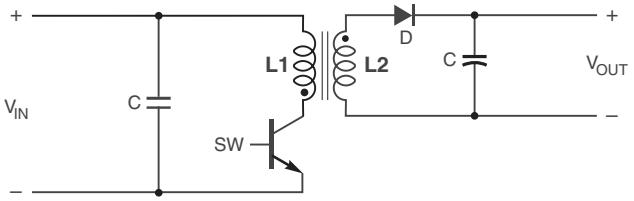
RoHS COMPLIANT

Halogen Free

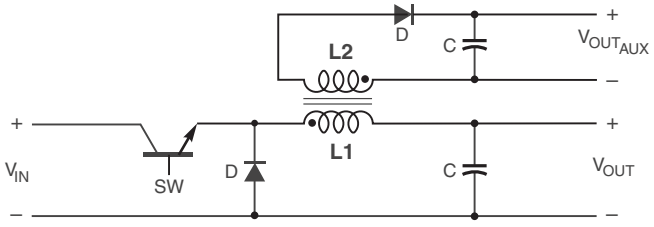
Coupled Inductors MSD1048

For Flyback, SEPIC, Zeta and other Applications

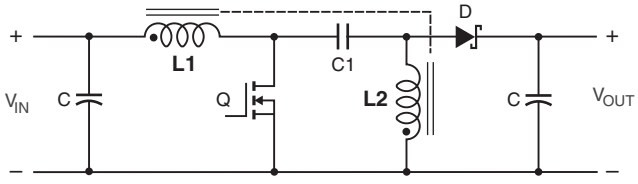
- Tight coupling (k ≥ 0.97)
- 200 V isolation
- Ideal for use in a variety of circuits including flyback, multi-output buck, SEPIC, Ćuk and Zeta.
- High efficiency and excellent current handling
- Can also be used as two single inductors connected in series or parallel, as a common mode choke or as a 1 : 1 transformer.



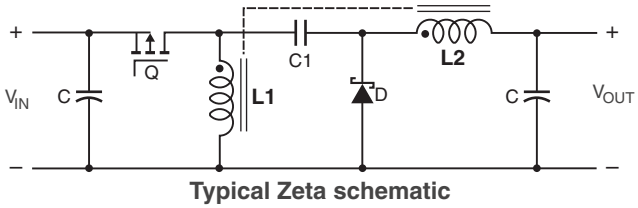
Typical Flyback Converter



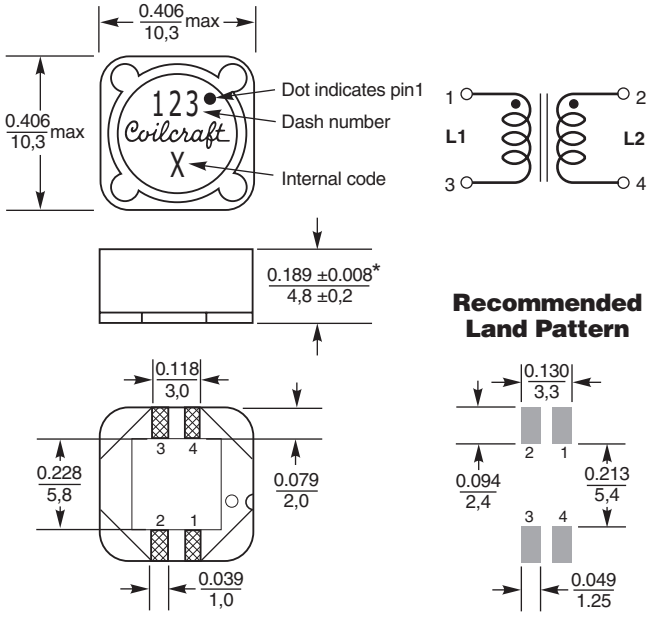
Typical Buck Converter with auxiliary output



Typical SEPIC schematic



Typical Zeta schematic



* For optional tin-lead and tin-silver-copper terminations, dimensions are for the mounted part. Dimensions before mounting can be an additional 0.012 inch (0,3 mm).

Dimensions are in inches / mm

Coilcraft
www.coilcraft.com

US +1-847-639-6400 sales@coilcraft.com
UK +44-1236-730595 sales@coilcraft-europe.com
Taiwan +886-2-2264 3646 sales@coilcraft.com.tw
China +86-21-6218 8074 sales@coilcraft.com.cn
Singapore + 65-6484 8412 sales@coilcraft.com.sg

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Coupled Inductors – MSD1048 Series

Part number[1]	Inductance[2] (µH)	DCR max[3] (Ohms)	SRF typ[4] (MHz)	Coupling coefficient typ	Leakage Inductance[5] typ (µH)	Isat[6] (A)	Irms (A) both windings[7]	Irms (A) one winding[8]
MSD1048-222NE_	2.2 ±30%	0.019	65	0.97	0.30	9.1	2.4	3.4
MSD1048-103ME_	10 ±20%	0.053	27	>0.99	0.40	4.3	1.5	2.1
MSD1048-223ME_	22 ±20%	0.098	17	>0.99	0.45	2.9	1.3	1.9
MSD1048-473ME_	47 ±20%	0.208	12	>0.99	0.50	2.0	1.1	1.6
MSD1048-683ME_	68 ±20%	0.297	9.0	>0.99	0.55	1.7	1.0	1.4
MSD1048-104ME_	100 ±20%	0.387	7.3	>0.99	0.80	1.3	0.85	1.2
MSD1048-224KE_	220 ±10%	0.840	4.8	>0.99	1.0	0.90	0.62	0.87

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

   MSD1048-224KED

   Termination: **E** = RoHS compliant matte tin over nickel over phos bronze. Special order: **Q** = RoHS tin-silver-copper (95.5/4/0.5) or **P** = non-RoHS tin-lead (63/37).

   Packaging: **D** = 13″ machine-ready reel. EIA-481 embossed plastic tape. (800 parts per full reel).
   B = Less than full reel. In tape, but not machine ready. To have a leader and trailer added ($25 charge), use code letter D instead.
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 25°C that causes a 30% (typ) inductance drop 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. This information is for reference only and does not represent absolute maximum ratings. To predict temperature rise go to online calculator.
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. To predict temperature rise go to online calculator.
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.

Core material Ferrite

Core and winding loss Go to online calculator

Terminations RoHS compliant matte tin over nickel over phos bronze. Other terminations available at additional cost.

Weight: 1.5– 1.8 g

Ambient temperature –40°C to +85°C with (40°C rise) 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 and winding-to-core isolation 200 Vrms

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)

Failures in Time (FIT) / Mean Time Between Failures (MTBF) 38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332

Packaging 800/13″ reel Plastic tape: 24 mm wide, 0.35 mm thick, 16 mm pocket spacing, 5.1 mm pocket depth

PCB washing Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

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Taiwan +886-2-2264 3646 sales@coilcraft.com.tw
China +86-21-6218 8074 sales@coilcraft.com.cn
Singapore + 65-6484 8412 sales@coilcraft.com.sg

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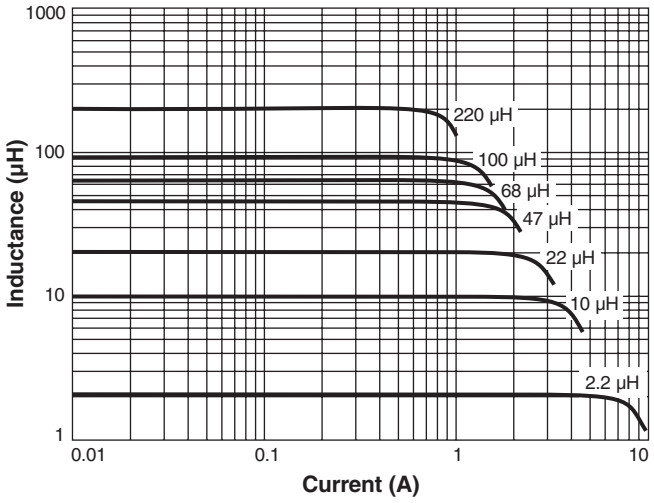
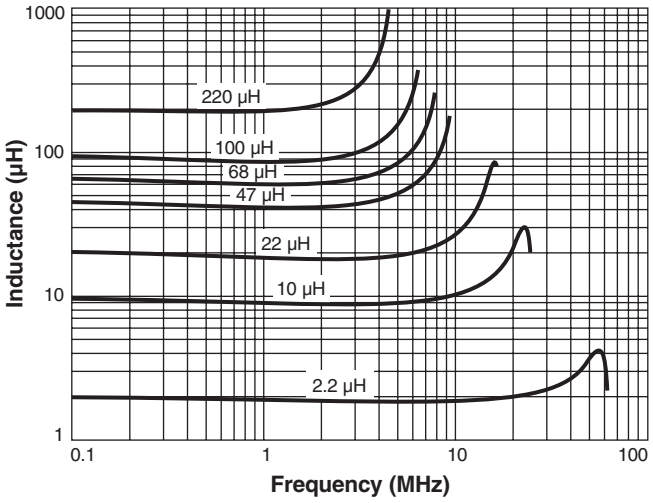
Coupled Inductors – MSD1048 Series

L vs Current



L vs Frequency



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UK +44-1236-730595 sales@coilcraft-europe.com
Taiwan +886-2-2264 3646 sales@coilcraft.com.tw
China +86-21-6218 8074 sales@coilcraft.com.cn
Singapore + 65-6484 8412 sales@coilcraft.com.sg

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