



## 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 (See General Specifications for specific ranges)
- RoHS compliant\*

## Applications

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

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

### General Specifications

#### Hi-Pot

POE-EP13 and POE-PD13 (Pri-Sec).....	1500 Vac (60 Hz / 2 sec / 1 mA)
POE012-PD13120S	
(Pri-Sec) .....	1500 Vac (60 Hz / 2 sec / 1 mA)
(Pri-Pri) .....	500 Vac (60 Hz / 2 sec / 1 mA)
(Sec-Sec).....	500 Vac (60 Hz / 2 sec / 1 mA)

#### Operating Temperature

POE012-EP13033S, POE025-EP13050S, 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

Moisture Sensitivity Level .....	1
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### Additional Information

Click these links for more information:



### Materials

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

### Electrical Specifications @ 25 °C

Bourns Part Number	Primary Inductance		Leakage Inductance		DCR		Turns ratio		Input Voltage Switching Frequency	Main Output
	(1-2) @ 100 kHz / 0.1 V	133 µH ±7 %	(1-2) w/ (3,4,6,7,10) shorted @ 250 kHz / 0.1V	1.3 µH max.	(1-2) (3-4) (6-7) (7-10)	340 mΩ max. 250 mΩ max. 150 mΩ max. 8 mΩ max,	(1-2 : 3-4) (1-2 : 7-10) (1-2 : 6-7)	2.77 ±3 % : 1 9.0 ±3 % : 1 4.5 ±3 % : 1		
POE012-EP13033S	(1-2) @ 100 kHz / 0.1 V	100 µH ±10 %	(1-2) w/ (4,5,6,7,9,10) shorted @ 100 kHz / 0.1 V	0.55 µH max.	(1-2) (4-5) (6,7-9,10)	114 mΩ max. 163 mΩ max. 6 mΩ max.	(1-2:4-5) (1-2:6,7-9,10)	1.82 ±3 % : 1 4 ±3 % : 1	33 V - 57 V 250 kHz	5 V 5 A
POE012-PD13050S	(1-2) @ 1 kHz / 0.5 V	150 µH ±7 %	(1-2) w/ (3,4,6,7,8,9,10) shorted @ 250 kHz / 0.5 V	1 µH max.	(1-2) (3-4) (6-7) (7,8-9,10)	166 ±20 % mΩ 166 ±20 % mΩ 68.5 ±20 % mΩ 6.3 ±20 % mΩ	(1-2:7,8-9,10) (1-2:3-4) (1-2:6-7)	6 ±3 % : 1 2.66 ±3 % : 1 6 ±3 % : 1	36 V - 57 V 200 kHz	5 V 2.4 A
POE012-PD13120S*	(3-4) @ 100 kHz / 0.1 V	127 µH ±10 %	(3-4) w/ (1,2,7,8,9,10) shorted @ 250 kHz / 0.1 V	0.65 µH max.	(3-4) (2-1) (7-9) (8-10)	170 mΩ max. 100 mΩ max. 65 mΩ max. 65 mΩ max.	(3-4:2-1) (3-4:7-9) (3-4:8-10)	2 ±3 % : 1 2 ±3 % : 1 2 ±3 % : 1	36 V - 72 V 250 kHz	12 V 1.08 A

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

(continued)

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-EP13033S, POE025-EP13050S, 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



**WARNING** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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

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

Bourns Part Number	Primary Inductance		Leakage Inductance		DCR		Turns ratio		Input Voltage Switching Frequency	Main Output
POE025-PD13050S	(1-2) @ 1 kHz / 0.5 V	65 $\mu$ H ±7 %	(1-2) w/ (3,4,6,7,8,9,10) shorted @ 250 kHz / 0.5 V	0.85 $\mu$ H max.	(1-2) (3-4) (6-7) (7,8-9,10)	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)	6 ±3 % : 1 2.57 ±3 % : 1 6 ±3 % : 1	36 V - 57 V 200 kHz	5 V 5 A
POE025-PD13120S	(1-3) @ 100 kHz / 0.1 V	80 $\mu$ H ±7 %	(1-3) @ 100 kHz / 0.1 V w/ (4,5,6,7,9,10) shorted	1 $\mu$ H max.	(1-3) (4-5) (7,6-10,9) w/ (6,7,9,10) shorted	140 mΩ max. 195 mΩ max. 22 mΩ max.	(1-3:4-5) (1-3:7,6-10,9) w/ (6,7,9,10) shorted	2.375 ±3 % : 1 3.166 ±3 % : 1	36 V - 57 V 220 kHz	12 V 2.1 A
POE030-PD13050S	(1-3) @ 100 kHz / 0.1 V	70 $\mu$ H ±10 %	(1-3) w/ (6,7,9,10) shorted @ 100 kHz / 0.1 V	1.4 $\mu$ H max.	(1-3) (4-5) (6,7-9,10) w/ (6,7,9,10) shorted	93 mΩ max. 166 mΩ max. 4.45 mΩ max.	(1-3:4-5) (1-3:6,7-9,10) w/ (6,7,9,10) shorted	3.14 ±3 % : 1 7.33 ±3 % : 1	33 V - 57 V 200 kHz	5 V 6 A
POE070-PD13050S	(1-3) @ 100 kHz / 0.1 V	100 $\mu$ H ±15 %	(1-3) w/ (4,5,6,7,9,10) shorted @ 100 kHz / 0.1 V	0.22 $\mu$ H max.	(1-3) (1-2) (4-5) (6-9) (7-10)	33 mΩ max. 221 mΩ max. 135 mΩ max. 6.6 mΩ max. 6.6 mΩ max.	(1-3:1-2) (1-3:4-5) (1-3:6-9) (1-3:7-10)	1 ±3 % : 1 1.43 ±3 % : 1 3.33 ±3 % : 1 3.33 ±3 % : 1	41 V - 57 V 200 kHz	5 V 14 A
POE072-PD13120S	(1-3) @ 100 kHz / 0.1 V	100 $\mu$ H ±12 %	(1-3) w/ (4,5,6,7,9,10) shorted @ 100 kHz / 0.1 V	0.24 $\mu$ H max.	(1-3) (1-2) (4-5) (6-9) (7-10)	49 mΩ max. 240 mΩ max. 302 mΩ max. 36 mΩ max. 34 mΩ max.	(1-3:1-2) (1-3:4-5) (1-3:6-9) (1-3:7-10)	1 ±3 % : 1 1.33 ±3 % : 1 1.5 ±3 % : 1 1.5 ±3 % : 1	41 V - 57 V 200 kHz	12 V 6 A

\* 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-EP13033S, POE025-EP13050S, 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

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

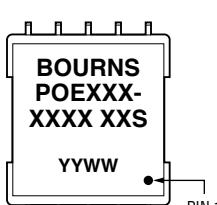
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## POE-EP & POE-PD Series - PoE DC/DC Transformers

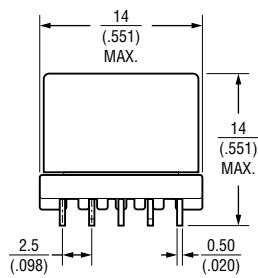
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### Product Dimensions

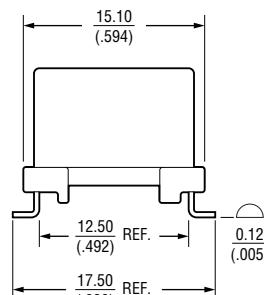
#### POE-EP Series



TOP VIEW



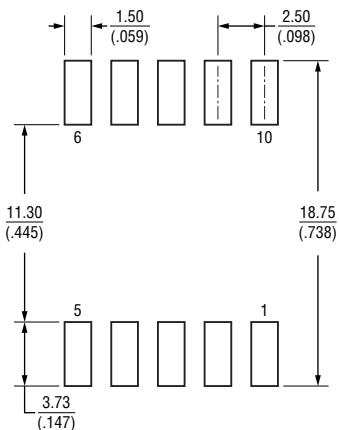
FRONT VIEW



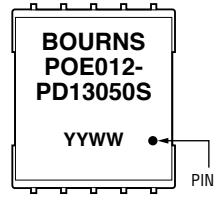
SIDE VIEW

### Recommended Layout

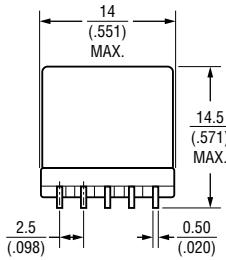
#### POE-EP Series



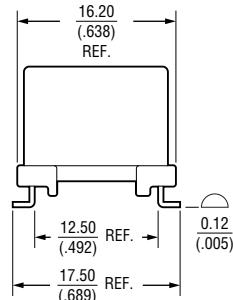
#### POE-PD Series



TOP VIEW

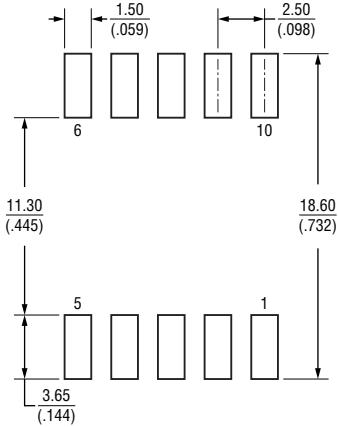


FRONT VIEW



SIDE VIEW

#### POE-PD Series



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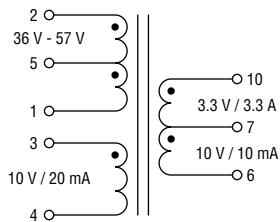
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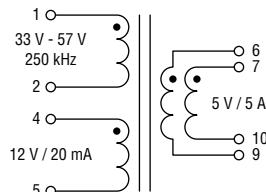
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### Electrical Schematic

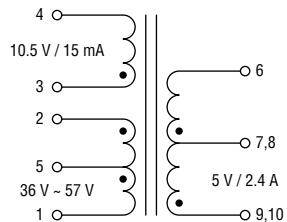
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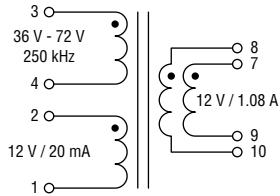
POE025-EP13050S



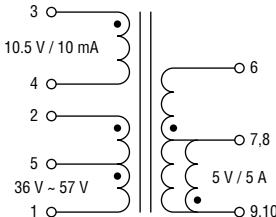
POE012-PD13050S



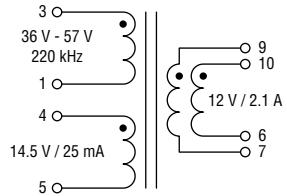
POE012-PD13120S



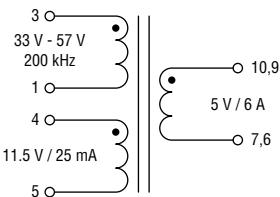
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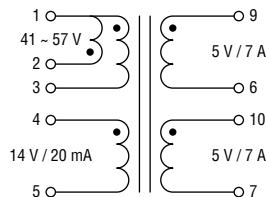
POE025-PD13120S



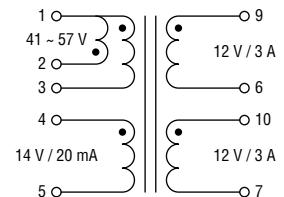
POE030-PD13050S



POE070-PD13050S



POE072-PD13120S



Secondary winding to be connected in parallel on PC board.

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

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### How To Order

POE 012 - PD13 050 S

Model \_\_\_\_\_  
POE = POE Transformer

Power Rating \_\_\_\_\_  
012 = 12 W

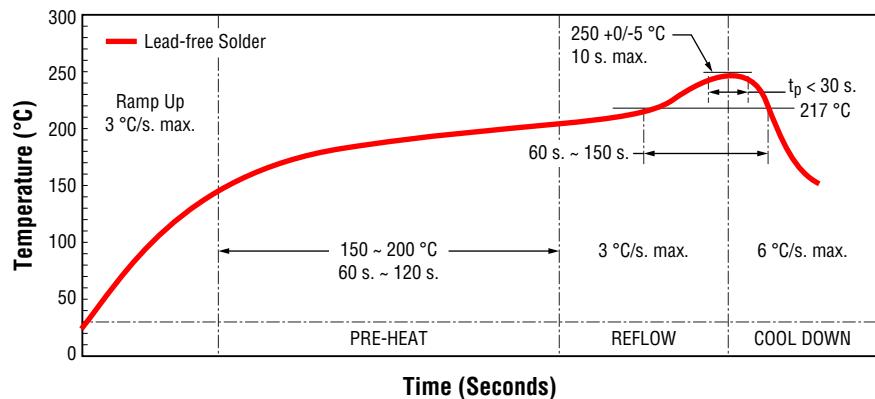
Core and Size \_\_\_\_\_  
EP13 = EP13  
PD13 = EPD13

$V_{out}$  \_\_\_\_\_  
050 = 5 V

PCB type \_\_\_\_\_  
S = SMD

### Soldering Profile

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



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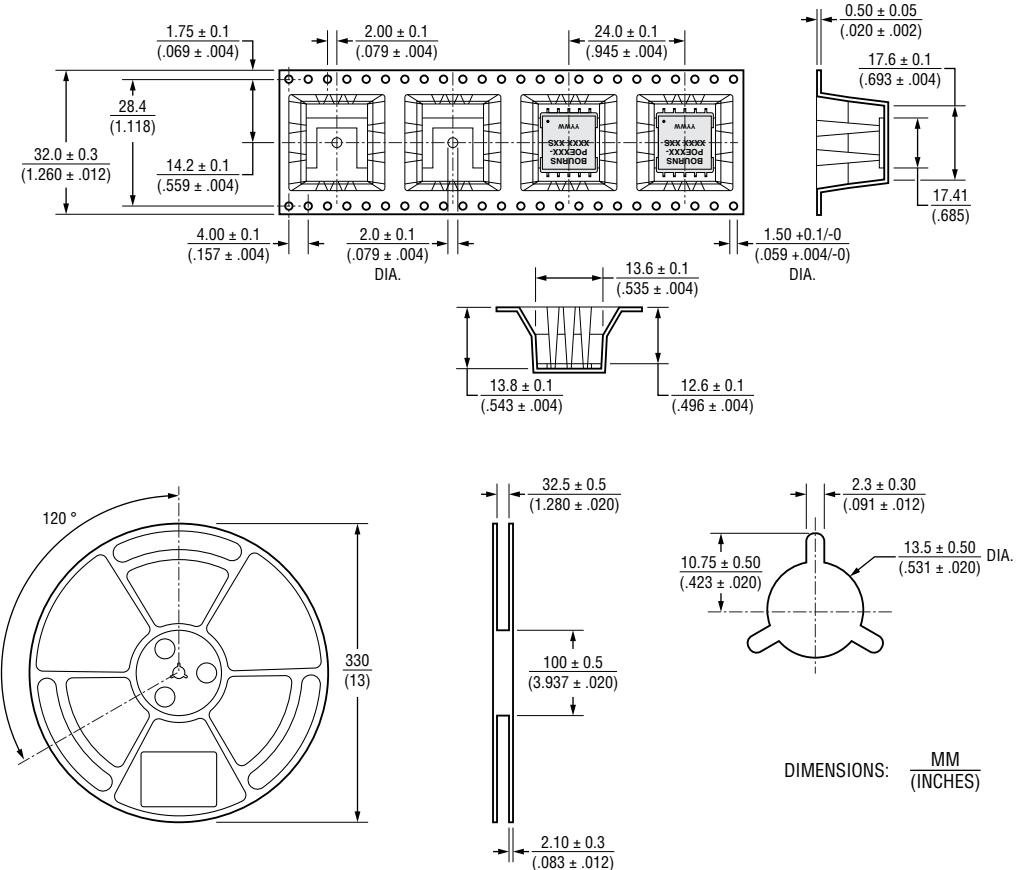
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## POE-EP & POE-PD Series - PoE DC/DC Transformers

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### Packaging Specifications

POE-EP Series: 180 pcs./reel, 3 reels/carton, 540 pcs.



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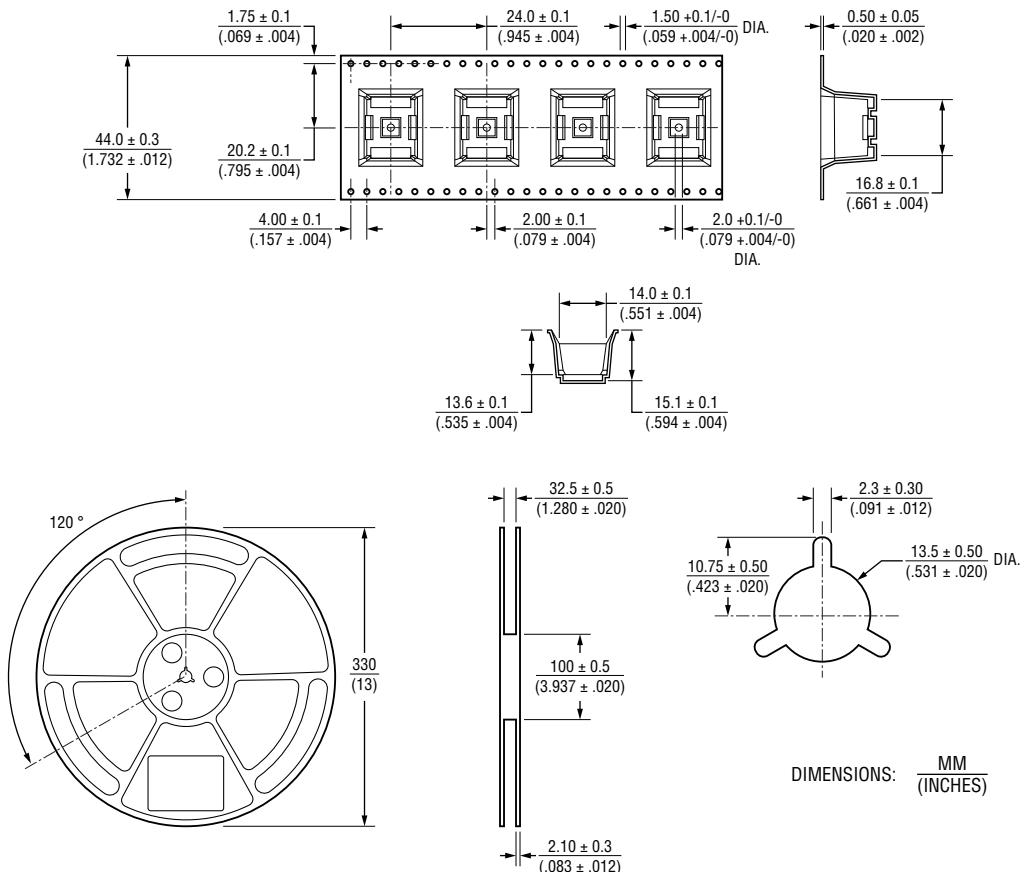
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## POE-EP & POE-PD Series - PoE DC/DC Transformers

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### Packaging Specifications

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



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