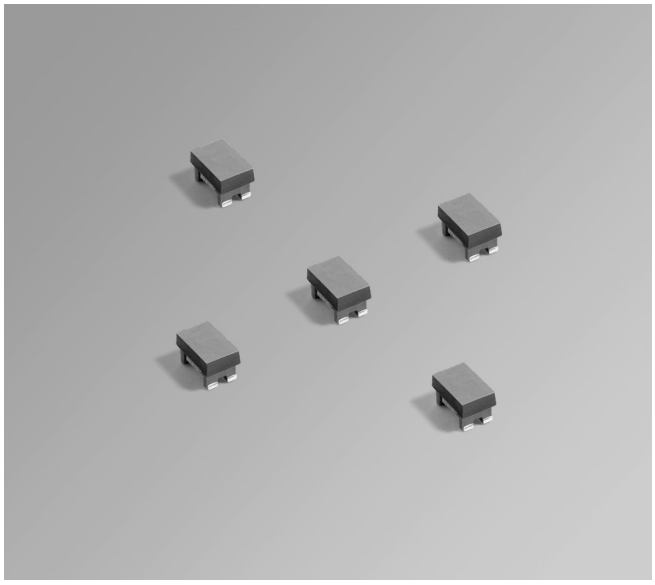
Coupled Chip Inductors PFD2015

For Flyback, SEPIC, Zeta and other applications

RoHS/ REACH COMPLIANT

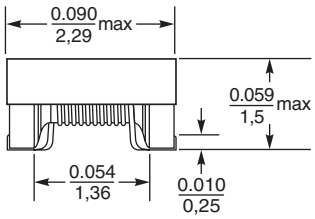
Halogen Free

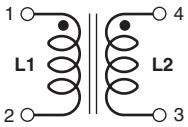


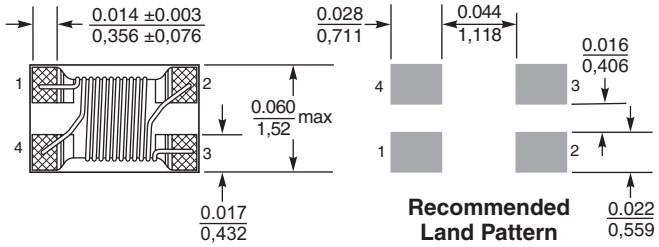
With a footprint of 2.2 × 1.45 mm, the PFD2015 is Coilcraft's smallest shielded coupled inductor. It is ideal for use in a variety of circuits including flyback, multi-output buck, SEPIC and Zeta.

These inductors provide high efficiency and excellent current handling for parts this small.

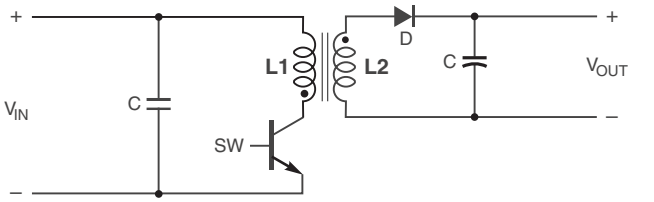
They can also be used as two single inductors connected in series or parallel, as common mode chokes or as wideband transformers.



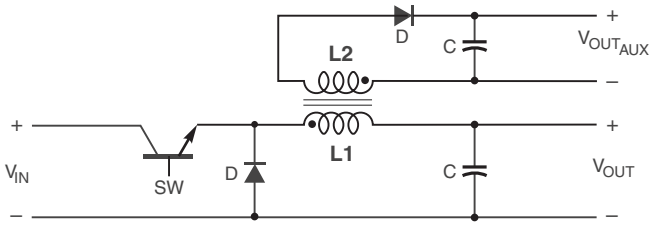




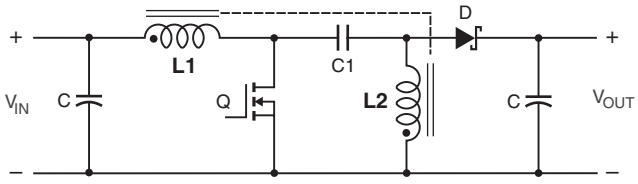
Dimensions are in inches / mm



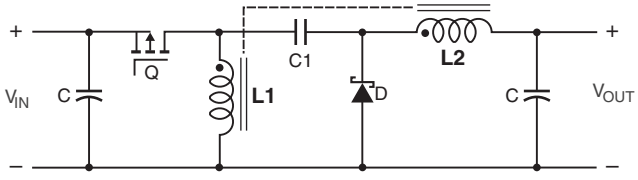
Typical Flyback Converter



Typical Buck Converter with auxiliary output



Typical SEPIC schematic



Typical Zeta schematic

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PFD2015 Coupled Inductors for SEPIC applications

Part number[1]	Inductance[2] ±20% (µH)	DCR max[3] (Ohms)	SRF typ[4] (MHz)	Coupling coefficient typ	Leakage inductance[5] typ (µH)	Isat (A)[6] 10% drop	Isat (A)[6] 20% drop	Isat (A)[6] 30% drop	Irms (A) both windings[7]	Irms (A) one winding[8]
PFD2015-102ME_	1.0	0.165	380	0.97	0.065	0.85	1.10	1.30	0.800	1.13
PFD2015-122ME_	1.2	0.175	310	0.97	0.071	0.80	1.05	1.20	0.750	1.06
PFD2015-182ME_	1.8	0.294	265	0.97	0.110	0.70	0.85	1.00	0.490	0.690
PFD2015-272ME_	2.7	0.477	220	0.97	0.162	0.65	0.82	0.88	0.410	0.580
PFD2015-332ME_	3.3	0.670	180	0.97	0.200	0.57	0.71	0.77	0.370	0.525
PFD2015-472ME_	4.7	1.00	160	0.97	0.285	0.44	0.55	0.60	0.260	0.370
PFD2015-682ME_	6.8	1.75	130	0.97	0.415	0.37	0.42	0.47	0.187	0.265
PFD2015-822ME_	8.2	2.50	125	0.97	0.500	0.35	0.38	0.42	0.150	0.210
PFD2015-103ME_	10	3.40	110	0.97	0.590	0.30	0.34	0.37	0.130	0.185

1. When ordering, please specify **termination** and **packaging** codes:

PFD2015-103MEC

Termination: E = RoHS compliant silver-palladium-platinum-glass frit. **Special order: R** = RoHS compliant matte tin over nickel over silver-platinum-glass frit.

Packaging: C = 7″ machine-ready reel. EIA-481 embossed plastic tape (2000 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer ($25 charge).

D = 13″ machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (7500 parts per full reel).

B = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from B to C.

2. Inductance shown for each winding, measured at 100 kHz, 0.1 Vrms, 0 Adc on an Agilent/HP 4284A LCR meter or equivalent. When leads are connected in parallel, inductance is the same value. When leads are connected in series, inductance is four times the value.
3. DCR is for each winding. When leads are connected in parallel, DCR is half the value. When leads are connected in series, DCR is twice the value.
4. SRF measured using an Agilent/HP8753 or equivalent. When leads are connected in parallel, SRF is the same value.
5. Leakage inductance is for the primary winding with the secondary windings shorted.
6. DC current, at which the inductance drops the specified amount from its value without current. It is the sum of the current flowing in both windings.
7. Equal current when applied to each winding simultaneously that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.
8. Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient. See estimated temperature rise calculation.
9. Electrical specifications at 25°C.

Refer to Doc 639 “Selecting Coupled Inductors for SEPIC Applications.”
Refer to Doc 362 “Soldering Surface Mount Components” before soldering.

Coupled Inductor Core and Winding Loss Calculator

This web-based utility allows you to enter frequency, peak-to-peak (ripple) current, and Irms current to predict temperature rise and overall losses, including core loss. Go to online calculator.

PFD2015 Coupled Inductors for Flyback applications

Part number[1]	Inductance at 0 A[2] ±20% (µH)	Inductance at Ipk A[3] ±20% (µH)	DCR max (Ohms)	Leakage inductance[4] typ (µH)	Turns ratio	Ipk[3] (A)
PFD2015-102ME_	1.0	0.70	0.165	0.065	1 : 1	1.30
PFD2015-122ME_	1.2	0.84	0.175	0.071	1 : 1	1.20
PFD2015-182ME_	1.8	1.26	0.294	0.110	1 : 1	1.00
PFD2015-272ME_	2.7	1.89	0.477	0.162	1 : 1	0.88
PFD2015-332ME_	3.3	2.37	0.670	0.200	1 : 1	0.77
PFD2015-472ME_	4.7	3.29	1.00	0.285	1 : 1	0.60
PFD2015-682ME_	6.8	1.76	1.75	0.415	1 : 1	0.47
PFD2015-822ME_	8.2	5.74	2.50	0.500	1 : 1	0.42
PFD2015-103ME_	10	7.00	3.40	0.590	1 : 1	0.37

1. When ordering, please specify **termination** and **packaging** codes:

PFD2015-103MEC

Termination: E = RoHS compliant silver-palladium-platinum-glass frit. **Special order: R** = RoHS compliant matte tin over nickel over silver-platinum-glass frit.

Packaging: C = 7″ machine-ready reel. EIA-481 embossed plastic tape (2000 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer ($25 charge).

D = 13″ machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (7500 parts per full reel).

B = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from B to C.

2. Inductance is for the primary, measured at 100 kHz, 0.1 Vrms, 0 Adc on an Agilent/HP 4284A LCR meter or equivalent.
3. Peak primary current drawn at minimum input voltage.
4. Leakage inductance is for the primary winding with the secondary windings shorted.
5. Electrical specifications at 25°C.

Refer to Doc 362 “Soldering Surface Mount Components” before soldering.

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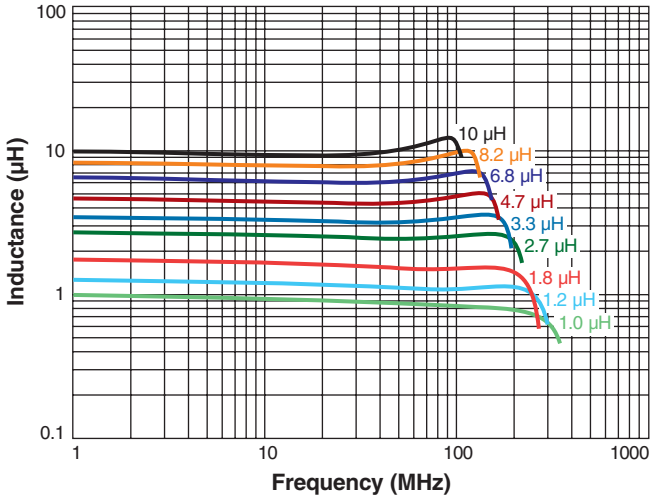
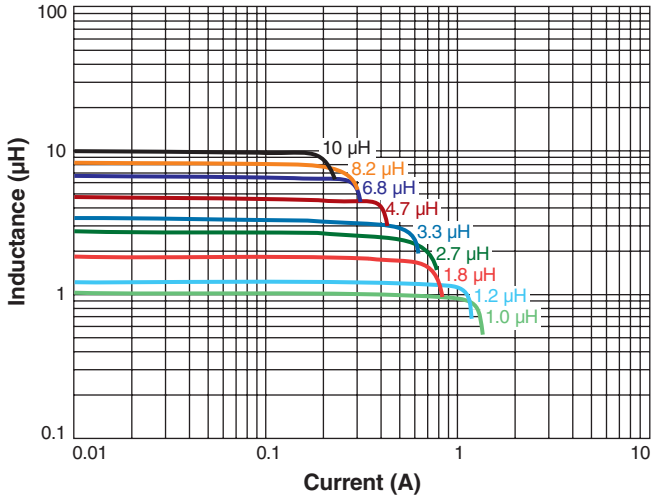
PFD2015 Coupled Inductors for Flyback, SEPIC and other applications

L vs Frequency



L vs Current



Core material Ferrite
Core and winding loss Go to online calculator
Environmental RoHS compliant, halogen free
Weight 13 – 23 mg
Terminations RoHS compliant silver-palladium-platinum-glass frit.
Ambient temperature –40°C to +85°C with Irms current
Maximum part temperature +125°C (ambient + temp rise)
Storage temperature Component: –40°C to +125°C.
Tape and reel packaging: –40°C to +80°C
Winding to winding isolation 250 Vrms, one minute
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)
Packaging 2000/7″ reel; 7500/13″ reel Plastic tape: 8 mm wide, 0.23 mm thick, 4 mm pocket spacing, 1.63 mm pocket depth
PCB washing Tested with pure water or alcohol only. For other solvents, see Doc787_PCB_Washing.pdf.

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