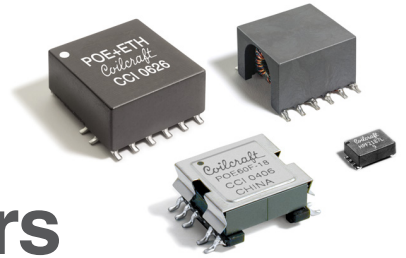


# Power over Ethernet PD Power Converter Transformers



*Coilcraft*

Power over Ethernet (PoE) has been widely used to deliver power and data over a single cable to devices such as security and surveillance cameras, video IP phones, public Wi-Fi hotspots, smart home appliances, etc. As new applications and the next generation of powered devices (PD) are emerging from the PoE market,

standards are evolving to meet the requirement for higher power needs of the PoE applications (up to 71W PD input power). Coilcraft's PD power transformers are perfect solutions to meet the demands of these applications and provide the regulated output voltage with the desired power level and isolation.

## PoE Standards Overview

PSE Output power	15.4W	30W	45W	60W	75W	90W
PD Input power	13W	25.5W	40W	51W	62W	71W
Type 1	802.3af Class 0 - 3					
Type 2	Class 0 - 3	802.3at Class 4				
Type 3	Class 0 - 3	Class 4	New 802.3bt Class 5      Class 6			
Type 4	Class 0 - 3	Class 4	Class 5	Class 6	New 802.3bt Class 7      Class 8	

Table 1: PoE IEEE Standard Power Levels

### PoE Power Converter Transformers

Coilcraft PoE power transformers offer different power levels compatible with traditional IEEE 802.3af/at as well as the new high power standard IEEE 802.bt. These power transformers are designed in compact package sizes while still maintaining high power conversion efficiency and high isolation voltages. They also have the

flexibility to provide great variety of outputs (voltage, current) to suit a wide variety of PoE power devices.

Flyback and Forward/Active Clamp Forward topologies can be found in our power transformer offerings. In general, Flybacks are better at higher voltage/lower current output design and more cost effective while more efficiency can be achieved in the Forward topology.

# Power over Ethernet PD Power Converter Transformers



## Off-the-shelf PoE Solutions from Coilcraft

### IEEE 802.3bt and Extended Power

Limited pre-production samples available upon request. Ask us about availability of production quantities.

PD Input power	$V_{out}$				
	3.3V	5V	12V	24V	48V
40W (Flyback)	POE40Q-33E (EPQ13)	POE40Q-50E (EPQ13)	POE40Q-12E (EPQ13)	POE40Q-24E (EPQ13)	POE40Q-48E (EPQ13)
40W (Flyback/ Forward)*	POE33PR-33E (EPQ13)	POE35PR-50E (EPQ13)	POE36PR-12E POE38PR-12E (EPQ13)		
51W (Flyback)	POE51Q-33E (EPQ13)	POE51Q-50E (EPQ13)	POE51Q-12E (EPQ13)	POE51Q-24E (EPQ13)	POE51Q-48E (EPQ13)
51W (Forward)*	POE53PR-33E (EPQ13)				
62W (Flyback)	POE62F-33E (EFD20)	POE62F-50E (EFD20)	POE62F-12E (EFD20)	POE62F-24E (EFD20)	POE62F-48E (EFD20)
62W (Active Clamp Forward)	POE600F-33L (EFD20)	POE600F-50L (EFD20)	POE600F-12L (EFD20)	POE600F-24L (EFD20)	
71W (Flyback)	POE71F-33E (EFD20)	POE71F-50E (EFD20)	POE71F-12E (EFD20)	POE71F-24E (EFD20)	POE71F-48E (EFD20)
71W (Forward)*		POE70PR-50E (EPQ13)	POE72PR-12E (EPQ13)		
120W (Active Clamp Forward)	POE120PL-33L	POE120PL-50L	POE120PL-12L	POE120PL-24L	

### IEEE 802.3at (PoE+)

PD Input power	$V_{out}$				
	3.3V	5V	12V	19.5V	24V
25W (Flyback)*	POE21PR-33E POE23PR-33E (EPQ13)	POE22PR-50E POE30PR-50E (EPQ13)	POE24PR-12E (EPQ13)		
25W (Forward)	FCT1-33M22SL (EP13)	FCT1-50M22SL (EP13)	FCT1-120M22SL (EP13)		
30W (Flyback)	POE300F-33L (EFD20)	POE300F-50L (EFD20)	POE300F-12L (EFD20)	POE300F-19L (EFD20)	POE300F-24L (EFD20)
30W (Forward)	FCT1-33D3SL (EFD20)	FCT1-50D3SL (EFD20)	FCT1-120D3SL (EFD20)	FCT1-195D3SL (EFD20)	FCT1-240D3SL (EFD20)

\* Note: parts can be configured as one high-power output or two lower-power outputs.

# Power over Ethernet PD Power Converter Transformers



## Off-the-shelf PoE Solutions from Coilcraft (continued)

### IEEE 802.3af (PoE)

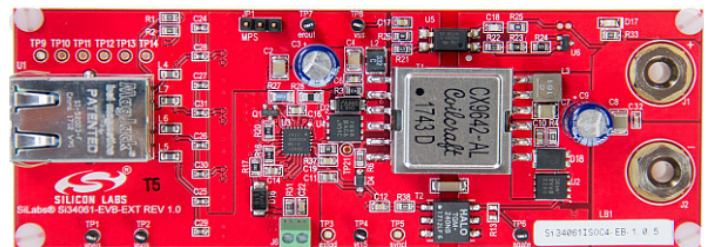
PD Input power	$V_{out}$				
	3.3V	5V	12V	19.5V	24V
3W (Flyback)	POE30P-33L	POE30P-50L	POE30P-12L		
6W (Flyback)	POE60F/C/D-33L	POE60F/C/D-50L	POE60F/C/D-12L		
7W (Flyback)	POE70P-33L	POE70P-50L	POE70P-12L		
13W (Flyback)	POE13P-33L	POE13P-50L	POE13P-12L	POE13P-19L	POE13P-24L
13W (Flyback)	POE13F-33L	POE13F-50L	POE13F-12L	POE13F-19L	POE13F-24L

## Solutions for Silicon Labs 30W PoE+ applications

This Coilcraft off-the-shelf PoE Power transformer works with the Si34061 isolated Flyback PD evaluation board from Silicon Labs:

- Designed for IEEE 802.3at 25.5W PD Input power level (Class 4)
- Input voltage 36 - 57V
- Aux winding is available for the auxiliary source power operation
- 1500 Vrms 1 minute isolation from primary and auxiliary to secondary
- Low profile EFD20 packages (11.43 mm max)

<b>Output: 5V / 6A</b>
CX9642-AL



Silicon Labs Si3402/Si3406 10W PoE PD interface

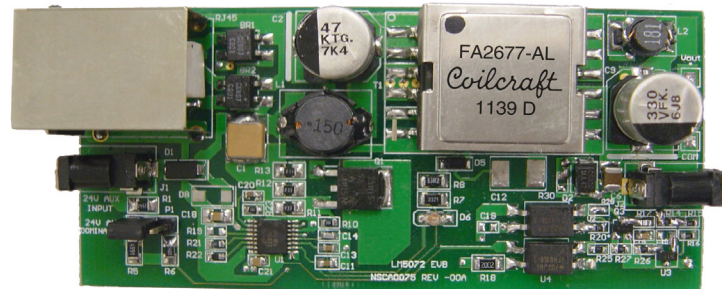
# Power over Ethernet PD Power Converter Transformers



## Solutions for Texas Instruments 25W PoE+ applications

Coilcraft off-the-shelf PoE power transformers work with TI's LM5072 25W PoE+ PD interface and PWM controller.

- Designed for 25W Flyback power converters compatible with the IEEE 802.3at standard
- Input voltage 18 - 57V
- Five different output voltages to easily modify the outputs for a variety of powered device applications
- Aux winding is available for the auxiliary source power operation
- 1500 Vrms 1 minute isolation from primary and auxiliary to secondary
- Low profile EFD20 packages (11.43 mm max)



Texas Instruments LM5072 25W PoE+ PD interface and PWM controller

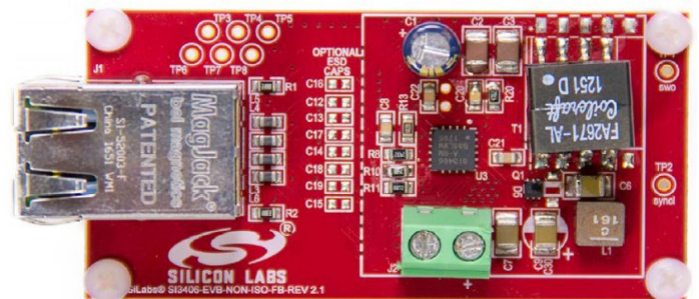
$V_{out}$				
3.3V	5V	9V	12V	15V
FA2677-AL	FA2898-AL	FA2899-AL	FA2900-AL	FA2901-AL

## Solutions for Silicon Labs 10W PoE applications

The following Coilcraft PoE power transformers work with Silicon Labs Si3402/Si3406 10W PoE powered device interface.

- Designed for IEEE 802.3af-compliant PoE Flyback convertor applications
- Input voltage 36 - 72V
- Three different output voltages to easily modify the outputs for a variety of powered device applications
- 1500 Vrms 1 minute isolation from primary to secondary
- Optimized in the small EP10 packages (15.24 x 12.7 x 11 mm)

$V_{out}$		
3.3V	5V	12V
FA2671-AL	FA2672-AL	FA2732-CL



Silicon Labs Si3402/Si3406 10W PoE PD interface