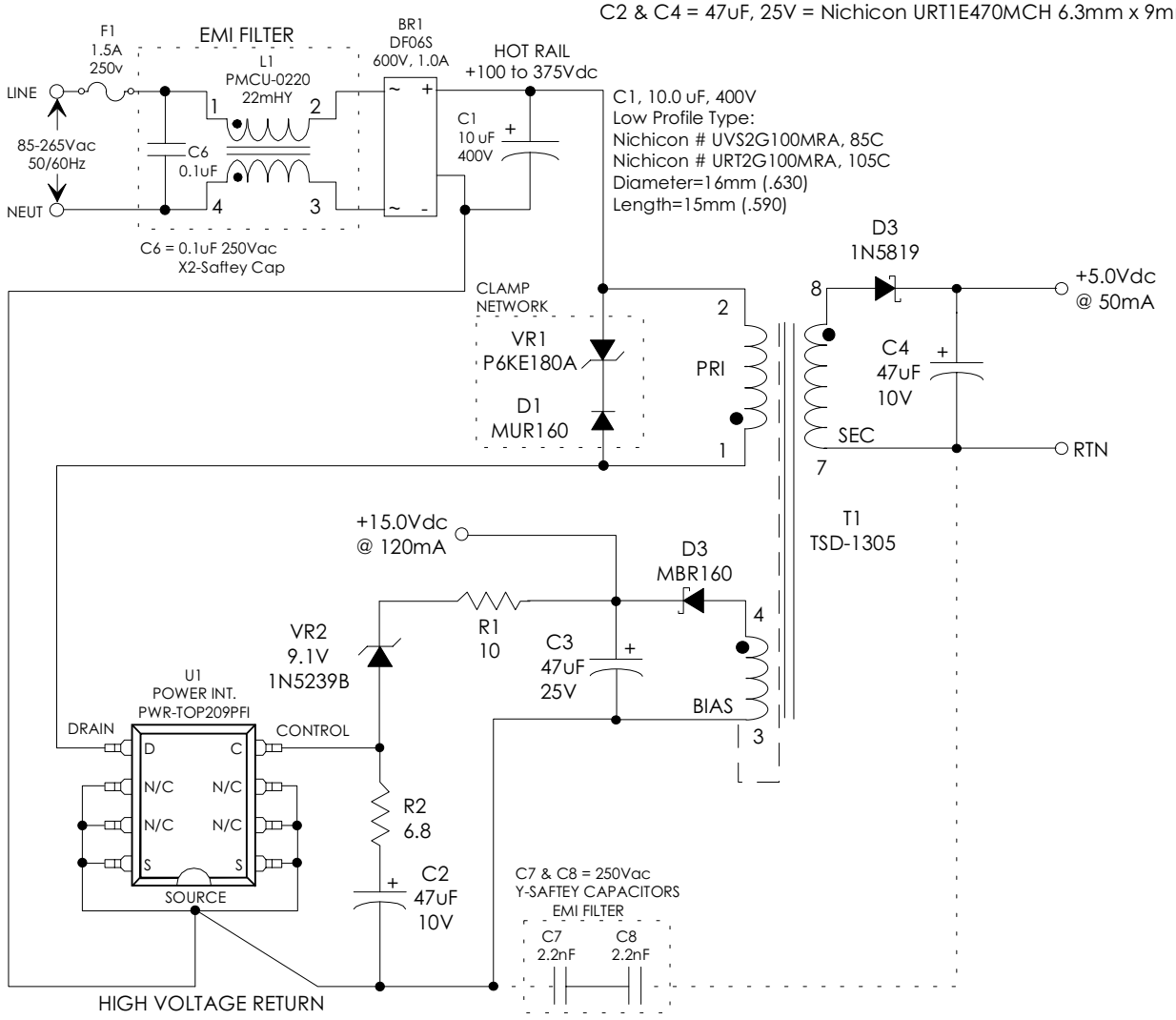
Below is a universal input, 2.0 watt application circuit utilizing Power Integrations PWR-TOP209 switching regulator in the flyback buck-boost configuration. This circuit provides an IEC950 isolated +5Vdc at 10-50mA continuous and a non isoltaed +15Vdc @ 120mA, the non-isolted output is also utilized for feedback control. The component values listed are intended for reference purposes only.

FIGURE 3: TYPICAL APPLICATION CIRCUIT

PREMIER MAGNETICS PART NUMBERS:
(REQUEST DATA SHEETS BY PART#)
L1 = PMCU-0220 22mHy EMI/RFI CMC
T1 = TSD-1305 MAIN SWITCHING TRANSFORMER

ALUMINUM ELECTROLYTIC FILTER CAPACITOR RATINGS:

+5V OUTPUT: C4 ≥10V, Ripple Rated ≥ 25mA @ 70KHz @ Max. Op. Temp.
C2 & C4 = 47uF, 10V = Nichicon URT1A470MCH 5mm x 9mmL
+15V Bias & Aux OUTPUT: C3 ≥25V, Ripple rated ≥125mA @ 70KHz
C2 & C4 = 47uF, 25V = Nichicon URT1E470MCH 6.3mm x 9mmL



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	**FLYBACK TRANSFORMER CONTROL DRAWING**
		PREMIER P/N: TSD-1305 / REVISION: 09/13/99
		DRAWN BY: PETER PHAM / REF: XF-000064-00 A1
		SCALE: NONE / SHEET: 2 OF 6