Flyback & Forward Transformers for PoE

- Flyback and Forward transformers for PoE up to 72 Watts
- Operates with 9 – 57 V input (POE21, 22, 24, 30, 35 and 38)
- Operates with 33 – 57 V input (POE23, 30, 36, 53, 70, and 72)
- One minute isolation (hitop): 1500 Vrms, 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
- AEC-Q200 Grade 1 (–40°C to +125°C)

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

Flyback Transformers

<table>
<thead>
<tr>
<th>Part number</th>
<th>Power (W)</th>
<th>L at 0 Ac ±10% (µH)</th>
<th>Isat (A)</th>
<th>DCR max (mOhms)</th>
<th>Leakage inductance [µH]</th>
<th>Turns ratio</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pri</td>
<td>sec1</td>
<td>sec2</td>
<td>aux</td>
<td>pri : sec1 : sec2 : aux</td>
<td>Output</td>
<td></td>
</tr>
<tr>
<td>POE21PR-33ED</td>
<td>21</td>
<td>21</td>
<td>6.2</td>
<td>31</td>
<td>10</td>
<td>10</td>
<td>80</td>
</tr>
<tr>
<td>POE23PR-33ED</td>
<td>23</td>
<td>54</td>
<td>3.2</td>
<td>62</td>
<td>6.5</td>
<td>6.5</td>
<td>58</td>
</tr>
<tr>
<td>POE22PR-50ED</td>
<td>22</td>
<td>21</td>
<td>6.2</td>
<td>31</td>
<td>17</td>
<td>17</td>
<td>80</td>
</tr>
<tr>
<td>POE30PR-50ED</td>
<td>30</td>
<td>48</td>
<td>3.6</td>
<td>62</td>
<td>10</td>
<td>10</td>
<td>85</td>
</tr>
<tr>
<td>POE24PR-12ED</td>
<td>24</td>
<td>21</td>
<td>6.3</td>
<td>31</td>
<td>52</td>
<td>52</td>
<td>72</td>
</tr>
<tr>
<td>POE36PR-12ED</td>
<td>36</td>
<td>41</td>
<td>4.2</td>
<td>62</td>
<td>23</td>
<td>23</td>
<td>85</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(^2) (µH)</th>
<th>DCR max (mOhms)</th>
<th>Turns ratio</th>
<th>Leakage inductance(^3) max (µH)</th>
<th>Output(^4)</th>
<th>Volt-time product(^5) (V-µsec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POE33PR-33ED</td>
<td>33</td>
<td>128 ±25%</td>
<td>17</td>
<td>12.5</td>
<td>12.5</td>
<td>0.10</td>
<td>12 V-3.0 A 71</td>
</tr>
<tr>
<td>POE33PR-33ED</td>
<td>53</td>
<td>100 ±15%</td>
<td>30</td>
<td>6.5</td>
<td>6.5</td>
<td>0.094</td>
<td>12 V-3.0 A 107</td>
</tr>
<tr>
<td>POE35PR-50ED</td>
<td>35</td>
<td>128 ±15%</td>
<td>17.6</td>
<td>23</td>
<td>23</td>
<td>0.10</td>
<td>12 V-3.0 A 71</td>
</tr>
<tr>
<td>POE50PR-50ED</td>
<td>70</td>
<td>100 ±15%</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td>0.10</td>
<td>12 V-3.0 A 107</td>
</tr>
<tr>
<td>POE38PR-12ED</td>
<td>38</td>
<td>128 ±15%</td>
<td>17.6</td>
<td>122</td>
<td>122</td>
<td>0.098</td>
<td>12 V-3.0 A 71</td>
</tr>
<tr>
<td>POE72PR-12ED</td>
<td>72</td>
<td>100 ±15%</td>
<td>38</td>
<td>27</td>
<td>27</td>
<td>0.10</td>
<td>12 V-3.0 A 107</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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**Dimensions**

```
<table>
<thead>
<tr>
<th>Dimension</th>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.512</td>
<td>inches</td>
<td>13.00</td>
</tr>
<tr>
<td>0.571 max</td>
<td>inches</td>
<td>14.5</td>
</tr>
<tr>
<td>0.551 max</td>
<td>inches</td>
<td>14.0</td>
</tr>
<tr>
<td>0.039</td>
<td>inches</td>
<td>1.00</td>
</tr>
<tr>
<td>0.697 max</td>
<td>inches</td>
<td>17.7</td>
</tr>
<tr>
<td>0.01 max</td>
<td>inches</td>
<td>0.004</td>
</tr>
</tbody>
</table>
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**Packaging**

150 per 13" reel. Plastic tape: 44 mm wide, 0.5 mm thick, 28 mm pocket spacing, 14.6 mm pocket depth.
Transformers for PoE

L vs Current

- **POE21PR-33ED**
  - Inductance (μH) vs Current (A)
  - L = 21 μH at I = 10 A

- **POE23PR-33ED**
  - Inductance (μH) vs Current (A)
  - L = 54 μH at I = 10 A

- **POE22PR-50ED**
  - Inductance (μH) vs Current (A)
  - L = 21 μH at I = 10 A

- **POE30PR-50ED**
  - Inductance (μH) vs Current (A)
  - L = 48 μH at I = 10 A

- **POE24PR-12ED**
  - Inductance (μH) vs Current (A)
  - L = 21 μH at I = 10 A

- **POE36PR-12ED**
  - Inductance (μH) vs Current (A)
  - L = 41 μH at I = 10 A

- **POE33PR-33ED**
  - Inductance (μH) vs Current (A)
  - L = 128 μH at I = 10 A

- **POE53PR-33ED**
  - Inductance (μH) vs Current (A)
  - L = 100 μH at I = 10 A

- **POE3PR-50ED**
  - Inductance (μH) vs Current (A)
  - L = 129 μH at I = 10 A

- **POE70PR-50ED**
  - Inductance (μH) vs Current (A)
  - L = 100 μH at I = 10 A

- **POE3PR-12ED**
  - Inductance (μH) vs Current (A)
  - L = 128 μH at I = 10 A

- **POE72PR-12ED**
  - Inductance (μH) vs Current (A)
  - L = 100 μH at I = 10 A

Specifications subject to change without notice. Please check website for latest information.