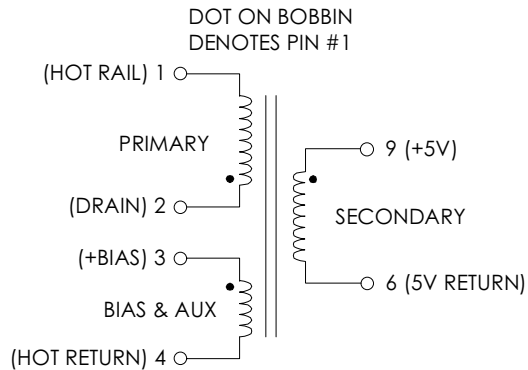


TABLE 1: ELECTRICAL SPECIFICATIONS AT 25 °C

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

PARAMETER	SPEC LIMITS			UNITS
	MIN.	TYP.	MAX.	
PRIMARY INDUCTANCE (2-1) FREQ. = 10 KHZ @ 0.250Vrms	9.00	10.00	11.00	mHY
TURNRATIO'S: SECONDARY (9-6) : PRIMARY (2-1) BIAS (3-4) : PRIMARY (2-1)	---	1:27.86 1: 9.75	---	± 3% ± 3%
PRI LEAKAGE IND. (9-6 SHORTED) FREQ. = 100 KHZ @ 0.250Vrms	---	---	250.0	μHY
HIPOT: PRIMARY TO SECONDARY BIAS TO SECONDARY	3000 3000	---	---	Vrms Vrms
APP CIRCUIT PARAMETERS: (1) DC HOT RAIL VOLTAGE SEC OUTPUT VOLTAGE @ 10-40mA BIAS OUTPUT & AUXILIARY (2) AUX OUTPUT CURRENT CONTINUOUS LINE REGULATION (85 TO 265Vac) LOAD REGULATION 10-100% RIPPLE	100 ---	---	375 ---	Vdc Vdc Vdc mA ±% ±% ±mV

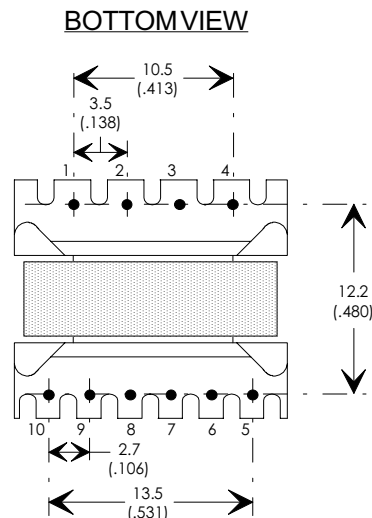
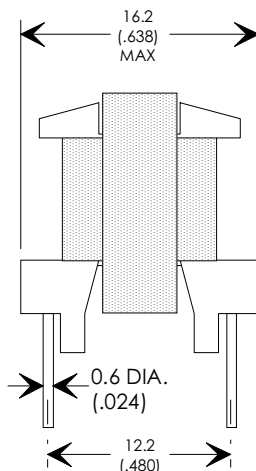
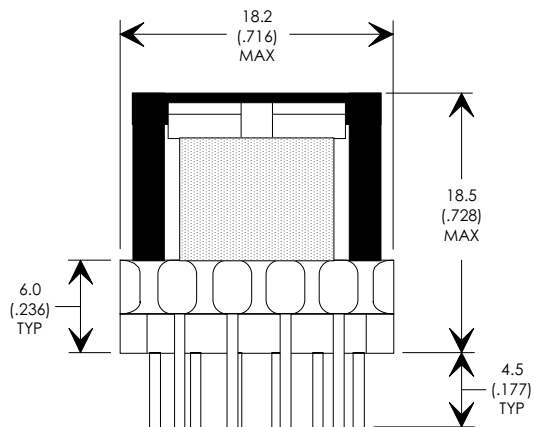
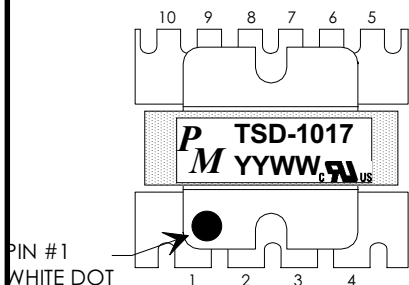
FIGURE 1: SCHEMATIC DIAGRAM



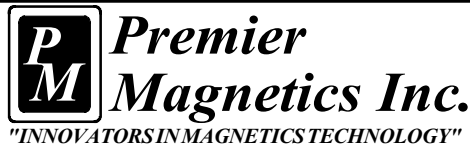
NOTE1:
REINFORCED INSULATION SYSTEM, UL1950, IEC950, CSA-950:
A) ALL MATERIALS MEET "UL", "CSA" & "IEC" REQUIREMENTS
B) TRIPLE BASIC INSULATED SECONDARY.
C) DESIGNED TO MEET ≥6.2mm CREEPAGE REQUIREMENTS.
D) VARNISH FINISHED ASSEMBLY.
E) UL1950 & CSA-950 CERTIFIED: FILE #E162344.
F) UL CLASS (B) 130 INSULATION SYSTEM PM130-R1, PM130-H1, PM130-H1A (UL FILE #E177139) OR ANY UL AUTHORIZED CLASS (B) INSULATION SYSTEM.

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

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
04/09/97	ORIGINAL RELEASE	AS
05/20/98	UPDATED HEIGHT DIM. TO PRODUCTION SAMPLES	AS
11/25/98	UPDATE L TEST FREQ FROM 100K TO 10K AND HT TO 18.5mm	MD
04/20/99	UPDATE TO UL CLASS (B) 130 INSULATION SYSTEM	MD

TRANSFORMER CONTROL DRAWING	
PREMIER P/N: TSD-1017	REVISION: 04/20/99
ENGR: AL SANTOS	REF: PWR-TOP209PFI
APPD: TOM O'NEIL	SHEET: 1 OF 6

APPLICATION NOTES

Premier Magnetic's TSD-1017 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-1017 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 watt application circuit utilizing Power Integrations PWR-TOP209 switching regulator in the flyback buck-boost configuration. This circuit provides an IEC950 isolated +5Vdc at 10-40mA continuous and a non isolated +15Vdc @ 120mA, the non-isolated output is also utilized for feedback control. The component values listed are intended for reference purposes only.

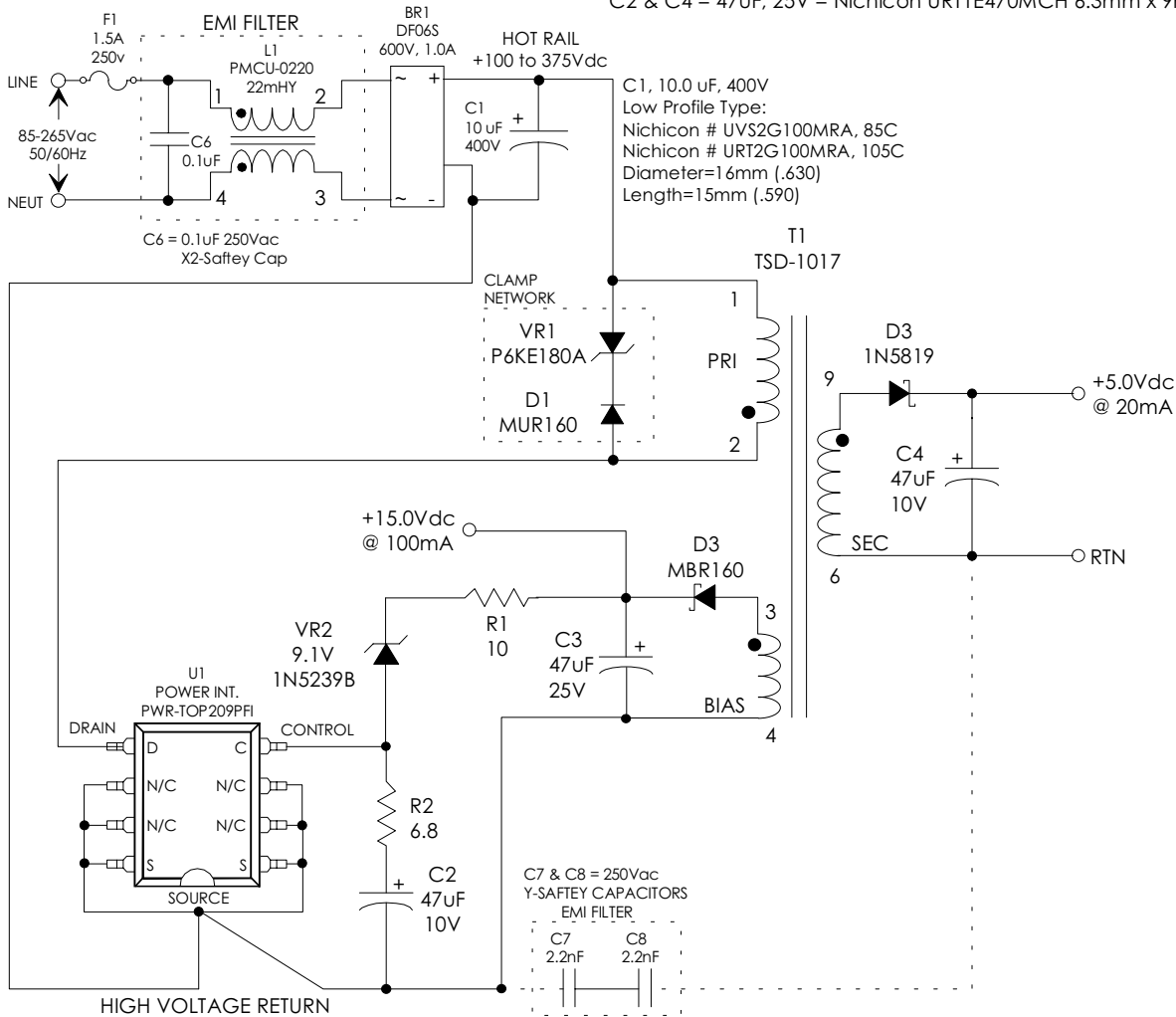
FIGURE 3: TYPICAL APPLICATION CIRCUIT

PREMIER MAGNETICS PART NUMBERS:
(REQUEST DATA SHEETS BY PART#)

L1 = PMCU-0220 22mHy EMI/RFI CMC
T1 = TSD-1017 MAIN SWITCHING TRANSFORMER

ALUMINUM ELECTROLYTIC FILTER CAPACITOR RATINGS:

+5V OUTPUT: C4 ≥10V, Ripple Rated ≥ 25mA @ 70KHz @ Max. Op. Temp.
C2 & C4 = 47uF, 10V = Nichicon # UVS2G100MRA, 85C
+15V Bias & Aux OUTPUT: C3 ≥25V, Ripple rated ≥125mA @ 70KHz
C2 & C4 = 47uF, 25V = Nichicon # URT1E470MCH 6.3mm x 9mmL



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-1017	REVISION: 04/20/99
ENGR: AL SANTOS	REF: PWR-TOP209PFI
APPD: TOM O'NEIL	SHEET: 2 OF 6