Flyback & Forward Transformers for PoE

- Flyback and Forward transformers for PoE up to 72 Watts
- Operates with 9 – 57 V input (POE21, 22, 23, 33, 35 and 38)
- Operates with 33 – 57 V input (POE23, 30, 36, 53, 70, and 72)
- One minute isolation (hipot): 1500Vrms, from pri and aux to each sec; 500 Vrms from pri to aux; 500 Vrms between two secondary
- Dual outputs can be configured as one single higher power output

Core material Ferrite
Environment RoHS compliant, halogen free
Terminations Tin-silver-copper over tin over nickel over phos bronze.
Weight 7.1 – 7.9 g
Ambient temperature -40°C to +125°C
Maximum part temperature +165°C (Ambient + temp rise)
Storage temperature Component: -40°C to +165°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 150 per 13” reel Plastic tape: 44 mm wide, 0.5 mm thick, 28 mm pocket spacing, 14.6 mm pocket depth

Flyback Transformers

<table>
<thead>
<tr>
<th>Part number</th>
<th>Power (W)</th>
<th>L at 0 A² ±10% (µH)</th>
<th>Isat³ (A)</th>
<th>DCR max (mOhms)</th>
<th>Leakage inductance⁴ max (µH)</th>
<th>Turns ratio</th>
<th>Output⁵</th>
</tr>
</thead>
<tbody>
<tr>
<td>POE21PR-33ED</td>
<td>21</td>
<td>21</td>
<td>6.2</td>
<td>31 10 10 80</td>
<td>0.30</td>
<td>1 : 0.231 : 0.231 : 0.692</td>
<td>3.3 V, 3.2 A</td>
</tr>
<tr>
<td>POE23PR-33ED</td>
<td>23</td>
<td>54</td>
<td>3.2</td>
<td>62 6.5 6.5 58</td>
<td>0.67</td>
<td>1 : 0.125 : 0.125 : 0.375</td>
<td>3.3 V, 3.5 A</td>
</tr>
<tr>
<td>POE22PR-50ED</td>
<td>22</td>
<td>21</td>
<td>6.2</td>
<td>31 17 17 80</td>
<td>0.16</td>
<td>1 : 0.333 : 0.333 : 0.750</td>
<td>5.0 V, 2.2 A</td>
</tr>
<tr>
<td>POE30PR-50ED</td>
<td>30</td>
<td>48</td>
<td>3.6</td>
<td>62 10 10 85</td>
<td>0.40</td>
<td>1 : 0.188 : 0.188 : 0.375</td>
<td>5.0 V, 3.0 A</td>
</tr>
<tr>
<td>POE24PR-12ED</td>
<td>24</td>
<td>21</td>
<td>6.3</td>
<td>31 52 52 72</td>
<td>0.15</td>
<td>1 : 0.750 : 0.750 : 0.667</td>
<td>12 V, 1.0 A</td>
</tr>
<tr>
<td>POE36PR-12ED</td>
<td>36</td>
<td>41</td>
<td>4.2</td>
<td>62 23 23 85</td>
<td>0.28</td>
<td>1 : 0.375 : 0.375 : 0.375</td>
<td>12 V, 1.5 A</td>
</tr>
</tbody>
</table>

1. Packaging: D = 13” machine-ready reel. EIA-481 embossed plastic tape (150 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer ($25 charge).
2. Inductance is for the primary, measured at 200 kHz, 0.1 Vrms, 0 Adc.
3. DC current at 25°C that causes an inductance drop of < 30% from its value without current.
4. Leakage inductance measured between pins 1 and 3 with all other pins shorted.
5. Output is for each secondary. Output of the aux winding is 10 V, 50 mA.
6. Electrical specifications at 25°C.

Refer to Doc 362 “Soldering Surface Mount Components” before soldering.
Transformers for PoE
Forward Mode Transformers

<table>
<thead>
<tr>
<th>Part number</th>
<th>Power (W)</th>
<th>L at 0 A (µH)</th>
<th>DCR max (mOhms)</th>
<th>Turns ratio</th>
<th>Leakage inductance (µH)</th>
<th>Volt-time product (V·µsec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POE33PR-33ED</td>
<td>33</td>
<td>128 ±25%</td>
<td>17 12.5 12.5 145</td>
<td>1 : 0.625 : 0.625 : 0.75</td>
<td>0.10</td>
<td>3.3 V, 5.0 A</td>
</tr>
<tr>
<td>POE53PR-33ED</td>
<td>53</td>
<td>100 ±15%</td>
<td>30 6.5 6.5 120</td>
<td>1 : 0.167 : 0.167 : 0.50</td>
<td>0.40</td>
<td>3.3 V, 8.0 A</td>
</tr>
<tr>
<td>POE35PR-50ED</td>
<td>35</td>
<td>128 ±15%</td>
<td>17.6 23 23 340</td>
<td>1 : 0.875 : 0.875 : 1.75</td>
<td>0.15</td>
<td>5.0 V, 3.5 A</td>
</tr>
<tr>
<td>POE70PR-50ED</td>
<td>70</td>
<td>100 ±15%</td>
<td>30 10 10 120</td>
<td>1 : 0.250 : 0.250 : 0.50</td>
<td>0.40</td>
<td>5.0 V, 7.0 A</td>
</tr>
<tr>
<td>POE38PR-12ED</td>
<td>38</td>
<td>128 ±15%</td>
<td>17.6 122 122 340</td>
<td>1 : 2.125 : 2.125 : 1.75</td>
<td>0.15</td>
<td>12 V, 1.6 A</td>
</tr>
<tr>
<td>POE72PR-12ED</td>
<td>72</td>
<td>100 ±15%</td>
<td>17.6 122 340</td>
<td>1 : 2.125 : 2.125 : 1.75</td>
<td>0.15</td>
<td>12 V, 3.0 A</td>
</tr>
</tbody>
</table>

1. Packaging: D = 13" machine-ready reel. EIA-481 embossed plastic tape (150 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer ($25 charge).
2. Inductance is for the primary, measured at 200 kHz, 0.1 Vrms, 0 Adc.
3. Leakage inductance measured between pins 1 and 3 with all other pins shorted.
4. Output is for each secondary. Output of the aux winding is 10 V, 50 mA.
5. Based on 280 mT at 25°C and number of turns on pins 1-3.
6. Electrical specifications at 25°C.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

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**Recommended Land Pattern**

Dimensions are in inches/mm