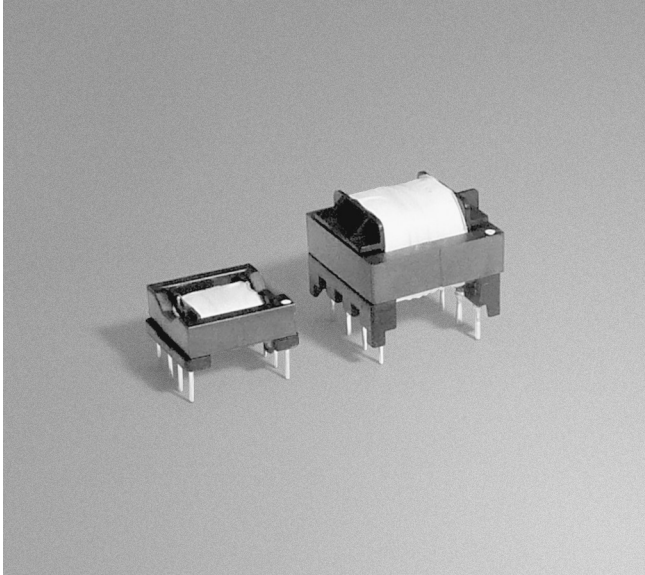




# Magnetics for 300 W PFC Power Supply



- Specified by Texas Instruments in Reference Design SLUU341 for 300 Watt Isolated PFC Power Supply
- HA3950-AL, Flyback transformer (T201) for 5 W bias supply; HA3858-AL, Gate drive transformer (T301)

**Core material** Ferrite

**Terminations** RoHS compliant tin-silver over tin over copper. Other terminations available at additional cost.

**Weight** HA3950-AL: 13.5 g; HA3858-AL: 4.1 g

**Ambient temperature**  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

**Storage temperature** Component:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .  
Tray packaging:  $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at  $<30^{\circ}\text{C}$  / 85% relative humidity)

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**  
38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332

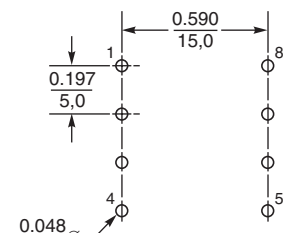
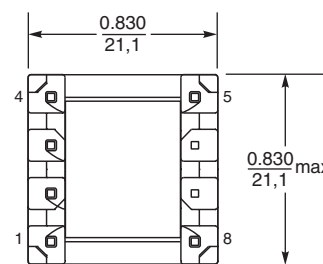
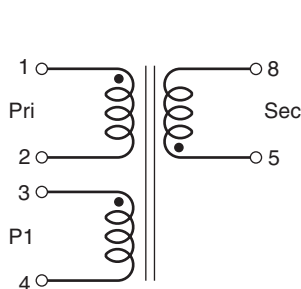
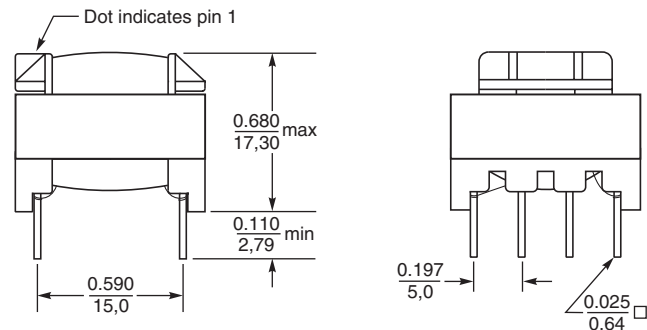
**Packaging** 100 per tray

**PCB washing** Tested with pure water or alcohol only. For other solvents, see Doc787\_PCB\_Washing.pdf.

## HA3950-AL Flyback Transformer

| Part number | Inductance at 0 A <sup>1</sup> $\pm 10\%$ (mH) | Inductance at I <sub>pk</sub> <sup>2</sup> (mH) | DCR max (Ohms)                           | Leakage inductance max ( $\mu\text{H}$ ) <sup>3</sup> | Turns ratio Pri:Sec:P1 | I <sub>pk</sub> <sup>2</sup> (A) | Output <sup>4</sup> |
|-------------|--|---|--|---|------------------------|----------------------------------|---------------------|
| HA3950-AL   | 2.3  | 1.61  | 0.860 (pri)<br>0.109 (sec)<br>0.080 (P1) | 16.5  | 1 : 0.16 : 0.11        | 0.3                              | 15 V, 0.33 A        |

- Inductance measured at 100 kHz, 0.1 Vrms, 0 Adc using an Agilent/HP 4263B impedance analyzer or equivalent.
- Peak primary current drawn at minimum input voltage.
- Leakage inductance is for the primary and is measured with the secondary shorted.
- Output of the P1 winding is 10 V, 20 mA.
- Isolation: 3000 Vrms, one minute primary to secondary; 500 Vrms, one minute windings to core
- Electrical specifications at  $25^{\circ}\text{C}$ .



Dimensions are in  $\frac{\text{inches}}{\text{mm}}$

**Recommended PC Board Layout**



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# Magnetics for 300 W PFC Power Supply

## HA3858-AL Gate Drive Transformer

| Part number | Turns ratio | Primary inductance <sup>1</sup><br>±25% (μH) | Leakage inductance <sup>2</sup><br>max (μH) | DCR max<br>(Ohms)                                  | Volt-time product<br>(V-μsec) | SRF typ <sup>3</sup><br>(MHz) | Capacitance max (pF)      |
|-------------|-------------|--|---|--|-------------------------------|-------------------------------|---------------------------|
| HA3858-AL   | 1 : 1 : 1   | 460  | 1.87 (1 – 2)<br>2.06 (3 – 4)                | 0.380 (Pri [A])<br>0.472 ((Pri [B])<br>0.424 (sec) | 150                           | 1.15                          | 8.48 (pri)<br>28.66 (sec) |

1. Inductance is for each winding, measured at 200 kHz, 0.4 Vrms, 0 Adc.
2. Leakage inductance is for each primary, measured at 200 kHz, 0.4 Vrms with secondary pins shorted.
3. SRF measured with coils connected in series using an Agilent/HP 4192 or equivalent.
4. Operating temperature range –40°C to +85°C.
5. Isolation: 3000 Vrms, one minute primary to secondary; 500 Vrms, one minute windings to core
6. Electrical specifications at 25°C.

