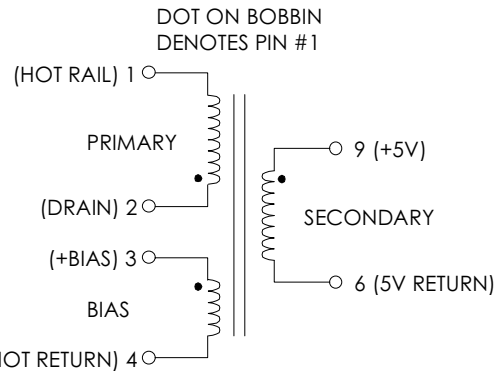
**TABLE 1:** ELECTRICAL SPECIFICATIONS AT 25 °C

SWITCHING TRANSFORMER DESIGNED FOR USE WITH POWER INTEGRATIONS TOP-223P REFER TO APPLICATION CIRCUIT OF FIGURE 3.

| PARAMETER | SPEC LIMITS MIN. | TYP. | MAX. | UNITS |
|---|---|---|---|---|
| PRIMARY INDUCTANCE (2-1) FREQ. = 100 KHZ @ 0.250Vrms | 450 | 500 | 550 | µHY |
| TURN RATIO'S: | | | | |
| SECONDARY (9-6) : PRIMARY (2-1) | ------- | 1: 9.25 | ------- | ± 4% |
| BIAS (3-4) : PRIMARY (2-1) | ------- | 1: 4.11 | ------- | ± 4% |
| PRI LEAKAGE IND. (9-6 SHORTED) FREQ. = 100 KHZ @ 0.250Vrms | ------- | -------- | 38.0 | µHY |
| HIPOT: | | | | |
| PRIMARY TO SECONDARY | 3000 | ------- | ------- | Vrms |
| BIAS TO SECONDARY | 3000 | ------- | ------- | Vrms |
| APP CIRCUIT PARAMETERS: (1) | | | | |
| DC HOT RAIL VOLTAGE | 82 | ------- | 375 | Vdc |
| OUTPUT VOLTAGE | | 5.0 | | Vdc |
| OUTPUT CURRENT CONTINUOUS | 100 | ------- | 2000 | mA |
| OUTPUT CURRENT PEAK | ------- | ------- | 2200 | mA |
| LINE REGULATION (85 TO 265Vac) | ------- | 0.30 | ------- | ±% |
| LOAD REGULATION 10-100% | ------- | 0.20 | ------- | ±% |
| RIPPLE | ------- | 50.0 | ------- | ±mV |

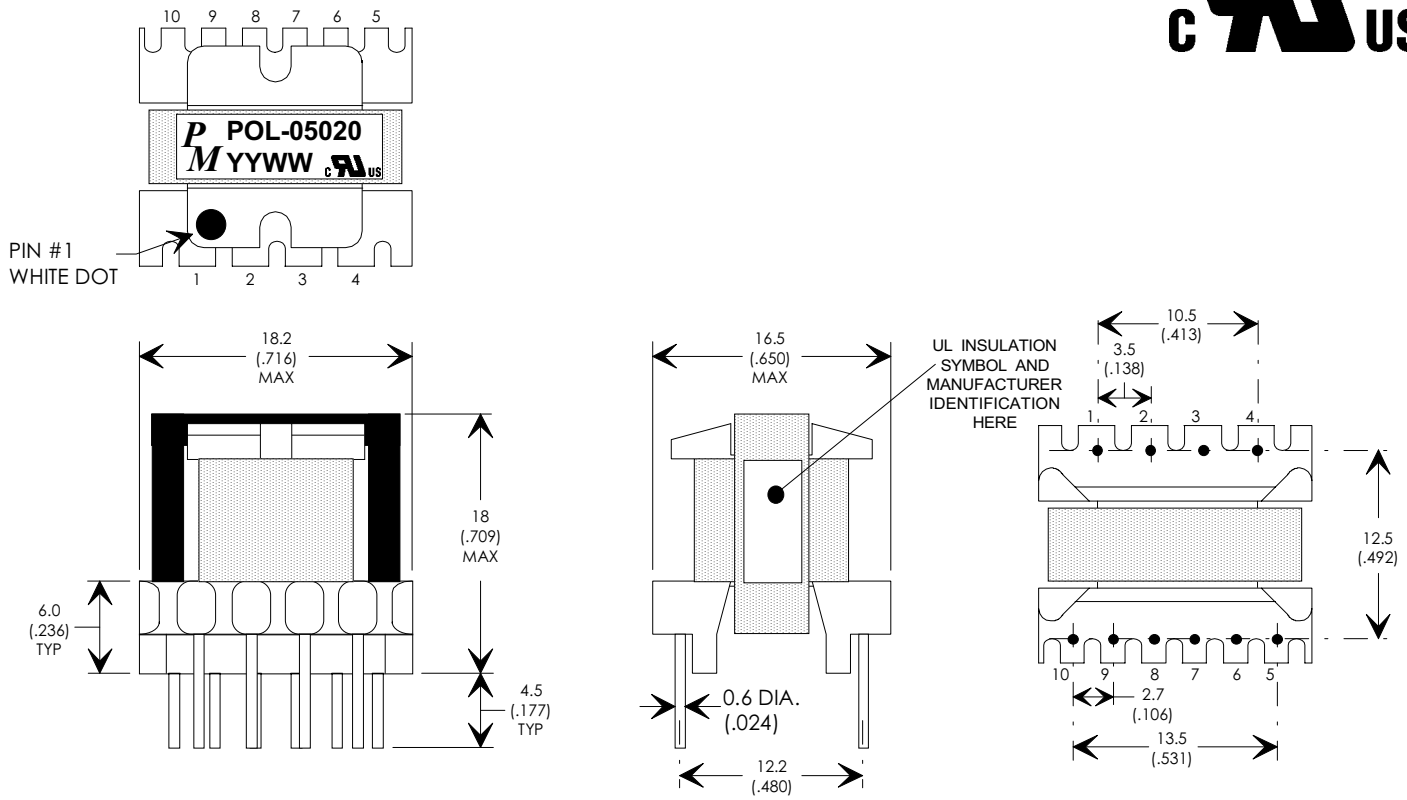
(1) REFER TO APPLICATION CIRCUIT OF FIGURE 3.

**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)




| REV. | DESCRIPTION OF CHANGES | BY |
|---|---|---|
| 09/17/97 | UPDATED RELEASE REDUCED TOP223 TEMP. RISE | TO |
| 10/10/98 | UPDATED TO ADD UL 1950 & CE-950 APPROVAL & MARKING | TO |
| 05/05/99 | UPDATE TO UL CLASS (B) 130 INSULATION SYSTEM | MD |
| | | |
| | | |

EE16/EI16, 10-PIN VERTICAL

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: POL-05020 | REVISION: 05/05/99 |
| DRAWN BY: TOM O'NEIL | REF: TOP223P |
| SCALE: NONE | SHEET: 1 OF 6 |

# APPLICATION NOTES

Premier Magnetics' POL-05020 Switch Mode Transformer was designed for use with Power Integrations, Inc. TOP223 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%. Premiers' POL-05020 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 10 watt application circuit utilizing Power Integrations TOP223P switching regulator in the flyback buck-boost configuration. The component values listed are intended for reference purposes only. Proper thermal managment of the TOP223, VR1 & D3 is required for reliable operation. The TOP223P should be mounted on $\geq$ 0.75 in$^2$, 2oz copper clad to provide a proper heat sink starting point for evaluation. As with any flyback circuit the output is not intended to be run under a no load condition. 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