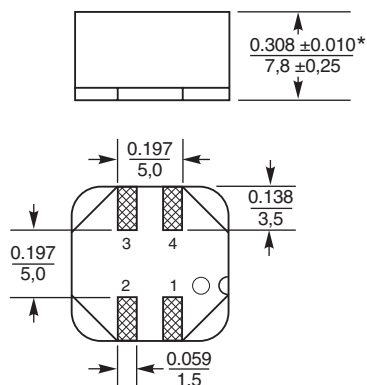
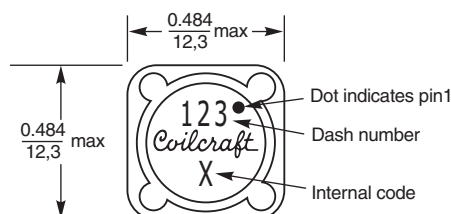




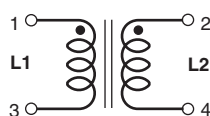
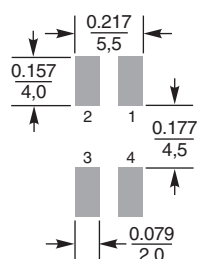
Coupled Inductors MSD1278T

For high temperature applications



* 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).

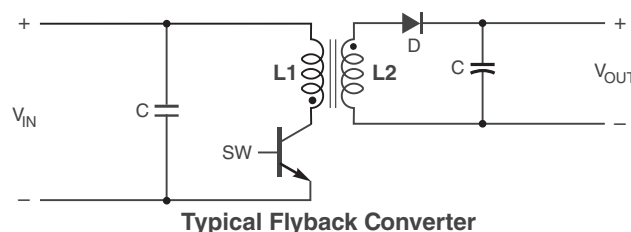
Recommended Land Pattern



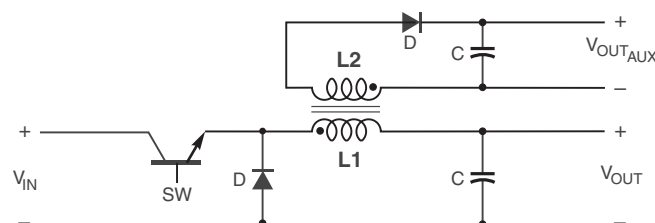
The MSD1278T series of shielded coupled inductors was designed specifically for high temperature applications – up to 125°C ambient.

Tight coupling ($k \geq 0.98$) and 500 V isolation make them ideal for use in a variety of circuits including flyback, multi-output buck, SEPIC and Zeta. These parts provide high inductance, high efficiency and excellent current handling.

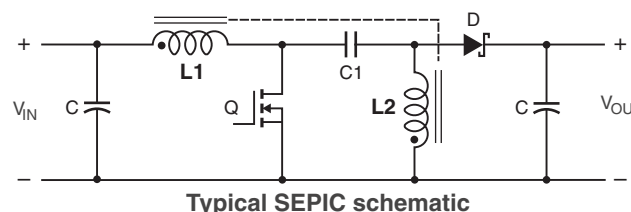
They can also be used as two single inductors connected in series or parallel or as a common mode choke.



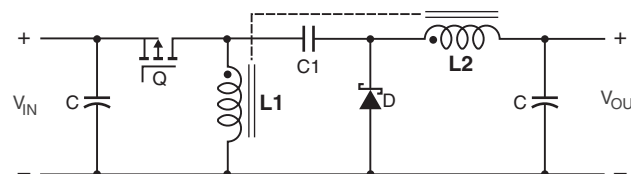
Typical Flyback Converter



Typical Buck Converter with auxiliary output



Typical SEPIC schematic



Typical Zeta schematic

Dimensions are in $\frac{\text{inches}}{\text{mm}}$



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High Temperature Coupled Inductors – MSD1278T

Part number ¹	Inductance ² (μ H)	DCR max ³ (Ohms)	SRF typ ⁴ (MHz)	Coupling coefficient typ	Leakage L typ ⁵ (μ H)	Isat (A) ⁶			Irms (A)	
						10% drop	20% drop	30% drop	both windings ⁷	one winding ⁸
MSD1278T-472ML	4.7 $\pm$ 20%	0.040	33.0	0.98	0.22	13.90	15.20	16.36	3.16	4.47
MSD1278T-562ML	5.6 $\pm$ 20%	0.046	30.0	0.98	0.23	13.38	14.86	15.74	2.87	4.06
MSD1278T-682ML	6.8 $\pm$ 20%	0.048	23.0	0.98	0.22	12.10	13.56	14.20	2.81	3.98
MSD1278T-822ML	8.2 $\pm$ 20%	0.055	20.0	0.98	0.34	10.30	11.52	12.20	2.76	3.90
MSD1278T-103ML	10 $\pm$ 20%	0.058	17.0	0.98	0.34	8.80	10.00	10.66	2.56	3.62
MSD1278T-123ML	12 $\pm$ 20%	0.062	15.0	0.98	0.36	8.20	9.18	9.74	2.48	3.50
MSD1278T-153ML	15 $\pm$ 20%	0.072	13.0	0.99	0.41	7.40	8.36	9.03	2.30	3.25
MSD1278T-183ML	18 $\pm$ 20%	0.080	12.0	0.99	0.37	6.50	7.38	7.86	2.18	3.08
MSD1278T-223ML	22 $\pm$ 20%	0.096	11.0	0.99	0.41	6.00	6.80	7.26	1.99	2.81
MSD1278T-273ML	27 $\pm$ 20%	0.120	10.0	0.99	0.43	5.80	6.56	7.02	1.78	2.52
MSD1278T-333ML	33 $\pm$ 20%	0.150	9.5	0.99	0.56	5.50	6.10	6.52	1.59	2.25
MSD1278T-393ML	39 $\pm$ 20%	0.161	8.5	0.99	0.64	4.70	5.26	5.60	1.54	2.18
MSD1278T-473ML	47 $\pm$ 20%	0.180	7.5	0.99	0.70	3.70	4.34	4.60	1.45	2.05
MSD1278T-563ML	56 $\pm$ 20%	0.190	7.0	0.99	0.76	3.60	4.18	4.50	1.41	2.00
MSD1278T-683ML	68 $\pm$ 20%	0.210	6.5	0.99	0.88	3.50	4.04	4.32	1.35	1.90
MSD1278T-823ML	82 $\pm$ 20%	0.280	5.0	0.99	0.85	3.30	3.72	4.02	1.16	1.65
MSD1278T-104ML	100 $\pm$ 20%	0.300	4.5	>0.99	0.90	2.80	3.24	3.46	1.13	1.59
MSD1278T-124KL	120 $\pm$ 10%	0.410	4.3	0.99	1.31	2.60	2.94	3.16	0.96	1.36
MSD1278T-154KL	150 $\pm$ 10%	0.460	4.1	>0.99	1.46	2.20	2.54	2.70	0.91	1.29
MSD1278T-184KL	180 $\pm$ 10%	0.510	4.0	>0.99	0.93	2.10	2.42	2.58	0.86	1.22
MSD1278T-224KL	220 $\pm$ 10%	0.690	3.4	>0.99	1.54	1.90	2.16	2.28	0.74	1.05
MSD1278T-274KL	270 $\pm$ 10%	0.900	3.1	>0.99	1.17	1.70	1.94	2.10	0.65	0.92
MSD1278T-334KL	330 $\pm$ 10%	1.02	2.9	0.99	4.14	1.50	1.70	1.84	0.61	0.86
MSD1278T-394KL	390 $\pm$ 10%	1.12	2.7	>0.99	1.64	1.40	1.60	1.70	0.58	0.82
MSD1278T-474KL	470 $\pm$ 10%	1.53	2.2	>0.99	0.25	1.30	1.50	1.60	0.50	0.70
MSD1278T-564KL	560 $\pm$ 10%	1.69	2.0	>0.99	2.68	1.20	1.34	1.46	0.47	0.67
MSD1278T-684KL	680 $\pm$ 10%	2.29	1.7	>0.99	2.11	1.00	1.08	1.22	0.41	0.58
MSD1278T-824KL	820 $\pm$ 10%	2.55	1.4	>0.99	2.39	0.900	1.04	1.18	0.39	0.55
MSD1278T-105KL	1000 $\pm$ 10%	2.87	1.3	>0.99	4.28	0.850	0.948	1.05	0.37	0.52

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

MSD1278T-105KLD

Termination: L = RoHS compliant matte tin over nickel over phos bronze

Special order: T = RoHS tin-silver-copper (95.5/4/0.5) or S = non-RoHS tin-lead (63/37).

Packaging: D = 13" machine-ready reel. EIA-481 embossed plastic tape (500 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.

- 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.
- 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.
- SRF measured using an Agilent/HP 4191A or equivalent. When leads are connected in parallel, SRF is the same value.
- Leakage inductance is for L1 and is measured with L2 shorted.
- 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.
- Equal current when applied to each winding simultaneously that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.
- Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.
- 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: 3.7 – 4.4 g

Ambient temperature –40°C to +125°C with Irms current, +125°C to +165°C with derated current

Storage temperature Component: –40°C to +165°C.

Tape and reel packaging: –40°C to +80°C

Winding-to-winding and winding-to-core isolation 500 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 500/13" reel; Plastic tape: 24 mm wide, 0.5 mm thick, 16 mm pocket spacing, 8.7 mm pocket depth

PCB washing Tested with pure water or alcohol only. For other solvents, see [Doc787_PCB_Washing.pdf](#).



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Document 704-2 Revised 04/05/13

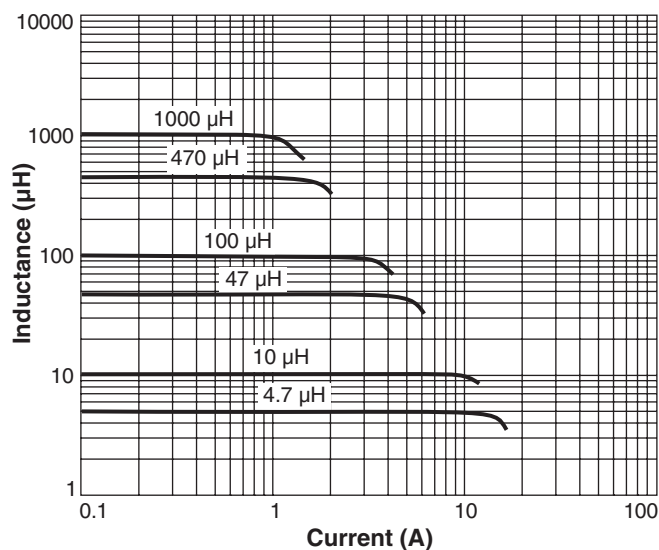
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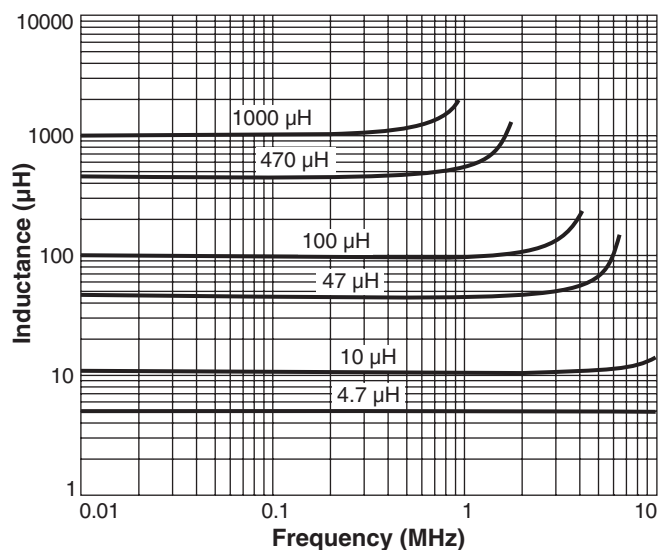


High Temperature Coupled Inductors – MSD1278T

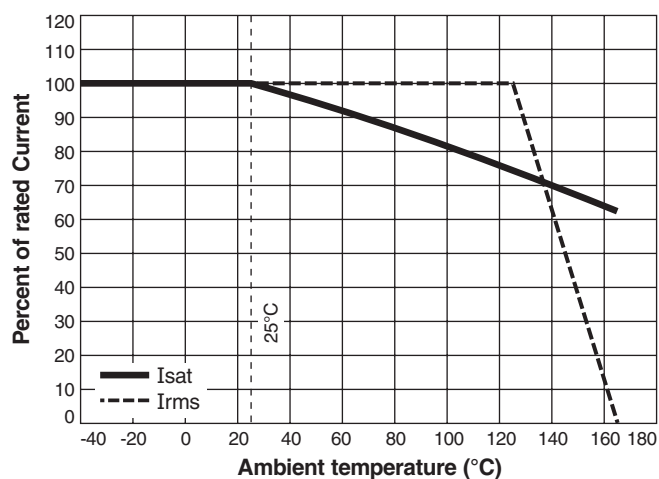
Typical L vs Current



Typical L vs Frequency



Current Derating



Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

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- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
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- Входной контроль качества.
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- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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