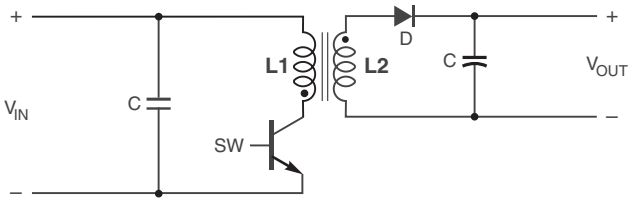
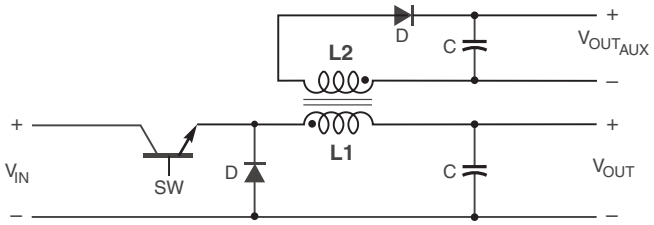
High-Reliability Coupled Inductors ML416PJD

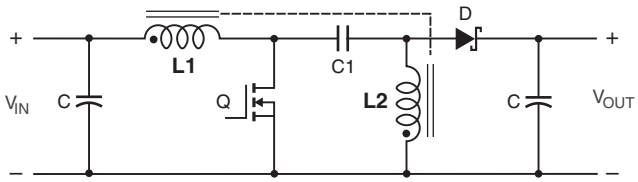
- Only 1.1 mm high and 4 mm square
- Ideal for use in flyback, multi-output buck and SEPIC applications.
- High inductance, high efficiency and excellent current handling
- Can also be used as two single inductors connected in series or parallel or as a common mode choke.

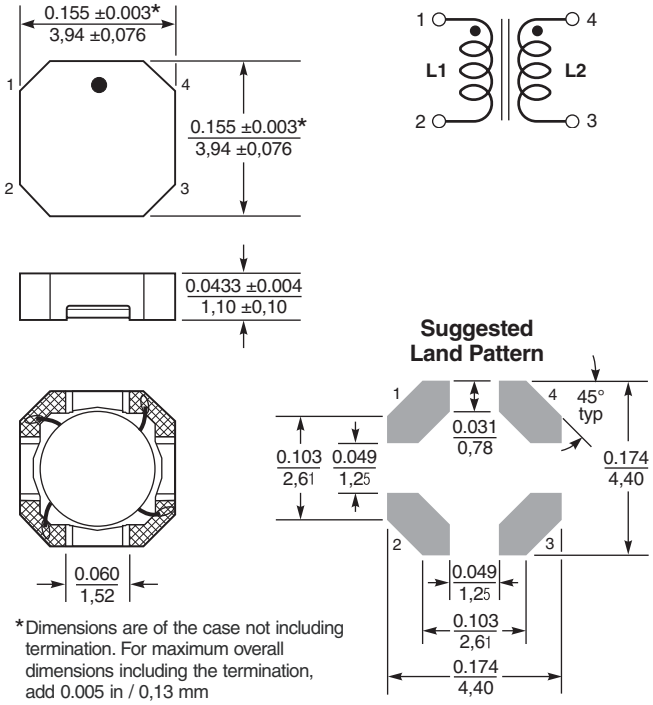


Typical Flyback Converter



Typical Buck Converter with auxiliary output





*Dimensions are of the case not including termination. For maximum overall dimensions including the termination, add 0.005 in / 0,13 mm

Dimensions are in inches / mm

Core material Ferrite

Core and winding loss Go to online calculator

Weight 60 – 81 mg

Terminations Silver-palladium-platinum-glass frit.

Ambient temperature –55°C to +105°C with Irms current

Maximum part temperature +155°C (ambient + temp rise)

Storage temperature Component: –55°C to +155°C. Tape and reel packaging: –55°C to +80°C

Winding to winding isolation 100 V

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)

Enhanced crush-resistant packaging 1000/7″ reel
Plastic tape: 12 mm wide, 0.25 mm thick, 8 mm pocket spacing, 1.32 mm pocket depth
Recommended pick and place nozzle OD: 4 mm; ID: ≤2 mm

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Document ML580-1 Revised 05/22/17

ML416PJD Series (4012)

Part number[1]	Inductance[2] (µH)	DCR max[3] (Ohms)	SRF typ[4] (MHz)	Coupling coefficient typ	Leakage L typ[5] (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]
ML416PJD331NLZ	0.33 ±30%	0.042	255	0.94	0.06	5.2	5.4	5.6	2.13	3.01
ML416PJD561NLZ	0.56 ±30%	0.087	185	0.95	0.08	3.7	3.8	3.9	1.48	2.09
ML416PJD821NLZ	0.82 ±30%	0.100	130	0.97	0.09	3.2	3.3	3.4	1.38	1.95
ML416PJD152NLZ	1.5 ±30%	0.185	86	0.97	0.11	2.50	2.81	2.91	1.01	1.43
ML416PJD222NLZ	2.2 ±30%	0.235	70	0.98	0.14	2.30	2.40	2.50	0.90	1.27
ML416PJD332NLZ	3.3 ±30%	0.320	48	0.98	0.16	1.80	1.90	2.00	0.77	1.09
ML416PJD472MLZ	4.7 ±20%	0.500	39	0.98	0.18	1.60	1.70	1.80	0.62	0.87
ML416PJD562MLZ	5.6 ±20%	0.620	32	0.99	0.20	1.50	1.60	1.60	0.55	0.78
ML416PJD682MLZ	6.8 ±20%	0.530	31	0.99	0.22	1.20	1.52	1.63	0.60	0.85
ML416PJD822MLZ	8.2 ±20%	0.600	29	0.99	0.24	1.10	1.20	1.30	0.56	0.80
ML416PJD103MLZ	10 ±20%	0.750	25	0.99	0.26	0.98	1.00	1.10	0.50	0.71
ML416PJD153MLZ	15 ±20%	1.13	21	0.99	0.30	0.90	0.92	0.94	0.41	0.58
ML416PJD223MLZ	22 ±20%	1.63	15	0.99	0.34	0.70	0.82	0.84	0.34	0.48
ML416PJD333MLZ	33 ±20%	1.83	12	>0.99	0.41	0.37	0.57	0.58	0.32	0.46
ML416PJD473MLZ	47 ±20%	2.52	8.8	>0.99	0.51	0.33	0.39	0.40	0.27	0.39
ML416PJD683MLZ	68 ±20%	3.23	7.8	>0.99	0.66	0.27	0.36	0.37	0.24	0.34
ML416PJD823MLZ	82 ±20%	3.66	7.3	>0.99	0.75	0.27	0.27	0.29	0.23	0.32
ML416PJD104MLZ	100 ±20%	4.75	6.1	>0.99	0.86	0.22	0.28	0.29	0.20	0.28
ML416PJD124MLZ	120 ±20%	5.54	5.3	>0.99	0.98	0.21	0.26	0.27	0.19	0.26
ML416PJD154MLZ	150 ±20%	6.90	4.6	>0.99	1.19	0.18	0.26	0.27	0.17	0.23
ML416PJD184MLZ	180 ±20%	8.75	4.1	>0.99	1.40	0.16	0.21	0.23	0.15	0.21
ML416PJD224MLZ	220 ±20%	11.24	3.3	>0.99	1.66	0.15	0.16	0.17	0.13	0.18
ML416PJD334MLZ	330 ±20%	17.00	2.8	>0.99	2.45	0.13	0.16	0.16	0.11	0.15

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

   ML416PJD334MLZ

   Termination: **L** = Silver-palladium-platinum-glass frit.
   R = Matte tin over nickel over silver.

   Testing: **Z** = Unscreened
   H = Group A screening per Coilcraft CP-SA-10001
   T = Screening per MIL-STD-981
   U = Screening per EEE-INST-002
   F = Screening per ESCC 3201
   All screening performed to the document's latest revision
   Custom screening also available

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/HP 4191A or equivalent. When leads are connected in parallel, SRF is the same value.
5. Leakage Inductance is for L1 and is measured with L2 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. Calculate temperature rise.
8. Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings. Calculate temperature rise.
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.

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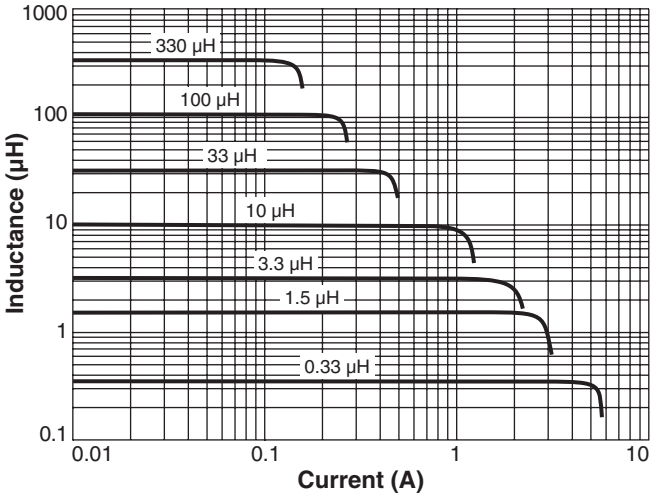
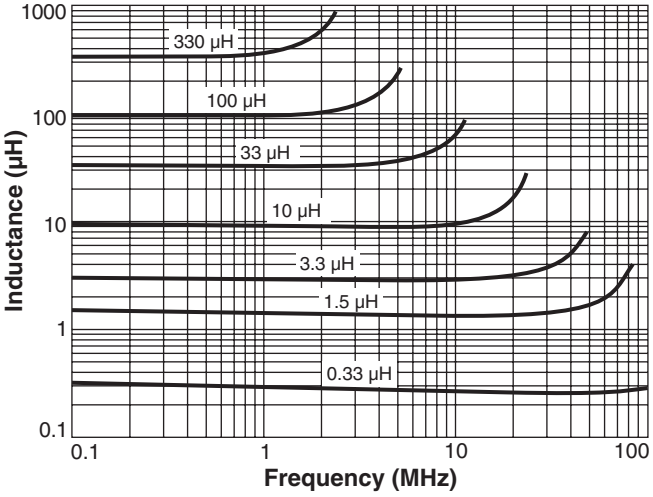
Document ML580-2 Revised 05/22/17

ML416PJD Series (4012)

Typical L vs Current



Typical L vs Frequency



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