POE-EP & POE-PD Series - PoE DC/DC Transformers

Features
- Surface mount
- Power from 12 to 72 W
- Output voltage from 3.3 to 12 V
- Operating temperature: -40 °C up to +165 °C
- RoHS compliant*

Applications
- VoIP phones
- WLAN APs
- Security IP cameras
- Routers
- Gateways

General Specifications

<table>
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<tr>
<th>Hi-Pot</th>
<th>Operating Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>POE-EP13 and POE-PD13 (Pri-Sec)</td>
<td>-40 °C to +105 °C</td>
</tr>
<tr>
<td>POE012-PD13120S</td>
<td>-40 °C to +125 °C</td>
</tr>
<tr>
<td>POE025-PD13050S</td>
<td>-40 °C to +165 °C</td>
</tr>
</tbody>
</table>

Additional Information

Click these links for more information:
- PRODUCT
- TECHNICAL
- LIBRARY
- INVENTORY
- SAMPLES
- CONTACT

Materials

Bobbin: PM-9630(JT BLACK)
Wire: UEWH
Core: Ferrite

Electrical Specifications @ 25 °C

<table>
<thead>
<tr>
<th>Bourns Part Number</th>
<th>Primary Inductance</th>
<th>Leakage Inductance</th>
<th>DCR</th>
<th>Turns ratio</th>
<th>Input Voltage</th>
<th>Switching Frequency</th>
<th>Main Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>POE012-EP13033S</td>
<td>(1-2) @ 100 kHz / 0.1 V</td>
<td>133 µH ±7 %</td>
<td>(1-2) w/ (3,4,6,7,10) shorted @ 250 kHz / 0.1 V</td>
<td>1.3 µH max.</td>
<td>(1-2) (3-4) (6-7) (7-10)</td>
<td>340 mΩ max.</td>
<td>200 kHz</td>
</tr>
<tr>
<td>POE025-EP13050S</td>
<td>(1-2) @ 100 kHz / 0.1 V</td>
<td>100 µH ±10 %</td>
<td>(1-2) w/ (4,5,6,7,9,10) shorted @ 100 kHz / 0.1 V</td>
<td>0.55 µH max.</td>
<td>(1-2) (4-5) (6-7,9-10)</td>
<td>114 mΩ max.</td>
<td>250 kHz</td>
</tr>
<tr>
<td>POE012-PD13050S</td>
<td>(1-2) @ 1 kHz / 0.5 V</td>
<td>150 µH ±7 %</td>
<td>(1-2) w/ (3,4,6,7,8,9,10) shorted @ 250 kHz / 0.5 V</td>
<td>1 µH max.</td>
<td>(1-2) (3-4) (6-7,8-9,10)</td>
<td>166 ±20 % mΩ</td>
<td>200 kHz</td>
</tr>
<tr>
<td>POE012-PD13120S*</td>
<td>(3-4) @ 100 kHz / 0.1 V</td>
<td>127 µH ±10 %</td>
<td>(3-4) w/ (1,2,7,8,9,10) shorted @ 250 kHz / 0.1 V</td>
<td>0.65 µH max.</td>
<td>(3-4) (2-1) (7-9) (8-10)</td>
<td>170 mΩ max.</td>
<td>250 kHz</td>
</tr>
</tbody>
</table>

*Model POE-EP13 and POE-PD13: Hi-Pot for PRI-SEC is 1500 Vac (60 Hz / 2 sec / 1 mA);
Model POE012-PD13120S: Hi-Pot for PRI-SEC: 1500 Vac, PRI-PRI: 500 Vac, SEC-SEC: 500 Vac (60 Hz / 2 sec / 1 mA)

WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

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Users should verify actual device performance in their specific applications.
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### POE-EP & POE-PD Series - PoE DC/DC Transformers

#### Electrical Specifications @ 25 °C (continued)

<table>
<thead>
<tr>
<th>Bourns Part Number</th>
<th>Primary Inductance</th>
<th>Leakage Inductance</th>
<th>DCR</th>
<th>Turns ratio</th>
<th>Input Voltage</th>
<th>Switching Frequency</th>
<th>Main Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>POE025-PD13050S</td>
<td>(1-2) @ 1 kHz / 0.5 V 65 µH ±7 % (1-2) w/ (3,4,6,7,8,9,10) shorted @ 250 kHz / 0.5 V 0.85 µH max.</td>
<td>120 mΩ max. 80 mΩ max. 65 mΩ max. 5.5 mΩ max. (1-2-7,8-9,10) (1-2-3,4) (1-2-6,7)</td>
<td>6 ±3 % : 1 2.57 ±3 % : 1 6 ±3 % : 1</td>
<td>36 V - 57 V 200 kHz</td>
<td>5 V 5 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POE025-PD13120S</td>
<td>(1-3) @ 100 kHz / 0.1 V 80 µH ±7 % (1-3) @ 100 kHz / 0.1 V w/ (4,5,6,7,9,10) shorted 1 µH max.</td>
<td>140 mΩ max. 195 mΩ max. 22 mΩ max. (1-3-4,5) (1-3-7,6-10,9)</td>
<td>2.375 ±3 % : 1 3.166 ±3 % : 1</td>
<td>36 V - 57 V 220 kHz</td>
<td>12 V 2.1 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POE030-PD13050S</td>
<td>(1-3) @ 100 kHz / 0.1 V 70 µH ±10 % (1-3) w/ (6,7,9,10) shorted @ 100 kHz / 0.1 V 1.4 µH max.</td>
<td>93 mΩ max. 166 mΩ max. 4.45 mΩ max. (1-3-4,5) (1-3-6,7,9,10)</td>
<td>3.14 ±3 % : 1 7.33 ±3 % : 1</td>
<td>33 V - 57 V 200 kHz</td>
<td>5 V 6 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POE070-PD13050S</td>
<td>(1-3) @ 100 kHz / 0.1 V 100 µH ±15 % (1-3) w/ (4,5,6,7,9,10) shorted @ 100 kHz / 0.1 V 0.22 µH max.</td>
<td>33 mΩ max. 221 mΩ max. 135 mΩ max. 6.6 mΩ max. (1-3-1,2) (1-3-4,5) (1-3-6,7,9,10)</td>
<td>1 ±3 % : 1 1.43 ±3 % : 1 3.33 ±3 % : 1</td>
<td>41 V - 57 V 200 kHz</td>
<td>5 V 14 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POE072-PD13120S</td>
<td>(1-3) @ 100 kHz / 0.1 V 100 µH ±12 % (1-3) w/ (4,5,6,7,9,10) shorted @ 100 kHz / 0.1 V 0.24 µH max.</td>
<td>49 mΩ max. 240 mΩ max. 302 mΩ max. 36 mΩ max. (1-3-1,2) (1-3-4,5) (1-3-6,7,9,10)</td>
<td>1 ±3 % : 1 1.33 ±3 % : 1 1.5 ±3 % : 1</td>
<td>41 V - 57 V 200 kHz</td>
<td>12 V 6 A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Model POE-EP13 and POE-PD13: Hi-Pot for PRI-SEC is 1500 Vac (60 Hz / 2 sec / 1 mA);
  Model POE012-PD13120S: Hi-Pot for PRI-SEC: 1500 Vac, PRI-PRI: 500 Vac, SEC-SEC: 500 Vac (60 Hz / 2 sec / 1 mA)

* Operating temperature
POE012-PD13050S, POE025-PD13120S: -40 °C to 105 °C
POE012-PD13050S, POE012-PD13120S, POE025-PD13050S, POE030-PD13050S: -40 °C to 125 °C
POE070-PD13050S, POE072-PD13120S: -40 °C to 165 °C

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Product Dimensions

POE012-EP13033S

Recommended Layout

POE012-EP13033S

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Product Dimensions

**POE012-PD13050S**
- **Product Dimensions**
- **Recommended Layout**

**POE025-PD13120S**
- **Product Dimensions**
- **Recommended Layout**

**POE030-PD13050S**
- **Product Dimensions**
- **Recommended Layout**
POE-EP & POE-PD Series - PoE DC/DC Transformers

Electrical Schematic

POE012-EP13033S

POE025-EP13050S

POE012-PD13050S

POE012-PD13120S

POE025-PD13050S

POE025-PD13120S

POE030-PD13050S

POE070-PD13050S

POE072-PD13120S

Secondary winding to be connected in parallel on PC board.

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How To Order

Model
POE = POE Transformer

Power Rating
012 = 12 W

Core and Size
EP13 = EP13
PD13 = EPD13

Vout
050 = 5 V

PCB type
S = SMD

Soldering Profile

The duration from room temperature (25 °C) to peak temperature is 8 minutes maximum.
Packaging Specifications

Packaging Specifications

POE-PD Series: 150 pcs./reel, 2 reels/carton, 300 pcs.
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