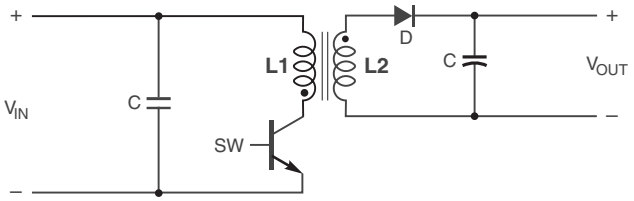
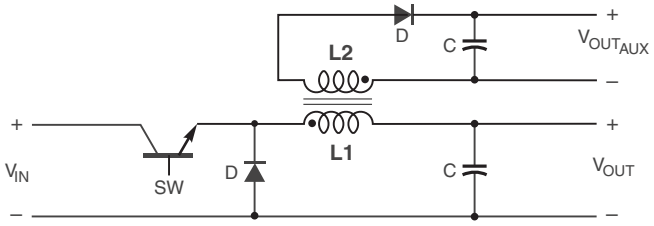
Coupled Inductors for Critical Applications

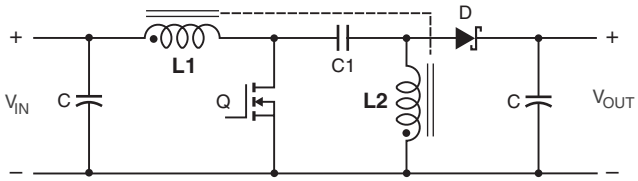
- Only 3.5 mm high and 6 mm square
- Tight coupling (k ≥ 0.97) makes the MS512PJD series of coupled inductors ideal for use in flyback, multi-output buck and SEPIC applications.
- Tin-lead (Sn-Pb) termination offers the best possible board adhesion.
- High inductance, high efficiency and excellent current handling
- Can also be used as two single inductors connected in series or parallel or as a common mode choke.



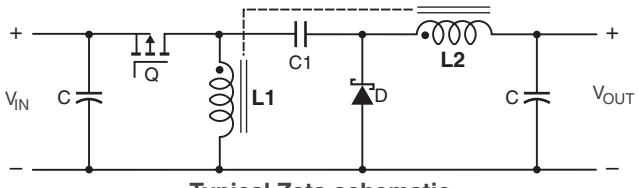
Typical Flyback Converter



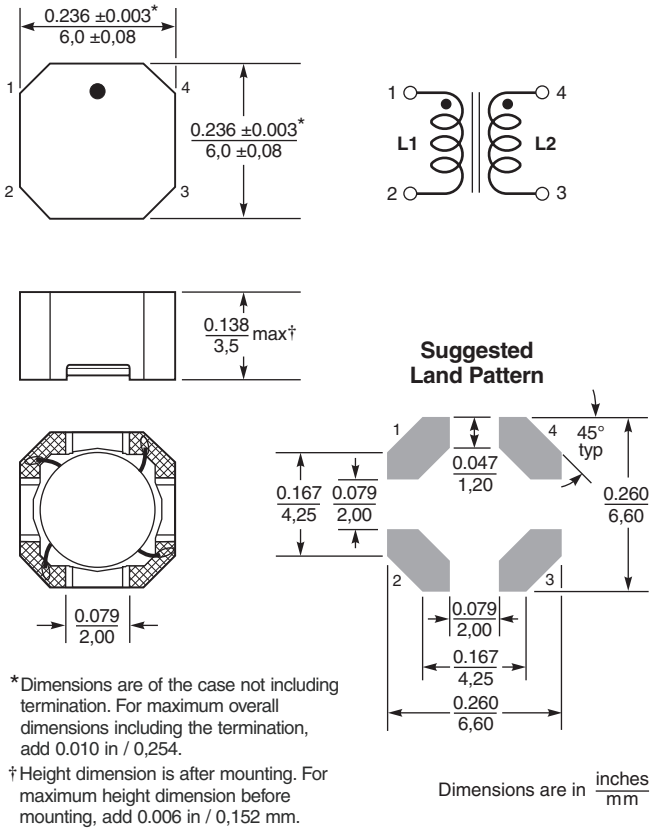
Typical Buck Converter with auxiliary output



Typical SEPIC schematic



Typical Zeta schematic



*Dimensions are of the case not including termination. For maximum overall dimensions including the termination, add 0.010 in / 0,254.

†Height dimension is after mounting. For maximum height dimension before mounting, add 0.006 in / 0,152 mm.

Dimensions are in inches / mm

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MS512PJD Series Coupled Inductors

Part number[1]	Inductance[2] ±20% (µH)	DCR max[3] (Ohms)	SRF typ[4] (MHz)	Coupling coefficient typ	Leakage[5] L 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]
MS512PJD682MSZ	6.8	0.120	31	0.99	0.10	2.80	3.00	3.12	1.40	1.98
MS512PJD103MSZ	10	0.157	26	0.99	0.12	2.50	2.70	2.80	1.30	1.83
MS512PJD223MSZ	22	0.300	15	>0.99	0.15	1.50	1.67	1.73	0.85	1.20
MS512PJD473MSZ	47	0.620	9.7	>0.99	0.21	0.90	0.98	0.99	0.60	0.85
MS512PJD104MSZ	100	1.20	7.0	>0.99	0.45	0.46	0.50	0.51	0.40	0.57
MS512PJD474MSZ	470	3.50	3.0	>0.99	0.61	0.18	0.22	0.23	0.25	0.35
MS512PJD105MSZ	1000	7.00	1.9	>0.99	1.05	0.12	0.14	0.15	0.15	0.21
MS512PJD155MSZ	1500	10.8	1.5	>0.99	1.70	0.10	0.12	0.13	0.14	0.20
MS512PJD205MSZ	2000	16.0	1.3	>0.99	2.10	0.08	0.11	0.12	0.11	0.16

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

   MS512PJD105MSZ

   Termination: **S** =Non-RoHS tin-lead (63/37)
   R = Matte tin over nickel over silver
   Screening: **Z** = Unscreened
   H = Group A screening per Coilcraft CP-SA-10001
   G = Coilcraft CP-SA-10001 Group A (SLDC Option A)
   D = Coilcraft CP-SA-10001 Group A (SLDC Option B)
   N = Group A screening per Coilcraft CP-SA-10004
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.
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.

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.

Core material Ferrite

Weight 400 – 480 mg

Terminations Tin-lead (63/37) over tin over nickel.

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

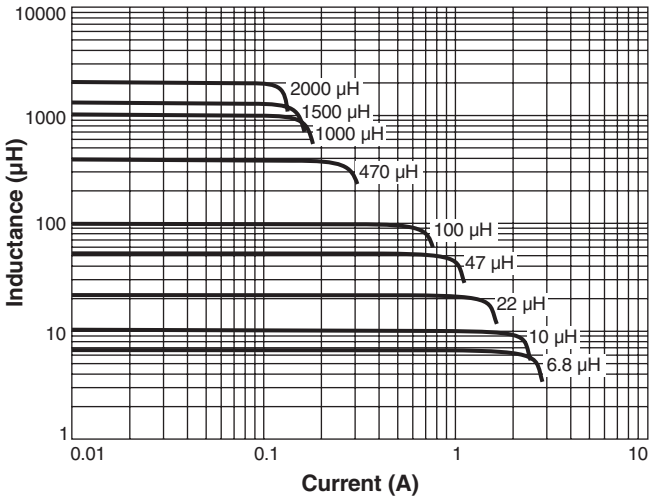
Resistance to soldering heat Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

Moisture Sensitivity Level (MSL) 1 (unlimited floor life at <30°C / 85% relative humidity)

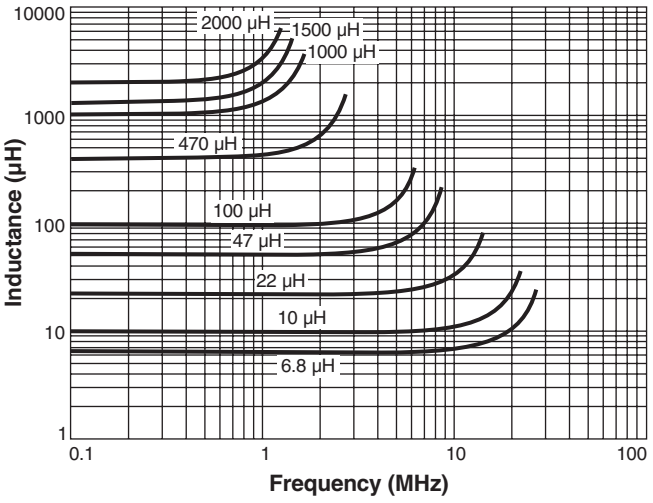
Packaging 750 per 7″ reel Plastic tape: 12 mm wide, 0.32 mm thick, 8 mm pocket spacing, 3.1 mm pocket depth

Recommended pick and place nozzle OD: 5 mm; ID: ≤ 2.5 mm

L vs Current



L vs Frequency



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