Push-Pull Transformers

For Linear LT3999
Push-Pull DC/DC Driver

- Developed for Linear LT3999 Low Noise, 1 A, 1 MHz Push-Pull DC/DC Driver with Duty Cycle Control
- 500 Vrms, one minute isolation primary windings to secondary windings
- Three output power versions: 1W (12V, 0.083A), 5W (5V, 1A), and 10W (12V, 0.83A)

**Core material** Ferrite
**Terminations** RoHS tin-silver (96.5/3.5) over tin over nickel over phosphor bronze.
**Weight** PA6381-AL, PA6383-AL: 1.9 – 2.1 g; PA6384-AL: 3.8 – 4.0 g
**Ambient temperature** –40°C to +85°C
**Maximum part temperature** +125°C (ambient + temp rise)
**Storage temperature** Component: –40°C to +125°C.
Tape and reel packaging: –40°C to +80°C
**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles
**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°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** See dimensional drawings
**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787_PCB_Washing.pdf](#).

### Part Specifications

<table>
<thead>
<tr>
<th>Part number</th>
<th>Input voltage (V)</th>
<th>Primary inductance (µH)</th>
<th>Leakage inductance (µH)</th>
<th>DCR max (Ohms)</th>
<th>Volt-time product (V-µsec)</th>
<th>Turns ratio</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>min</td>
<td>max</td>
<td>max</td>
<td>pri</td>
<td>sec</td>
<td>1</td>
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<tr>
<td>PA6381-AL_</td>
<td>5.0</td>
<td>139</td>
<td>232</td>
<td>0.520</td>
<td>0.166 (A); 0.201 (B)</td>
<td>1.78</td>
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<tr>
<td>PA6383-AL_</td>
<td>5.0</td>
<td>29.7</td>
<td>49.5</td>
<td>0.190</td>
<td>0.035 (A); 0.045 (B)</td>
<td>0.067</td>
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<tr>
<td>PA6384-AL_</td>
<td>12</td>
<td>82.5</td>
<td>137.5</td>
<td>0.336</td>
<td>0.048 (A); 0.061 (B)</td>
<td>0.072</td>
<td>22</td>
</tr>
</tbody>
</table>

1. When ordering, specify a **packaging** code:

   **PA6384-AL**
   **Packaging:**
   D = 13” machine ready reel. EIA-481 embossed plastic tape. Quantities less than full reel available: in tape (not machine ready) or with leader and trailer ($25 charge).

2. Inductance is for Pri A measured on an Agilent/HP 4284 at 100 kHz, 0.1 Vrms, 0 Adc.
3. Leakage inductance measured between pins 1 and 4 at 100 kHz, 0.1 Vrms, 0 Adc with pins 2 and 3 connected and with secondary pins shorted.
4. DCR for the secondary is for each winding.
5. Volt-time product is for Primary A, based on 2000 Gauss.
6. Turns ratio is with the primary windings and secondary windings connected in series.
7. Electrical specifications at 25°C.

Refer to Doc 362 “Soldering Surface Mount Components” before soldering.
Push-Pull Transformers for Linear LT3999

PA6381-AL, PA6383-AL

Recommended Land Pattern

PA6384-AL

Recommended Land Pattern

Dimensions are in inches/mm

Packaging
PA6381-AL, PA6383-AL  350 per 13” reel  Plastic tape: 32 mm wide, 0.42 mm thick, 20 mm pocket spacing, 9.16 mm pocket depth
PA6384-AL  200 per 13” reel  Plastic tape: 32 mm wide, 0.5 mm thick, 24 mm pocket spacing, 11.2 mm pocket depth